International Review of Management and Marketing

ISSN: 2146-4405

available at http: www.econjournals.com

International Review of Management and Marketing, 2026, 16(3), 395-405.

# From Green Dynamic Capabilities to Competitive Advantage: A Dynamic Capabilities Perspective on Sustainability Innovation

**Qi Ruojun***

UCSI Graduate Business School, UCSI University, Kuala Lumpur, Malaysia. *Email: researchlab520@gmail.com

**Received:** 27 September 2025 **Accepted:** 25 February 2026 **DOI:** https://doi.org/10.32479/irmm.22961

**ABSTRACT**

Drawing on the Dynamic Capabilities View (DCV), this study examines how green dynamic capability (GDC) drives green competitive advantage (GCA) in the hospitality sector through sustainability exploitation innovation (SEI) and sustainability exploration innovation (SER), and how environmental regulation (ER) moderates these relationships. Using survey data from 428 four- and five-star hotels in China, structural equation modelling with partial least squares was employed to test the proposed framework. Both SEI and SER significantly mediate the relationship between GDC and GCA. ER exerts a differential moderating effect: high-intensity ER strengthens the impact of SER, while low-intensity ER amplifies SEI's influence. These results show that aligning innovation strategies with the regulatory environment maximizes the value of green capabilities. This study distinguishes the roles of two innovation modes in translating dynamic capabilities into competitive advantage. It clarifies ER's nuanced moderating role, offering guidance for managers and policymakers aiming to enhance green innovation in the hospitality sector.

**Keywords:** Green Dynamic Capability, Sustainability Innovation, Environmental Regulation, Green Competitive Advantage
**JEL Classifications:** L83, O31

## 1. INTRODUCTION

The global focus on sustainable development and carbon neutrality has heightened scrutiny on industries with significant energy consumption, water usage, and environmental impact, with the hospitality sector facing particular attention (Choudhary and Datta, 2024). In China, luxury hotels are under increasing pressure to align with the national "Dual Carbon" strategy, which targets peak carbon emissions by 2030 and carbon neutrality by 2060 (Zhan et al., 2024). This policy shift has transformed sustainability into a central strategic priority for the hotel sector. External drivers, such as government regulations, sector standards, and collaborative initiatives, are accelerating the sector's green transition (Begum et al., 2025). For instance, in early 2024, the China Hotel Association, in partnership with the China Tourist Hotel Association, the China Association of Circular Economy, and the China Consumers Association, launched a campaign to curb single-use plastics and enhance green operational practices. Despite the existence of a supportive regulatory and policy framework, the implementation of sustainable practices within the hospitality sector remains uneven. Compared to manufacturing, the adoption of green innovation in hotels has been slower, with progress lagging in areas such as energy-efficient building design, paperless operations, sustainable procurement, and green marketing (Karvounidi et al., 2024; Vo-Thai and Tran, 2024). Many luxury hotels continue to respond to environmental regulations with compliance-driven approaches rather than undertaking substantial internal green transformation. Notably, hotels with green certification consistently outperform their traditional counterparts in customer satisfaction, online reputation, and consumer preference. The 2023 China Accommodation Market Online Reputation Report confirms an emerging shift in consumer behavior: green hotels emphasizing environmental sustainability consistently receive higher review scores and enjoy broader consumer recognition. This favorable brand reputation significantly enhances their competitive edge, making travelers more inclined to choose hotels with excellent feedback rather than relying solely on star-based classifications.

This study addresses this gap by drawing on the Dynamic Capabilities View (DCV) to explore how GDC fosters GCA through SEI and SER, with ER as a moderating factor. Focusing on China's luxury hotel sector, this research responds to the urgent need for evidence-based strategies that integrate internal capabilities with external regulatory demands to achieve sustainable outcomes.

While rooted in the Chinese context, the findings have broader relevance for the global hospitality sector, particularly in markets where environmental regulations and consumer expectations for sustainability are intensifying. The insights are valuable for hotel managers, policymakers, and sector bodies aiming to develop regulatory frameworks and strategies that balance compliance with innovation. The paper proceeds with a literature review and theoretical framework, followed by hypothesis development, research methodology, findings, implications, and directions for future research.

## 2. LITERATURE REVIEW

### 2.1. Theoretical Framework

This study adopts DCV, a key strategic management framework, to explore how firms adapt to dynamic and uncertain environments by integrating and reconfiguring resources (Teece et al., 1997; Wang and Ahmed, 2007). Evolving from the resource-based view (Peteraf, 1993), DCV emphasizes organizational routines that enable continuous learning and strategic renewal (Teece, 2007). In the context of environmental sustainability, dynamic capabilities allow firms to sense external pressures, mobilize resources, and drive green innovation to meet regulatory and consumer demands (Li and Liu, 2014; Choi et al., 2019). This enables firms to transform environmental challenges into opportunities for sustained competitive advantage (Joshi and Dhar, 2020). In such highly competitive global environment, it is really important for organizations to expand competitive advantage through proficient use of resources (Fareed et al., 2016).

DCV is increasingly applied in hospitality research to explore how firms foster green innovation and competitive advantage amid environmental and regulatory pressures. For instance, Begum et al. (2025) used DCV to examine how green training and organizational learning drive green service innovation in hotels, while Kumar and Gawali (2025) highlighted dynamic capabilities' role in enhancing hospitality innovation and performance. This study employs DCV to investigate how China's four- and five-star hotels develop GDC to address green transition challenges, reconfigure resources, and promote sustainable innovation for GCA. By applying DCV, this research reveals how environmental challenges can be transformed into strategic opportunities, offering theoretical and practical insights for green hospitality management.

This study adopts a moderated mediation model, in which GDC acts as a key antecedent of GCA, operating through two distinct innovation mechanisms: SEI and SER. To capture the influence of external institutional forces, ER is introduced as a moderator that shapes the strength of the relationships between GDC and both forms of innovation. This conceptual framework is grounded in DCV and draws upon prior research on dual innovation and regulation within the domain of strategic environmental management (Enkel et al., 2017; Juo and Wang, 2022).

### 2.2. SEI and SER

Amid the growing emphasis on sustainable development strategies, companies are increasingly leveraging innovative practices to harmonize environmental stewardship with economic growth. Sustainable innovation is defined as a creative approach that strengthens a firm's competitive edge while mitigating its adverse impacts on the environment and society (Boons et al., 2013). Firms pursue this innovation to adapt to shifting environmental dynamics and to secure a lasting competitive position in a fiercely competitive market (Juo and Wang, 2022).To further elucidate the impact of diverse sustainable innovation pathways on firm performance, Maletič et al. (2014) integrated the "exploration-exploitation" paradigm with sustainability principles, introducing the concepts of SER and SEI. SER emphasizes pioneering efforts to develop novel green products, technologies, or business models, reducing environmental costs and fostering long-term growth and competitive strength. In contrast, SEI focuses on refining existing resources and capabilities through incremental improvements in production processes and efficiency, minimizing the use of materials, water, and energy to enhance short-term operational effectiveness and market competitiveness (Maletič et al., 2016).

Research indicates that both SER and SEI enable firms to address ecological, social, and economic challenges, thereby boosting overall performance (Beger et al., 2023). For instance, green innovation is a pivotal driver of competitive advantage in manufacturing firms (Javed et al., 2025). Additionally, internal factors like GDC shape a firm's success in implementing SER and SEI (Xue and Swan, 2023).

