

# Combating Green Innovation in Italian Luxury Hotels: Combination of Social Cognitive Theory and Natural Resource-Based View

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## ABSTRACT:

**Purpose** – The objective of this investigation is to examine the correlation between green transformational leadership and organizational green innovation by employing a mediation model. Drawing upon the social cognitive theory and natural resource-based view the present study explores the role of green creativity as a mediating variable in the relationship between green transformational leadership and green innovation in the hotel industry.

**Methodology** – The research was conducted in Italian luxury hotels to assess the efficacy of our conceptual framework among workers in the hospitality industry. The study utilized a three-wave two-week time-lagged design (N = 303). In addition, the study also intends to apply PLS-SEM and fuzzy qualitative comparative analysis (fsQCA) to have distinctive discernment into model rapport.

**Results** – The results of the study indicate the linkage between green transformational leadership and green innovation. Furthermore, the study also found the partial mediation of green creativity of employees. The results show numerous combinations using fsQCA that can be utilized to increase green performance.

**Originality** – The study helps the hotel industry to maximize its performance by unravelling irregular relationships. Therefore, it contributes by explaining previously unexplored factors and elucidating causal recipes to build a higher green performance base through green transformational leadership, green creativity and green innovation. The research findings hold significant implications for comprehending the effects of green transformational leadership on organizational green innovation as well as its influence on green performance. The limitations of the study are discussed for avenues of future research.

**Keywords:** Green Transformational leadership; Green Creativity; Green Innovation; Green Performance; Social Cognitive Theory; Natural Resource-Based View

## 1. INTRODUCTION

The cumulative annual growth rate of the worldwide hospitality market exhibited a significant increase rising from \$3,952.87 billion in 2021 to \$4,502.83 billion in 2022 (Sharma,

2023). According to the forecast the Italian hospitality market is expected to experience a compound annual growth rate of 7.4%, resulting in a projected market value of \$6 billion by the year 2026. There are a total of 33,000 hotels in Italy of which 24,200 are categorized as three, four or five stars and above. On average, a five-star and above luxury hotel consumes a range of 170 to 4,401 litres of water per guest per night (Sharma, 2023). Similarly, the average hotel releases an annual carbon dioxide (CO<sub>2</sub>) emission of 160 to 200 kg per square metre of room floor area. In the current scenario, there is a growing emphasis on environmental sustainability making it imperative for hotel operators to prioritize reducing their consumption of energy, waste and water. By doing so they can not only contribute to environmental preservation but also reap financial benefits (Sharma, 2023). To uphold environmental preservation and foster social inclusivity the pursuit of sustainability has emerged as a crucial strategic objective for hospitality operations on a global scale (Moyle *et al.*, 2020).

The global significance of incorporating environmental sustainability measures such as green innovation (GI) as a fundamental business value has grown in recent years. Existing research indicates that enhancing GI strategy is crucial for achieving economic success, minimizing ecological harm, and attaining sustainable development goals (Abbas and Sağsan, 2019, Shahzad *et al.*, 2020, Wang and Juo, 2021). Scholars have proposed that hotel organizations ought to devise and execute ecologically sustainable innovations as a means of reducing their carbon footprint and mitigating potential environmental hazards (Appiah *et al.*, 2023, Gu, 2022). Previous research has emphasized the significance of GI as an essential condition for achieving sustainable growth and performance (Begum *et al.*, 2022a, Cui *et al.*, 2023). Despite this the substantial research done on the factors that led up to environmentally friendly innovations has not yet produced a definitive conclusion (Begum *et al.*, 2022a). Research claims that studies on environmentally friendly innovations are still in their infancy and lack any substantial accomplishments (Appiah *et al.*, 2023, Khanra *et al.*, 2022). With the increasing apprehension surrounding the ecological and environmental sustainability of the hospitality sector it is imperative to fill this gap in the existing literature to obtain more comprehensive insights into GI issues. This study thus aims to clarify the factors that lead to the development of GI in the hospitality industry. Existing research indicates minimal consideration of how luxury hotels bring about sustainable innovation (Arici *et al.*, 2023).

The significance of green transformational leadership (GTL) concerning GI has been acknowledged in the services sector (Begum *et al.*, 2022a). GTL denotes offering motivation and inspiration to fulfil the environmental objectives of the organization (Chen and Chang,

2013). Several findings indicate that GTL plays a substantial role in ameliorating the adverse environmental impacts stemming from industrial pollution (Begum *et al.*, 2022a, Cui *et al.*, 2023). However, the GTL's potential benefits to businesses and when those benefits might materialize are still largely unknown (Singh *et al.*, 2020). It has been determined that further investigation is required to fully comprehend the association amid GTL and GI Begum *et al.* (2022a) particularly within the context of the hospitality industry (Gürlek and Koseoglu, 2021).

Furthermore, it is contended that the impact of GTL on GI within the hospitality industry is intricate and ever-changing, as there exist numerous mediating factors that may either augment or reduce the correlation. Thus, we utilize the social cognitive theory (SCT) presented by Bandura (1999) to comprehend the correlation between GTL and GI. The SCT is a widely recognized theoretical framework that scholars have employed to explore the intricacies of employee conduct concerning social, cognitive and behavioural reactions. According to SCT, the cognitive abilities of workers are also impacted by environmental factors such as GTL which subsequently led to emotional outcomes (Farooq *et al.*, 2022) which include green creativity (GC) of employees. Consistent with prior research GTL inspires and fosters the growth of subordinates (Begum *et al.*, 2022a) and thus resulted in increased employee's GC in service businesses (Chen and Chang, 2013). This study predicts that GTL could have a significant role in propelling employees GC in the hospitality industry. Subsequently, GC behaviour by employees can facilitate the development of environmentally sustainable innovations augment the ecological performance of hotels stimulate the generation of novel green concepts and encourage the exploration of innovative approaches to address environmental challenges (Bhutto *et al.*, 2021). Furthermore, SCT places a strong emphasis on the significance of acquiring creativity beliefs as essential constituents of human conduct and psychological catalysts for instigating behavioural modification (Bandura, 1999). As a result, when workers feel driven by GTL's defined green strategic aim, GC is likely to improve (Begum *et al.*, 2022a). This allows us to anticipate that GTL's staff will be more receptive because of its propensity to generate vision-based motivational processes that boost GC (Farooq *et al.*, 2022). Thus, we recommend that GTL, as an external environmental factor may enhance employees' GC. Green organizational behaviours such as GTL and GC are crucial to promoting ecological and environmental sustainability mainly in the hotel industry according to prior research (Bhutto *et al.*, 2021, Farooq *et al.*, 2022). However, how the GC of employees mediates between the GTL and GI within the hospitality industry remains largely unanswered. Begum *et al.* (2022a) propose that forthcoming studies should prioritize the investigation of

causal factors that have the potential to strengthen the relationship between GTL and GI within service industries.

In the existing scientific literature there is scarce practical research focusing on innovation and ecological concerns (Appiah *et al.*, 2023). Particularly, the interrelationships among GI and green performance (GP) have received limited attention within the hospitality industry. Thus, we utilize the Natural Resource-Based View (NRBV) framework as proposed by Hart (1995) to comprehend the correlation between GTL, GI and GP. The theory emphasizes the importance of leveraging an organization's unique abilities and strengths to achieve green performance over time (Awan *et al.*, 2023). It further suggests that a hotel can cultivate a green vision among its staff and enhance GI by utilizing the GTL style. Drawing upon the theoretical framework of the NRBV (Hart, 1995). GTL as a valuable resource holds the capacity to enhance GI as an organizational competency thereby facilitating the attainment of GP as green outcome within the hotel industry. Investigations on GI and GP have also produced contradictory findings (Awan *et al.*, 2023). On the one hand, enabling services businesses to employ GI techniques can result in the implementation of such strategies notwithstanding the possibility that such strategies will not boost profits (Zhang *et al.*, 2023). While on the other hand, ignoring the possibility that they will not increase profits (Yu *et al.*, 2023). Recent research has shown however that such interconnection may generate appalling performance because of augmented growth of time stretch and expenses involved (Yu *et al.*, 2023). These contradictory findings have piqued the curiosity of scholars about the links between GI and GP in the services industries (Awan *et al.*, 2023). Therefore, the current study analyses the relationship using the NRBV theory and determines if GI can provide green performance for luxury hotels.

