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Entrepreneurial Leadership and Green Innovative Work Behavior: The Role of Green Soft and Hard Talent Management with a Dual Theoretical Lens

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Abstract: The implementation of green initiatives by hospitality employees can significantly enhance the environmental sustainability of hospitality firms. However, there is a lack of research exploring the mechanisms influencing hospitality employees' green innovative work behavior (GIWB). Through the mediation paths of green soft talent management (GSTM) and green hard talent management (GHTM), this study seeks to investigate how entrepreneurial leadership promotes GIWB. The data from 366 employees and managers in Pakistan's hospitality industry were collected through a survey method using partial least squares structural equation modeling (PLS-SEM). The findings reveal that the effects of entrepreneurial leadership on GIWB, the direct effects of GSTM and GHTM, and the interaction effects between entrepreneurial leadership and GIWB are substantial. Based on the upper echelons theory and the resource-based view concept, this study extends research on the leadership–GIWB macro nexus and increases our understanding of the mechanisms behind employee GIWB, particularly in the hospitality setting.

Keywords: entrepreneurial leadership; green soft talent management; green hard talent management; green innovative work behavior; hospitality; Pakistan

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1. Introduction

The hospitality industry, a significant player in the global economy, is increasingly under pressure to improve its sustainable practices. This sector significantly contributes to the global carbon footprint due to its extensive use of resources such as single-use cutlery, food, water, and energy [1,2]. Consequently, environmentally conscious customers are deterred from staying at hotels, decreasing the hospitality industry's market share [3]. The urgent need to tackle environmental challenges has prompted hospitality organizations to prioritize environmental sustainability and innovation as critical elements in their strategic plans [4]. Among the myriad approaches to promoting sustainable development within organizations, employee green innovative work behavior (GIWB) has become a critical factor [5,6]. Green innovative work behavior (GIWB) involves developing eco-friendly service designs prioritizing environmental preservation, pollution reduction, waste recycling, and energy conservation [7,8]. Some hotels, like the Awang Awang in Indonesia or Ritz-Carlton Charlotte in North Carolina, have introduced innovative green behaviors, such as chemical-free pools and hybrid vehicles, to enhance environmental sustainability [9].

Despite the salience of green innovative work behavior for the green sustainability of hospitality firms, in the tourism and hospitality management literature, research has tended to revolve around green behaviors in general [10–12], rather than GIWB—a fine-grained green behavior [1]. Some green behavior research has examined citizenship behavior for the environment with eco-initiatives [13–15], but has not delved into GIWB separately and discretely. This study seeks to address this void by exploring the mechanisms underlying GIWB among employees in the hospitality industry.

When discussing green innovative work behavior, scholars have tended to bring leadership to the table [5,16–19]. Thus, there is a growing need to understand what leaders can do to enable successful green management practices within the hospitality sector [1]. This research is a critical foundation for hoteliers aiming to cultivate green organizational innovation among their staff through leadership development, especially in regions where reducing carbon emissions is emphasized or mandated. In this context, leadership-driven employee green innovative behavior can foster the advancement of progressive green management initiatives [5,20]. Therefore, it is essential to understand the factors that influence these green behavior outcomes.

Although leadership styles have begun to attract scholarly interest as potential enablers of green outcomes among employees, research in the hospitality sector on the relationship between entrepreneurial leadership and GIWB remains limited. Most studies have focused on different leadership styles, especially exploitative leadership [5], responsible leadership [16], transformational leadership [17], and ethical leadership [18,19] with GIWB. Additionally, these studies have generally been applied in different contexts, providing a valuable and unique perspective to enhance our scholarly understanding of how entrepreneurship forms of leadership influence green innovative work behaviors. The impact of leadership styles varies across organizational performance [21], levels of organizational commitment [22], and employee attrition rates [23]. Similarly, Rabiul and Yean [24] emphasized the need for comprehensive research on leadership styles within the hospitality industry. Research in the literature underscores the critical role of leadership for hotels [25], customers [26], employees [27], and societies [28]. Consequently, leadership is a critical influencer of employees' green innovative work behavior, as leaders play a pivotal role in shaping such behaviors by establishing clear expectations and a vision for sustainability, thereby motivating and inspiring individuals to engage in environmentally friendly practices [2,29].

Specifically, entrepreneurial leadership provides essential resources and support, fostering an organizational culture that rewards and encourages green innovative work behavior [20]. Entrepreneurial leadership involves leveraging innovation to capitalize on opportunities, managing risks, taking personal responsibility, and empowering subordinates to think and act independently in dynamic environments [30]. Prior research suggests that entrepreneurial leadership, compared to other leadership styles, is more effective in the hospitality industry [31], making it a key driver of innovation. Even though it plays a vital role in the hospitality sector, a systematic literature review by Elkhwesky and Salem [30] and a meta-analysis by Lee and Legood [32] reveal a lack of research exploring the direct and indirect effects of leadership, such as entrepreneurial leadership, on employee innovative work behavior. Additionally, the mechanisms influencing the effectiveness of entrepreneurial leadership remain largely unexplored [20]. Considering these gaps, we propose and empirically validate a model for entrepreneurial leadership as the key antecedent to GIWB. In this model, we employ green talent management with its isolated dimensions of green soft talent management (GSTM) and green hard talent management (GHTM) as mediating variables (see Figure 1).

However, green talent management involves leaders implementing strategies to ensure consistent employee retention, to nurture employees, and to attract appropriate talent [33,34]. This approach encompasses both GSTM and GHTM practices. GSTM attracts and retains environmentally conscious employees by communicating effectively, involving them in decision-making, and offering strong organizational support to its leaders. Alter-

natively, in green hard talent management, organizations oversee their human resources through rigorous performance appraisal systems, bureaucratic work structures, and hierarchical organizational culture [35]. Additionally, previous studies have shown a limited understanding of how leadership impacts GIWB [1]. These inquires arise from recent calls [30,32] for theoretical advancement in this area. Thus, our study is established based on a key problem statement: entrepreneurial leadership practices are underdeveloped in the hospitality sector, and their outcomes equally lack understanding [20]. Based on this knowledge gap and the problem statement discussed, the research questions are as follows: does entrepreneurial leadership influence green innovative work behavior? Do green soft talent management and green hard talent management mediate the relationship between entrepreneurial leadership and green innovative work behavior? Based on the research questions, we seek to investigate the following research objectives: to examine the influence of entrepreneurial leadership on employee green innovative work behavior and to determine the influence of green soft talent management and green hard talent management as underlying mechanisms in the entrepreneurial leadership and employee green innovative work behavior nexus.

To address these gaps, we developed this model combining the resource-based view by Barney [36] with the upper echelons theory by Hambrick and Mason [37] to cast light on the relationship between entrepreneurial leadership and employee GIWB with the mediation paths of green soft talent management and green hard talent management. The key tenet of the upper echelons theory is that a leader's traits significantly influence a firm's strategic decisions and outcomes. This theory posits that a firm's strategic choices and performance reflect its leaders' attributes [37]. These attributes, such as education, age, values, experiences, and backgrounds, uniquely shape how firms implement strategic policies and achieve performance outcomes [38]. From this perspective, entrepreneurial leadership leverages its unique characteristics to fully realize entrepreneurial visions and capitalize on opportunity-driven processes, empowering employees to embrace green innovative work behavior. Furthermore, the concept of the "resource-based view" underscores the significance of firms' unique and valuable organizational resources and capabilities to sustain a competitive advantage [36]. Aligned with these principles, organizations that effectively leverage their green talent management practices can create unique capabilities that are difficult for competitors to replicate [39]. Green talent management can lead to superior performance in sustainability initiatives and innovation, positioning the organization as a leader in environmental responsibility.