Although existing literature has provided initial insights into these innovation pathways, a comprehensive theoretical model that integrates external regulatory pressures with internal green capabilities remains underdeveloped (Xing et al., 2019; Tushman, 2008). Consequently, this study examines how firms, under the dual influence of ER and GDC, strategically select between SER and SEI, and their subsequent impact on organizational performance. The aim is to offer theoretical insights and practical guidance to support firms in achieving green transformation and sustainable development.

### 2.3. Hypothesis Development

#### *2.3.1. GDC, SEI and SER*

GDC emerges from the synthesis of DCV (Teece et al., 1997) and the natural-resource-based view (Hart, 1995), providing a robust framework for firms to navigate escalating environmental challenges. Hart and Dowell (2011) highlight that sustainable development necessitates organizations to reconfigure internal resources and cultivate capabilities that harmonize economic and ecological objectives. GDC specifically denotes a firm's capacity to continually develop, adapt, and implement green knowledge, technologies, and processes to address evolving ecological conditions and stakeholder expectations (Chen and Chang, 2013).

Teece et al. (1997) underscore that dynamic capabilities are vital for strategic renewal and resource reconfiguration. GDC provides GI related to processes or products such as improvements in green product design, environmental management, pollution prevention technologies, waste recycling and energy conservation (Camisón and Monfort-Mir, 2012). Within an environmental context, GDC enables firms to adjust their products and processes to align with green standards while sparking innovation (Qiu et al., 2020). It fosters SEI by enhancing existing green products and operational efficiencies to support environmental goals, while also promoting SER through experimentation, risk-taking, and the creation of novel green solutions to meet emerging consumer needs (Brix, 2020).

In this context, the interplay between environmental regulation and green innovation is marked by significant dynamism and intricacy. Although prior research has acknowledged the positive impact of GDC on overall firm performance (Singh et al., 2022; Ma et al., 2025), the specific pathways through which it fosters sustainable innovation-particularly exploitative and explorative innovation-remain insufficiently examined. Thus, building on DCV and addressing the contextual gaps in hospitality sector research, this study proposes the following hypotheses:
$H_1$. GDC has a positive effect on SEI.
$H_2$. GDC has a positive effect on SER.

#### *2.3.2. SEI, SER and GCA*

Within green innovation research, SEI and SER constitute two distinct yet mutually reinforcing pathways for enhancing GCA.

Drawing on DCV (Teece et al., 1997), these innovation modes act as essential channels through which GDC translates into competitive outcomes. SEI focuses on leveraging existing resources to improve operational efficiency and regulatory compliance, whereas SER emphasizes developing novel solutions and adaptive strategies in dynamic environments (Li et al., 2008). Prior evidence indicates that both pathways can strengthen environmental performance, build stakeholder trust, and align market positioning with sustainability values, thereby advancing GCA (Clauss et al., 2021; Van Lieshout et al., 2021). Firms' engagement in both sustainability exploration and exploitation innovation reflects a forward-looking strategic orientation, signaling to stakeholders a proactive commitment to addressing emerging environmental challenges (Wang et al., 2025). Accordingly, hotels engaging more intensively in SEI and SER are expected to attain superior GCA. Thus, the following hypotheses are proposed:
$H_3$. SEI has a positive effect on GCA.
$H_4$. SER has a positive effect on GCA.

#### *2.3.3. SEI and SER as mediators*

Beyond their direct influence on GCA, SEI and SER can function as mediating mechanisms that channel the impact of GDC into sustainable competitive outcomes (Clauss et al., 2021; Van Lieshout et al., 2021).

According to DCV, firms that engage in SER can facilitate the exchange of emerging environmental technologies and proactively search for green opportunities, thereby transforming GDC into a source of long-term GCA (Brix, 2020). This process enhances the assimilation of new green knowledge into the firm's existing knowledge base and strengthens its capacity for sustained competitive positioning (Xue and Swan, 2023). Thus, SER can be considered a key mediator in the relationship between GDC and GCA.

The same rationale that supports the mediating role of SER also applies to SEI, although the operational mechanism is notably different. SEI emphasizes the refinement of existing green technologies, enhancement of resource efficiency, and improvement of operational processes by leveraging mature environmental knowledge and well-established solutions (Maletič et al., 2016). The exploitation of accumulated environmental knowledge-often developed and refined over time-enables more rapid enhancement of existing technologies and processes, producing competitive advantages that are valuable, rare, and difficult to imitate (Li et al., 2018; Zhu et al., 2023). Through SEI, GDC translates into incremental but continuous improvements that strengthen short-term competitiveness, reinforce existing market positions, and ensure operational excellence. Accordingly, we propose the following hypotheses:
$H_5$. SEI mediates the relationship between GDC and GCA.
$H_6$. SER mediates the relationship between GDC and GCA.

#### *2.3.4. ER as moderator*

The potential of environmental regulation to stimulate innovation has long attracted scholarly attention. According to the well-known Porter Hypothesis, well-designed environmental regulations can generate "innovation offsets" that partially or fully counterbalance the costs of adopting environmental management practices, thereby enhancing firms' competitiveness (Porter and Linde, 1995). From the perspective of DCV, organizations must identify, seize, and reconfigure resources to respond effectively to evolving external conditions, including regulatory changes (Teece, 2007). ER serves as an important institutional mechanism that aligns business operations with environmental sustainability objectives while fostering economic growth (Cohen and Tubb, 2018). By setting legal standards for energy consumption, emissions, and the use of recyclable materials (Ramanathan et al., 2017), such regulations encourage firms to go beyond compliance, driving product and process innovations that support resource renewal and capability development, as envisaged in the DCV framework (Cui et al., 2022).

Previous studies have explored the interplay between ER and GI (Javed et al., 2025). Research indicates that in high-ER settings, companies are more likely to adopt advanced green technologies and pursue ambitious innovation approaches (Tang et al., 2024). However, the absence of regulation or overly restrictive policies may impede innovation and weaken its impact (Abbott and Snidal, 2021; Lev Aretz and Strandburg, 2019). Younis and Sundarakani (2019) found that enterprises in regions with stringent environmental standards are more inclined to adopt green practices, thereby enhancing their environmental performance.

Conversely, in low-ER environments, firms tend to favor modest innovations aimed at cost efficiency and resource optimization (Wang et al., 2023).

The relationship between ER and GCA is also well-supported. Mady et al. (2024) argue that ER enhances GCA by motivating firms to develop unique, hard-to-replicate green capabilities and adopt sustainable practices that distinguish them in the market. Similarly, Wu et al. (2024) highlight that stringent ER boosts environmental outcomes and market credibility, both essential for maintaining GCA.

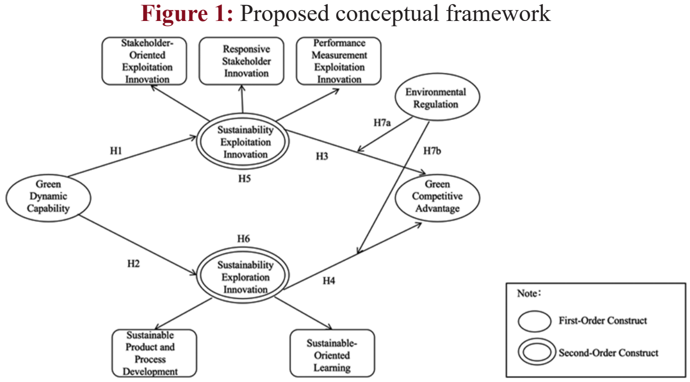
The interplay between GI and GCA is marked by considerable dynamism and complexity. GCA requires effective regulatory frameworks that balance compliance enforcement with innovation incentives (Javed et al., 2025). ER, which combines environmental standards with organizational willingness to address environmental challenges, links corporate environmental performance to innovation (Xing et al., 2019). Stricter and more forward-looking ER encourages firms to adopt advanced environmental management practices and make changes to avoid excessive environmental costs. Javed et al. (2025) demonstrate that the positive effect of innovation on firm success is amplified under strict ER due to stronger motivations, clearer guidelines, and reduced ambiguity. Regulation moderates the impact of digital transformation on green product and process innovation through constraint, incentive, and guidance mechanisms, thereby enhancing enterprises' green innovation capabilities (Wu et al., 2024). Drawing from these insights and the DCV framework, we contend that ER modulates the mediating effects of SEI and SER in the GDC–GCA relationship differently. High ER intensity aligns more with SER, as bold green innovations bolster long-term market presence and meet regulatory expectations (Xing et al., 2020). Conversely, in low-ER scenarios, SEI gains prominence, with incremental efficiency improvements and cost savings sufficing for compliance while conserving resources (Zheng et al., 2022).