The study offers methodological contributions by utilizing a configuration approach and assesses the combination of conditions that could improve a hotel's green performance. The concept of this research is novel in assessing various causal configurations to enhance hotel green performance (Farooq Sahibzada *et al.*, 2021). The essence of such causal configurations was rarely observed before in the hotel industry Seyfi *et al.* (2021) specifically when there was a broad focus on symmetric methods (Rasoolimanesh *et al.*, 2022). In addition, assessing the pathways on how various factors could gather and realize their potential to identify the enhanced business outcomes is less discovered and critical (Farooq Sahibzada *et al.*, 2021). Specifically, while applying the SCT and NRBV to the hospitality configuration-based research was conducted on how green transformational leaders can influence GC leading

toward GI and enhanced hotel green performance. Therefore, the present study contributes by seeking factors explaining causal recipes to build a higher GP base through GTL, GC and GI.

This study claim based on the previous discussion that related works are inadequate in 2 ways: (a) Fragmented links have been researched for various industries such as manufacturing and services which includes education, high-tech industries and information technology. In the hospitality industry, GTL, GC, GI and GP are not being investigated using a configurational path approach for improving GP. This gap in the research restricts our understanding of the relationships between multiple complex features of organizational behaviour. Studying the process through which GTL and GC relate to GI can thus result in improved hotel GP. Here we posit our four primary research inquiries: RQ1. How is GTL linked with GI? RQ2. How much do GC mediate the relationship between GTL and GI? RQ3. How GI is associated with GP? RQ4. What diverse pathways exist to achieve elevated green performance? The present study aims to test the underlying hypotheses by analysing multi-wave, multi-source data gathered from employees working in 65 luxury hotels situated in 19 different cities in Italy. (b) few studies have explored these organizational and employee behaviour features within the hotel context. Notwithstanding, hotels are a subsector with significant sustainability issues. Previous research has emphasized the significance of elucidating these characteristics concerning the travel and manufacturing sector generally.

## 2. THEORETICAL LENS

### 2.1. Social Cognitive Theory (SCT)

Social cognitive theory (SCT) is used to investigate the complexities of employee behaviour regarding social, cerebral, and behavioural responses. The basic theoretical assertions of SCT are based on the interplay between the personal objectives and cognitions of persons and the external forces that are impinging on their environment and regulating their motivated behaviour (Bandura, 1999). SCT contends that environmental factors influence workers' cognitive abilities resulting in emotional outcomes (Bandura, 1999). Additionally, SCT emphasizes the importance of creativity beliefs as fundamental components of human behaviour and psychological triggers for causing behaviour change (Huang *et al.*, 2023). The idea further asserts that learning is a critical link between environment and behaviour (Huang *et al.*, 2023). As a result, when workers feel driven by GTL's defined green strategic aim green creativity are likely to improve (Bandura, 1999). This allows us to anticipate that GTL's staff will be more receptive because of its propensity to generate vision-based motivational

processes that boost green creativity (Farooq *et al.*, 2022) . Thus, we recommend that GTL as an external environmental factor may enhance employees' green creativity.

## **2.2. Natural Resource-Based View Theory (NRBV)**

Natural Resource-Based View Theory (NRBV) Hart (1995) framework's primary objective is to explain the relationship between a company's resources, competencies, and the natural environment (Begum *et al.*, 2022a). This theory provides three consecutive strategic capabilities for resource allocation: pollution avoidance, sustainable consumption, and ecological sustainability. The primary goal of pollution prevention is to cut down on trash and hazardous a by-product of industry. Second, the product stewardship plan lessens the environmental impacts of products and processes over their entire life cycles and assesses those impacts at each stage of product and process formation such as energy efficiency and creating more value for the customers. Finally, a sustainable development strategy prioritizes developing eco-friendly products and processes. These practices serve as the cornerstone of GI which aims to protect the environment and channel energy consumption more ecologically responsibly (Appiah *et al.*, 2023).

GTL is a set of impalpable resources including the ability to inspire others and develop novel solutions to problems all of which can be used to further environmental objectives (Singh *et al.*, 2020). GTL is a company's most valued asset since it is the cornerstone upon which a new product and process can be built (Chen and Chang, 2013). According to the NRBV theory, a hotel can instil a green vision among its staff and motivate them when the hotel leader embodies a green mindset and uses the GTL style which can result in enhanced GP of the service industry (Begum *et al.*, 2022a).

## **3. HYPOTHESES DEVELOPMENT AND CONCEPTUAL FRAMEWORK**

### **3.1. Green Transformational Leadership and Green Innovation**

The global challenges of sustainability necessitate a novel form of leadership that transcends self-interest and promotes the equitable distribution of leadership opportunities inside an organization (Begum *et al.*, 2022a). GTL theory has gained significant popularity as a framework for pursuing environmental objectives in the field of leadership (Çop *et al.*, 2021). GTL is leadership behavior that inspires and motivates followers to operate at levels of environmental performance that exceed expectations (Chen and Chang, 2013). Previous

investigation indicate that GTL significantly influences innovation within organizations (Begum *et al.*, 2022a). For the reason that GTL leaders cultivate the mental and emotional fortitude necessary to develop, share and implement green initiatives (Begum *et al.*, 2022a). More importantly these leaders place a high priority on fostering a green climate and inspire staff to respond to shifting market conditions by obtaining market knowledge (Begum *et al.*, 2022a). The NRBV framework also considers the importance of integrating environmental challenges into strategic management (Begum *et al.*, 2022a). This includes implementing pollution prevention measures, reducing the cost of the product lifecycle and adopting sustainable strategies (AlNuaimi *et al.*, 2021). Therefore, it is anticipated that GTL will foster a commitment to environmentally sustainable goals and objectives promoting a culture of eco-consciousness and inspiring employees to actively participate in green innovation.

The present shift towards environmental sustainability has placed significant importance on the need for hotel owners to prioritize the reduction of energy, waste and water usage (Sharma, 2023). On average, a five-star luxury hotel consumes a range of 170 to 4,401 litres of water per guest per night. Similarly, the average hotel releases an annual carbon dioxide (CO<sub>2</sub>) emission of 160 to 200 kg per square metre of room floor area (Sharma, 2023). The increasing worldwide environmental issues have led to a transformation in the way business organizations and societies consider their relationship with the natural environment fostering a greater emphasis on resilience (Zameer *et al.*, 2022). The implementation of green innovation allows companies to effectively incorporate environmental objectives into their overall business objectives (Begum *et al.*, 2022a). According to Chen *et al.* (2006) green innovation refers to hardware or software innovation that is specifically associated with green products or processes. This includes technological advancements that contribute to energy conservation, pollution prevention, waste recycling, green product designs and corporate environmental management (Chen *et al.*, 2006). The implementation of green innovation has been found to have a positive impact on sales and customer acquisition. This is attributed to the growing demand for environmentally friendly products and services which in turn enhances the efficiency and profitability of the company (Ahmeda *et al.*, 2020).

Though, several factors have been identified as precursors to green innovation in the past literature including green intellectual capital in large manufacturing organizations Cui *et al.* (2023), green-absorptive capability in the electric power industry Pacheco *et al.* (2018) and external information-sharing in manufacturing organizations Zhang *et al.* (2020) and GTL in high tech industry (Begum *et al.*, 2022a). The unique impact of GTL on green innovation has

received limited acknowledgement in the existing body of literature (Begum *et al.*, 2022a) particularly within the hospitality industry (Gürlek and Koseoglu, 2021).

As a result, this analysis presents researchers with a unique opportunity to examine the previously unexplored impact of GTL on GI in the Italian hospitality sector. It was also mentioned by Gürlek and Koseoglu (2021) that GI studies are relatively new to the hospitality and tourism literature. As a result, attempts to integrate and analyze existing research on GTL-GI are severely limited (Arici and Uysal, 2022).