In addressing the above-mentioned research objectives, our study is significant and uniquely contributes to the literature in three distinct ways. Firstly, analyzing entrepreneurial leadership will help managers and hoteliers to determine if focused leadership development can impact sustainable outcomes at the employee level. The primary focus of this study is to address the gap in the research regarding the synergy between entrepreneurial leadership and GIWB. To better understand when entrepreneurial leadership is applicable, we start to define its role within the organizational leadership and hospitality management literature. As entrepreneurial leadership becomes more established, focusing on testing and validating its predictive validity is critical to developing a solid understanding of its predictive effects. However, this will enable future scholars to compare this concept's effectiveness with established leadership theories, especially within the hospitality industry.

Secondly, we build on the concept of employees' green innovative work behavior [1,5,20] as an essential factor for achieving organizational sustainability. The hospitality literature has documented that only a few studies have explored employees' green environmental outcomes [40,41]. This is unexpected because service employees are important in the hospitality industry for implementing green initiatives and driving successful eco-friendly practices [2,10,42]. Furthermore, recent academic discussions have proposed focusing more on the factors leading to green organizational outcomes [20] and less on influencing employees' green behaviors. Thus, we enhance hospitality research by focusing

on specific employee-level green outcomes, particularly GIWB, which has been relatively underexplored [40,43,44].

Thirdly, our study examines green soft talent management and green hard talent management practices as mediators between entrepreneurial leadership and employee GIWB. The growing interest in green talent management highlights its potential to enhance individual innovative work behavior [45]. Recent studies by Nirino, Ferraris [46] and Li and Makhdoom [47] highlight the imperative need for business leaders to advance and retain skilled employees capable of addressing global climate change and environmental sustainability. The increasing emphasis on sustainability underscores the demand for a competent and skilled workforce, yet there is a widening gap between talent demand and supply, with 35% of leading firms reporting difficulties in sourcing talent [48]. Effective leadership, as emphasized by Tomsic and Bojnec [49], is essential for developing, persisting, and utilizing talent management initiatives. Sadeli [50] stressed that leadership-driven talent management competence engages a highly skilled workforce, reinforcing organizational performance and success. To address the research objectives, we begin our research by proposing seven theory-driven hypotheses and outlining the methodology of our research. We then present our results and discussed them in a broader literature context. We conclude by discussing the theoretical and managerial implications of the research and by examining the study's strengths and limitations.

2. Literature Review and Hypotheses Development

2.1. Entrepreneurial Leadership and Green Innovative Work Behavior

Entrepreneurial leadership marks a transformative approach where leaders harness strategic resources, forge a shared vision, and identify market opportunities to drive organizational success [51]. At the intersection of leadership and entrepreneurship [52,53], entrepreneurial leadership encompasses critical behaviors that significantly influence employees' innovative capabilities. Entrepreneurial leaders communicate a visionary outlook, articulating an idealized future and inspiring team members to contribute meaningfully to the organization [54]. They adeptly craft compelling visions and highlight entrepreneurial opportunities amidst competitive landscapes, motivating their teams to adopt innovative approaches and transform their task-completion methods to realize these visions [47,55]. These leaders cultivate a culture of innovation and creativity by instilling confidence in their team's entrepreneurial skills and abilities [56]. Scholars suggest entrepreneurial leadership as a guiding force where leaders inspire their teams to enhance organizational performance by identifying and seizing entrepreneurial opportunities [54].

Researchers have increasingly acknowledged entrepreneurial leadership as a people-focused leadership style [57] and highlighted its significance in the management literature [54,58]. Renko [59] (p. 388) emphasized that entrepreneurial leadership acts as both an "entrepreneurial accelerator" and an "entrepreneurial doer". As entrepreneurial accelerators, entrepreneurial leaders inspire their subordinates to embrace creative thinking, challenge the status quo, and seize business opportunities. As entrepreneurial doers, entrepreneurial leaders set an example by actively participating in entrepreneurial activities. This approach fosters vicarious learning and motivates subordinates to adopt entrepreneurial behavior. Given this, we anticipate that entrepreneurial leadership in the hospitality sector will encourage innovative behavior by empowering employees to take the initiative, experiment with new ideas, and make decisions that enhance customer experiences. This leadership style fosters creativity and agility, enabling employees to adapt to changes and contribute to the organization's competitive advantage.

Previous research has consistently shown that leadership style significantly influences employees' green innovative work behavior [5,16,20]. In particular, entrepreneurial leadership has notably stimulated and enhanced employees' innovative work behavior [47,60]. Entrepreneurial leaders excel at identifying market opportunities for new products and services, and they empower their members with the necessary resources to capitalize on these opportunities [57,58]. This aligns with prior findings suggesting that embracing

GIWB necessitates leaders with entrepreneurial traits as they view environmental challenges as opportunities to gain competitive advantage rather than as resource drains [20]. Entrepreneurial leadership fosters an encouraging atmosphere that allows employees to experiment and propose new green ideas without fear of failure [61].

Based on upper echelons theory, we justify that entrepreneurial leadership enables organizations to seamlessly integrate innovation into their product portfolio and operational activities, enhancing organizational performance and fostering growth [62]. Additionally, entrepreneurial leaders inspire team members to generate fresh insights and cultivate creativity across various knowledge domains, aiming to offer innovative solutions to current challenges and capitalize on emerging opportunities [59]. This indicates that organizations' decisions are significantly influenced by the attributes of their corporate leaders [37]. This theory underscores the pivotal role of leadership in shaping employee behaviors and outcomes. According to the upper echelons theory, a leader's education, age, traits, and values are critical factors that mold their strategic preferences and decisions [20].

Based on the upper echelons theory, entrepreneurial leadership is characterized by distinct attributes such as innovation, supportiveness, visionary thinking, risk-taking propensity, and a drive for opportunities [51], which are anticipated to impact individuals' choices regarding GIWB. Leaders possessing these attributes will likely guide employees in identifying new opportunities and overcoming external challenges related to green practices, thereby influencing strategic processes and decisions in interaction with the external environment. Entrepreneurial leadership plays a vital role in fostering employee adoption of GIWB by aligning these initiatives with their entrepreneurial vision and personal values. Therefore, upper echelons theory provides a robust theoretical framework for understanding how entrepreneurial leadership can effectively steer employees towards embracing environmentally friendly practices such as GIWB. Thus, we propose the following hypothesis:

H1: *Entrepreneurial leadership is positively related to green innovative work behavior.*

2.2. Green Talent Management as a Mediator

Green soft talent management represents a human-centered approach to talent management that prioritizes proactive support for cultivating green talent. This strategy emphasizes fostering open communication, training, involving talent in decision-making, supporting well-being, and implementing empowering leadership practices. These efforts empower green talent to champion environmental sustainability and drive ecological initiatives [33,63]. GSTM fosters a climate change based on initiatives, such as ensuring the effective provision of important resources, promoting an agile organizational culture, and creating a supportive work environment [34]. On the other hand, green hard talent management refers to a mechanistic, market-focused approach to managing green talent as a critical resource, which involves bureaucratic work structures, hierarchical organizational cultures, and strict performance appraisal systems to leverage sustainability initiatives and foster a competitive advantage [34,63]. While past research has explored the relationship between green talent management and innovative work behavior [45], it has primarily produced insightful results without fully elucidating how green talent management functions as a mediating mechanism to predict GIWB. Moreover, there remains a significant gap in empirical investigations concerning the specific dimensions of green talent management, such as GSTM and GHTM [39], in terms of their ability to anticipate GIWB.

