

Linking Green Intellectual Capital and Sustainable Organizational Performance: The Roles of Organizational Ambidexterity and Innovative Work Behavior

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Abstract

Purpose- This research will focus on examining the impact of Green Human Capital, Green Structural Capital and Green Social Capital on Sustainable Organizational Performance, with the effects of Organizational Ambidexterity being the mediating factor and the effects of Innovative Work Behavior being the moderating factor.

Design/Methodology- Based on the Dynamic Capabilities View, in the study, the PLS-SEM is utilized as the method of data analysis, using it to interpret the gathered data by the respondents in the organization.

Findings- Findings indicate that green intellectual capital dimensions have a great positive effect on Sustainable Organizational Performance. Organization -The mediating role played by organizational ambidexterity is essential whereas the relationship between ambidexterity and performance is positively mediated by Innovative Work Behavior.

Managerial Implications- Recommendations are to invest in green intellectual capital, develop ambidextrous strategies, and stimulate innovative work behavior among employees to be able to become long-term sustainable and competitive.

Keywords- Sustainable Organizational Performance, Dynamic Capabilities View, Green Intellectual Capital, Organizational Ambidexterity, and Innovative Work Behavior.

Introduction

Sustainable organizational performance (SOP) is an inclusive approach of ensuring long term success through the incorporation of economic, social and environmental aspects, the triple bottom line (Wang & Zhang, 2025). Academic studies assume that it is not limited to short-term financial indicators but it is also about long-term sustainability and value-generation to all stakeholders (M. H. Khan & Muktar, 2024). SOP paradigm requires that resources be strategically aligned to environmental, social and governance (ESG) principles and thereby resilience, agility and adaptive capacity is created in a dynamic global environment (AlKetbi & Rice, 2024). Based on the efficient oversight of economic wellbeing, social justice and ecological stewardship, the current operations of the organization will not hinder the potential sustainable organizational future (Mahmood & Mubarik, 2020). Consequently, SOP is defined as a synergistic equilibrium of efficiency, ethical behavior, and ecological accountability, which guarantees competitive advantage and long-term legitimacy of the organization (Jiang, Jamil, Zaman, & Fatima, 2024).

The need to sustain the performance of organizations is a challenge that is systemic. The primary barrier is the tension in the profitability of the capital markets where short-term financial gains are necessary and long-term investment in the environmental and social capital (Abid, Ceci, & Aftab, 2024). This is compounded by high measurement complexities; there is no standardized and reliable measures of non-financial performance which leaves uncertainty in assessing the actual impact of sustainability (Alfarizi, Widiastuti, & Ngatindriatun, 2024). At the internal level, organizations must face deep cultural and structural inertia, in many cases being unable to integrate the ESG principles into the fundamental operational and strategic paradigm and this task demands Green Intellectual Capital (GIC) (Mubarik, Bontis, Mubarik, & Mahmood, 2022). On the external level, organizations have to deal distinct, frequently conflicting stakeholder demands and negotiate a changing, frequently fragmented regulatory environment (Basit et al., 2024). Therefore, paradoxical tensions produce strategic dilemmas, which complicate governance and resource allocation, and may culminate in decoupling between sustainability rhetoric and substantive action at the cost of the entire integrated balance of the triple bottom line (Hina et al., 2024).

GIC provides a unifying solution path that can eliminate these tensions and challenges. GIC is a significant intangible resource that includes knowledge-based assets with a particular focus on environmental sustainability (Mahmood, Mubarik, Islam, & Naghavi, 2021). To build a culture sensitive to sustainability, Green Human Capital (GHC) builds the employee competencies, which reduce inertia in culture. Additionally, Green Structural Capital (GSC) captures such knowledge in processes, systems and innovation capabilities, and offers the standardized metrics and structures to reconcile long-term objectives to operational reality (Wei, Wang, Jiang, & Feng, 2024). Similarly, Green Social Capital (GSOC) helps build trust and cooperation with external stakeholders, bringing expectations into balance and developing relational assets that relieve

regulatory and market pressures. Therefore, GIC would shift sustainability out of the fringe, to the center of the strategic portfolio, and into a quantifiable strategic benefit, and paradoxical tensions would lead towards resolving (Rehan, Yeo, Khan, & Tan, 2025).

Organizational ambidexterity (OA) is critical and through which GIC promotes sustainable performance of the organization. The dynamic capability of a firm that can both utilize the existing competencies to achieve efficiency and pursue new opportunities in innovation is referred to as OA (Zahid, Zhang, Shahzad, Junaid, & Shrivastava, 2024). The knowledge resources are the basis of any organization, which is provided by GIC, and the ability to use it at the same time is facilitated by OA, allowing to focus on both exploitation and exploration of the efficiencies in the currently available green processes and to find new sustainable innovations (Odhano, Mahmood, Naqvi, & Ahmed, 2025). OA can assure the strategic conversion of GIC to tangible delivery by dynamically reallocating the resources, thus balancing the triple bottom line and providing a direct way of sustaining competitive advantage due to agile and value-generating reaction to the changing stakeholder and market requirements (Astuti, Datrini, Chariri, & Januarti, 2025). Moreover, Innovative Work Behavior (IWB) is a set of voluntary activities by the employees to initiate, market, and actualize new ideas towards better performance (Lewaherilla, Sutrisno, Ausat, & Gadzali, 2024). IWB vibrates the dexterous tension between exploration and exploitation by supplying the required employee-level measures to achieve a successful execution of both strategic agendas (Hadi, Setiawati, Kirana, Lada, & Rahmawati, 2024).