Therefore, to address this existing gap in the literature, we anticipate that GTL will have a substantial organizational part in endorsing green behaviors and the resources required for GI within the hospitality industry. In conclusion, we argue that the transparency, availability and approachability of GTL leaders facilitate their engagement with employees in a manner that enhances their inclination to pursue innovative environmentally friendly solutions to green challenges within the organization. Therefore, we propose:

**H1:** Green transformational leadership has a significant effect on green innovation.

### **3.2. Green Transformational Leadership, Green Creativity and Green Innovation**

There is a significant body of evidence indicating that GTL is connected to green creativity (Farooq *et al.*, 2022) . Green creativity (GC) according to Bhutto *et al.* (2021) is the behavior of employees in the hospitality industry who are more likely to think of creative ways for their company to achieve its environmental goals (i.e., green innovation) foster green initiatives to enhance the green performance of the hotel reconsidering green concepts and look for inventive solutions to environmental issues. In the prior literature it has also been discovered that GTL value and stimulate green creativity in workers in a variety of industries, including the education sector, the IT sector and tourist hotels (Begum *et al.*, 2022a, Farooq *et al.*, 2022). Mittal and Dhar (2016) also investigated the impact of transformational leadership on fostering GC in the Indian hospitality industry. However, little research has been done on connection between green transformational leadership and green creativity in Italian hospitality industry. Arici and Uysal (2022) bibliometric analysis calls for additional research to determine which leadership styles and practices are most influential in fostering creativity. Therefore, we recommend that GTL as an external environmental factor may boost the green creativity of employees.



Academics have argued that the implementation of GTL is of utmost importance for businesses to foster GC and GI (Li *et al.*, 2020). GTL encourages employees to engage in creative thinking, establishes new connections and promote environmentally friendly practices and policies in order to drive innovative changes (Li *et al.*, 2020). GTL possessing companies are more likely to take steps towards creating green products and process innovation (Chen and Chang, 2013). Chen and Chang (2013) found that GTL promotes the development of new knowledge and creative ideas. Additionally, Awan *et al.* (2021) observed that GTL increases the likelihood of green innovation. However, there is no agreement among academics regarding several issues including the conceptual links between GTL, GI and GC within hospitality industry (Arici and Uysal, 2022). There is still a need for further empirical evidence to establish a mediation connection between GTL and GI (Arici and Uysal, 2022). This information serves as a foundation for exploring potential indirect effects beyond the suggested direct impact of (a) GTL on GC and (b) GC on GI. It is posited that an alternative mechanism may exist to explain this association potentially involving the fundamental green knowledge and skills possessed by employees. Hence, we propose:

**H2:** Green transformational leadership has a significant effect on green creativity.

**H2a:** Green creativity has a significant effect on green innovation.

**H2b:** Green creativity mediates the relationship between green transformational leadership and green innovation.

### **3.3. Green innovation and green performance**

The concept of green innovation (GI) is intricately connected to the sustainability goals of organizations as it serves to promote and enhance green performance (Singh *et al.*, 2020). Green performance (GP) initiatives satisfy and transcend societal expectations regarding the natural environment Awan *et al.* (2023) in a manner that transcends conventional compliance with regulations (Gu, 2022). Organizational behavior studies have shown that greater ecological performance can reduce waste and redesign products/processes to reduce environmental effect (Awan *et al.*, 2023). As a result of lower costs and less waste GI also has the potential to generate social as well as ecological and financial benefits (Gu, 2022). According to prior research the GP of organizations is influenced by various factors including the quality of green products, the implementation of green processes and the integration of ecological sustainability considerations into business operations and product development (Asadi *et al.*, 2020).

Furthermore, GI helps organizations achieve environmental protection criteria lowering the danger of sanctions from government regulators and protecting them from public criticism (Dubey *et al.*, 2015). The implementation of green strategies within enterprises facilitates their competitive advantage in the market by mitigating the company's environmental impact mitigating pollution Ahmeda *et al.* (2020) and generating cost savings through the adoption of material reuse and recycling practices (Lin *et al.*, 2019). It is widely recognized that GI plays a crucial role in improving a company's operational and financial performance Seyfi *et al.* (2021) promoting the development of environmentally friendly products enhancing organizational competitiveness through the utilization of advanced technology and addressing environmental concerns (Begum *et al.*, 2022a). Considering this, we argue that there is a connection between GI and GP (Singh *et al.*, 2020). Taking into account the concept of NRBV it is important to note that GI is a scarce resource that can only be cultivated by a small number of organizations (Begum *et al.*, 2022a). This capability is crucial in fostering sustainable and innovative actions that can drive overall organizational growth and performance (Abbas and Khan, 2023).

In essence, our belief is that hospitality organizations that allocate significant resources towards GI operations will demonstrate greater GP. This suggests that hotel organizations are motivated to actively pursue and suggest new and innovative methods to mitigate the negative ecological and environmental effects of their operations (Farooq *et al.*, 2022). In conclusion, it is anticipated that the GP of a hotel will be higher when its management and employees actively participate in environmentally sustainable practices demonstrating a higher degree of commitment and cognitive effort. Therefore, we propose:

**H3:** Geen innovation has a significant effect on green performance.

### **3.4. Configurational Modelling**

The existing study applies fsQCA to illustrate incongruent underlying configurations that may improve GP by combining GTL, GC and GI. Symmetric approaches measure the direct link between GTL and GI, GTL influence on GC, GC effect on GI and GI influence on GP. fsQCA configures result conditions. fsQCA estimates are more precise than the lineal addition method (Farooq Sahibzada *et al.*, 2021). The application of fsQCA has a strong reputation for hospitality research Rasoolimanesh *et al.* (2022) as this unties the course that shows key circumstances for latent findings (Rihoux and Ragin, 2008).

A contemplation of the complex nature of the determinant's stirring GP is tempting as the hospitality sector comprises innumerable integrated mechanisms. Different combinations of variables like GTL, GC, GP and GP can subsequently intensify a hotel's performance. fsQCA can assess if GTL, GC and GI are agreeable, disagreeable or inconsequential to hotel's green performance.

fsQCA evaluates precursor state dependency instead of double and triple exchange part numbers. Combining GTL, GC, GI and GP may assist the company structure its goals. fsQCA findings reveal an equifinality trend (i.e., numerous paths and results directed to a similar outcome) Farooq Sahibzada *et al.* (2021) wherein several combinations of GTL, GC, and GI can direct to advanced GP. Increasing calls have been made to use fsQCA to uncover complex underlying recipes (Farooq Sahibzada *et al.*, 2021). The originality of the existing study is in explaining combinative intricacy considering unequal interactions rather than symmetrical effects.

**H4:** Diverse recipes of GTL, GC, and GI are associated with hotel's green performance.

**Table 1:** Previous studies on Leadership (Types) and Green Innovation (Types)

Title	Authors	Year	Leadership (Types)	Mediator	Moderator	Green innovation (Types)	Control variable	Industry	Country	Findings
Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement	(Begum <i>et al.</i> , 2022a)	2022	Green Transformational Leadership	Creative process engagement and green thinking	N/A	Green innovation	Employee experience, firm size, Firm age, Industry Type	High -tech industry	China	The findings of the study show that GTL has a substantial effect on green thinking, creative process engagement, and green innovation. The findings further reveal that green thinking and creative process engagement mediate the relationship between GTL and green innovation.
Exploring the linkages of green transformational leadership, organizational green learning, and radical green innovation	(Cui <i>et al.</i> , 2023)	2023	Green Transformational Leadership	Organizational green learning	Environmental regulatory pressure and role of green R&D investment	Radical green innovation	N/A	Manufacturing industry	China	Green transformational leadership promotes explorative green learning and exploitative green learning and have inverted U-shaped relationship with radical green innovation. The results also find that green research and development investment plays U-shaped moderating role in the relationship between green transformational leadership and explorative green learning and exploitative green learning. Moreover, environmental regulatory pressure positively moderates the relationship between green transformational leadership and explorative green learning and exploitative green learning
Impact of transformational leadership on green learning and green innovation in	(Pham <i>et al.</i> , 2023)	2023	Green Transformational Leadership	Green supply chain learning	N/A	Green Product innovation and green process innovation	N/A	construction firms	Vietnam	The results indicate that transformational leadership promotes both green learning and green innovation (i.e., green product innovation and green process innovation) while green learning positively affects green process

construction supply chains										innovation. Furthermore, it is found that green learning mediates the linkage between transformational leadership and green process innovation.
Ethical leadership and green innovation: the mediating role of green organizational culture	(Şengüllendi <i>et al.</i> , 2023)	2023	Ethical leadership	Green organizational culture	N/A	Green Product innovation and green process innovation	N/A	SMEs	Turkey	It was seen that ethical leadership has an important potential in terms of developing a green organizational culture in SMEs. In addition, it has been determined that green organizational culture has a mediating role between ethical leadership and green product and process innovations
Responsible leadership, organizational ethical culture, strategic posture, and green innovation	(Akhtar <i>et al.</i> , 2023)	2023	Responsible leadership	organizational ethical culture	Strategic posture	Green Product innovation and green process innovation	Gender, age, education, experience	Hospitality organizations	Pakistan	Findings suggest that responsible leadership positively influences green innovation. Results support for the mediating effect of organizational ethical culture and the moderating role of strategic posture on the direct effect of responsible leadership on green innovation such that this direct effect is stronger where there is a progressive strategic posture.
Keeping pace with the times: research on the impact of digital leadership on radical green innovation of manufacturing enterprises	(Tian <i>et al.</i> , 2023)	2023	Digital Leadership	Green organizational identity	digital threat and technology for social-good	Radical green innovation	N/A	Manufacturing industry	China	This study's findings indicate that the four dimensions of digital leadership can positively influence radical green innovation and green organizational identity partially mediate between the four dimensions of digital leadership and radical green innovation. Digital threat has a negative moderating effect between digital leadership and green organizational identity, while technology for social good is positively regulated between them, digital threat and technology for good linkage moderates the partial mediating effect of green organizational identity in digital

