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Keywords: Ethical Leadership; Green Innovation Capability,; Sustainable Supply Chain Collaboration; Entrepreneurial Bricolage; Sustainable Performance

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Exploring the Impact of Ethical Leadership on Sustainable Performance: The Mediating Role of Green Innovation and Sustainable Supply Chain Collaboration and the Moderating Role of Entrepreneurial Bricolage

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Abstract: This research aims to investigate the relationships between ethical leadership, green innovation capability, sustainable supply chain collaboration, entrepreneurial bricolage, and sustainable performance within manufacturing firms in China. Employing a rigorous quantitative approach, data was collected from 230 manufacturing firms in China, ensuring a nuanced exploration of the interplay between ethical leadership and sustainability. The study utilized a sample size determined by G*Power and distributed 400 questionnaires. SmartPLS was employed for data analysis. The findings of the study substantiate the significant impact of ethical leadership on sustainable performance. Additionally, green innovation capability and sustainable supply chain collaboration emerged as crucial mediators, highlighting the multifaceted pathways through which ethical leadership influences sustainability outcomes. The moderating effect of entrepreneurial bricolage further nuanced these relationships. This research stands out by offering empirical evidence specific to China's manufacturing sector, bridging gaps in the literature, and providing insights applicable to the unique cultural and industrial context. Its significance lies in contributing to both theoretical frameworks on ethical leadership and practical implications for organizational leaders navigating sustainability challenges within the dynamic landscape of manufacturing in China.

Keywords: ethical leadership; green innovation capability; sustainable supply chain collaboration; entrepreneurial bricolage; sustainable performance

1. Introduction

Research in organizational studies today is concentrated on sustainability, innovation, and leadership. Numerous subjects in organizational studies are covered by this junction. The ability of ethical leadership to shape organizational behavior, promote moral environments, and facilitate sustainable practices in all sectors of the economy is becoming more widely acknowledged [1]. According to [2], moral leadership promotes sustainability. They emphasized the need of moral leadership in creating moral workplaces. This study looks at the intricate dynamics of Chinese manufacturing companies. The research findings on how ethical leadership influences sustainable performance will be mediated by green innovation abilities and sustainable supply chain collaboration. Corporate operations must be sustainable, since the need for environmental awareness has grown globally [3]. This understanding has necessitated a change in business models toward ethical and environmentally sustainable ones. Morality, ethics, and integrity in leadership are seen to increase a company's sustainability. We aim to contribute to the body of literature by investigating the intricate relationship between sustainable performance and ethical leadership in China's

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industrial sector. The manufacturing sector in China plays a crucial role in the global economy by balancing environmental preservation with economic expansion. Global supply networks rely heavily on Chinese manufacturing companies, and their sustainable business practices have an impact on environmental management worldwide [4] (Singh et al., 2019). The sustainability initiatives of these companies rely on moral leadership. Research on ethical leadership in China's industrial sector is lacking, particularly when it comes to collaboration in sustainable supply chains and green innovation.

The relationship between green innovation, sustainable supply chain collaboration, ethical leadership, and sustainable performance has been demonstrated by earlier studies. To execute consistently, you must comprehend this. Independent studies by [5,6] demonstrated that moral leadership increases corporate sustainability. The importance of green innovation capability in enhancing businesses' environmental performance was highlighted by [7]. According to [8], CSR acts as a mediator between moral leadership and the goals of the firm. Although these results are useful, more investigation is required to fully comprehend the connections between green innovation, sustainable supply chain cooperation, entrepreneurial bricolage, and ethical leadership. Even while past studies have contributed much, there are still gaps. Previous studies have mostly concentrated on single relationships rather than the intricate relationships among green innovation capacities, sustainable supply chain cooperation, ethical leadership, and sustainable performance [1,9,10]. These problems are addressed in the study, which also advances our knowledge of moral leadership in Chinese industrial companies. Scholars stress the importance of carrying out empirical studies that have a more comprehensive perspective and go beyond individual interactions. The need for deeper analyses of the intricate relationships influencing organizational sustainability in the literature is met by this study. The study focuses on collaboration in a sustainable supply chain, green innovation, and ethical leadership. This study's conceptual framework and research hypotheses are grounded in gaps in the literature and theoretical underpinnings from earlier studies.

This study examines the relationships between sustainable performance, green innovation, entrepreneurial bricolage, sustainable supply chain collaboration, and ethical leadership in Chinese manufacturing firms. This study aims to shed light on the complex relationship between ethical leadership and sustainable manufacturing in China. An empirical analysis will provide information. This study looks at the relationship between sustainable performance and ethical leadership and how supply chain collaboration and green innovation might help to minimize it. This study looks at how green innovation and moral leadership are moderated by entrepreneurial bricolage. By giving actual evidence, the research aims to promote the philosophy and practice of sustainability, innovation, and ethical leadership.