Research gaps covered in this research concerning the synergistic effectiveness of the entire GIC triad (Human, Structural, and Social) on sustainable organization performance, rather than isolated components (Shahbaz & Malik, 2025). Various research study demands empirical research on ways Organizational Ambidexterity mediates this relation, especially in institutional settings with different institutional contexts. In addition, the IWB is theorized as a moderator though, its interactive nature in relation to ambidexterity to improve sustainable outcomes has not been well explored (Siddiqui, Anwer, John, & Rabie, 2024). Additionally, there is a lack of empirical testing of the integrated mediation-moderation model that Organizational Ambidexterity and Innovative Work Behavior (IWB) co-exist as a mediator and moderator in the Green Intellectual Capital (GIC) and sustainable performance relationship (Shahbaz, Ahmad, & Malik, 2025).

Theory Development and Literature Review

Green Intellectual Capital (GIC): Green Human Capital (HC), Green Structural Capital (SC) & Green Social Capital (GSOC):

Dynamic Capabilities View (DCV)

The theory of Dynamic Capabilities View (DCV) highlights the capability of an organization to combine, develop, and re-arrange both internal and external resources in order to cope with the fast-changing environments (Mehrabi et al., 2025). In contrast to the resource-based view that emphasizes on the existence of fixed resources, DCV points out that firms create dynamic

capabilities in order to attain sustainable competitive advantage (Teece, Peteraf, & Leih, 2016). DCV in a sustainability context describes how green intellectual capital, organizational ambidexterity and innovative work behavior allow firms to feel opportunities, grab them and change operations so that they are successful long term both ecologically and economically (Kalubanga & Gudergan, 2022). Through human, structural, and social capital, organizations are able to develop dynamic capabilities which lead to innovation and flexibility, which, in the end, increase sustainable organizational performance in unpredictable and competitive markets (Son, Roscoe, & Sodhi, 2025).

Green Human Capital

The collective environmental knowledge, skills, abilities, and awareness held by employees to create and execute sustainable practices by organizations is known as green Human Capital (GHC) (Ahlawat, Sharma, & Kumar, 2023). GHC focuses on the ability of employees to incorporate environmental issues when making decision-making, problem-solving, and innovations (Asiaei, O'Connor, Barani, & Joshi, 2023). It indicates the capacity of the work force to create environment-friendly solutions, to increase resource utilization and adherence to environmental guidelines. GHC promotes the sustainability-focused mindset, thus increasing the organizational flexibility to environmental challenges (Alharbi, 2025).

Green Structural Capital

Green Structural Capital (GSC) is described as institutionalized systems, processes, routines, and technologies that enable incorporation of sustainability in an organization. GSC is the organizational framework that prevails even after the departure of the employees, meaning that the eco-friendly practices would be maintained (Shehzad, Zhang, Dost, Ahmad, & Alam, 2023). It encompasses environmental management systems, green policies, databases, patents, and technological structures that are aimed at increasing sustainability. Sustainability is a core aspect that can be integrated into systemic arrangements of the GSC, which facilitates uniformity, effectiveness, and inventiveness of environmental practices (Marco-Lajara, Zaragoza-Sáez, Martínez-Falcó, & Sánchez-García, 2023).

Green Social Capital

Green Social Capital (GSOC) is described as networks, relationships, and trust and shared environmental values among employees, stakeholders and communities that contribute to collective commitment to sustainability (Ghodbane & Alwehabie, 2023). GSOC advocates teamwork and self-interest in ensuring that the organization practices friendliness toward the environment (Ahlawat et al., 2023). It facilitates an exchange of knowledge, resources and joint problem solving, which is paramount in the development and implementation of green initiatives. Powerful GSOC can increase collaboration with suppliers, customers, and regulators, forming a larger sustainability ecosystem (Shahbaz, Naseem, Battisti, & Alfiero, 2024). Through trust-based

relationships, GSOC leads to innovation, enhances environmental standards compliance and supports long-term sustainable organizational performance (Zahid et al., 2024).

Sustainable Organization Performance

Sustainable Organizational Performance (SOP) refers to the capacity of an organization to attain long-term success by balancing between the economic growth, the environment and the social well-being (Nawangasari, Siswanti, Arijanto, & Wahyu, 2025). SOP is a measure of effectiveness of an organization in applying the concepts of sustainability in its operations, strategies, and results (Astuti, Datrini, & Chariri, 2023). It focuses on minimization of ecological footprints, maximum resource efficiency, and compliance to environmental standards whilst remaining profitable and competitive (Utomo et al., 2023). SOP aligns economic, environmental and social objectives to resilience, adaptability and sustainable value creation to stakeholders in an ever-changing global environment (Soomro & Afridi, 2023).