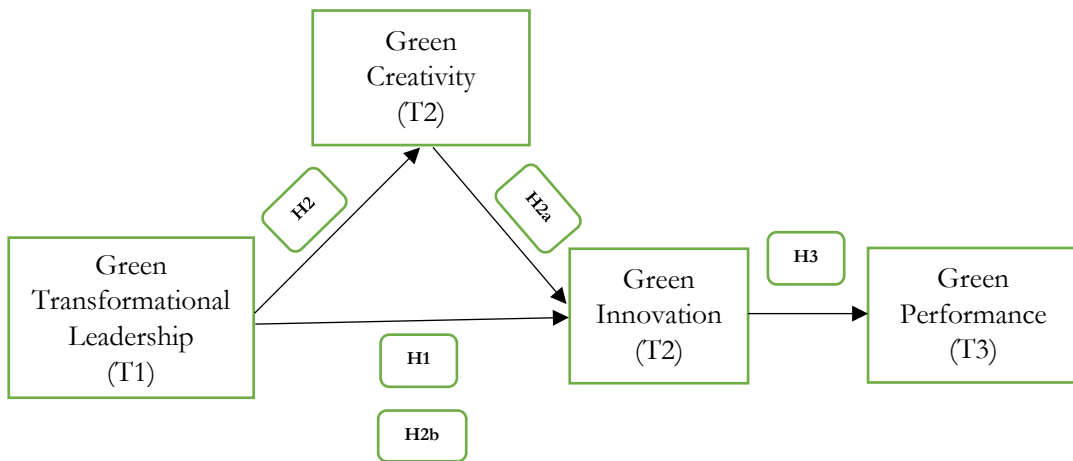
										leadership and radical green innovation.
Green transformational leadership and green innovation in megaprojects: is green knowledge sharing a missing link?	(Chen <i>et al.</i> , 2023)	2023	Green transformational leadership	Green knowledge sharing	Innovation climate	Green Product innovation and green process innovation	N/A	Mega projects	China	GTL has a significant positive impact on two aspects of GI, including green product innovation and green process innovation. Besides, green knowledge sharing mediates the relationship between GTL and the two aspects of GI. Moreover, innovation climate plays a significantly positive moderating role in the relationship between GTL and green knowledge sharing and the relationship between green knowledge sharing and the two aspects of GI.
Achieving green product and process innovation through green leadership and creative engagement in manufacturing	(Begum <i>et al.</i> , 2022b)	2021	Green transformational leadership	Creative process engagement	N/A	Green Product innovation and green process innovation	N/A	High tech manufacturing industries	China	The findings unveiled that green transformational leadership and creative process engagement positively influence green product innovation and green process innovation. Similarly, green transformational leadership is positively linked with creative process engagement. The findings further revealed that creative process engagement mediates the impact of green transformational leadership on green process and product innovation
Green innovation and environmental performance: The role of green transformational leadership and green human resource management	(Singh <i>et al.</i> , 2020)	2020	Green transformational leadership	Green HRM practices	N/A	Green Product innovation and green process innovation & Environmental performance	N/A	SMEs	UAE	The findings of the study support that green transformational leadership has a positive effect on green innovation as well as environmental performance. Furthermore, green HRM practices mediates between green transformational leadership and green innovation and environmental performance.

How environmental leadership shapes green innovation performance: A resource-based view	(He <i>et al.</i> , 2023)	2023	Environmental leadership	Proactive environmental strategy	Organizational structure	Green Product innovation and green process innovation	education, firm size, and ownership structure	metal enterprises, mining industry, printing industry the silicone, food, and beverage industries	China	The findings reveal that environmental leadership has a positive impact on green product innovation performance and green process innovation performance. Also, proactive environmental strategies significantly mediate between environmental leadership and green innovation performance (including green product innovation performance and green process innovation performance).
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**Source (s):** Authors work

1 **3.5. Conceptual Framework**

2 This research utilizes existing literature and theories such as the SCT by Bandura (1999)  
3 and the NRBV by Hart (1995) to develop a framework for understanding the factors that  
4 contribute to GI in the hospitality industry. Based on previous research, we posit that GTL is a  
5 significant GI catalyst. Furthermore, the variable of GP is considered as outcome of  
6 GI. Subsequently, we ascertain GC as a representation of the potential of an employee's green  
7 creativity serving as the mediating factor between GTL and GI. In this context, we suggest a  
8 direct association between GTL-GI and GTL-GC, accordingly alongside that of GC-GI and GI  
9 with GP. In addition, recognizing the intricate nature of this domain, we suggest a mediation  
10 framework to examine the mediating influence of GC on the correlation among GTL and GI.  
11 The proposed full conceptual model is presented in Figure 1.