$H_{7a}$. ER positively moderates the relationship between SEI and GCA.

$H_{7b}$. ER positively moderates the relationship between SER and GCA.

Based on the theoretical arguments developed above, the proposed conceptual framework is illustrated in Figure 1.

**Figure 1:** Proposed conceptual framework




## 3. METHODS

### 3.1. Data Collection and Procedure

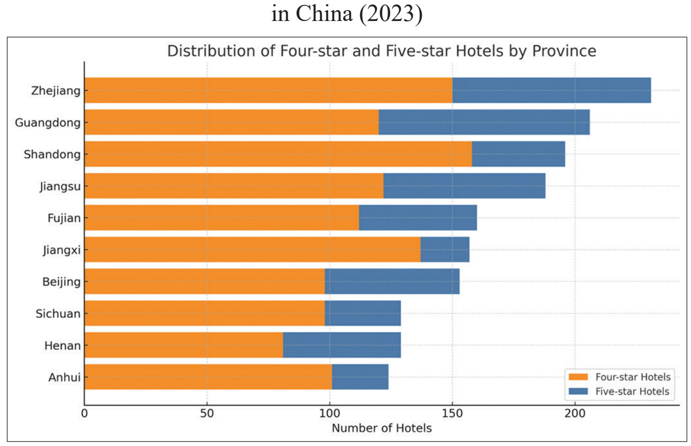
This study adopted a structured questionnaire as the primary data collection instrument, with all measurement items adapted from well-established and validated scales in the existing literature. The questionnaire was initially developed in English and subsequently translated into Chinese to ensure linguistic accuracy and cultural appropriateness for the context of China's hotel sector. To guarantee both linguistic and conceptual equivalence, a rigorous back-translation procedure was undertaken (Behr, 2017), involving two independent bilingual experts and multiple rounds of proofreading to reconcile discrepancies.

Prior to large-scale deployment, a pilot test was conducted with ten hospitality scholars and twenty mid- to senior-level hotel managers. The pilot respondents assessed the clarity, relevance, and practical applicability of the questionnaire items. Based on their feedback, minor refinements were made to wording and formatting to enhance content validity and respondent comprehension.

Given the research objectives, purposive sampling-a form of non-probability sampling-was employed to ensure that respondents were highly relevant to the study focus. Data from the Ministry of Culture and Tourism of the People's Republic of China (2023) indicate that Zhejiang, Guangdong, and Shandong rank among the top three provinces in terms of the number of certified four- and five-star hotels (Figure 2). This high concentration of luxury hotels reflects a mature and competitive hospitality sector with complex operational dynamics, making it an ideal empirical context for examining the adoption and implementation of green strategies. From this population, nine hotels voluntarily participated in the study, comprising five five-star hotels and four four-star hotels.

Data collection took place between April and May 2025. The data collection was conducted through an online questionnaire-based survey, developed using the widely recognized SoJump platform,

**Figure 2:** List of the number of five-star and four-star hotels in China (2023)




Data are obtained from the Ministry of Culture and Tourism of the People's Republic of China (2024) and sorted by the total number of four-star and five-star hotels. Source: *https://zwgk.mct.gov.cn/zfxxgkml/tjxx/202404/t20240430_952645.html* which is a popular survey tool in China. Subsequently, the survey was distributed by the hotel's Human Resources department through the WeChat platform to managers and staff to boost the response rate.

A total of 428 valid responses were obtained, exceeding the minimum sample size of 98 determined using the G*Power analysis. The sample profile indicates a relatively balanced gender distribution (53.3% male, 46.7% female), with the majority of respondents being younger employees aged 20-39 (59.7%). Educational attainment was generally high, with 65.7% holding an associate degree or above. In terms of organizational tenure, 40.3% of respondents had between four and 6 years of experience. Regarding hotel classification, 65.6% of respondents worked in four-star hotels, while 34.4% were employed in five-star hotels.

### 3.2. Measures

To ensure the validity of construct measurement, all items used in this study were adapted from established scales in prior literature. Participants were asked to rate these items on a 7-point Likert Scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

The measurement items covered the following key constructs: GDC was measured using five items reflecting the hotel's capabilities in environmental monitoring, organizational learning, resource integration, coordination for green technology development, and strategic resource allocation for green innovation, as developed by Lin and Chen (2017). SEI was assessed through three subdimensions: stakeholder-oriented exploitation innovation(SOEI), responsive stakeholder innovation (RSI), and performance measurement exploitation innovation (PMEI), with two items each adapted from Maletič et al. (2016). SER comprised two dimensions: sustainable product and process development (SPPD), which included four items, and sustainable-oriented learning (SOL), measured by four items. These items were also derived from Maletič et al. (2016). GCA was evaluated with four items based on the work of Kim et al. (2023). ER was assessed using four items developed by Eiadat et al. (2008).

### 3.3. Statistical Analysis

This study employed the Partial Least Squares Structural Equation Modelling (PLS-SEM) technique for data analysis, conducted using SmartPLS version 4. The selection of PLS-SEM aligns with prior research that has demonstrated its effectiveness in handling complex predictive models involving multiple constructs, indicators, and interrelated paths (Hair et al., 2019). SmartPLS was used to examine both mediation and moderation effects as well as the relationships among constructs within the structural model (Henseler et al., 2015). Additionally, SPSS version 26 was employed to conduct preliminary data analysis, including descriptive statistics and data screening procedures.

## 4. RESULTS

### 4.1. Common Method Bias

Since the data for this study were collected from the same respondents at a single point in time, there is a potential risk of common method bias (CMB), which could compromise the validity of the results. To address this concern, both procedural and statistical remedies recommended by Podsakoff et al. (2003) were implemented. Statistically, Harman's single-factor test was conducted using Principal Component Analysis in SPSS. The unrotated factor solution revealed that the first factor accounted for 21.387% of the total variance, which is well below the 50% threshold, indicating that CMB is not a significant issue in this study (Table 1).

The results, presented in Table 2, show VIF values for all constructs well below the conservative threshold of 3.3. These low VIF values demonstrate that each construct contributes unique information to the structural model, with minimal redundancy or inflation caused by intercorrelations. This finding confirms that multicollinearity does not pose a threat to the model's integrity, thereby enhancing confidence in the stability and validity of the structural relationships observed in the study. Furthermore, the use of SmartPLS for VIF calculation aligns with best practices for structural equation modeling, ensuring robust assessment of collinearity (Hair et al., 2019).

### 4.2. Measurement Model Analysis

This study employed a reflective–reflective hierarchical component model to evaluate higher-order constructs using the two-stage disjoint approach (Hair et al., 2019). To validate the measurement model, composite reliability, average variance extracted (AVE), and outer loadings were assessed.