Organizational Ambidexterity

Organizational Ambidexterity (OA) can be described as a capacity of the firm to pursue new opportunities at the same time exploiting the available resources and capabilities as means of realizing balanced and sustainable growth (Restuputri, Masudin, Septira, Govindan, & Widayat, 2024). OA highlights the two-fold ability of the organization to innovate by experimenting, being creative and adopting new practices as well as streamlining the existing processes in order to make them efficient and reliable (Hwang, Lai, & Wang, 2023). OA promotes both the short term performance and long term flexibility, thus it is critical in the incorporation of sustainability in organization strategies. Finally, OA encourages innovation, resilience and on-going improvement in operations (Sarmiento, Simoes, & Lages, 2024).

Innovative Work behavior

The concept of Innovative Work Behavior (IWB) can be described as the deliberate creation, sale, and actualization of novel ideas by the employees to enhance processes, products or services in an organization (Srirahayu, Ekowati, & Sridadi, 2023). IWB is proactive in finding opportunities, proposing inventive solutions and making changes that bring value. It takes problem identification, brainstorming and working together to make innovation ideas a reality (Ajmal, Sareet, & Islam, 2025). Being oriented towards sustainability, IWB allows establishing environment-friendly innovations and efficient approaches, reinforcing the long-term organizational performance and guaranteeing compliance with the environmental and social objectives (Shahbaz et al., 2024).

Green Human Capital and Sustainable Organization Performance

GHC is the integrated knowledge and skills as well as environmental awareness of workers that can help organizations to bring sustainability into their operations (Alharbi, 2025). By empowering employees with green knowledge they boost eco-friendly innovation, effective use of resources and making environmentally friendly decisions, which boosts SOP directly (Asghar, Ullah, & Bangash, 2025). Companies that have high GHC instill the culture of environmental accountability, which encourages employees to participate in green actions that are in line with strategic objectives (Elnagar & Aljuwaiber, 2025). When organizations incorporate sustainability

in human resource capacities, they not only attain long term ecological objectives, but also attain competitive advantages as well (Asiaei et al., 2023). Therefore, GHC is likely to have a positive impact on SOP by being proactive, knowledge-driven and environmental-oriented behavior (Hoang Thanh & Truong Cong, 2024).

H1: GHC has a significant impact on SOP

Green Structural Capital and Sustainable Organization Performance

GSC is institutionalized knowledge, systems and processes that endorse sustainability in an organization. It encompasses environmentally friendly technologies, green policies, databases, and management practices which are not lost when the employees move out of the firm (Nawang Sari et al., 2025). With good GSC laid out by organizations, there is a platform of sustained application of sustainable initiatives. This makes sure that environmental practices are not merely founded on personal actions but rather, on organizational values and activities (Shehzad et al., 2023). It also supports knowledge sharing and collaboration and it allows organizations to keep on upgrading their sustainability practices. Presence of strong green systems also enhances credibility among the stakeholders and environmental regulations (Begum, Ashfaq, Asiaei, & Shahzad, 2023). Thus, green structural capital will impact positively on SOP because it will institutionalize sustainable environmental responsible practices (Hina et al., 2024).

H2: GSC has a significant impact on SOP

Green Social Capital and Sustainable Organization Performance

GSOC is the network, relationship, trust and shared values between employees, stakeholders, and communities that promotes sustainable practices. In cases where the organizations build on the powerful GSOC, the environment in which the collaboration and knowledge sharing contributes towards environmentally friendly solutions is established (Albhirat, Zulkiffli, Salleh, & Zaki, 2023). Close relationships with external stakeholders, suppliers and customers allow adopting sustainable technologies and practices in the entire value chain (Rehan et al., 2025). GSOC also benefits alliances with regulatory organizations and environmental bodies, boosting compliance and creativity. In addition, it offers resources and support systems required in the sustainability-based projects (Astuti et al., 2023). Through shared relationships and networks, organizations will have legitimacy and competitive advantages. Therefore, GSOC is likely to have a positive effect on SOP through the establishment of collaborative work towards the long-term environmental and economic success (Nawang Sari et al., 2025).

H3: GSOC has a significant impact on SOP

Organizational Ambidexterity and Sustainable Organization Performance

OA is defined as the capacity of the firm to strike a balance between exploration and exploitation of the new opportunities as well as what they have on their hand in terms of resources and capabilities (Hafeez, Yasin, Zawawi, Odilova, & Bataineh, 2025). Within the framework of sustainability, OA will be able to produce green solutions as well as to improve the existing practice within the frames of minimizing the impact on the environment (Martínez-Falcó, Marco-

Lajara, Zaragoza-Sáez, & Sánchez-García, 2024). Additionally, ambidexterity enhances a competitive edge through long-term innovation and short-term efficiency in sustainability efforts (Mankgele, 2023). Thus, OA should be positively associated with SOP as it should help to maintain a balance between new green initiatives and the sustainability of already existing sustainable practices to achieve the long-term growth and SOP and their ecological responsibility (Odhano et al., 2025).