Previous studies have shown that green soft talent management practices can directly influence innovative work behavior by providing employees with the necessary skills, knowledge, and motivation to engage in environmentally friendly innovations [45]. For example, training programs focused on green skills can enhance employees' ability to identify and implement green innovations [64]. Green soft talent management practices can empower employees to contribute to green initiatives and innovate in sustainable practices [65]. Organizations that implement these practices effectively will likely see an increase in employee engagement with green initiatives, leading to higher levels of innovation in sustainability efforts. The research by Nwosu and Ward [66] revealed that

values demonstrated under GSTM are primarily positive indicators of increased commitment, higher job satisfaction, and greater job engagement, which in turn foster innovative behavior among employees.

Alternatively, green hard talent management practices often impose high bureaucracy levels that can limit employees' autonomy and flexibility [39]. This rigidity may discourage innovative thinking and experimentation, which are essential components of innovative work behavior. Employees may feel constrained by the rules, reducing their willingness to engage in creative problem-solving related to sustainability. The emphasis on compliance and performance metrics in GHTM practices can shift the focus away from innovative approaches to environmental challenges [39]. When employees are primarily evaluated on their adherence to established procedures rather than their creative contributions to sustainability, their motivation to innovate may diminish [67], thus negatively impacting GIWB. Green hard talent management practices often prioritize organizational goals over employee well-being. When employees perceive that their personal development and welfare are not supported, their engagement with and commitment to green initiatives can decline [39]. This lack of support can lead to lower levels of GIWB, as employees may feel less inclined to invest effort into innovative environmental solutions.

The resource-based view suggests that a firm's competitive edge arises from its distinctive collection of valuable, inimitable, rare, and non-substitutable resources and capabilities [36]. In this context, green soft talent management practices can be seen as organizational capabilities that foster human capital development focused on environmental sustainability [45]. By investing in green soft talent management practices, such as providing environmental sustainability support and training, participating in decision-making, and fostering a culture of open communication, organizations can develop a workforce that is more inclined towards green innovative work behavior, which finally becomes a source of sustained competitive advantage for the organization [35]. Employees with sustainability knowledge, empowered to make decisions, and operating in an open communication culture are more likely to engage in GIWB. Similarly, green hard talent management practices like strict hierarchies and bureaucratic structures often fail to align with the key resources needed for green innovation [39,68]. Green innovation requires flexibility, creativity, and employee empowerment qualities often stifled by rigid structures [69]. Based on the ongoing discussion, we propose the following hypotheses.

H2: *Green soft talent management has a positive and significant influence on GIWB.*

H3: *Green hard talent management has a negative and significant influence on GIWB.*

Entrepreneurial leadership is proactive, supports innovation, and takes risks in response to environmental changes [70]. Such leaders inspire staff to act creatively and challenge the status quo [56]. Unlike their counterparts, entrepreneurial leaders focus on mobilizing followers towards shared organizational objectives, facilitating exploring and exploiting new opportunities [55,71]. By envisioning a prosperous future for their organizations, entrepreneurial leaders leverage their teams' competencies to stimulate innovation in fiercely competitive environments [47,51]. They guide individuals towards achieving organizational success through innovative and risky activities, providing new solutions to current challenges, and seizing opportunities beyond traditional market boundaries [54]. Research indicates that leadership styles significantly drive green innovative work behavior in contemporary hospitality organizations [1,5].

Leadership greatly influences organizational strategies, including talent management practices [72]. In this context, entrepreneurial leadership stands out as a distinctive approach that fosters creativity and innovation within diverse, talented teams. Entrepreneurial leadership enables teams to adapt to unpredictable business environments and develop cohesive strategies, leading to new and impactful outcomes [73]. Leaders who practice entrepreneurial leadership often strongly emphasize managing talent [74]. According to Ready and Conger [75], entrepreneurial leadership involves initiating, managing, and per-

petuating the firm's talent development processes. Consequently, past studies have shown that leadership plays a more significant role in organizations characterized by soft talent management practices, which prioritize participation in decision-making and fostering communication, compared to those with hard talent management practices, which are known for their rigidity and centralized authority in decision-making [76].

Research indicates that GSTM practices can increase employee retention and reduce turnover intentions as they align with employees' values and well-being [39]. When leaders demonstrate benevolence and provide autonomy, team members are more likely to remain committed to the organization and its green objectives [45]. In contrast, an emphasis on strict performance appraisals and bureaucratic processes can create a disconnect between management and employees, potentially resulting in decreased job satisfaction and higher turnover intentions [39,77]. Employees may feel that their personal development is secondary to achieving organizational green targets, which can diminish their engagement and commitment to the organization [77]. Such practices prioritize organizational goals over employee welfare, leading to a more rigid and less adaptive work environment. Based on the ongoing discussion, we propose the following hypotheses.

H4: *Entrepreneurial leadership has a positive and significant influence on GSTM.*

H5: *Entrepreneurial leadership has a negative and significant influence on GHTM.*

For sustainable development, green innovative work behavior is critical in enhancing employee engagement, gaining a competitive edge, and fostering sustainable organizational performance [35]. Attracting and utilizing the capabilities of talented employees are recognized as pivotal for enhancing an organization's competitive edge. Consequently, managers and leaders face the challenge of attracting the most suitable talent [78]. Ongoing research and its projections on the future of work contribute to uncertainty, highlighting the necessity for deeper insights into how leadership can shape the effects of green talent management on employee outcomes [74,79].

Previous research has identified that leadership positively and indirectly enhances business performance through talent management [80]. From this perspective, entrepreneurial leadership, known for its ability to inspire and motivate individuals toward green innovative ideas [20], is expected to foster an environment that supports innovative work behavior among employees, which is crucial for achieving sustainable competitive advantages in today's market. This leadership style can promote green soft talent management practices, which focus on developing employees' skills, knowledge, and engagement in environmentally friendly practices [45]. Studies suggest that when organizations implement rigid talent management practices, they may undermine leadership's positive effects in helping employees engage in GIWB [35]. Specifically, while entrepreneurial leadership seeks to empower employees to put forward green innovations [20], the constraints imposed by GHTM can stifle creativity and reduce employees' willingness to engage in sustainable, innovative behaviors [39]. In essence, individuals tend to prefer work environments that are moderate and flexible rather than rigid and centralized. They seek leaders who actively develop and guide them towards overall success.

According to resource-based view theory, a firm gains a competitive edge through its distinctive resources and capabilities that are valuable, inimitable, rare, and not easily substitutable [36]. In this context, green soft talent management practices can be considered valuable resources that help to develop employees' green competencies, aligning their skills and behaviors with the organization's green objectives [81]. Through GSTM practices, firms can develop a highly skilled workforce in green initiatives, which becomes a source of competitive advantage. These practices help to nurture employees' green mindsets and innovative capabilities [45]. Through GSTM practices, entrepreneurial leaders cultivate a culture that supports and rewards green innovation. This culture encourages employees to engage in GIWB, as they feel supported and recognized for their contributions to sustainability. In contrast, the green hard talent management practices can be seen as a strategic

resource to enhance the firm's green capabilities. When GHTM practices become overly rigid, focusing too much on compliance and standardization [39], this can limit employees' autonomy and flexibility to experiment and explore new green initiatives. Entrepreneurial leaders, who thrive on agility and risk-taking, may find operating effectively under such structured systems challenging. As a result, the potential for green innovation can be hindered, as employees may feel constrained by the formalized processes and metrics, reducing their inclination to engage in innovative behaviors. Therefore, we propose the following hypotheses:

H6: *Green soft talent management mediates the link of entrepreneurial leadership with GIWB.*

H7: *Green hard talent management mediates the link of entrepreneurial leadership with GIWB.*

Based on the preceding discussion and hypothesis development, this study presents the theoretical model shown in Figure 1. The model visually depicts the key constructs and their relationships, offering a comprehensive framework for exploring the underlying dynamics of the study's variables and testing the proposed hypotheses. Thus, Figure 1 represents the theoretical model central to this study.