As presented in Table 3, all constructs demonstrated strong internal consistency, with composite reliability values ranging from 0.875 to 0.911 for higher-order constructs, and from 0.887 to 0.908 for lower-order constructs, thereby exceeding the recommended threshold of 0.70 (Hair et al., 2019). In addition, AVE is defined as the measure of the amount of variation collected by a construct

**Table 1: Total variance explained (Harman's single-factor test)**

| Component | Initial eigenvalues | % of Variance | Cumulative % |
|---|---|---|---|
| 1 | 7.485 | 21.39 | 21.39 |
| 2 | 2.984 | 8.53 | 29.91 |
| 3 | 2.252 | 6.43 | 36.35 |
| 4 | 2.054 | 5.87 | 42.22 |
| 5 | 2.029 | 5.80 | 48.01 |
| 6 | 1.774 | 5.07 | 53.08 |
| 7 | 1.42 | 4.06 | 57.14 |
| 8 | 1.268 | 3.62 | 60.76 |
| 9 | 1.144 | 3.27 | 64.03 |
| 10 | 1.044 | 2.98 | 67.01 |
| 11 | 1.026 | 2.93 | 69.94 |

**Table 2: Variance inflation factor (VIF)**

| Path | VIF |
|---|---|
| ER -> GCA | 1.241 |
| GDC -> SEI | 1 |
| GDC -> SER | 1 |
| SEI -> GCA | 1.339 |
| SER -> GCA | 1.493 |
| ER×SER -> GCA | 1.381 |
| ER×SEI -> GCA | 1.171 |

**Table 3: Outcomes of reliability and convergent validity analyses**

| Constructs | Items | Composite reliability (rho_c) | Average variance extracted (AVE) | Factor loadings |
|---|---|---|---|---|
| Lower-Order Constructs | | | | |
| ER | ER1 | 0.908 | 0.710 | 0.865 |
| | ER2 | | | 0.829 |
| | ER3 | | | 0.849 |
| | ER4 | | | 0.828 |
| GCA | GCA1 | 0.887 | 0.662 | 0.830 |
| | GCA2 | | | 0.799 |
| | GCA3 | | | 0.779 |
| | GCA4 | | | 0.844 |
| GDC | GDC1 | 0.908 | 0.665 | 0.874 |
| | GDC2 | | | 0.792 |
| | GDC3 | | | 0.833 |
| | GDC4 | | | 0.757 |
| | GDC5 | | | 0.817 |
| PMEI | PMEI1 | 0.906 | 0.829 | 0.914 |
| | PMEI2 | | | 0.906 |
| RSI | RSI1 | 0.911 | 0.836 | 0.919 |
| | RSI2 | | | 0.909 |
| SOE | SOE1 | 0.900 | 0.818 | 0.911 |
| | SOE2 | | | 0.898 |
| SOL | SOL1 | 0.890 | 0.670 | 0.840 |
| | SOL2 | | | 0.799 |
| | SOL3 | | | 0.800 |
| | SOL4 | | | 0.834 |
| SPPD | SPPD1 | 0.906 | 0.706 | 0.859 |
| | SPPD2 | | | 0.823 |
| | SPPD3 | | | 0.818 |
| | SPPD4 | | | 0.859 |
| Higher-Order Constructs | | | | |
| SEI | SOE | 0.809 | 0.585 | 0.746 |
| | RSI | | | 0.736 |
| | PMEI | | | 0.811 |
| SER | SPPD | 0.875 | 0.778 | 0.867 |
| | SOL | | | 0.897 |

GDC: Green dynamic capability, SOEI: Stakeholder-oriented exploitation innovation, RSI: Responsive stakeholder innovation, PMEI: Performance measurement exploitation innovation, SEI: Sustainability exploitation innovation, SER: Sustainability exploration innovation, SPPD: Sustainable product and process development, SOL: Sustainable-oriented learning, GCA: Green competitive advantage, ER: Environmental regulation

in proportion to the amount of variance due to measurement error (Aman-Ullah et al., 2024). AVE values for all constructs surpassed the minimum threshold of 0.50, ranging from 0.585 to 0.836, confirming convergent validity. Convergent validity primarily concerns examining whether the items share the highest proportion of variance under the tagged construct, whereas discriminant validity would be established if each construct is distinct from the other variables with regards to explaining variance for the criterion variable (Mehboob et al., 2022).

Furthermore, discriminant validity was supported by the heterotrait–monotrait ratio (HTMT), following the recommended thresholds of 0.85 or 0.90 depending on the model's conceptual proximity (Henseler et al., 2015). As shown in Table 4, all HTMT values were well below the conservative threshold of 0.85, indicating that each construct was empirically distinct from the others. These results provide strong evidence that the measurement model satisfies the criteria for discriminant validity.

## 4.3. Structural Model

After confirming the adequacy of the measurement model, the structural model was assessed to evaluate the hypothesized relationships. Subsequently, a bootstrapping procedure with 5,000 samples was performed to assess the significance of the path coefficients. The latent variable scores generated from the PLS–SEM analysis were utilized as input for the moderated mediation analysis.

The results of this analysis are shown in Table 5. The analysis reveals that GDC significantly predicts both SEI ($\beta = 0.432$, $t = 8.694$, $P < 0.001$, $f^2 = 0.229$) and SER ($\beta = 0.309$, $t = 5.542$, $P < 0.001$, $f^2 = 0.105$), providing strong support for $H_1$ and $H_2$. These results suggest that firms with higher levels of green dynamic capability are more likely to engage in both exploitative and explorative sustainability innovations. Furthermore, both SEI ($\beta = 0.171$, $t = 3.226$, $P = 0.001$, $f^2 = 0.028$) and SER ($\beta = 0.265$, $t = 4.888$, $P < 0.001$, $f^2 = 0.061$) exert significant positive effects on GCA, supporting $H_3$ and $H_4$.

**Table 4: Outcome of discriminant validity (HTMT) testing**

| | Lower-order constructs | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ER | GCA | GDC | PMEI | RSI | SOE | SOL | SPPD |
| ER | | | | | | | | |
| GCA | 0.254 | | | | | | | |
| GDC | 0.165 | 0.363 | | | | | | |
| PMEI | 0.180 | 0.321 | 0.479 | | | | | |
| RSI | 0.116 | 0.257 | 0.354 | 0.485 | | | | |
| SOE | 0.196 | 0.337 | 0.322 | 0.487 | 0.464 | | | |
| SOL | 0.364 | 0.409 | 0.349 | 0.415 | 0.287 | 0.378 | | |
| SPPD | 0.325 | 0.372 | 0.281 | 0.367 | 0.255 | 0.413 | 0.655 | |
| | Higher-order constructs | | | | | | | |
| | ER | GCA | GDC | SEI | SER | | | |
| ER | | | | | | | | |
| GCA | 0.254 | | | | | | | |
| GDC | 0.165 | 0.363 | | | | | | |
| SEI | 0.228 | 0.441 | 0.556 | | | | | |
| SER | 0.425 | 0.482 | 0.389 | 0.629 | | | | |

DC: Green dynamic capability, SOEI: Stakeholder-oriented exploitation innovation, RSI: Responsive stakeholder innovation, PMEI: Performance measurement exploitation innovation, SEI: Sustainability exploitation innovation, SER: Sustainability exploration innovation, SPPD: Sustainable product and process development, SOL: Sustainable-oriented learning, GCA: Green competitive advantage, ER: Environmental regulation