H4: OA has a significant impact on SOP

Innovative Work Behavior and Sustainable Organization Performance

IWB is a deliberate generation, advocacy and application of novel concepts by employees to enhance organizational procedures, products or services (Mahmood & Mubarik, 2020). Workers with IWB can help in the development of green solutions, including energy efficient processes, garbage minimization plans or environmentally safe products (Ajmal, Sareet, & Islam, 2024). This assists the organizations not only to align to the expectations of regulation and the society but also to improve competitiveness in the markets that are concerned with sustainability (Srirahayu et al., 2023). IWB promotes a culture of constant improvement, employees take the initiative to deal with challenges they face in the environment and to incorporate SOP. Moreover, it fosters teamwork and exchange of knowledge which enhances the effectiveness of sustainable programs in the organization (Shahbaz et al., 2024).

H5: IWB has a significant impact on SOP

Green Human Capital and Organizational Ambidexterity

GHC, which involves knowledge, skills and commitment of the employees toward the environment is a key factor in promoting organizational ambidexterity (Altaee, Saleh, AlZeer, & Tunsu, 2024). The workers with green knowledge are in a better position to participate in both exploration and exploitation activities that are sustainable and efficient to the current operations. On the exploration front, green human capital promotes innovation and invention of environmentally-friendly technology, products and processes (Martínez-Falcó et al., 2024). On the exploitation, it assists the active implementation of the already established sustainable practices, which will guarantee efficiency in resources and environmental standards. This two facet role enables an organization to be more flexible to changing sustainability requirements (Marco-Lajara et al., 2023). Through such green capabilities, the organizations can make themselves more ambidextrous by incorporating environmental issues in both strategic innovations and operational excellence. Thus, it is hoped that the GHC has a positive impact on OA (Moreno-Luzon, Gil-Marques, Lloria, & Salas-Vallina, 2024).

H6: GHC has a positive impact on OA

Green Structural Capital and Organizational Ambidexterity

GSC that encompasses sustainable processes, systems, technologies, and organizational routines forms a good underpinning towards building OA (Asiaei et al., 2023). Incorporating sustainability into formal arrangements and process can allow organizations to both encourage the exploration

of new green opportunities and exploitation of the ones that already exist that are eco-efficient (Begum et al., 2023). GSC on the exploration side offers platforms including databases, knowledge systems, and eco-innovation frameworks through which new sustainable ideas and technologies are created (Elmakkawy, Hassan, & Magdy, 2025). On the exploitation dimension, it converts effective policies, like energy saving procedures and waste disposal mechanisms, and therefore, maintains a uniform performance. Therefore, GSC organizations are better placed to strike the balance between exploration and exploitation, thus a significant source of OA (Shehzad et al., 2023).

H7: GSC has a positive impact on OA

Green Social Capital and Organizational Ambidexterity

The networks, trust, and shared environmental values among the employees and other external stakeholders in the form of green social capital are particularly useful in ensuring OA (Pashazadeh & Teymoriazar, 2025). The employees work well together through good internal relationships where the employees communicate and share ideas that help explore innovative green solutions as well as contribute to exploitation of known sustainable practices (Shehzad et al., 2023). On the outside, it has access to knowledge, resources and technologies through relationships with suppliers, customers and regulatory bodies that benefits eco-innovation as well as operational efficiency. GSOC creates a culture of synergy and collaborating with employees, which creates an incentive to test new sustainability projects and should improve on existing systems (Hafeez et al., 2025). Thus, OA will be affected positively through GSOC as they will use collaborative networks and shared environmental commitment to enhance both innovation and efficiency in sustainability practices (Fatima, Ahmed, & Mahnoor, 2023).