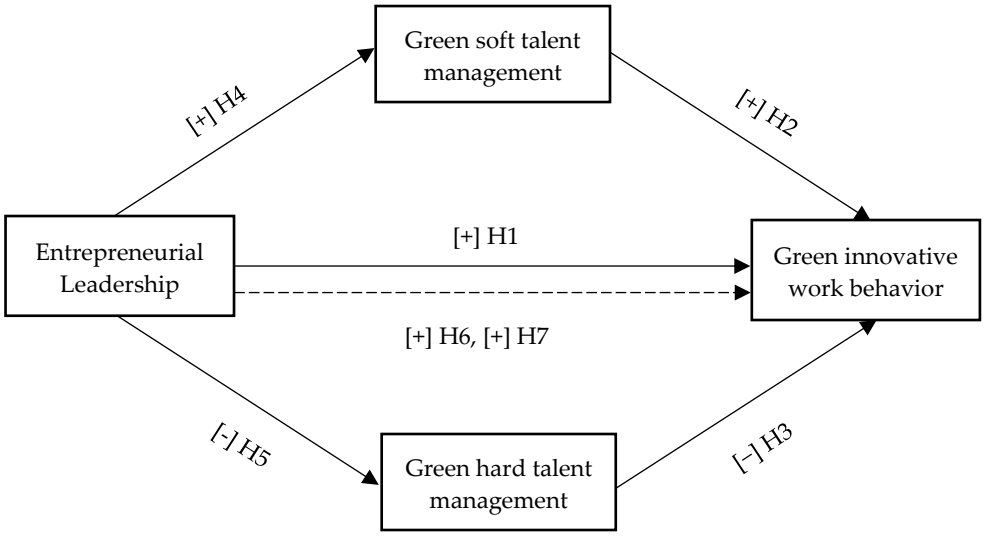

Figure 1. Theoretical model. Notes: [+] indicates positive relationships and [−] indicates negative relationships; [⟶] indicates direct relationships, and [- - -▶] indicates indirect relationships.

3. Materials and Methods

Quantitative research with convenience sampling was used to target participants working specifically in upscale hotels in Pakistan. This approach was chosen due to the growing emphasis on green innovative work behavior within the Pakistani hotel industry, driven by increasing governmental pressure to implement environmentally focused initiatives [43]. Consequently, the industry actively promotes environmental sustainability awareness and motivates staff to engage in eco-friendly practices [82]. For instance, a recent report from a five-star hotel in Pakistan highlighted ongoing efforts to adopt environmentally friendly equipment, such as solar-powered laundry services, and a commitment to national tree-planting campaigns [43]. This study collected data from full-time managerial-level employees working in three-to-five-star hotels in Pakistan's largest cities. We personally approached or contacted these employees over the phone, explaining the study's purpose and verifying that their hotels met our selection criteria. The chosen hotels were those that had integrated green practices into their daily operations. Evidence of this commitment was provided by deputy directors or managing directors, who demonstrated that their

hotels had either developed formal environmental policies and procedures or achieved the ISO:14001 certification [2], reflecting adherence to international environmental standards.

Initially, 32 hotels consented to participate in our research project, but 6 withdrew, leaving 26 hotels in the study. In a multi-wave research design, we employed a pen-and-paper survey, collecting self-reported data across four measurement intervals with a one-week time lag between each. This approach was chosen to address common method bias (CMB) issues highlighted in recent research [2,42]. Prior to distributing the questionnaires, respondents who participated in the study were informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. Those who agreed to participate provided their informed consent. To ensure anonymity, each participant who participated in the study was given a unique identification number on the personal information page. The survey questionnaire was developed in English and underwent expert validation by a panel of four experts. This group included two professionals from upscale hotels and two academics with expertise in hospitality management, specifically in leadership and environmental management. The experts from Malaysia, China, and Pakistan confirmed the instrument's content's validity, ensuring that all items effectively captured the intended constructs. A pilot study was carried out to evaluate how clear and understandable the scale items were. Thirty-five participants completed the survey and provided feedback on the wording and clarity of the items. This iterative process helped to refine the instrument, ensuring it was clear and comprehensible for all respondents.

At Time 1, demographic and independent variables (e.g., entrepreneurial leadership) were measured. At Time 2, the mediators green soft talent management and green hard talent management were assessed. At Time 3, the moderating variable, digital leadership, was measured. Finally, at Time 4, the dependent variable, employee GIWB, was evaluated. Initially, 550 self-administered surveys were distributed at Time 1, with 479 being returned, resulting in a response rate of 87.09%. Subsequently, 431 surveys were returned at Time 2, yielding a response rate of 89.98%. At Time 3, the response rate increased to 93.50%, with 403 surveys returned. By Time 4, 374 surveys were returned, reflecting a response rate of 92.80%. After removing 5 surveys due to incomplete data and discarding 3 surveys due to potential multivariate outliers, the final sample size for this study was 366, with an overall response rate of 66.55%. Table 1 offers a detailed summary of the study's participants demographic characteristics.

Table 1. Demographics.

Description	Frequency	Percentage
Gender		
Male	227	62.02
Female	139	37.98
Age (years)		
Less than 30	51	13.93
31–35	133	36.34
36–40	75	20.49
41–45	69	18.85
Above 45	38	10.38
Education		
Undergraduate	47	12.84
Graduate	209	57.10
Postgraduate	87	23.77
Others	23	6.28
Job position		
Upper management	137	37.43
Middle management	161	43.99
Lower management	68	18.58
Job experience (years)		
Less than 2	33	9.01
2–5	119	32.51
6–8	137	37.43
9–12	34	9.29
13–15	37	10.11
Above 15	06	1.64

Note: N = 366.

3.1. Measurement Scales

This study's research framework comprises four variables: entrepreneurial leadership, GSTM, GHTM, and GIWB. All measures were utilized from previously well-established scales to assess these variables, and unless otherwise stated, we used a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). We used an eight-item scale from Renko et al. (2015) [54] to measure entrepreneurial leadership, with a Cronbach's alpha value of 0.927. GSTM and GHTM were each measured using a seven-item scale from Ogbeibu, Chiappetta Jabbour [39], with Cronbach's alpha values of 0.921 and 0.894, respectively. Green innovative work behavior was assessed with a six-item scale from Aboramadan [83], resulting in a Cronbach's alpha value of 0.909. The survey items used for these measurements are presented in Table 2.

3.2. Data Analysis Technique

We utilized the partial least squares structural equation modeling (PLS-SEM) path modeling technique with SmartPLS 4 software to analyze the data. PLS-SEM was chosen for several reasons. First, our model is complex, involving multiple constructs and structural paths. PLS-SEM is particularly suitable for relatively new or not well-defined models, making it an ideal choice for our study, which aims to predict relationships between variables [84]. Furthermore, PLS-SEM is widely applied in the social sciences, especially in management, due to its effectiveness in such contexts [85,86]. Another advantage of PLS-SEM is that it does not require data normality and offers the capability to measure unobservable constructs with indicators [87]. Additionally, PLS-SEM is advantageous because it does not necessitate a large sample size [88]. Moreover, PLS-SEM outperforms regression analysis when conducting mediation test analysis [89,90]. The PLS model comprises two interdependent stages: the 'measurement model' and the 'structural model'.