There are theoretical and practical ramifications of this research for academics, business executives, and legislators. For evidence-based sustainability policies and initiatives in Chinese manufacturing companies, the paper offers helpful guidance. Researching green innovation, sustainable supply chain cooperation, entrepreneurial bricolage, and ethical leadership produces valuable ideas. Contributing to the area, the study conceptually investigates how ethical leadership affects sustainability outcomes. It expands on the theoretical foundations of this field. The study's emphasis on China's manufacturing sector enhances our comprehension of the ways in which ethical leadership impacts sustainability in many cultures and sectors, hence increasing the applicability of theoretical frameworks. Industrial leaders can develop sustainable plans and solutions with the aid of this research. Organizations need to understand the connections between green innovation capabilities, sustainable supply chain collaboration, ethical leadership, and entrepreneurial bricolage in order to develop plans for responsible economic and environmental stewardship. These results can assist policymakers in creating rules and incentives related to sustainability and ethics in the manufacturing sector. Goals for sustainable development and the environment will benefit from this.

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2. Literature Review

2.1. Ethical Leadership

Leadership is about influencing and leading individuals to achieve organizational goals. Leadership is the ability to persuade people to be motivated to achieve the duties and goals established by a leader [11]. Effective leadership requires humility, empathy, self-control, and a deep commitment to the well-being of followers and the organization's objectives. According to [12], effective leadership takes into account the interests of both various stakeholders, both internal and external. The attention that has been focused on the moral, social, and ethical obligations of leaders has been moved as a result of recent scandals that have included executives in both commercial and government organizations. When there have been instances of unethical behavior in commercial or governmental organizations, investigations have been conducted to determine the influence that leadership has on ethical behavior. As a result, the foundation for ethical leadership has been established [13].

[14] has not offered a definitive definition of ethical leadership. Ethical leadership is defined by a leader's appropriate conduct in personal activities and interpersonal connections. Leaders must communicate effectively with their followers to set a positive example [12]. According to [15], ethical leaders are those who demonstrate ethical behavior in the workplace. There is a correlation between ethical leaders demonstrating moral behavior and inspiring their followers to do the same through effective communication. Before making judgments, ethical leaders ensure that they have considered the ethical repercussions of the many outcomes that may occur and that they adhere to ethical norms while making decisions. In order to promote ethical behavior, ethical leadership emphasizes the need of adhering to ethical norms and making certain that all individuals are held accountable for upholding these standards. Through an increase in employee prosocial behaviors, work happiness, performance, and the effectiveness of top management, ethical leadership contributes to the improvement of organizational outcomes of a company [1,16,17].

2.2. Sustainable Performance

The report by [18] was the first document to introduce the concept of sustainability. The paper draws attention to the fact that two issues—development and the environment—are aligned with one another. According to [19], this might be seen as a difference between the requirements and the resources, or between the short-term and the long-term viewpoints and perspectives. There are three aspects that make up sustainability: the economic, the environmental, and the social. There is a connection between sustainable development and the combination of economic development, social development, and the protection of the environment. The capability of a company to give value to its stakeholders and society by maximizing favorable results and limiting adverse repercussions linked with social, environmental, and economic elements is what we mean when we talk about sustainability.

For the purpose of evaluating performance, there is no idea or criterion that is mutually accepted by everyone. As defined by [20], performance refers to the capacity of an organization to provide results and behaviors that are satisfying. One can evaluate performance using either financial or non-financial measures. Both types of standards are acceptable. Profitability, revenue, and market share are all forms of financial measurement measurements. Quality, innovation, staff morale, and reputation are the primary focuses of non-financial indicators, which also include consumer satisfaction [21]. The Triple Bottom Line (TBL) is a methodology employed to evaluate a company's performance. The Triple Bottom Line (TBL) assesses performance via a sustainable perspective by including environmental and social factors with financial results [22–24].

2.3. Ethical Leadership and Sustainable Performance

The social learning theory, the social exchange theory, and the stakeholder theory are the three theories that serve as the foundation for ethical leadership and sustained sustainability. Based on theory of [25], it is stated that in order for leaders to be perceived as ethical by their followers, they

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must be attractive and trustworthy role models. The notion of social learning provides an explanation for how ethical leaders impact the people they lead. The ideals, behaviors, and attitudes of trustworthy role models are the ones that individuals learn from by modeling their own conduct after them.

According to [26], ethical leaders are able to give direction because of their high reputation and impact as role models. By influencing a company's principles, conduct, direction, and attitude, an ethical leader has the ability to impact the sustainable performance of the organization. According to [27] the Social Exchange Theory proposes that employees form deep ties with one another via the interactions they have with one another and the experiences they have in common. It may be deduced from this that those who follow an ethical leader are more likely to perceive themselves as being involved in a social exchange relationship. This occurs as a consequence of the confidence that is placed in children and the ethical care that is offered to them. When employees believe that their leaders are ethical, they are more likely to increase their performance on the tasks they are assigned. The achievement of organizational sustainability goals may be facilitated as a result of this [6].