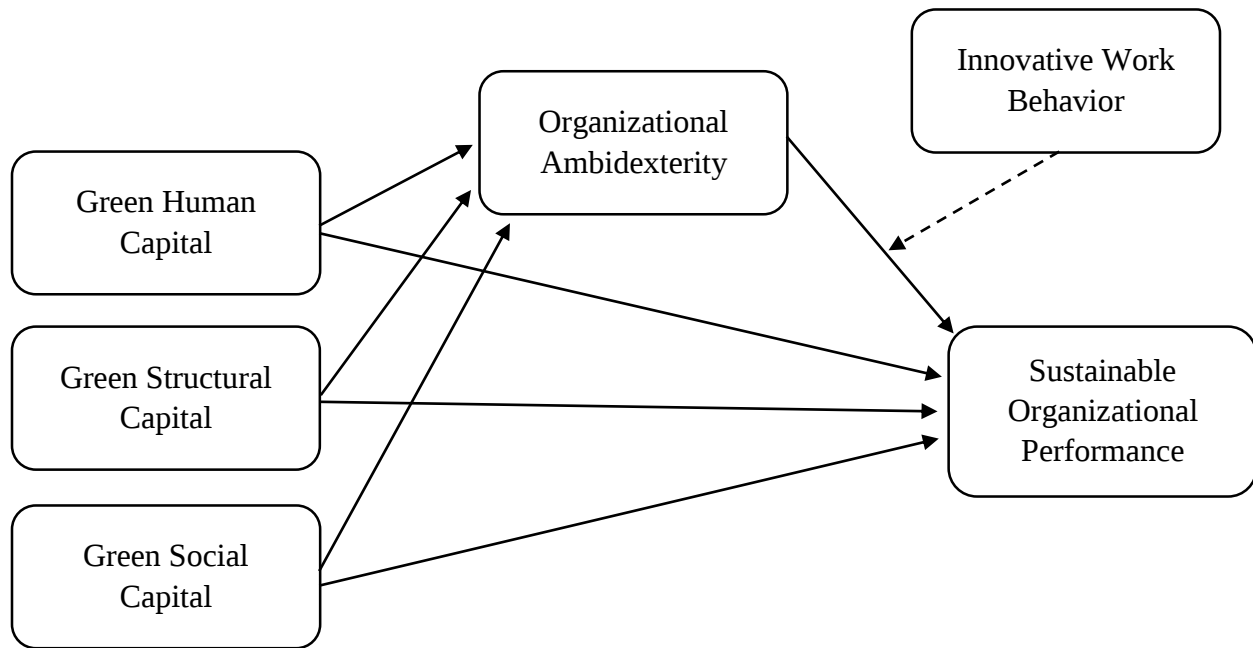
H8: GSOC has a positive impact on OA

Innovative Work Behavior plays moderating role between Organizational Ambidexterity and Sustainable Organization Performance

The relationship between OA and SOP can be enhanced through innovative work behavior as one of the key moderating variables (Hafeez et al., 2025). Although ambidexterity helps organizations strike a balance between exploration and exploitation of green innovation and the current sustainable practices, the ultimate benefits are experienced when the employees are involved in the innovation behaviors (Moreno-Luzon et al., 2024). Employees turn the ambidextrous strategies into a practical sustainable reality through their generation of ideas, promotion, and implementation. As an example, innovative workers could turn the exploratory projects into a viable eco-friendly technology or improve the efficiency of the current systems by being creative (Sarmiento et al., 2024). This intermediary position makes sure that the two-fold potential of ambidexterity is convincingly transferred into an environmental and economic long-term gain. The ambidexterity potential can go underutilized without IWB in place (Mankgele, 2023). The IWB is therefore anticipated to have a positive moderating influence on the connection between OA and SOP by increasing the power of both activities of exploration and exploitation (Restuputri et al., 2024).

H9: IWB plays moderating role between OA and SOP

Conceptual Framework



Methodology

Measuring Instrument

In this study, data was collected by primary method using questionnaires as an instrument of data collection. For this research, a 5-point Likert scale is created. The scales range from 1, indicating Strongly Agree, to 5, indicating multiple Strongly Disagree.

Table 1 Instrument

S.no	Constructs	No. of items	Source
1.	Green Human Capital	5	(Rezaei, Khalilzadeh, & Soleimani, 2021)
2.	Green Structural Capital	5	(Cabrita & Bontis, 2008)

3.	Green Social Capital	5	(Al-Omoush, Simón-Moya, & Sendra-García, 2020)
4.	Organizational Ambidexterity	6	(As'ad, Brasit, Muis, & Umar, 2024)
5.	Innovative Work Behavior	9	(Janssen, 2000; Siddiqui et al., 2024)
6.	Sustainable Organization Performance	5	Schöggel, Stumpf, and Baumgartner (2024)

Sample and Data Collection

Table 2 shows the demographic characteristics of the respondents, with emphasis on gender, position, company size, and work experience. There are 81% male and 19% female respondents, indicating a higher representation of males. The data on work positions shows that 31.5% are CEOs, 19% are senior managers, 24.5% are middle managers, and 25% are operational staff, providing both managerial and operational perspectives. Company size distribution reveals that 43% of companies have fewer than 50 employees, 19% have 50–250 employees, and 55% have more than 250 employees, highlighting a strong representation from larger organizations. In terms of experience, 43% have 5–10 years of experience, 36% have 10–15 years, and 21% have more than 20 years, indicating a balanced mix of experience in their field.

Table 2 Respondents' Profile

Measures	Details	Frequency	Percentage (%)
Gender	Male	162	81
	Female	38	19
Work position	CEO	63	31.5
	Senior manager	38	19
	Middle manager	49	24.5
	Operational staff	50	25
Company size	<50	52	43
	50-250	38	19
	>250	110	55
Work experience	5-10 years	86	43
	10-15 years	72	36
	>20years	42	21

PLS-SEM Analysis

The PLS-SEM is used for analysis because it helps create a profound variance. The structural model satisfies the test of hypothesis, and the measurement model incorporates the instrument's reliability in PLS-SEM. The use of SmartPLS to explore the study hypotheses is based on a number of considerations, according to Hair, Risher, Sarstedt, and Ringle (2019). Moreover, according to S. Khan, Rashid, Rasheed, and Amirah (2023), it is particularly appropriate when the aim of the study is to forecast or elucidate a theoretical framework from a predictive perspective.

Results and Analysis

Confirmatory Factor Analysis (CFA)

This study evaluated the internal consistency of the components using Cronbach's alpha, composite reliability (CR), factor loadings and average variance extracted (AVE), with the findings presented in Table 3. Constructs demonstrate strong reliability, with Cronbach's alpha values exceeding 0.7, indicating effective measurement (Chin, 2009). This affirms the fundamental integrity of the green intellectual capital framework, which includes GHC, GSOC, GSC, and their correlations with OA and IWB, influenced by SOP.