4. Results

We cleaned the data before the primary analysis by removing missing values and multivariate outliers. To estimate data normality, we examined skewness and kurtosis results [91]. According to established criteria, the data are normally distributed if skewness and kurtosis values fall within the range ± 2 [92]. As shown in Table 3, the skewness and kurtosis coefficients fall within the acceptable range, indicating that all constructs meet the normality test requirements without significant deviation. Furthermore, we assessed multicollinearity by examining each variable's variance inflation factor (VIF). Following the guidelines of Hair, Hult [91], data are considered to lack multicollinearity if VIF values are close to or less than 3.3 [93]. The results in Table 2 show that all VIF values are within the acceptable range, confirming the absence of multicollinearity in our data. This validation allows for a reliable examination of the causal relationships between the variables.

4.1. Common Method Bias

To address the CMB issue, we followed Kock's [82] recommendation to assess full collinearity because the data for both exogenous and endogenous constructs were gathered from a single source. Additionally, we employed the marker variable approach to evaluate the potential impact of CMB [94]. The chosen marker variable was "I like the black color". Our unreported results indicate that incorporating the marker variable into the model did not alter the original findings. Consequently, CMB is not a significant issue in our study.

4.2. Measurement Model Assessment

The assessment of PLS-SEM involves evaluating both the measurement (outer) model and the structural (inner) model. The measurement model elucidates the connections between latent variables and their respective indicators, while the structural model shows the relationships between predictor and criterion variables [91]. The measurement model was assessed to examine the reliability and validity of the constructs. Composite reliability (CR) was used to evaluate internal consistency reliability, prioritizing items based on item relia-

bility, with a requisite CR value higher than 0.70 [91]. Construct validity was assessed using convergent and discriminant validity [89]. Convergent validity was examined through average variance extracted (AVE) analysis, meeting the required threshold of 0.50 [91]. Additionally, inter-items' reliability was evaluated by analyzing factor loadings, with a requisite threshold of 0.708 (see Figure 2 and Table 2) [91].

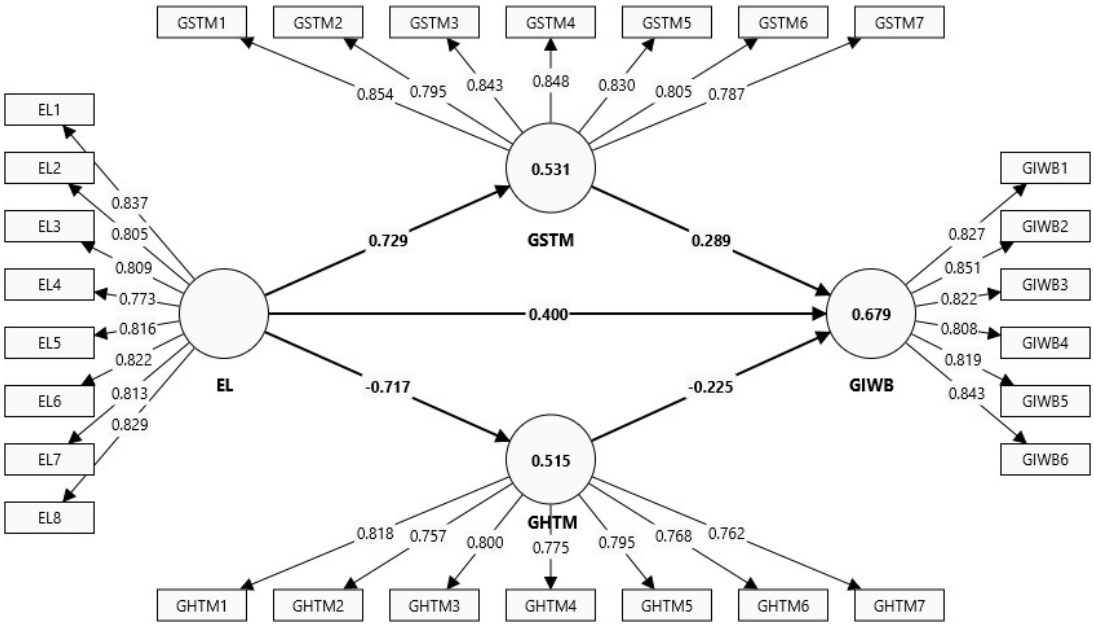

Figure 2. Assessment of measurement model.

Table 2. Factor loadings, construct reliability and validity.

Variables	Items	Loadings	CR	AVE	VIF
Green innovative work behavior	I search out new environmentally related technologies, processes, techniques and/or product ideas.	0.827	0.929	0.687	2.539
	I generate green creative ideas.	0.851			2.679
	I promote and champion green ideas with others.	0.822			2.465
	I Investigate and secure the funds needed to implement new green ideas.	0.808			2.373
	I develop adequate plans and schedules for the implementation of new green ideas.	0.819			2.581
	I am environmentally innovative.	0.843			2.519
Entrepreneurial leadership	My supervisor often comes up with radical improvement ideas for the products/services we are selling.	0.837	0.940	0.661	2.702
	My supervisor often comes up with ideas of completely new products/services that we could sell.	0.805			2.804
	My supervisor takes risks.	0.809			2.426
	My supervisor has creative solutions to problems.	0.773			2.027
	My supervisor demonstrates passion for his/her work.	0.816			2.893
	My supervisor has a vision of the future of our business.	0.822			2.774
	My supervisor challenges and pushes me to act in a more innovative way.	0.813			2.937
	My supervisor wants me to challenge the current ways we do business.	0.829			2.916

Table 2. *Cont.*

Variables	Items	Loadings	CR	AVE	VIF
Green hard talent management	My organization offers a stringent performance appraisal system to drive green initiatives.	0.818	0.917	0.612	2.375
	Environmental sustainability initiatives in my organization are driven by a high level of bureaucracy.	0.757			1.881
	My organization offers more support towards the achievement of green results than it offers to support my well-being.	0.800			2.157
	Green initiatives are not driven by already established and prescribed strict rules.	0.775			1.907
	Organizational support for developing team members is mainly geared towards increased task efficiency and productivity in green initiatives.	0.795			2.037
	My organization offers a high level of task flexibility, autonomy, effective and efficient communication when carrying out green initiatives.	0.768			1.899
	Personal development in my organisation is driven by green related results I achieve.	0.762			1.864
Green soft talent management	My organization cares about my well-being and offers considerable support for my welfare when executing green centered initiatives.	0.854	0.936	0.678	2.885
	My organization offers green training, workshop opportunities, coaching and courses that advance my knowledge on how to foster environmental sustainability.	0.795			2.210
	My organization offers me a considerable degree of autonomy when carrying out green related tasks.	0.843			2.614
	My organization offers me job rotation opportunities associated with environmental sustainability.	0.848			2.885
	My organization is very supportive of green related activities that can help me plan my future development.	0.830			2.464
	My organization offers me challenging assignments that are grounded in environmental sustainability.	0.805			2.299
	In my organization, green tasks are driven with several opportunities that allow me to express myself and share my opinions on green related matters.	0.787			1.980

Notes: CR = composite reliability; AVE = average variance extracted; VIF = variance inflation factor.

Discriminant validity was proven by ensuring that the heterotrait-monotrait (HTMT) ratio of correlation scores for each construct was less than the cut-off value of 0.85 (see Table 3) [95]. The results confirm that the model's constructs (see Figure 2) exhibit both discriminant and convergent validity.