18 **Figure 1: Conceptual Framework**

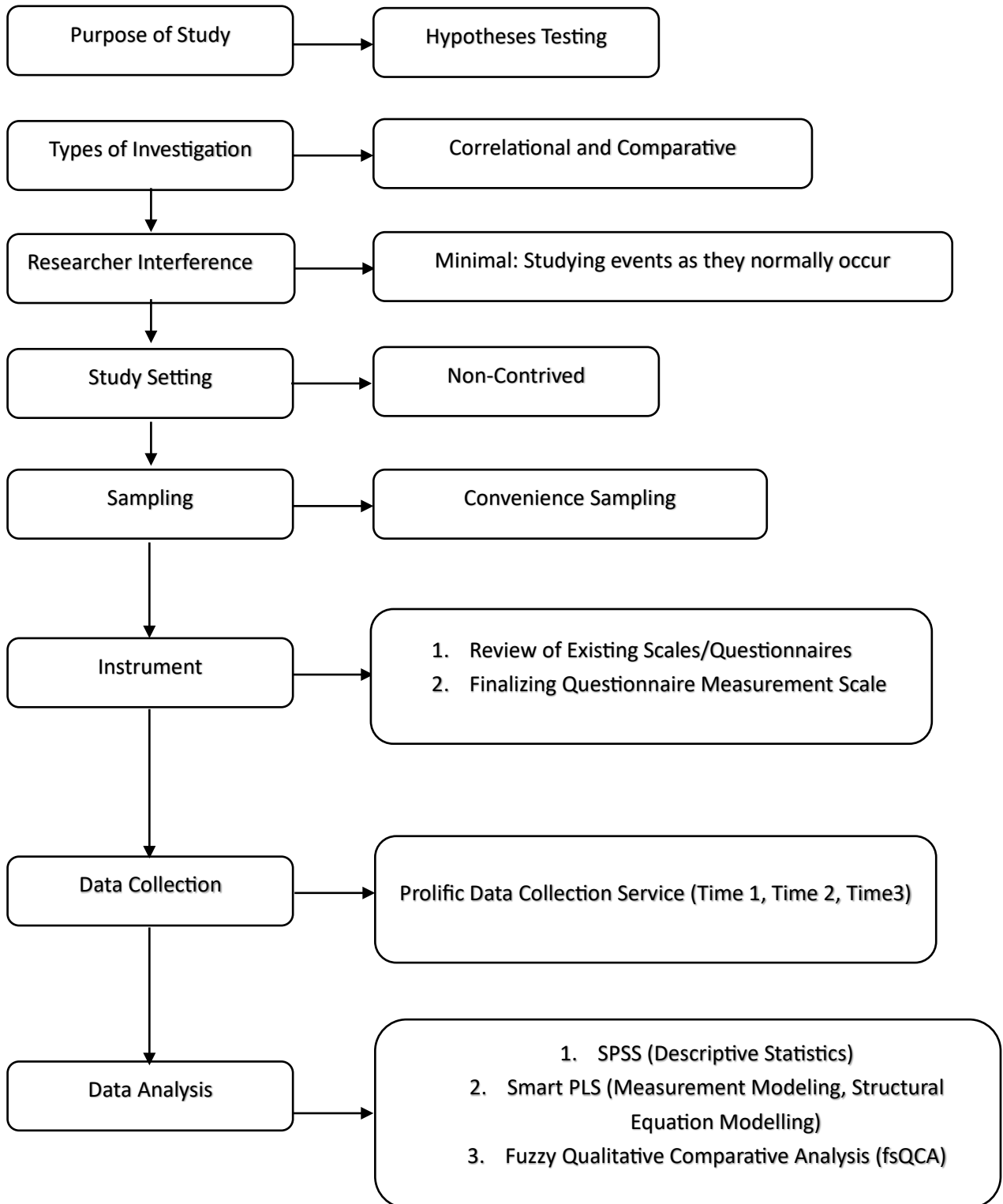
19  
20 **Source (s):** Authors work



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#### 4. RESEARCH METHODOLOGY

2



3

4

Source (s): Authors Work

#### 1 **4.1. Data Collection Technique**

2 The conceptual model was empirically tested using a time-lagged research design. The  
3 sample for the study consisted of managers and employees from the hospitality industry in  
4 Italy. The study analyzed a mediated model which was examined using three-wave time-lagged  
5 data, with a two-week interval between each wave. At T1, we conducted measurements on  
6 GTL, while at T2, we assessed GC and GI. Finally, at T3, we evaluated GP.

#### 7 **4.2. Population, Sample and Data Collection**

8 An empirical investigation was carried out to examine our mediated model, employing  
9 a time-lagged research design. An online survey was conducted utilizing the Prolific data  
10 collection service to procure data from hospitality workers located in Italy. A total of 600  
11 questionnaires were distributed in (sixty-four luxury “5 star and above” hotels) in sixteen major  
12 cities of Italy. The present study was executed in three distinct phases, with a time interval of  
13 two weeks separating each phase. Prior research in the domain of leadership has suggested a  
14 two-week break among successive rounds of data gathering e.g. (Rasheed *et al.*, 2023). At  
15 time point 1 (T1) data was gathered from a sample of 347 participants with regard to their  
16 supervisor's GTL approach. Which ticked a total response rate of 57.83%. Two weeks later, at  
17 (T2), these 347 participants were requested to furnish information pertaining to their GC and  
18 GI. At T2, only 321 provided the requested data. Two weeks after the T2 wave the same 321  
19 participants were asked to rate GP again. At T3 a total of 321 participants were involved in the  
20 study. Following the identification of multivariate outliers, 18 responses were eliminated  
21 leaving 303 valid responses for subsequent analyses.

22 The Prolific IDs of the respondents were employed as exclusive codes to correspond and  
23 integrate the data they had furnished in the three waves. Out of the total sample size of 303  
24 participants, 62.4% were males and 37.6% of them identified as female. Additionally, it was  
25 found that 35.6% of the sample population fell within the age range of 30 to 39 years while  
26 24.8% were between the ages of 20 and 29 years. Furthermore, 48.2% of the participants held  
27 a master’s degree, while 40.9% possessed between 11 to 15 years of work experience in the  
28 hospitality sector.

#### 29 **4.3. Symmetric And Asymmetric Modelling**

30 To analyze the data and to test the hypotheses this study applied Partial Least Squares  
31 – Structural Equation Modelling (PLS-SEM) and fuzzy-set Qualitative Comparative Analysis  
32 (fsQCA). The PLS-SEM is applied because of the prediction nature of the current study (Hair

1 *et al.*, 2019). Moreover, because this study aims to apply fsQCA to obtain deeper insights only  
2 PLS-SEM can provide a unique construct score as the input of fsQCA (Rasoolimanesh *et al.*,  
3 2021b). Several previous studies in hospitality have applied fsQCA (Olya and Gavilyan, 2017,  
4 Seyfi *et al.*, 2021) or a combination of PLS-SEM and fsQCA (Rasoolimanesh *et al.*, 2021b,  
5 Taheri *et al.*, 2020, Tran *et al.*, 2019). By application of fsQCA, we identified sufficient causal  
6 combinations (i.e. configurations, recipes) to generate revisit and green performance (Pappas  
7 and Woodside, 2021, Woodside, 2013a). In terms of statistical software, this study employed  
8 the Smart PLS 4.0 (Ringle *et al.*, 2018) to perform PLS-SEM and the fsQCA 3.0 to identify the  
9 sufficient configurations of antecedents to generate outcomes (Rasoolimanesh *et al.*, 2021a).  
10 The consistency and coverage for each configuration should be greater than 0.8 and 0.2  
11 respectively to consider a configuration sufficient to generate an outcome (Rasoolimanesh *et*  
12 *al.*, 2020).

13 Furthermore, high values of the explanatory variable are generally acceptable according  
14 to the configurational linkage but they are not a need for high values of the observed variable.  
15 Multiple underlying circumstances may generate the same values. For instance, if the  
16 explanatory variable has low values the result variable may inflate with high values (Woodside,  
17 2013b).

18 For symmetric analysis, PLS-SEM was used. PLS-SEM is designated a well-  
19 proportioned examination that measures the overall admissible impact of the descriptive  
20 variable on projected model results. PLS-SEM can investigate multi-layered route patterns  
21 which SEM cannot do (Ringle, 2005). PLS-SEM requires a consistent sound measurement  
22 scale. Originally, the measuring scale must be authenticated for consistency and soundness to  
23 perform PLS-SEM. Next to it, SEM investigation ought to be utilized to scrutinize the  
24 proposed relations.

25 Afterwards, the fsQCA approach computes underlying recipes for explaining multi-  
26 layered settings (i.e., a mix of explanatory variables leading to the exact outcome) (Olya *et al.*,  
27 2018, Seyfi *et al.*, 2021). H4 is interpreted using fsQCA. fsQCA helps determine other causal  
28 recipes leading to comparable results. In management literature the distinctive approach  
29 analyses how several factors produce important and passable contexts surrounding intrinsic  
30 results (Rihoux and Ragin, 2008).

#### 31 **4.4. Measurement and Instrumentation:**

1 The research utilized 29 measurement items from the existing literature. However, little  
 2 alterations were made in the wording of the items to align them with a hospitality context (Latif  
 3 *et al.*, 2020). The questionnaire utilized a five-point Likert scale varying from “1” meaning  
 4 “strongly disagree” to “5” meaning “strongly agree.” Sources of measurement instruments and  
 5 operational definitions are reflected in Table 2.

6 **Table 2: Instrumentation and Operational Definitions**

Variables	No of Items	Sources	Operational Definitions
Green Transformational Leadership	06	(Chen and Chang, 2013)	Green transformational leadership refers to a type of leadership behavior that focuses on providing a crystal-clear vision, guidance, and inspiration to hotel employees. The main objective of this leadership style is to support the developmental needs of employees and help them achieve the environmental goals of the hotel.
Green Creativity	06	(Chen and Chang, 2013)	The concept of green creativity pertains to the conduct of personnel within the hospitality sector who exhibit a greater propensity to devise innovative approaches for their organizations to achieve its ecological objectives (i.e., green innovation), advocate for green concepts to enhance their hotel's green performance, reconsider novel green ideas, and explore inventive resolutions to environmental problems.
Green Innovation	08	(Chen <i>et al.</i> , 2006)	The term green innovation pertains to the development of products and processes within the hotel industry that prioritize energy conservation, pollution mitigation, waste management, and the creation of green product designs.
Green Performance	09	(Yu <i>et al.</i> , 2017)	The term green performance pertains to the evaluation of the relationship between a hotel and its surrounding environment.