Table 3 Confirmatory Factor Analysis

Construct Name	Items	Loading	Cronbach's alpha	CR	AVE
Green Human Capital	GHC1	0.917	0.903	0.928	0.723
	GHC2	0.727			
	GHC3	0.837			
	GHC4	0.809			
	GHC5	0.944			
Green Social Capital	GSOC1	0.782	0.882	0.915	0.683
	GSOC2	0.705			
	GSOC3	0.883			
	GSOC4	0.854			
	GSOC5	0.894			
Green Structural Capital	GSC1	0.954	0.900	0.926	0.717
	GSC2	0.821			
	GSC3	0.816			
	GSC4	0.749			
	GSC5	0.880			
Innovative Work Behavior	IWB1	0.912	0.872	0.899	0.516
	IWB2	0.880			
	IWB3	0.841			
	IWB4	0.825			
	IWB5	0.769			
	IWB6	0.727			
	IWB7	0.867			
	IWB8	0.771			
	IWB9	0.883			
Organizational Ambidexterity	OA1	0.749	0.793	0.853	0.597
	OA2	0.880			
	OA3	0.727			
	OA4	0.867			

Sustainable Organization Performance	OA5	0.771	0.870	0.905	0.658
	OA6	0.727			
	SOP1	0.614			
	SOP2	0.582			
	SOP3	0.794			
	SOP4	0.836			
	SOP5	0.638			

Discriminant Validity

a) Heterotrait-monotrait ratio (HTMT)

Table 4 presents satisfactory results, with all values below 0.9 (Mardani et al., 2020). The Heterotrait-Monotrait Ratio (HTMT) values reveal significant interrelationships among sustainability constructs (Anuar, Saad, & Yusoff, 2018). Notably, the strongest results are in between GSOC ↔ GHC (0.485) and GSC ↔ GHC (0.790). These are quite near but still below the 0.90 criterion, indicating that these constructs are highly correlated; however, they are statistically separate.

Table 4 Heterotrait-monotrait ratios (HTMT)

	GHC	GSOC	GSC	IWB	OA	SOP
GHC						
GSOC	0.485					
GSC	0.790	0.558				
IWB	0.558	0.710	0.713			
OA	0.618	0.564	0.834	0.702		
SOP	0.728	0.668	0.785	0.745	0.621	

b) Fornell and Larcker Criterion

Table 5 presents the relevant findings, indicating that all the square roots of the AVE (highlighted in bold) exceed the correlations between variables. This confirms the discriminant validity of the constructs (Fornell & Larcker, 1981). The Fornell and Larcker criterion results indicate strong discriminant validity among the constructs, with GHC (0.850) and GSC (0.847) showing the highest distinctiveness.

Table 5: Fornell and Larcker Criterion

Constructs	GHC	GSOC	GSC	IWB	OA	SOP
GHC	0.850					
GSOC	0.440	0.827				
GSC	0.716	0.497	0.847			
IWB	0.555	0.646	0.672	0.718		

OA	0.543	0.502	0.718	0.636	0.705	
SOP	0.670	0.603	0.729	0.697	0.809	0.811

Cross-loading for Correlation

The Table 6 cross-loadings of items which verifies the discriminant validity (Gefen & Straub, 2005), reveals significant relationships among various constructs, with items like GHC5 (0.944) and GHC1 (0.917) demonstrating strong loadings, indicating their interconnectedness of constructs implies that enhancing importance in measuring performance of the organization with intellectual such as GHC may lead to increased SOP.

Table 6: Cross loadings

	GHC	GSOC	GSC	IWB	OA	SOP
GHC1	0.917	0.438	0.627	0.496	0.504	0.632
GHC2	0.727	0.378	0.489	0.385	0.325	0.480
GHC3	0.837	0.232	0.578	0.472	0.414	0.504
GHC4	0.809	0.319	0.557	0.405	0.406	0.487
GHC5	0.944	0.470	0.752	0.572	0.602	0.701
GSC1	0.643	0.480	0.954	0.655	0.697	0.741
GSC2	0.901	0.442	0.821	0.559	0.518	0.623
GSC3	0.476	0.416	0.816	0.586	0.596	0.551
GSC4	0.490	0.411	0.749	0.463	0.493	0.468
GSC5	0.536	0.368	0.880	0.570	0.702	0.666
GSOC1	0.369	0.782	0.356	0.495	0.391	0.443
GSOC2	0.283	0.705	0.304	0.421	0.391	0.401
GSOC3	0.399	0.883	0.497	0.559	0.466	0.562
GSOC4	0.346	0.854	0.427	0.595	0.428	0.563
GSOC5	0.416	0.894	0.447	0.580	0.390	0.497
IWB1	0.515	0.595	0.574	0.912	0.509	0.547
IWB2	0.474	0.610	0.518	0.880	0.483	0.546
IWB3	0.494	0.455	0.534	0.841	0.507	0.550
IWB4	0.388	0.466	0.476	0.825	0.447	0.494
IWB5	0.271	0.529	0.335	0.769	0.302	0.413
IWB6	0.189	0.170	0.303	0.448	0.295	0.257
IWB7	0.113	0.352	0.211	0.470	0.255	0.349
IWB8	0.067	0.261	0.318	0.421	0.328	0.293
IWB9	0.649	0.516	0.748	0.676	0.709	0.745
OA1	0.459	0.387	0.559	0.450	0.587	0.466
OA2	0.358	0.299	0.422	0.473	0.694	0.699
OA3	0.334	0.431	0.479	0.484	0.727	0.722
OA4	0.423	0.387	0.621	0.560	0.867	0.627
OA5	0.465	0.435	0.582	0.444	0.771	0.512