Table 3. Discriminant validity (HTMT ratio).

Variables	EL	GHTM	GIWB	GSTM
Entrepreneurial leadership				
Green hard talent management	0.786			
Green innovative work behavior	0.840	0.781		
Green soft talent management	0.787	0.736	0.798	

4.3. Structural Model Assessment

After assessing the outer model, the current study assessed the inner model's significance (see Figure 3) using t-statistics measured via a bootstrapping technique with 10,000 subsamples [91]. The findings presented in Table 4 support Hypotheses H1 and H2, showing a significant and positive association between entrepreneurial leadership and GIWB ($\beta = 0.400$, $p < 0.001$), as well as a significant and positive relationship between GSTM and GIWB ($\beta = 0.289$, $p < 0.001$). Following Hypothesis H3, a significant and negative relationship exists between GHTM and GIWB ($\beta = -0.225$, $p < 0.001$), thereby supporting H1,

H2, and H3. Furthermore, this study examined the relationship between entrepreneurial leadership, GSTM, and GHTM. The results indicate that entrepreneurial leadership has a significant and positive relationship with GSTM (β = 0.729, $p < 0.001$) and a significant and negative relationship with GHTM (β = −0.717, $p < 0.001$), thus supporting Hypotheses H4 and H5.

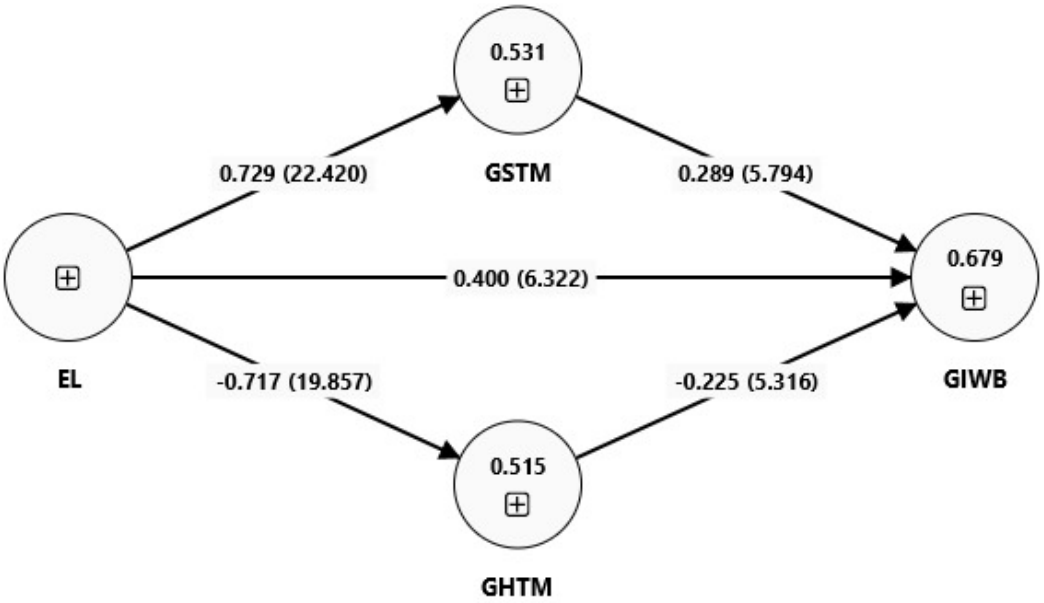

Figure 3. Structural model.

Table 4. Direct paths.

Hypotheses	Relationships	Beta	SD	t-Values	CI LL/UL	Decision
H1:	EL -> GIWB	0.400	0.063	6.322	0.268/0.515	Supported
H2:	GSTM -> GIWB	0.289	0.050	5.794	0.192/0.388	Supported
H3:	GHTM -> GIWB	−0.225	0.042	5.316	−0.309/−0.143	Supported
H4:	EL -> GSTM	0.729	0.033	22.420	0.651/0.782	Supported
H5:	EL -> GHTM	−0.717	0.036	19.857	−0.778/−0.634	Supported

Notes: p is significant at 0.05 (2-tailed); SD = standard deviation; CI = confidence intervals; LL = lower limit; UL = upper limit; EL = entrepreneurial leadership; GHTM = green hard talent management; GIWB = green innovative work behavior; GSTM = green soft talent management.

Mediation Analysis

Our study assessed the mediation effects of green soft talent management and green hard talent management in the entrepreneurial leadership–GIWB relationship. The results summarized in Table 5 confirm that GSTM significantly and positively mediates the entrepreneurial leadership–GIWB nexus (β = 0.211, $p < 0.001$), while GHTM significantly and positively mediates the relationship between entrepreneurial leadership and GIWB (β = 0.161, $p < 0.001$). Despite these mediating effects, the total effect of entrepreneurial leadership on GIWB remains statistically significant (β = 0.772, $p < 0.001$). Furthermore, the inclusion of the mediators does not diminish the significance of the direct effect of entrepreneurial leadership on GIWB. This demonstrates that green soft talent management and green hard talent management provide complementary partial mediation in the entrepreneurial leadership–GIWB nexus. Consequently, Hypotheses H6 and H7 are supported.

Table 5. Indirect paths.

Total Effect (EL -> GIWB)			Direct Effect (EL -> GIWB)			Indirect Effects of EL on GIWB					
Beta	**t-Value**	***p*-Value**	**Beta**	**t-Value**	***p*-Value**	**Hypothesis**	**Beta**	**SD**	**t-Value**	***p*-Value**	**CI LL/UL**
0.772	22.787	0.000	0.400	6.322	0.000	H6: EL -> GSTM -> GIWB	0.211	0.038	5.500	0.000	[0.141/0.290]
						H7: EL -> GHTM -> GIWB	0.161	0.032	4.996	0.000	[0.102/0.229]
Constructs		R^2	Q^2	Predictive power							
GSTM		0.531	0.526	Large							
GHTM		0.515	0.509	Large							
GIWB		0.679	0.591	Large							

Notes: *p* is significant at 0.05 (2-tailed); SD = standard deviation; CI = confidence intervals; LL = lower limit; UL = upper limit; EL = entrepreneurial leadership; GHTM = green hard talent management; GIWB = green innovative work behavior; GSTM = green soft talent management; R^2 = coefficient of determination; Q^2 = predictive relevance.

4.4. Explanatory and Predictive Power of a Model

We evaluated the explanatory power of the study model by examining the R^2 values of the endogenous constructs. Table 6 shows that our model's R^2 values for GSTM, GHTM, and GIWB are 0.531, 0.515, and 0.679, respectively. Following Chin's [96] guidelines for prediction (0.10 = weak; 0.33 = moderate; 0.67 = large), these results indicate a moderate level of explanation for GSTM and GHRM, while the explanatory power for GIWB is considered large. Secondly, to determine the model's predictive relevance, Stone–Geisser (Q^2) analysis was used [97]. Table 5 indicates that the Q^2 values for the endogenous constructs, such as GSTM (0.526), GHTM (0.509), and GIWB (0.591), are all greater than zero. This suggests these constructs have adequate predictive relevance [91]. Shmueli and Sarstedt [98] also introduced PLS-Predict, which utilizes a holdout sample to make case-level predictions for items or constructs. This technique employs PLS-Predict along with a 10-fold procedure to assess the predictive relevance of the model. They suggested that strong predictive power is indicated when all item differences (PLS-LM) are lower. Conversely, predictive relevance is not confirmed if all item differences are higher. Moderate predictive power is suggested when most item differences are lower, while low predictive power is indicated when the minority of item differences are lower. Based on Table 6, a majority (02 out of 20) of the errors of the PLS model were lower than those of the LM model. Therefore, we may conclude that our model exhibits moderate predictive power.