**Table 5: Hypothesis test results**

| Hypothesized | Path | β-value | Confidence intervals (5%, 95%) | T statistics (\|O/STDEV\|) | P-value | Remark |
|---|---|---|---|---|---|---|
| $H_1$ | GDCarkI | 0.432 | (0.348,0.512) | 8.694 | 0.000 | Accepted |
| $H_2$ | GDCepte | 0.309 | (0.215,0.401) | 5.542 | 0.000 | Accepted |
| $H_3$ | SEIepte | 0.171 | (0.085,0.258) | 3.226 | 0.001 | Accepted |
| $H_4$ | SERepte | 0.265 | (0.178,0.354) | 4.888 | 0.000 | Accepted |
| $H_5$ | GDCeptedGCA | 0.075 | (0.031,0.120) | 2.711 | 0.003 | Accepted |
| $H_6$ | GDceptedCA | 0.082 | (0.046,0.128) | 3.238 | 0.001 | Accepted |
| $H_{7a}$ | ERcepte GCA | 0.136 | (0.064,0.213) | 2.963 | 0.002 | Accepted |
| $H_{7b}$ | ERceptedCA | 0.122 | (0.033,0.203) | 2.353 | 0.009 | Accepted |

GDC: Green dynamic capability, GCA: Green competitive advantage, ER: Environmental regulation, SEI: Sustainability exploitation innovation, SER: Sustainability exploration innovation

**Table 6: Determination coefficient and cross-validated redundancy analysis**

| Constructs | $R^2$ | Adjusted $R^2$ | $Q^2$ (=1–SSE/SSO) | Predictive relevance |
|---|---|---|---|---|
| GCA | 0.226 | 0.216 | 0.140 | Q2>0 |
| PMEI | 0.608 | 0.607 | 0.494 | Q2>0 |
| RSI | 0.581 | 0.580 | 0.474 | Q2>0 |
| SEI | 0.186 | 0.184 | 0.089 | Q2>0 |
| SER | 0.095 | 0.093 | 0.050 | Q2>0 |
| SOE | 0.571 | 0.570 | 0.456 | Q2>0 |
| SOL | 0.770 | 0.769 | 0.509 | Q2>0 |
| SPPD | 0.787 | 0.787 | 0.550 | Q2>0 |

**Figure 3:** The moderating effect of ER between SEI and GCA

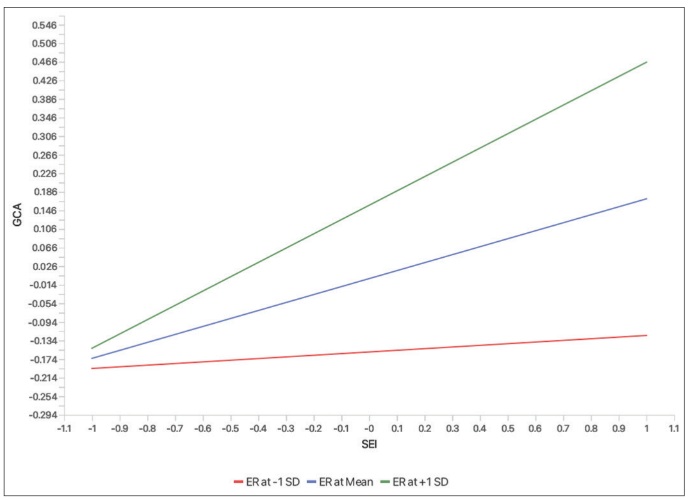
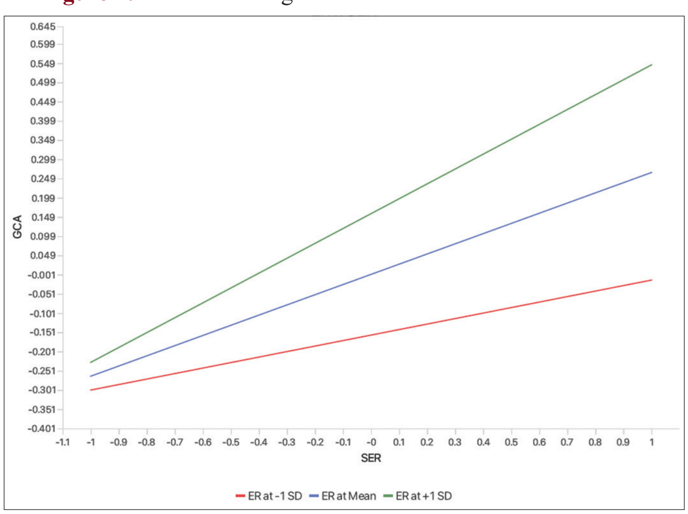



**Figure 4:** The moderating effect of ER between SER and GCA




The mediation analysis further shows that GDC indirectly influences GCA through both SEI (β = 0.075, t = 2.711, P = 0.003) and SER (β = 0.082, t = 3.238, P = 0.001), thus supporting $H_5$ and $H_6$. These results highlight the dual mediating roles of sustainability innovation modes in the GDC–GCA relationship.

In addition, the moderation analysis reveals that ER positively moderates the relationship between both types of sustainability innovation and GCA (Figures 3 and 4).

Specifically, the interaction terms ER × SEI (β = 0.136, t = 2.963, P = 0.002) and ER × SER (β = 0.122, t = 2.353, P = 0.009) have significant positive effects on GCA, providing support for $H_{7a}$ and $H_{7b}$. These findings suggest that external regulatory pressures enhance the impact of innovation activities on competitive advantage, thereby reinforcing the strategic value of aligning environmental policy with internal capabilities.

To further assess the quality of the structural model, the structural model explains both the coefficient of determination ($R^2$) and predictive relevance ($Q^2$) values, following guidelines by Hair et al. (2019). The results are summarized in Table 6.

In this study, the structural model explained 22.6% of the variance in GCA, 18.6% in SEI, and 9.5% in SER. According to Hair et al. (2019), $R^2$ values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively. Thus, the model demonstrates weak but acceptable explanatory power for these downstream endogenous constructs. By contrast, several capability-related constructs, including PMEI ($R^2$ = 0.608), RSI ($R^2$ = 0.581), SOE ($R^2$ = 0.571), SOL ($R^2$ = 0.770), and SPPD ($R^2$ = 0.787), exhibit moderate to substantial explanatory power.

Regarding predictive relevance, the $Q^2$ values obtained through the blindfolding procedure are all greater than zero, ranging from 0.050 to 0.550, indicating that the structural model possesses adequate predictive relevance.

To evaluate the strength of the structural relationships, $f^2$ effect sizes were computed. Following (Sawilowsky, 2009), the effect of GDC on SEI was found to be 0.058, indicating a small-to-moderate impact. The effect of GDC on SER was weaker ($f^2$ = 0.012), while SEI and SER exerted small effects on GCA ($f^2$ = 0.028 and 0.061, respectively). Although the interaction terms involving ER were statistically significant, their $f^2$ values were below 0.02, suggesting limited effect size in moderating roles. Overall, the $f^2$ analysis confirms that the model pathways yield practically meaningful explanatory power.

# 5. CONCLUSIONS

## 5.1. Theoretical Implications

Drawing upon perspectives from green strategy, innovation management, and DCV, this study provides multiple theoretical contributions to the field of environmental strategy in the context of sustainable transformation within the service sector. It particularly enriches the application scope of DCV in emerging markets.

Although prior studies have explored green innovation, many have treated it as an isolated construct, lacking consideration of its internal structure or dynamic role (Tu and Wu, 2021). Some researchers have further differentiated innovation into product and process innovation (Ahmad et al., 2024). This study advances the literature by conceptualizing green innovation as two distinct innovation pathways: sustainable exploitation and sustainable exploration. The empirical findings highlight the mediating role of green innovation in the relationship between GDC and GCA. While GDC constitutes a valuable strategic resource, it does not directly lead to competitive advantage. Rather, it must be activated through innovation efforts to produce tangible performance outcomes. This insight resonates with DCV's emphasis on capability activation, asserting that the value of dynamic capabilities lies not in their mere possession but in their contribution to organizational transformation and strategic responsiveness.