OA6	0.214	0.041	0.322	0.147	0.532	0.239
SOP1	0.723	0.592	0.883	0.739	0.804	0.880
SOP2	0.548	0.612	0.572	0.598	0.660	0.862
SOP3	0.604	0.448	0.556	0.504	0.524	0.763
SOP4	0.408	0.361	0.465	0.422	0.596	0.776
SOP5	0.367	0.374	0.371	0.498	0.652	0.766

Note: All self-loadings are significant (bold).

Common Bias Method

Table 7 provides the overall VIF values, which suggest that most constructs demonstrate low to moderate levels of multicollinearity. The VIF values for various constructs related to GHC, GSOC, GSC, OA, IWB and SOP indicate multicollinearity, with values ranging from 1.346 to 3.755.

Table 7 Common Bias Variance

Constructs	VIF
GHC1	1.868
GHC2	1.643
GHC3	2.444
GHC4	2.129
GHC5	2.447
GOC5	3.334
GSC1	3.232
GSC2	2.271
GSC3	2.151
GSC4	1.855
GSC5	3.755
GSOC1	1.868
GSOC2	1.501
GSOC3	2.898
GSOC4	2.447
IWB1	2.271
IWB2	2.151
IWB3	3.289
IWB4	3.232
IWB5	2.969
IWB6	1.746
IWB7	1.789
IWB8	1.805
IWB9	1.485
OA1	1.346
OA2	2.411
OA3	2.476
OA4	3.421

OA5	2.454
OA6	1.646
SOP1	2.794
SOP2	2.514
SOP3	2.049
SOP4	2.795
SOP5	2.684

Predictability of the model

The model demonstrates sufficient predictive power, as the adjusted R-squared values exceed 0.10. Table 8 provides the path coefficients and the significance of the structural model for the entire sample. The model's Predictability indicates that approximately 54.4% of the variance in Organizational Ambidexterity and 76.7% in Organization Performance can be explained by the variables analyzed. The slightly higher R-squared for Sustainable Organizational Performance suggests the model may more effectively predict it.

Table 8 Predictability of the Model

	R-square	R-square adjusted
Organizational Ambidexterity	0.544	0.539
Sustainable Organization Performance	0.767	0.762

Hypothesis Results

The table shows the results of hypothesis testing that assess the relationship between green intellectual capital and organizational ambidexterity, innovative work behavior and sustainable organizational performance. Results indicate that, Green Human Capital (beta=0.231), Green Structural Capital (beta=0.540) and Green Social Capital (beta=0.147) are important in promoting Sustainable Organizational Performance. The performance is the most impacted by Organizational Ambidexterity (beta=0.491). Performance is also directly enhanced by Innovative Work Behavior (beta =0.126). In addition, Green Human Capital (beta =0.269), Green Structural Capital (beta =0.605), and Green Social Capital (beta=0.189) have positive effects on Organizational Ambidexterity. Notably, the correlation of Ambidexterity and Performance is mediated by Innovative Work Behavior (beta =0.294), which reinforced its relevance. Each of the hypotheses is accepted and confirms the importance of green intellectual capital, ambidexterity, and innovation as the key factors in attaining sustainable organizational results.

Table 9 Hypothesis testing

S.no	Regression path	Beta	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
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H1	Green Human Capital -> Sustainable Organization Performance	0.231	0.050	4.660	0.000	Accepted
H2	Green Structural Capital -> Sustainable Organization Performance	0.540	0.151	3.802	0.000	Accepted
H3	Green Social Capital -> Sustainable Organization Performance	0.147	0.035	4.223	0.000	Accepted
H4	Organizational Ambidexterity -> Sustainable Organization Performance	0.491	0.054	9.080	0.000	Accepted
H5	Innovative Work Behavior -> Sustainable Organization Performance	0.126	0.045	2.801	0.000	Accepted
H6	Green Human Capital -> Organizational Ambidexterity	0.269	0.076	3.539	0.000	Accepted
H7	Green Structural Capital -> Organizational Accepted Ambidexterity	0.605	0.086	7.010	0.000	Accepted
H8	Green Social Capital -> Organizational Ambidexterity	0.189	0.054	3.478	0.001	Accepted
H9	Innovative Work Behavior x Organizational Ambidexterity -> Sustainable Organization Performance	0.294	0.145	2.012	0.020	Accepted