Table 6. PLS-Predict.

MV	PLS_SEM (RMSE)	LM (RMSE)	PLS-LM (RMSE)	Q^2_Predict
GIWB1	0.549	0.557	0.008	0.402
GIWB2	0.545	0.545	0.000	0.433
GIWB3	0.567	0.570	0.003	0.388
GIWB4	0.552	0.558	0.006	0.394
GIWB5	0.545	0.548	0.003	0.388
GIWB6	0.559	0.565	0.006	0.416
GSTM1	0.588	0.598	0.010	0.378
GSTM2	0.645	0.654	0.009	0.313
GSTM3	0.620	0.631	0.011	0.393
GSTM4	0.649	0.657	0.008	0.343
GSTM5	0.650	0.661	0.111	0.368
GSTM6	0.642	0.650	0.008	0.293
GSTM7	0.640	0.649	0.009	0.383
GHTM1	0.700	0.712	0.012	0.320
GHTM2	0.738	0.737	−0.001	0.247
GHTM3	0.728	0.740	0.012	0.341
GHTM4	0.662	0.669	0.007	0.317
GHTM5	0.679	0.684	0.005	0.334
GHTM6	0.701	0.698	−0.003	0.304
GHTM7	0.703	0.714	0.011	0.302

Note: Q^2 = predictive relevance; LM = linear model; RMSE = root mean square error.

5. Discussion

Drawing from the upper echelons theory by Hambrick and Mason [37] and the resource-based view by Barney [36], our research delves into the entrepreneurial leadership–GIWB nexus within the hospitality industry. We explore this connection by examining the indirect mediation of green soft talent management and green hard talent management. Our study found empirical support for all seven hypotheses. The results reveal that entrepreneurial leadership has a positive and significant relationship with GIWB (H1). This aligns with recent research by Ali and Jiang [20], highlighting that entrepreneurial leaders foster a culture of green innovation among their team members. Our findings support the notion that employees' perceptions of their leader's entrepreneurial strategies in promoting green behavior and their belief in their ability to innovate and take proactive steps significantly influence their engagement in green innovative work behaviors.

This study's findings indicate that green soft talent management positively and green hard talent management negatively impact green innovative work behavior, thereby supporting Hypotheses H2 and H3, respectively. Additionally, entrepreneurial leadership positively influences GSTM (H4) but negatively influences GHTM (H5). Moreover, GSTM and GHTM mediate the relationship between entrepreneurial leadership and GIWB, supporting Hypotheses H6 and H7. Previous research highlights the crucial role of leadership in enhancing talent management [74,80]. Specifically, GSTM and GHTM significantly impact innovative work behavior [45]. Consistent with this, organizations can successfully implement excellence through the influence of leadership on talent management [74], which in turn affects employee GIWB. The research suggests that firms should prioritize entrepreneurial leadership to establish and execute GSTM, enhancing GIWB. GSTM aims to enhance talent engagement by fostering effective communication, supported by leaders prioritizing the well-being and welfare of talented employees [45]. By developing a culture that prioritizes transparent communication, actively participating talent in decision-making, and employee well-being, entrepreneurial leadership can effectively encourage employees to engage in GIWB. Here, GSTM plays a vital role by bridging the gap between leadership's sustainability vision and employees' actionable initiatives. Entrepreneurial leadership fosters an environment that empowers talented employees to unleash their creativity and cultivate tacit knowledge. This nurturing atmosphere supports the generation of GIWB, propelling the firm towards achieving its sustainability goals.

In discussions related to green hard talent management, research indicates that practices such as rigid performance appraisal systems, ineffective communication, bureaucratic work structures, formal work environments, less task autonomy, excessive control, and similar leadership behaviors can stimulate employees' inclination towards leaving an organization, as well as reduce their innovative work behavior [45]. In strongly developed hierarchical organizational cultures, concerns have been raised by Naranjo-Valencia and Jiménez-Jiménez [99] and Porter and Gallagher [100] that such organizational cultures may hamper effective communication, lower job satisfaction, hinder creativity, reduce innovativeness, and increase the alienation and exclusion of talented individuals. Practices rooted in GHTM may inhibit creativity and discourage risk-taking, thereby dissuading employees from pursuing innovative and environmentally friendly initiatives. Poor communication can weaken entrepreneurial leadership's vision and message, hindering the organization's effective implementation of employees' innovative and environmentally friendly ideas. Our research indicates that GHTM practices undermine employees' ability, making it harder for entrepreneurial leadership to enhance employees' ability to act on green innovative ideas. Conversely, GHTM practices can further undermine the relationship between entrepreneurial leadership and GIWB, thereby reducing employees' ability to act in an environmentally friendly way.

In summary, this research integrates upper echelons theory and resource-based view to show how entrepreneurial leadership, as a critical organizational resource, can drive green innovative work behavior through specific talent management practices. This contributes to a more nuanced understanding of how leadership influences organizational sustainability-

oriented innovation. From a resource-based view perspective, GSTM develops valuable and rare human resources. Green soft talent management practices, when implemented together, create a powerful foundation for GIWB by developing employees' willingness and ability to contribute to environmental sustainability through innovation. In contrast, while valuable and rare resources are crucial, overly stringent criteria can stifle the influx of diverse and creative human capital necessary for green innovation.

5.1. Theoretical Implications

This study's empirical findings significantly contribute to the existing literature and theory. We proposed a theoretical model to explain the relationship between entrepreneurial leadership, green talent management (e.g., GSTM and GHTM), and GIWB by addressing identified research gaps and aiming to enhance environmentally sustainable innovative behavior in the hospitality sector. This study contributes to the growing body of leadership literature by acknowledging and offering insightful explanations for the significant role of entrepreneurial leadership in the context of environmental management. Even though several studies have concentrated on various leadership styles in the context of environmental management [1,5,43], entrepreneurial leadership, despite its significance, has not been given adequate attention [101,102]. Our research aims to fill this gap by addressing the call to investigate the relationship between entrepreneurial leadership and green innovative behavior [20], particularly in the hospitality management setting. Entrepreneurial leadership fosters creativity and encourages individuals to generate novel insights in diverse environmental knowledge zones. This approach enables the development of innovative solutions to existing challenges and the pursuit of emerging opportunities, ultimately facilitating the adoption of GIWB.

Our study contributes to bridging the gap in the literature by exploring the previously unexamined relationship between entrepreneurial leadership and green innovative work behavior through the mediating roles of green soft talent management and green hard talent management among hospitality employees. Previous research has typically focused on single mediators in the relationship between different leadership styles and green outcomes [1,5,43]. However, these approaches have limited our understanding of the processes through which entrepreneurial leadership can influence GIWB. By examining key emerging concepts within green human resource management [103,104], our research aims to place them within an environmentally sustainable context. This underscores the importance of organizational leaders and employees prioritizing green soft talent management and green hard talent management practices, highlighting their impact on fostering GIWB. In addition to analyzing the influence of GSTM and GHTM on the relationship between entrepreneurial leadership and employees' GIWB, our study aims to offer insights into how organizations can promote environmental sustainability while simultaneously advancing sustainable development goals within their respective markets.