The findings clarify the mediating role of green innovation in the relationship between GDC and GCA, demonstrating that GDC-though a valuable strategic resource-does not directly lead to competitive advantage (Fainshmidt et al., 2019). Rather, it must be activated through green innovation efforts to achieve such outcomes (Wang, 2019). This insight responds to the DCV's emphasis on "capability activation", underscoring that the value of dynamic capabilities lies in their ability to facilitate organizational transformation and strategic responsiveness, rather than merely their existence (Akbar and Aslam, 2023).

Building on Singh et al. (2022), who emphasize the moderating role of ER in shaping organizational capabilities, this study introduces ER as a contextual factor that influences the linkage between GDC and green innovation pathways. By examining how institutional forces interact with internal capabilities, this research contributes a nuanced understanding of the boundary conditions under which GDC translates into innovation outcomes (Borah et al., 2025). Empirical findings reveal that in environments characterized by stricter regulatory enforcement, the influence of GDC on green innovation becomes significantly stronger. This result underscores the contingent nature of dynamic capabilities and expands the theoretical scope of DCV by illustrating how environmental pressures can enhance or constrain strategic resource deployment. The study thus offers an integrative framework connecting external regulatory environments, internal capabilities, and innovation-oriented behaviors within firms.

Furthermore, by focusing on the luxury hotel sector in China, the study contributes empirical insights into the green transformation mechanisms of the service sector-an area often overlooked in extant literature, which has primarily concentrated on the manufacturing sector (Nureen et al., 2023). The high-contact, resource-intensive nature of the hotel sector makes it a crucial yet underexplored context for green transition research. This study not only provides a tailored green strategic model for the service sector but also demonstrates the applicability of DCV in the unique regulatory and cultural landscape of China (Hu et al., 2023), thus broadening the cross-industry and cross-cultural relevance of the theory.

Finally, this research offers a more dynamic conceptualization of GCA. The findings indicate that the formation of GCA depends not only on possessing green resources and capabilities, but also on effectively transforming these assets into market-relevant innovation outcomes. Under growing environmental pressures, firms are no longer able to rely solely on regulatory compliance to maintain legitimacy (Baah et al., 2021). Instead, proactive green innovation is essential for securing brand recognition and market preference (Borah et al., 2023). Hence, GCA should be understood as a dynamic outcome resulting from the interaction of internal capabilities, innovation strategies, and external institutional conditions (Shehzad et al., 2024; Abrantes et al., 2023).

Overall, by constructing and validating a theoretical model that integrates GDC, green innovation pathways, and ER, this study deepens our understanding of how firms achieve GCA amid environmental uncertainty and environmental regulatory pressure. It not only enriches the application of DCV in the domains of environmental strategy and service sectors but also offers a robust theoretical foundation for future research in cross-contextual and cross-regional green management.

## 5.2. Practical Implications

This study presents several key practical implications for hotel managers, innovation strategists, and policymakers in the context of China's four- and five-star hotel sector. The findings indicate that GDC, while an essential strategic asset, does not inherently lead to GCA unless it is effectively mobilized through structured innovation processes. The research identifies two distinct innovation pathways through which GDC can be activated: SEI, which involves refining and optimizing existing green practices, and SER, which centers on experimenting with novel, forward-looking sustainable solutions.

For practitioners, the implications are clear: possessing GDC is not enough-it must be converted into targeted innovation efforts. Hotels striving for sustainable competitiveness should invest in both exploitation-oriented initiatives (e.g., enhancing energy-saving systems, optimizing waste management protocols, or improving eco-certification standards) and exploration-oriented activities (e.g., piloting smart green technologies, integrating low-carbon service models, or testing new sustainability concepts). Balancing SEI and SER allows firms to simultaneously improve short-term operational efficiency and long-term strategic adaptability.

Importantly, the demographic structure of the workforce has implications for implementation. The sample shows a high proportion of younger employees aged 20-39 (59.7%) and a high educational attainment rate (65.7% with associate degrees or above). This suggests that the hotel workforce is well-positioned to absorb new sustainability knowledge and adapt to innovation-driven changes, especially if provided with appropriate training. Management should design targeted green capability-building programs that engage young, educated employees and channel their receptiveness toward green initiatives.

Additionally, 40.3% of staff have 4-6 years of tenure, suggesting a stable yet dynamic workforce-experienced enough to understand organizational processes, yet open to transformation. Hotels should leverage this stability to institutionalize green routines, build innovation culture, and embed GDC across departments. Since employees are distributed across key operational areas such as front office, maintenance, and sales, managers should promote interdepartmental collaboration to fully realize innovation across the value chain.

The findings also reveal that ER plays a significant moderating role in shaping the GDC-GI relationship, particularly enhancing the impact of GDC on SER. This suggests that hotel leaders should view regulatory environments not simply as compliance challenges but as strategic enablers of transformation. In highly regulated regions, aligning internal green capabilities with external environmental standards can amplify the innovation payoff, giving firms a distinctive edge in competitive markets.

For policymakers, this underscores the importance of smart regulation. Overly punitive or rigid policies may suppress innovation, whereas incentive-based frameworks-such as tiered environmental certifications, subsidies for renewable energy adoption, and green innovation awards-can provide positive institutional pressures that activate and strengthen internal capabilities. Government tourism boards and environmental agencies can further stimulate green transitions by fostering public-private collaborations, co-developing pilot programs, or creating open innovation platforms that allow hotel firms to experiment and share sustainability practices.

The integration of these insights reinforces and extends DCV within the hospitality context. This study confirms that GDC alone is not sufficient to generate competitive advantage; its impact is contingent upon both internal mechanisms and external institutional contexts. Therefore, hotel firms must adopt a context-sensitive approach to capability deployment-one that strategically aligns internal resources with external environmental demands.

Practically, hotel managers should conduct regular audits of their green capability readiness, assess which innovation pathway their organization currently emphasizes, and evaluate the regulatory conditions that may enable or constrain innovation. In low-regulation contexts, firms may benefit from self-imposed higher environmental standards to remain innovation-competitive. In contrast, in high-ER environments, they should leverage existing policy tools to enhance green positioning and legitimacy.

Finally, the findings point to the value of stakeholder ecosystems. Achieving GCA through GDC and green innovation is not solely an internal endeavor-it requires alignment with external actors, including government bodies, certification authorities, academic researchers, and technology providers. Firms that engage in collaborative innovation efforts, such as cross-industry alliances or open sustainability labs, will be better positioned to drive radical innovation and realize scalable, long-term sustainability benefits.

### 5.3. Limitations and Recommendations

Although this research provides important insights, several limitations point to future research directions. The use of a cross-sectional survey design limits the ability to establish causal relationships between GDC, innovation pathways, and GCA. Given the evolutionary nature of dynamic capabilities, longitudinal or panel data studies could capture how capability deployment and innovation adoption evolve. Furthermore, while SEI and SER were confirmed as dual mediators, other potential factors such as green organizational culture, leadership commitment, or employee environmental behavior were not examined. Incorporating these micro-foundations could deepen understanding of how GDC is translated into actionable innovation.

Finally, ER was measured as a unidimensional construct, whereas in practice it encompasses both formal regulations (laws and policies) and informal pressures (customer expectations, societal norms). Future research could employ multidimensional measures to investigate how different types of regulatory forces exert distinct influences on green innovation strategies and competitive outcomes.