Discussion

The structural model analysis gives strong empirical evidence to all the nine hypotheses proposed. The findings demonstrate that an important antecedent of Sustainable Organizational Performance (SOP) is Green Intellectual Capital (including human, structural, and social capital), Organizational Ambidexterity, and Innovative Work Behavior. Moreover, the model manages to create a mediating variable of Organizational Ambidexterity and the moderating impact of Innovative Work Behavior. OA (H4: $\beta = 0.491$, $p < 0.001$) is the most strongly related direct predictor of SOP. Such a close and favorable relationship highlights the paramount significance of the capacity of a firm to simultaneously take advantage of the available resources and seek alternative avenues of attaining sustainability. This observation is consistent with the study conducted by Martínez-Falcó et al. (2024), who state that OA is one of the most critical dynamic capabilities needed to be viable in the long run in complex settings. The huge beta points to investments in the development of ambidextrous capabilities paying off in high returns balanced economic, environmental, and social performance. Additionally, the elements of GIC also show that they have significant direct impacts on SOP. GHC (H1: $\beta = 0.231$, $p < 0.001$) came out as a powerful force, which provides evidence that the amount of knowledge, skills, and commitment of employees related to environment are priceless assets. This finding supports the results obtained by Shayegan, Bazrkar, and Yadegari (2023), who assume that the implementation of sustainable practices is impossible without environmentally literate and trained employees. In a similar manner, GSOC (H3: $\beta = 0.147$, $p < 0.001$) showed significance, and it proves that trust, shared vision, and work networks around environmental objectives support knowledge sharing and collective action in achieving sustainability goals as put forth by Hina et al. (2024). Although not of the greatest importance, GSC (H2: $\beta = 0.540$, $p < 0.001$) had the minimal direct impact. This is to suggest that databases, management systems, patents and processes (structural capital) can serve as enablers as opposed to being performance drivers thus displaying their effects indirectly via other variables such as ambidexterity. Another significant direct relationship is between IWB (H5: $\beta = 0.126$, $p < 0.001$) and SOP, which confirms the fact that employee-driven innovation is a crucial micro-level input of macro-level sustainability outputs (Liu, Khan, & Raju, 2023).

The strong findings of the GIC is a decisive precursor of OA. Amazingly, the strongest predictor is GSC (H7: $\beta = 0.605$, $p < 0.001$). This is to imply that green databases, information systems and formalized procedures give a firm the infrastructural support and knowledge base that enables the organization to efficiently operate its present operations (exploitation) as well as give the data-driven insights that the organization requires to pursue new and sustainable innovations. This result is agreeable with the resource based perspective which emphasizes on the importance of distinctive internal resources in the creation of capabilities. OA is also significantly predicted by GHC (H6: $\beta = 0.269$, $p < 0.001$) and GSOC (H8: $\beta = 0.189$, $p < 0.01$). The agents who refine the existing processes and produce the new ideas are the employees that possess green expertise (human capital). In the meantime, the existence of strong social networks (social capital) facilitates the fact that these ideas can be exchanged, criticized and combined across units, a condition of ambidextrous learning (Asiaei et al., 2023; Taha, Siam, Alshurafat, & Al Shbail, 2024).

An important addition to the research is that it supports H9 that states that OA has a positive relationship with SOP that is enhanced by IWB ($\beta = 0.294$, $p < 0.05$). The existence of this significant interaction effect suggests that the beneficial influence of the OA on the performance does not manifest itself uniformly; it is more pronounced in a setting in which employees actively participate in IWB. This goes with the behavioral integration notion whereby the structural capability (ambidexterity) of an organization is enacted and developed through self-willing actions of its members (Ajmal et al., 2025). Simply put, ambidexterity is the framework and employee innovation is the engine to maximize this to achieve long-term sustainability.

Conclusion

The empirical findings are thoroughly endorsing the model under hypothesis. The research contributes greatly. Measuring impact shows the relative strength (through beta values) of the individual green assets on performance and ambidexterity, and GIC is the ultimate contributor to ambidexterity itself. Setting up mediation to ensure that the OA is a key mediating variable that promotes the role of GIC in the SOP. Exploring a boundary condition identifying IWB as a notable moderator, in which the ambidexterity-performance relationship is conditional upon an enabling behavioral environment. These results strongly combine the literature on Resource-Based View, Intellectual Capital theory, and dynamic capabilities as they provide a sensitive insight into how intangible green resources can be converted into tangible sustainable performance results based on the critical organizational capabilities and behaviors.

Managerial Implications

According to the results, managers ought to invest most in GIC, more so in the development of a strong Green Structural Capital (systems, databases) because it is the biggest contributor of Organizational Ambidexterity. It is also necessary to develop this essential capability by developing Green Human and Social Capital by means of specific training and group platforms. Moreover, a culture that supports IWB should be actively promoted by the leadership because of its direct impact on the performance and the role of it in the considerable amplification of the beneficial consequences of ambidexterity on the sustainability results. Finally, two-fold approach of enabling systems and empowering employee innovation is the key to attaining high and sustainable organizational performance.

Limitations and Future Research Direction

There are limitations in this study. This cross-sectional design does not allow making a clear causal conclusion. Also, there is a chance of generalizability bias due to sample, which may be geographically or industry-based in the sample. Longitudinal designs should be used in future studies to determine causality and data on multiple sources should be gathered to reduce bias. It would contribute to better external validity of these findings by increasing the sample to different cultural and industrial settings. To achieve a more detailed theoretical framework, it may be

necessary to investigate additional possible mediators such as green culture, or moderators, such as leadership styles.

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