7 **Source (s):** Authors work

8 **5. Data Analysis Techniques**

9 **5.1. Common Method Variance (CMV) and Multi-Collinearity**

10 The present study employed the Harman one-factor test to examine CMB. The study  
 11 revealed that items characterized by a single factor exhibited a total variance explained of less  
 12 than 38.6% which fell below the established threshold of 50% as proposed by (Harman,  
 13 1976). Thus, the data were not affected by CMB. Moreover, common method variance (CMV)  
 14 was tested using two recommended approaches for PLS-SEM namely the full collinearity

(Kock, 2015) and the correlation matrix procedure. In order to ensure that the model is free of CMV the full collinearity using Variance Inflation Factor (VIF) should be lower than 3.3 (Kock, 2015, Kock and Lynn, 2012) and the correlation between constructs should be lower than 0.9 (Rasoolimanesh *et al.*, 2021b). Using these two approaches showed satisfactory results for both the full collinearity VIF and the correlation for all constructs which were lower than 3.3 and 0.9 respectively. This indicates that the results were not biased by CMV.

## 5.2. Testing Measurement Model

The study examined the research model and evaluated its internal consistency by utilizing Cronbach's alpha and composite reliability (CR) metrics. Additionally, the study evaluated the model's convergent and discriminant validity by analyzing outer loadings, average variance extracted (AVE), and Fornell-Larcker as outlined by (Hair *et al.*, 2017). Cronbach's alpha and CR must exceed 0.6 to validate study internal consistency (Nunnally, 1967). Table 2 shows internal consistency. All AVE ratings were over 0.5 to evaluate convergent validity (Hair *et al.*, 2017). All values for the construct found to be greater than 0.6 therefore the study retained all the items.

The study validated convergent and discriminant validity to guarantee that intra-construct correlations were stronger than inter-construct correlations (Hair *et al.*, 2017). The Fornell–Larcker criterion was used to check the square-root of the AVE of every latent variable was greater than the inter-construct correlation (Fornell and Larcker, 1981). (See table 3 & 4)

**Table 3:** Item Loadings, Reliability, and Convergent Validity

Scale Items	$\Lambda$	$\alpha$	CR	AVE
<b>Green Transformational Leadership</b>		<b>0.911</b>	<b>0.912</b>	<b>0.693</b>
<b>GTL1.</b> The leader inspires subordinates with a hotel environmental plan.	0.811			
<b>GTL2.</b> The leader of the hotel provides subordinates with a clear environmental vision.	0.832			
<b>GTL3.</b> The leader of the hotel encourages subordinates to work on environmental plans.	0.860			
<b>GTL4.</b> The leader of the hotel encourages employees to attain environmental goals.	0.829			
<b>GTL5.</b> The leader of the hotel considers the environmental beliefs of subordinates.	0.851			
<b>GTL6.</b> The leader of the hotel stimulates subordinates to think & share their green ideas.	0.809			
<b>Green Creativity</b>		<b>0.921</b>	<b>0.923</b>	<b>0.718</b>
<b>GC1.</b> The employees of our hotel suggest new ways to achieve environmental goals.	0.865			
<b>GC2.</b> The employees of our hotel propose new green ideas to improve environmental performance.	0.853			

GC3. The employees of our hotel promote and champion new green ideas to others.	0.842		
GC4. The employees of our hotel develop adequate plans for the implementation of new green ideas.	0.746		
GC5. The employees of our hotel would rethink new green ideas.	0.899		
GC6. The employees of our hotel would find creative solutions to environmental problems.	0.871		
<b>Green Innovation</b>		<b>0.940</b>	<b>0.942 0.706</b>
GI1. Our hotel has selected environmentally friendly raw materials in product development.	0.857		
GI2. Our hotel has used energy-efficient raw materials in product development.	0.832		
GI3. Our hotel has carried out efficiency of raw materials for the production process in product development.	0.866		
GI4. Our hotel has evaluated that the product is easy to reuse, recycle, and decompose.	0.887		
GI5. Our hotel has effectively reduced the emission of hazardous substances or waste in the production process.	0.851		
GI6. Our hotel has effectively recycled waste and emissions in the production process	0.860		
GI7. Our hotel has effectively reduced the consumption of water, electricity, or oil in the production process.	0.816		
GI8. Our hotel has effectively made innovations to reduce the use of raw materials in the production process.	0.747		
<b>Green Performance</b>		<b>0.945</b>	<b>0.946 0.696</b>
GP1. Our hotel conforms with the requirements of inputs of energy.	0.807		
GP2. Our hotel conforms with the requirements of community relations.	0.817		
GP3. Our hotel conforms with the requirements of outputs of air emissions.	0.805		
GP4. Our hotel conforms with the requirements of indicators on the local, regional or national condition of the environment.	0.880		
GP5. Our hotel conforms with the requirements of outputs of wastewater.	0.856		
GP6. Our hotel conforms with expectations of implementation of environmental policies and programs.	0.847		
GP7. Our hotel has achieved important environment-related certifications.	0.848		
GP8. Our hotel has regularly achieved targets for energy conservation, recycling, and waste reduction.	0.846		
GP9. On average, the overall environmental performance of our hotel has improved over the past five years	0.800		

1 **Source(s):** Authors work

2 **Table 4:** Discriminant Validity (Fornell and Larcker Criterion)

	T1 - GTL	T2 - GC	T2 - GI	T3 - GP
T1 - GTL	<b>0.832</b>			
T2 - GC	0.813	<b>0.847</b>		
T2 - GI	0.791	0.725	<b>0.840</b>	
T3 - GP	0.768	0.784	0.792	<b>0.835</b>

3 *Note: The Data on the diagonal (in bold) is the square root of AVE of the construct while the other values are*  
4 *the correlations with other constructs. \*P<0.001*

5 **Source(s):** Authors work

6 **5.3. Structural Model Evaluation**

The process of examining the structural model involved a methodical analysis of all proposed hypotheses in a sequential manner. First, an examination was conducted on the impact of T1- GTL on T2- GI which was followed by T2- GC, impact on T2- GI. Additionally, the investigation also assessed the influence of T2- GI on T3- GP. To determine the applicability of direct pathways and estimated average errors, 5,000 bootstrap resamples were employed (Ringle, 2005).

T1- GTL has a significant impact on T2- GI, as shown in Table 5 ( $\beta = 0.283$ ,  $t = 4.227$ ,  $p < 0.000$ ). H1 is supported.

In addition, it can be observed that T1- GTL has a significant impact on T2- GC ( $\beta = 0.912$ ,  $t = 52.179$ ,  $p < 0.000$ ) and T2- GC impact on T2- GI ( $\beta = 0.666$ ,  $t = 10.496$ ,  $p < 0.000$ ). Thus, hypotheses H2 and H2a are substantiated.

Lastly, the impact of T2-GI on T2-GP ( $\beta = 0.890$ ,  $t = 42.267$ ,  $p < 0.000$ ) was confirmed. As a result, H3 is supported. (See table 5)

**Table 5:** Structural Equation Model

Hypotheses	Relationships	Sample Mean	Standard Deviation	T statistics	P values	Decision
H1	T1 - GTL -> T2 - GI	0.283	0.067	4.227	0.000	Accepted
H2	T1 - GTL -> T2 - GC	0.912	0.018	52.179	0.000	Accepted
H2a	T2 - GC -> T2 - GI	0.666	0.064	10.496	0.000	Accepted
H3	T2 - GI -> T3 - GP	0.890	0.021	42.267	0.000	Accepted

**Source(s):** Authors work

#### 5.4. Mediation Analysis

Finally, the evaluation of T2-GC is conducted to determine whether they mediate the correlation between T1-GTL and T2-GI as indicated by H4. The results indicate that the inclusion of the mediator in the model resulted in a significant and positive direct effect ( $\beta=.283$ ,  $t= 4.227$ ,  $p<.001$ ). Significant indirect effects were observed for T2-GC ( $\beta=0.607$ ,  $t=10.73$ ,  $p<.001$ ). Therefore, the findings indicate that there is partial mediation. This indicates that the influence of T1- GTL on T2- GI is partially passed via T2- GC. Therefore, H2b is accepted. (See table 6)

**Table 6:** Mediation Outcomes

Total effect (T1- GTL-> T2 - GI)		Direct effect (T1- GTL-> T2 - GI)		Indirect Effects of T1- GTL on T2- GI			
Coefficient	P-value	Coefficient	P-value	Coefficient	SD	T value	P Values
0.890	0.000	0.283	.000	0.607	0.057	10.73	0.000

H2b: T1 -  
GTL ->  
T2 - GC -  
> T2 - GI

1 Source(s): Authors work

## 2 5.5. Findings Of the Configurational Model

### 3 a. Calibration

4 Data calibration is the initial phase in fsQCA, and it was based on three anchors:

- 5 • Full participation rate: 95th percentile
- 6 • Full non-participation rate: 5th percentile, and
- 7 • Cross-over point: fiftieth percentile

### 8 b. Necessary Conditions

9 The fsQCA (Ragin, 2008) is assumed to construct the equifinality of GP. It  
10 complements SEM by allowing complex responses to develop (Woodside, 2013b). fsQCA  
11 method constructs conditions that are a consequence of its procedure. Configurations are result  
12 variables like predictor variables. fsQCA technique differs from symmetric ones since it allows  
13 formations/configurations to fragment removing blocks from conditions to support the partial  
14 effect. SEM discovered that GTL, GC and GI have a positive link with GP whereas fsQCA  
15 explores numerous circumstances in which they operate as a condition and join as a  
16 configurational component resulting in greater GP in the hotel business.