This research delves into the persistent calls for a thorough examination of how entrepreneurial leadership behaviors foster the innovative endeavors of followers, drawing upon various theoretical perspectives [32,105]. This study represents the inaugural expansion of established theoretical models by uniquely combining the upper echelons theory with the resource-based view concept to elucidate the relationship between entrepreneurial leadership and employees green innovative work behavior with the indirect mediating mechanism of GSTM and GHTM. Additionally, we expanded upon the works of upper echelons theory by Hambrick and Mason [37] and the resource-based view theory by Barney [36] to integrate green management concepts, focusing on the significant role of entrepreneurial leadership in fostering GIWB and the interplay with GSTM and GHTM. While most existing studies centered on upper echelons theory primarily examine leadership attributes and board composition [106,107], they often neglect a significant leadership style, namely entrepreneurial leadership, and its impact on GIWB. Applying upper echelons theory as a conceptual framework, we address a significant research gap by elucidating the concept of entrepreneurial leadership, which encompasses a leader's ability to identify

and capitalize on opportunities, and we underscore its influence on employees' GIWB. Our findings support the fundamental principle of the upper echelons theory and enrich its theoretical framework by demonstrating the interconnection between employees' strategic decisions and the creative and innovative outcomes, which are influenced by leaders' contextual traits. We stress the potential of utilizing upper echelons theory as a theoretical framework, which could provide novel perspectives in the environmental management field. This approach may pave the way for a promising avenue, facilitating employees' embrace of GIWB with greater effectiveness.

Furthermore, employing the resource-based view concepts allows us to pinpoint the mechanisms between entrepreneurial leadership and individuals' green innovative work behavior. Therefore, by applying the theoretical framework of the resource-based view concept (valuable, rare, imperfectly imitable, and organized to achieve sustainable competitive advantage), organizations can effectively develop GSTM, further stimulating employees' GIWB. The resource-based view offers a theoretical background for organizations' internal human capital capabilities in identifying resources supporting the continuation of competitive advantage. Furthermore, the resource-based view concept assists employees and leaders in maximizing profits and increasing competitive advantages. It serves as a guide for organizations, directing them in positioning and using their capabilities and resources to advance the pursuit of sustainable development goals, particularly in environmental sustainability.

5.2. Managerial Implications

Primarily, we recommend that hotels recognize the advantages of an entrepreneurial leadership style and actively seek supervisors and managers who can lead with an entrepreneurial mindset. Hotels should prioritize individuals who exhibit vital traits such as risk-taking, proactivity, and innovativeness during their recruitment and selection processes, as these qualities are pivotal attributes of entrepreneurial leaders. To foster these qualities, hospitality settings must offer training highlighting the benefits of employing entrepreneurial leadership techniques and providing guidance on developing them effectively. CEOs play a crucial role in this process by effectively conveying entrepreneurial vision to managers, motivating and empowering them to seek opportunities actively. They should encourage collaboration within the team to seize opportunities and transform them into individuals demonstrating GIWB. For example, managers can develop improved marketing and operational strategies to promote eco-friendly products with small carbon footprints in restaurant settings [108]. They can also implement energy and water-saving measures and engage in consumer awareness campaigns that adhere to "green" building standards [2]. By doing so, hotels can enhance their sustainability efforts, drive innovation, and maintain a competitive edge in the industry.

To reach each attribute of entrepreneurial leadership simultaneously, we suggest that hotel HR departments collaborate closely with leaders. This collaboration can help leaders to foster the necessary green skills and behaviors among their employees. HR units should work hand in hand with leaders to illustrate the importance of green behaviors and demonstrate how leaders can actively contribute to their adoption. Additionally, hotels should adopt a more personalized approach to their leaders' development and learning trajectories, focusing on enhancing leaders' skills to foster green entrepreneurship and enable employees to thrive. Establishing a feedback system is also crucial, allowing individuals to easily share their experiences implementing entrepreneurial leadership and green innovative initiatives. For instance, individuals could share their insights on entrepreneurial activities and offer suggestions for fostering innovation.

To provide practitioners and industry policymakers with concrete evidence for establishing guidelines that promote environmentally sustainable practices, it is essential to focus on green soft talent management rather than green hard talent management. To ensure that organizations can nurture and retain talent for fostering environmental sustainability, practitioners and leaders should focus on instilling values inherent to GSTM rather than

green hard talent management. Our research indicates that implementing GSTM leads to increased GIWB. However, contextual factors, such as the hierarchical organizational culture in emerging economies like Pakistan, should be carefully considered. To nurture and retain talent dedicated to environmental sustainability, organizations should adopt GSTM practices. These practices include developing robust support systems for employee well-being and welfare, implementing inclusive talent strategies, and ensuring effective communication. Emphasizing and recognizing the importance of green values and skills among employees is crucial for building a workforce committed to long-term environmental sustainability. Managers with expertise in sustainability and a strong dedication to environmental responsibility are invaluable assets. They should be supported in their efforts to develop and promote green initiatives within the organization and among employees. By fostering and supporting these green values and skills, organizations can create an environment conducive to sustainable practices and long-term ecological responsibility.

Evidence suggests that immoderate control within organizational structures, such as the rigid implementation of the GHTM system, can reduce job engagement, lessen commitment, and diminish green innovative work behavior. To counteract these negative effects, it is crucial to encourage the development of green skills, foster employee engagement with sustainability values, and empower staff with environmentally conscious aspirations. This organizational shift towards sustainability can be achieved by integrating green aspirations and initiatives into talent management and staff development programs. Practical processes integral to a green-inclusive HRM system encompass training and skill development initiatives, mentorship programs tailored to employees exhibiting leadership potential and competencies, integrating green objectives into performance management systems, and strategically managing talent across the organization to align key divisions and subsidiaries with green goals. Furthermore, industrial policymakers aiming to foster the growth of green industries should consider the importance of incorporating GSTM practices into their assessments. This involves evaluating how policies influence individuals' and firms' proactive adoption of environmentally friendly practices.

5.3. Limitations and Future Research Directions

Although this research makes significant empirical contributions to practice and theory, it also has a few limitations. First, our analysis focuses on data at the individual level, meaning any conclusions drawn should not be extended to organizational or team dynamics. Nonetheless, this limitation presents an opportunity for further exploration from organizational and team perspectives. Our study demonstrated that entrepreneurial leadership, GSTM, and GHTM are important predictors of employees' green innovative work behavior. While these findings significantly advance theory and practice, further research should explore additional mediators and moderators that facilitate the translation of entrepreneurial leadership into employees' GIWB. Future research models could incorporate new mediating variables, such as knowledge management and intellectual management, as well as moderating variables, such as digital technologies and digital turbulence, to deepen insights into the conditions under which entrepreneurial leadership effectively fosters employee GIWB. By identifying these additional factors, we can better understand how entrepreneurial leadership influences GIWB and under what circumstances its impact is maximized.

Third, the use of nonprobability sampling and this study's focus on a specific industry may restrict the generalizability of the findings. Therefore, it would be valuable to replicate our research model across various industry landscapes. We encourage fellow researchers to explore and apply our model in manufacturing, healthcare, higher education, and diverse economies. Fourth, relying on data from a single source to measure all constructs could lead to CMB. Although our study suggested using marker variables and multi-wave survey formats as remedies for CMB, future research should consider employing data collection methods from multiple sources to mitigate this issue further. In this study, PLS-SEM was employed to examine the model. However, PLS-SEM can be susceptible

to variability due to random sampling errors, measurement errors, and potential model misspecification, which may impact the reliability and validity of the findings. To enhance future research, increasing sample sizes, refining measurement instruments, and aligning model specifications more closely with theoretical foundations and prior empirical insights are recommended measures. These strategies can help to mitigate the concerns associated with PLS-SEM and improve the robustness of the results.

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