By addressing these limitations, future research can further clarify the contextual and organizational conditions under which GDC is most effectively leveraged to achieve sustainable competitive advantage in the hospitality sector.

## REFERENCES

Abbott, K.W., Snidal, D. (2021), The governance triangle: Regulatory standards institutions and the shadow of the state. In: The Spectrum of International Institutions. London: Routledge. p52-91.

Abrantes, B.F., Preto, M.T., Antonio, N. (2023), Unraveling collaborative learning stimuli and effective dynamic capability integration on MNCs: The global capabilities administration model (GCAM), Review of International Business and Strategy, 33(2), 272-300.

Ahmad, B., Shafique, I., Qammar, A., Ercek, M., Kalyar, M.N. (2024), Prompting green product and process innovation: Examining the effects of green transformational leadership and dynamic capabilities. Technology Analysis and Strategic Management, 36(6), 1111-1123.

Akbar, B., Aslam, H. (2023), Reinforcing resilience on the supply side: The role of supplier capabilities. Business Process Management Journal, 29(6), 1938-1957.

Aman-Ullah, A., Ali, A., Ariza-Montes, A., Mehmood, W., Saraih, U.N. (2024), Nexus of workplace incivility, workplace violence and turnover intentions: A mediation study through job burnout. Kybernetes, 53(12), 5061-5080.

Baah, C., Agyabeng-Mensah, Y., Afum, E., Mncwango, M.S. (2021), Do green legitimacy and regulatory stakeholder demands stimulate corporate social and environmental responsibilities, environmental and financial performance? Evidence from an emerging economy.

Management of Environmental Quality: An International Journal, 32(4), 787-803.

Beger, G.A., Sağlam, B.B., Turker, D. (2023), Leveraging corporate sustainability through responsible innovation: Capacity building with exploration and exploitation. Creativity and Innovation Management, 32(4), 617-635.

Begum, S., Ashfaq, M., Luu, T.T., Wang, D. (2025), Does green training foster green service innovation? The influence of organizational learning capability and human capital. International Journal of Hospitality Management, 130, 104266.

Behr, D. (2017), Assessing the use of back translation: The shortcomings of back translation as a quality testing method. International Journal of Social Research Methodology, 20(6), 573-584.

Boons, F., Montalvo, C., Quist, J., Wagner, M. (2013), Sustainable innovation, business models and economic performance: An overview. Journal of Cleaner Production, 45, 1-8.

Borah, P.S., Dogbe, C.S.K., Marwa, N. (2025), Green dynamic capability and green product innovation for sustainable development: Role of green operations, green transaction, and green technology development capabilities. Corporate Social Responsibility and Environmental Management, 32(1), 911-926.

Borah, P.S., Dogbe, C.S.K., Pomegbe, W.W.K., Bamfo, B.A., Hornuvo, L.K. (2023), Green market orientation, green innovation capability, green knowledge acquisition and green brand positioning as determinants of new product success. European Journal of Innovation Management, 26(2), 364-385.

Brix, J. (2020), Building capacity for sustainable innovation: A field study of the transition from exploitation to exploration and back again. Journal of Cleaner Production, 268, 122381.

Camisón, C., Monfort-Mir, V.M. (2012), Measuring innovation in tourism from the Schumpeterian and the dynamic-capabilities perspectives. Tourism Management, 33(4), 776-789.

Chen, Y.S., Chang, K.C. (2013), The nonlinear effect of green innovation on the corporate competitive advantage. Quality and Quantity, 47(1), 271-286.

Choi, S., Feng, Y., Liu, J., Zhu, Q. (2019), Motivating corporate social responsibility practices under customer pressure among small- and medium-sized suppliers in China: The role of dynamic capabilities. Corporate Social Responsibility and Environmental Management, 26(1), 213-226.

Choudhary, P., Datta, A. (2024), Bibliometric analysis and systematic review of green human resource management and hospitality employees' green creativity. The TQM Journal, 36(2), 546-571.

Clauss, T., Kraus, S., Kallinger, F.L., Bican, P.M., Brem, A., Kailer, N. (2021), Organizational ambidexterity and competitive advantage: The role of strategic agility in the exploration-exploitation paradox. Journal of Innovation and Knowledge, 6(4), 203-213.

Cohen, M.A., Tubb, A. (2018), The impact of environmental regulation on firm and country competitiveness: A meta-analysis of the porter hypothesis. Journal of the Association of Environmental and Resource Economists, 5, 371-399.

Cui, J., Dai, J., Wang, Z., Zhao, X. (2022), Does environmental regulation induce green innovation? A panel study of Chinese listed firms. Technological Forecasting and Social Change, 176, 121492.

Eiadat, Y., Kelly, A., Roche, F., Eyadat, H. (2008), Green and competitive? An empirical test of the mediating role of environmental innovation strategy. Journal of World Business, 43(2), 131-145.

Enkel, E., Heil, S., Hengstler, M., Wirth, H. (2017), Exploratory and exploitative innovation: To what extent do the dimensions of individual level absorptive capacity contribute? Technovation, 60-61, 29-38.

Fainshmidt, S., Wenger, L., Pezeshkan, A., Mallon, M.R. (2019), When do dynamic capabilities lead to competitive advantage? The importance of strategic fit. Journal of Management Studies, 56(4), 758-787.

Fareed, M., Noor, W.S.W.M., Isa, M.F.M., Salleh, S.S.M.M. (2016), Developing human capital for sustainable competitive advantage: The roles of organizational culture and high performance work system. International Journal of Economic Perspective, 10(4), 655-673.

Hair, J.F., Risher, J.J., Sarstedt, M., Ringle, C.M. (2019), When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2-24.

Hart, S.L. (1995), A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986-1014.

Hart, S.L., Dowell, G. (2011), Invited editorial: A natural-resource-based view of the firm: Fifteen years after. Journal of Management, 37(5), 1464-1479.

Henseler, J., Ringle, C.M., Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.

Hu, F., Liao, L., Tan, W., Yao, D. (Troy). (2023), Guest editorial: The ever-changing market in China. Pacific Accounting Review, 35(4), 505-511.

Javed, H., Du, J., Farooq Islam, M. (2025), Unpacking organizational capabilities and green Innovation for sustainable Performance: The role of environmental regulations in manufacturing industry. Journal of Cleaner Production, 507, 145453.

Joshi, G., Dhar, R.L. (2020), Green training in enhancing green creativity via green dynamic capabilities in the Indian handicraft sector: The moderating effect of resource commitment. Journal of Cleaner Production, 267, 121948.

Juo, W., Wang, C. (2022), Does green innovation mediate the relationship between green relational view and competitive advantage? Business Strategy and the Environment, 31(5), 2456-2468.

Karvounidi, M.D., Alexandropoulou, A.P., Fousteris, A.E. (2024), Towards sustainable hospitality: Enhancing energy efficiency in hotels. International Research Journal of Economics and Management Studies, 3(6), 410-424.

Kim, T.T., Kim, W.G., Majeed, S., Haldorai, K. (2023), Does green human resource management lead to a green competitive advantage? A sequential mediation model with three mediators. International Journal of Hospitality Management, 111, 103486.

Kumar, M., Gawali, S. (2025), Impact of information communication technology and dynamic service innovation capabilities on firm performance: The mediating role of dual innovation in the hospitality sector. Benchmarking: An International Journal

Lev Aretz, Y., Strandburg, K.J. (2019), Regulation and Innovation: Approaching Market Failure from Both Sides. NYU Law and Economics Research Paper, (19-44). p19-48.