17 The fsQCA starts by calibrating data into fuzzy sets and separating in- out- and  
18 between-set circumstances. The 95th percentile for full participation the 5th percentile for full  
19 non-participation and the fiftieth percentile as a cross-over point were defined.

20 After the calibration is done the conditions are checked. Table 7 shows the condition  
21 analysis. None of the requirements meet > 0.9 consistency. Hence none are obligatory (Rihoux  
22 and Ragin, 2008). It also displays that a sole criterion cannot explain GP.

23 **Table 7:** Necessity conditions



	Consistency	Coverage
GTLC	0.667476 *	0.676424
~GTLC	0.596988	0.520374
GCC	0.656559 *	0.673740
~GCC	0.678549 *	0.680942
GIC	0.749475 *	0.795733
~GIC	0.573484	0.693944

1 **Note:** ~ shows that a condition does not exist. For the most part, it meets the 0.65 consistency  
2 benchmark.

3 **Source(s):** Authors work

4 **c. Solution**

5 This research explores Boolean algorithm transitional solutions to better understand  
6 passable situations that impact predicted results. fsQCA analyses appropriate conditions using  
7 truth tables with causal conditions and consistency levels. Table 8 demonstrates GP's  
8 provisional solution (Rihoux and Ragin, 2008). Patterns suggested by Lowik *et al.* (2016)  
9 shows the condition whereas blank space indicates do not care.

10 Research suggests three paths to high hotel GP. The first path/configuration includes GTL,  
11 which may enhance GP. The second configuration combines GC to increase GP. The third setup  
12 is GI, which may produce higher-quality GP. This is a vibrant equifinality symbol (Fiss, 2011).  
13 Table 8 shows the results of the combinations that forecast high GP.

14

15 **Table 8:** Intermediate solution

Conditions	Outcome: Green Performance		
	1	2	3
Green Transformational Leadership	•		•
Green Creativity		•	∅
Green Innovation	∅	•	•

Raw Coverage	0.499644	0.433739	0.513319
Unique Coverage	0.049071	0.042794	0.047989
Consistency	0.899479	0.853941	0.817937
Solution Coverage		0.677	
Solution Consistency		0.649	

1 *Note: ● states the existence of a condition, Ø omits a condition, and a blank area indicates ‘do*  
2 *not care’.*

3 **Source(s):** Authors work

## 4 **6. DISCUSSION, CONCLUSION, AND IMPLICATIONS**

### 5 **6.1. Discussion**

6 This study examined how green GTL helps GI in the hospitality industry directly and  
7 indirectly through GC. We further investigated how GI affects GP in Italian luxury hotels. We  
8 used SCT Bandura (1999) to identify employee GC as mediating mechanisms for the GTL–  
9 GI link and NRBV Hart (1995) to explain the relationship between GTL-GI and GP.

10 First, the results of our research indicate a noteworthy association between GTL and  
11 GC. Moreover, these variables exhibit a statistically significant correlation with the GI of hotel  
12 organizations. The study revealed a noteworthy influence of GI on GP in the Italian hospitality  
13 sector. The hospitality industry workforce exhibits diverse innovation behaviors which  
14 encompass the evaluation of nascent organization structures, unconventional marketing  
15 strategies, adept customer handling, effective management of talent, prompt service provision,  
16 streamlined channels of delivery and innovative learning mechanisms Wang *et al.*  
17 (2020) implementation of sustainable packaging methods for food products as well as the  
18 development of novel or efficient housekeeping solutions and innovative approaches for  
19 managing service failures (Rasheed *et al.*, 2023). The findings of the study indicate that there  
20 is substantial evidence supporting an important connection among GTL-GI, GTL-GC, GC-GI  
21 and GI-GP. This is consistent with previous investigations e.g., (Arici and Uysal, 2022, Begum  
22 *et al.*, 2022a, Farooq *et al.*, 2022, Gürlek and Koseoglu, 2021, Singh *et al.*, 2020).

23 Second, drawing on the theoretical framework of the NRBV, it has been postulated that  
24 GTL leaders as an organizational resource can foster distinctive competencies such as the  
25 implementation of GI in hotels to attain GP. The findings suggest that GTL has the potential to

1 encourage and stimulate individuals to promote GI by involving them in sustainable practices  
2 and strategies (Begum *et al.*, 2022a). Employees engage in eco-friendly behaviors when the  
3 organization's green initiatives are clearly defined and communicated (Begum *et al.*, 2022a).  
4 The GTL approach prioritizes the attainment of organizational objectives while also  
5 considering the individual requirements of subordinates. It provides training to guide them in  
6 generating and disseminating green concepts and strategies that reduce the negative impact of  
7 the hotel's emissions of carbon and traditional goods. Furthermore, the results were in  
8 alignment with the theoretical principles of SCT. The theory posits that the interplay of  
9 environmental factors (GTL) can influence the GC of employees which in turn are indicative  
10 of their cognitive abilities. The enhancement of employees' GC can contribute to the impinging  
11 outcome behavioral factor of green innovation which can be utilized to address environmental  
12 problems (Cui *et al.*, 2023).

13 Thirdly, partial mediation was identified in our inquiry. The primary objective of this  
14 study is to fill a void in the current body of literature on the field of hospitality. This has been  
15 attained through the investigation of a previously unexplored correlation employing an  
16 asymmetric methodology and a longitudinal approach. Prior studies have investigated the role  
17 of mediators such as green thinking and green process engagement Begum *et al.* (2022a) as  
18 well as organizational green learning Cui *et al.* (2023) in the rapport among GTL and radical  
19 green innovation. The findings of the current study confirm the substantial impact of GTL on  
20 GI, GTL on GC, GC on GI leading to a notable enhancement in GP. Thus, demonstrates partial  
21 mediation. These results suggests that GTL facilitate a culture that fosters creative ideation, the  
22 execution of those ideas through innovative means and the establishment of a framework that  
23 promotes creativity-boosting factors (Sun *et al.*, 2023). The results also indicate that the  
24 proclivity of employees to introduce creative and innovative solutions for environmental  
25 concerns, disseminate eco-friendly concepts to colleagues and advocate for sustainable  
26 initiatives in the workplace along with their proficiency in product and process knowledge  
27 acquired through training within a hotel establishment constitute the fundamental components  
28 of GI. This underscores the significance of regular green training programs for employees in  
29 enhancing their capacity for green creativity which is vital for the efficacious development of  
30 GI in hotels (Farooq *et al.*, 2022). In conclusion, GTL possess the capability to inspire their  
31 subordinates towards developing innovative solutions for contemporary environmental issues.  
32 Additionally, they can reassess and improve their existing green initiatives by engaging  
33 employees leading to an improved GI and ultimately better green performance.

1           Finally , in continuation of the evaluation of the direct and indirect correlation between  
2 GTL and GC, GI and GP. The study also investigated if a combination of GTL, GC, and GI can  
3 result in enhanced GP. The results revealed three causal equations (configurations) that could  
4 aid in achieving increased GP. In addition to Solution 1 which exclusively demonstrates that  
5 the integration of GTL results in enhanced GP there exist numerous combinations of GTL, GC,  
6 and GI that have the potential to yield a higher GP. The results indicate that both GTL and GI  
7 contribute to high GP demonstrating a distinct pattern of equifinality. In 51% of cases the  
8 combination of GTL and GI is sufficient for a high GP as shown in Table 7 third solution.  
9 Therefore, not only is GTL pursuing a high GP but if GI exists, hotels will ultimately  
10 demonstrate a higher GP as well. The results supported the hypothesis that there are multiple  
11 routes to improved GP emphasizing the need for additional use of fsQCA in managemnt  
12 literature (Farooq Sahibzada *et al.*, 2021). The findings offer a comprehensive framework for  
13 management that facilitates the identification of strategies that can effectively contribute to  
14 enhanced outcomes (Olya *et al.*, 2018).