Li, D., Lin, J., Cui, W., Qian, Y. (2018), The trade-off between knowledge exploration and exploitation in technological innovation. Journal of Knowledge Management, 22(4), 781-801.

Li, D., Liu, J. (2014), Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. Journal of Business Research, 67(1), 2793-2799.

Li, Y., Vanhaverbeke, W., Schoenmakers, W. (2008), Exploration and exploitation in innovation: Reframing the interpretation. Creativity and Innovation Management, 17(2), 107-126.

Lin, Y.H., Chen, Y.S. (2017), Determinants of green competitive advantage: The roles of green knowledge sharing, green dynamic capabilities, and green service innovation. Quality and Quantity, 51(4), 1663-1685.

Ma, L., Ali, A., Shahzad, M., Khan, A. (2025), Factors of green innovation: The role of dynamic capabilities and knowledge sharing through green creativity. Kybernetes, 54(1), 54-70.

Mady, K., Anwar, I., Abdelkareem, R.S. (2024), Nexus between regulatory pressure, eco-friendly product demand and sustainable competitive advantage of manufacturing small and medium-sized enterprises: The mediating role of eco-innovation. Environment, Development and Sustainability, 1-23.

Maletič, M., Maletič, D., Dahlgaard, J.J., Dahlgaard-Park, S.M., Gomišček, B. (2014), The relationship between sustainability–oriented innovation practices and organizational performance: Empirical evidence from Slovenian organizations. Orga, 47(1), 3-13.

Maletič, M., Maletič, D., Gomišček, B. (2016), The impact of sustainability exploration and sustainability exploitation practices on the organisational performance: A cross-country comparison. Journal of Cleaner Production, 138, 158-169.

Mehboob, F., Othman, N., Fareed, M., Raza, A. (2022), Change appraisals and job crafting as foundation to inculcate support for change: A dual manifestation. Revista Brasileira de Gestão de Negócios, 24(2), 207-229.

Nureen, N., Sun, H., Irfan, M., Nuta, A. C., Malik, M. (2023), Digital transformation: Fresh insights to implement green supply chain management, eco-technological innovation, and collaborative capability in manufacturing sector of an emerging economy. Environmental Science and Pollution Research, 30(32), 78168-78181.

Peteraf, M.A. (1993), The cornerstones of competitive advantage: A resource-based view. Strategic Management Journal, 14(3), 179-191.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P. (2003), Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879-903.

Porter, M.E., Linde, C.V.D. (1995), Toward a new conception of the environment-competitiveness relationship. Journal of Economic Perspectives, 9(4), 97-118.

Qiu, L., Jie, X., Wang, Y., Zhao, M. (2020), Green product innovation, green dynamic capability, and competitive advantage: Evidence from Chinese manufacturing enterprises. Corporate Social Responsibility and Environmental Management, 27(1), 146-165.

Ramanathan, R., He, Q., Black, A., Ghobadian, A., Gallear, D. (2017), Environmental regulations, innovation and firm performance: A revisit of the Porter hypothesis. Journal of Cleaner Production, 155, 79-92.

Sawilowsky, S.S. (2009), New effect size rules of thumb. Journal of Modern Applied Statistical Methods, 8(2), 597-599.

Shehzad, M.U., Jianhua, Z., Naveed, K., Zia, U., Sherani, M. (2024), Sustainable transformation: An interaction of green entrepreneurship, green innovation, and green absorptive capacity to redefine green competitive advantage. Business Strategy and the Environment, 33(7), 7041-7059.

Singh, S.K., Del Giudice, M., Chiappetta Jabbour, C.J., Latan, H., Sohal, A.S. (2022), Stakeholder pressure, green innovation, and performance in small and medium-sized enterprises: The role of green dynamic capabilities. Business Strategy and the Environment, 31(1), 500-514.

Tang, J., Liu, A., Gu, J., Liu, H. (2024), Can CEO environmental awareness promote new product development performance? Empirical research on Chinese manufacturing firms. Business Strategy and the Environment, 33(2), 985-1003.

Teece, D.J. (2007), Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319-1350.

Teece, D.J., Pisano, G., Shuen, A. (1997), Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509-533.

Tu, Y., Wu, W. (2021), How does green innovation improve enterprises' competitive advantage? The role of organizational learning. Sustainable Production and Consumption, 26, 504-516.

Tushman, M.L. (2008), Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. Research in Organizational Behavior, 28, 185-206.

Van Lieshout, J.W.F.C., Van Der Velden, J.M., Blomme, R.J., Peters, P. (2021), The interrelatedness of organizational ambidexterity, dynamic capabilities and open innovation: A conceptual model towards a competitive advantage. European Journal of Management Studies, 26(2/3), 39-62.

Vo-Thai, H.C., Tran, M.L. (2025), Green innovation strategies in Vietnamese enterprises: leveraging knowledge management and digitalization for sustainable competitiveness. Journal of Knowledge Management, 29(4), 1055-1091.

Wang, C.H. (2019), How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. Journal of Manufacturing Technology Management, 30(4), 666-683.

Wang, C.L., Ahmed, P.K. (2007), Dynamic capabilities: A review and research agenda. International Journal of Management Reviews, 9(1), 31-51.

Wang, D., Si, R., Fahad, S. (2023), Evaluating the small and medium sized enterprises motivating factors and influencing barriers about adoption of green practices. Environment, Development and Sustainability, 25(4), 3029-3041.

Wang, F., Aw, E.C., Chuah, S.H., Zhang, Y. (2025), Powering China SMEs' sustainable performance: A combined importance-performance map analysis. Sustainable Development, 34, 710-718.

Wu, S., Cheng, P., Yang, F. (2024), Study on the impact of digital transformation on green competitive advantage: The role of green innovation and government regulation. PLoS One, 19(8), e0306603.

Xing, X., Liu, T., Shen, L., Wang, J. (2020), Linking environmental regulation and financial performance: The mediating role of green dynamic capability and sustainable innovation. Sustainability, 12(3), 1007.

Xing, X., Liu, T., Wang, J., Shen, L., Zhu, Y. (2019), Environmental regulation, environmental commitment, sustainability exploration/exploitation innovation, and firm sustainable development. Sustainability, 11(21), 6001.

Xing, X., Wang, J., Tou, L. (2019), The relationship between green organization identity and corporate environmental performance: The mediating role of sustainability exploration and exploitation innovation. International Journal of Environmental Research and Public Health, 16(6), 921.

Xue, J., Swan, K.S. (2023), Green exploration and exploitation: Capabilities, product advantage, and policy considerations. Creativity and Innovation Management, 32(3), 458-471.

Younis, H., Sundarakani, B. (2019), The impact of firm size, firm age and environmental management certification on the relationship between green supply chain practices and corporate performance. Benchmarking: An International Journal, 27(1), 319-346.

Zhan, J., Wang, C., Wang, H., Zhang, F., Li, Z. (2024), Pathways to achieve carbon emission peak and carbon neutrality by 2060: A case study in the Beijing-Tianjin-Hebei region, China. Renewable and Sustainable Energy Reviews, 189, 113955.

Zheng, H., Zhang, L., Zhao, X. (2022), How does environmental regulation moderate the relationship between foreign direct investment and marine green economy efficiency: An empirical evidence from China's coastal areas. Ocean and Coastal Management, 219, 106077.

Zhu, Y., Zhang, H., Siddik, A.B., Zheng, Y., Sobhani, F.A. (2023), Understanding corporate green competitive advantage through green technology adoption and green dynamic capabilities: Does green product innovation matter? Systems, 11(9), 461.