## 15 **6.2. Conclusion and Theoretical Implications**

16           The adoption of GI practices is considered a highly desirable outcome within the  
17 hospitality industry. By utilizing the SCT Bandura (1999) it has been observed that the  
18 implementation of GTL within a hotel can foster the development of GC of employees. This in  
19 turn has been found to be significantly correlated with the manifestation of organizational GI.  
20 The study yielded partial mediation. NRBV Hart (1995) suggests that GTL could considerably  
21 impact an organization's GI. Ultimately contributing to the achievement of GP. It can be  
22 inferred that the augmentation of employees' GC can be facilitated through the provision of  
23 GTL. This, in turn, may lead to the advancement of GI which plays a critical part in the  
24 enhancement of GP.

25           The research conducted has substantial theoretical implications within the domains of  
26 organizational behavior and GI. First, the study integrates both organizational and employee  
27 factors, utilizing GTL, GC, GI and GP, within a single model to elucidate the process by which  
28 hotel organizations can enhance employee GC thereby facilitating GI and ultimately achieving  
29 GP. The present study elucidates that GTL facilitates organizational GI and offers novel  
30 perspectives on how the hospitality industry can enhance extant practices to foster GI thereby  
31 yielding GP. Since academics have observed that employee creativity is essential for innovation  
32 (Cui *et al.*, 2023, Farooq *et al.*, 2022). This study validates prior research and explores GC as  
33 a single pathway that links GTL and organizational GI in the hospitality industry.

1           Second, the study demonstrates that GTL serves as a notable precursor to GI which  
2 serves as an enhanced manifestation of GI conduct. As a result, our contribution expands upon  
3 the existing body of literature which has predominantly concentrated on substantiating the  
4 correlation between transformative leadership and organizational innovation (Rafique *et al.*,  
5 2022). Even when academics have examined the variables that affect GTL and GI they have  
6 only measured innovation from the perspective of an organization (Cui *et al.*, 2023, Zameer *et*  
7 *al.*, 2022). The hospitality industry is witnessing a growing emphasis on sustainable  
8 development and pro-environmental behavior. Our research demonstrates that GTL practices  
9 can enhance GI and provide guidance on fostering GC conduct among luxury hotel's staff.

10           Third, the study highlights the intricate nature of the relationship between management  
11 and employees by proposing that the influence of GTL on GI is accentuated by the mediating  
12 effect of GC. Both GTL and employees' GC must work together to ensure positive behavioral  
13 changes such as green innovation that benefit the entire community.

14           Moreover, in the context of GTL previous research has demonstrated that leaders may  
15 significantly impact behavioral effects such as GI, commitment, green creativity and  
16 innovation (Begum *et al.*, 2022a, Farooq *et al.*, 2022) However, there is a lack of scholarly  
17 inquiry into the impact of GTL on GI in conjunction with GC in hospitality industry. As a result,  
18 our study offers fresh theoretical insights within this context.

19           Fifth, the study utilizes Bandura's Bandura (1999) social cognitive theory which  
20 provides a dynamic framework for understanding employee behavior by considering individual  
21 traits, environmental factors and behavioral outcomes. Moreover, SCT blends cognitive,  
22 behavioral as well as sentimental procedures to explain behavioral changes providing a  
23 foundation for proposing GTL as environmental variable that interrelate with the GC of  
24 employees to bring about a change in behavior that could result in augmented GI.  
25 SCT emphasizes GC as a cognitive ability through which GTL leaders' inspiring conduct  
26 encourages employees to innovate in the hotel industry. Previous studies have underscored  
27 various positive effects associated with the green creativity of employees (Farooq *et al.*, 2022,  
28 Wang *et al.*, 2020). However, our study is noteworthy for its unique methodological approach  
29 in investigating the mediating role of employees' GC in the relationship between GTL and GI  
30 within the hospitality industry. Furthermore, researchers have recently noted the potential of  
31 GTL to augment employees' creativity thereby enhancing their capacity to attain innovation

1 (Begum *et al.*, 2022a). Undoubtedly, our study indicates that there exists a sturdy connection  
2 between GTL and the employees' GC, ultimately resulting in the hotel's GI and GP of hotels.

3 Finally, our study contributed to the extant literature by extending (NRBV) theory Hart  
4 (1995) to better understand and explicate the determinants that influence GI and GP. The  
5 concept of the (NRBV) was explored in relation to the utilization of organizational  
6 competences and sources by GTL to facilitate the promotion of GI within the hospitality  
7 industry. We therefore contended that GTL as a vital resource of the hotel organization. The  
8 primary obstacle faced by leaders is the task of recognizing developing and utilizing critical  
9 resources and competencies (Khan *et al.*, 2021). Our study indicates GTL as a strong  
10 organizational resource to promote GI and GI as a strong organizational competency which  
11 further enhances GP of hotel organizations.

### 12 **6.3. Managerial practices in the context of luxury hotels**

13 The findings of our research have an array of important real-world implications. Firstly,  
14 choosing to implement GTL Practices offers numerous advantages to the  
15 hotel organizations and their relevant stakeholders. To establish a sustainable hotel  
16 organization and achieve higher revenue while reducing environmental impact it is imperative  
17 for hotel management to undertake various necessary measures. These measures include  
18 implementing GTL practices as well as organizing practical training and development sessions  
19 for employee growth and improvement in relation to enhancing GTL qualities. Hotels seeking  
20 ethical business practices must prioritize GTL behavior (Shah and Soomro, 2023). We found  
21 that leaders' green transformative behavior fosters GI in hospitality industry. Consequently, it  
22 is imperative that luxurious hotels prioritize and encourage the implementation of GTL  
23 practices by their executives to augment their green innovative initiatives. Hotel managers can  
24 promote environmentally conscious behavior within their organizations by implementing green  
25 environmental plans, articulating a clear environmental vision, facilitating open discussions  
26 about ecological responsibility, fostering positive interpersonal relationships with hotel staff  
27 members and encouraging employees to share and develop their green ideas to promote green  
28 creativity, green innovation and green performance.

29 Second, considering the notable impact of employee green creativity on green  
30 innovation as highlighted by (Arici and Uysal, 2022), it is imperative for a hotel's leaders to  
31 possess a comprehensive understanding of strategies that can effectively foster and promote  
32 creative thinking among hospitality workforce within the workplace. Based on the findings of

1 our study it is recommended that leaders should exhibit traits associated with GTL. Green  
2 transformational leaders who prioritize sustainability and environmental responsibility actively  
3 promote a culture of open communication and collaboration among employees. They  
4 encourage individuals to freely express their thoughts, share their vision and contribute  
5 innovative ideas within the organization thereby fostering a creative and dynamic work  
6 environment. It is highly recommended that leadership of hotels should place a strong emphasis  
7 on fostering employee creativity (Rincon-Roldan and Lopez-Cabrales, 2022). The proficient  
8 staff members of hotels equipped with their extensive expertise and appropriate levels of  
9 motivation has the capacity to create and generate a multitude of creative ideas and  
10 recommendations for the effective execution of sustainability efforts.

11 Finally, practitioners must also recognize the significance of green performance in  
12 effectively converting hotel's resources and operations into green innovation. This is essential  
13 for hotel's managers to prioritize the cultivation of employees' abilities to effectively navigate  
14 the intricate dynamics of a hotel's workplace environment. This is crucial to facilitate the  
15 seamless implementation of innovative products and processes ultimately benefiting the  
16 relevant stakeholders and contributing to the advancement of sustainable practices and green  
17 performance. Engaging in green innovative actions has the potential to foster ecological  
18 awareness among stakeholders thereby increasing their interest in GP initiatives.

#### 19 **6.4. Limitation and Future Research**

20 The present study outlines several limitations and potential avenues for future research.  
21 First, a thorough mediation model was used to explore GTL-GI association using a time-lagged  
22 research methodology. Experimental design could lead to different results in future studies.  
23 Second, our model was evaluated in Italy a culture characterized by individualism wherein the  
24 tourism industry particularly the hotel segment is exceedingly susceptible to the impending  
25 threat posed by climate change (Fermani *et al.*, 2016). Potential investigations in collectivistic  
26 societies may yield varying results.

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