According to [28], the Stakeholder Theory asserts that a firm need to take into consideration the interests of various stakeholders when making decisions on its activities. To classify stakeholders, [29] divided them into two categories: primary and secondary. Shareholders, workers, customers, communities, and the natural environment are the primary stakeholders in a company. Governments at the local, state, and federal levels, regulatory organizations, trade and industry groups, the media, and rivals are all examples of secondary stakeholders. When making decisions, an ethical leader considers all of the stakeholders who have the ability to influence or are affected by the actions and operations of a firm. An ethical leader has the ability to affect performance in the areas of finance, society, and the environment.

Hypotheses 1 (H1): *Ethical leadership has a significant impact on sustainable performance.*

2.4. Ethical Leadership, Green Innovation Capability, and Sustainable Performance

In the current environment, a country's advancement greatly depends on the inventive resources of its enterprises. Today, heightened global competition has created adverse conditions for firms, leading to many hurdles in achieving sustainability. Studies indicate that natural resources such as gas and oil are crucial assets that enhance firms' competitiveness and sustainability [1,16,30]. Research shows that corporations have recognized the importance of green innovation solutions as a key factor for an organization's growth. Businesses enhance their success by developing green innovation skills. An organization's environmentally friendly innovative resources are strategically important for promoting its advancement. A study from Pakistan demonstrates that innovative services have a substantial impact on a firm's success in the present business environment, contributing to sustainability [31]. Due to global environmental concerns, firms have improved their green innovation skills with an emphasis on sustainability. Environmentally friendly corporate development helps overcome ecological weaknesses and ensures sustainable operations. Green innovation can improve organizational processes, which affects long-term performance [32]. Organizational success depends on green innovation skills. Businesses must integrate technology and strategic capabilities to enable innovation and long-term success. Environmentally responsible innovation is crucial to organizations' performance and sustainability. Numerous studies have linked ethical leadership, green innovation, and sustainable performance.[33] found that ethical leadership and green company identity strongly affect green innovation behavior. Corporate social responsibility can boost business performance through green innovation, according to [28]. [34] shown that service innovation competence acts as a mediator in the connection between environmental innovation and sustainable performance. [35] emphasized the importance of responsible leadership in promoting green innovation. Organizational ethical culture acts as a mediator in this relationship, while strategic posture plays a moderating function. These studies indicate that ethical leadership and corporate social responsibility can improve sustainable performance by encouraging green innovation potential.

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Hypotheses 2 (H2): *Green Innovation capability mediates the relationship between ethical leadership and sustainable performance.*

2.5. Ethical Leadership, Sustainable Supply Chain Collaboration, and Sustainable Performance

Studies constantly demonstrate that collaborating in sustainable supply chains has a beneficial effect on sustainable performance. [36] discovered that increased collaboration resulted in enhancements in operational and relational results, therefore boosting asset utilization, competitive standing, organizational performance, and profitability. [37] highlighted the significance of collaborative planning, decision-making, and execution in the effectiveness of supply chain collaboration. [38] suggested a framework to elucidate the connection between sustainable supply chain management and collaboration, emphasizing the necessity for empirical validation.

[39] demonstrated through empirical data that engaging in sustainable supplier collaboration typically enhances company performance, especially in the realm of environmental sustainability. The studies emphasize the important significance of sustainable supply chain collaboration in improving sustainable performance. Sustainable supply chain collaboration is essential for connecting ethical leadership and sustainable performance, as indicated by several studies [38,40,41]. It reduces waste, enhances social and environmental performance, and boosts sustainability. Leading an ethical and circular supply chain improves a company's sustainability [42]. Ethical supply chain leadership and the green image mediate green supply chain integration. Supply chain stakeholders working jointly on green practices improves sustainability performance[43]. The findings demonstrate the importance of ethical leadership in sustainable supply chain cooperation and long-term performance.

Hypotheses 3 (H3): *Sustainable supply chain collaboration mediates the relationship between ethical leadership and sustainable performance.*

2.6. Moderating Role of Entrepreneurial Bricolage

Disruptive and green innovation capability focuses on utilizing resources and transaction governance. Organizations often encounter resource constraint and intense rivalry, requiring leaders to strategically utilize their limited resources in a distinctive manner. [44] advocated for entrepreneurial activities rooted in bricolage, which have a good effect on innovation outcomes. Entrepreneurial bricolage allows individuals and organizations to effectively use their limited resources through innovative approaches to take advantage of possibilities. Entrepreneurial bricolage encourages the reuse of by-products to create cost-effective, value-added products and services in a developing economy. Hence, the following hypothesis is proposed:

Hypothesis 4 (H4). *Entrepreneurial bricolage moderates the relationship between ethical leadership and environmental innovation.*

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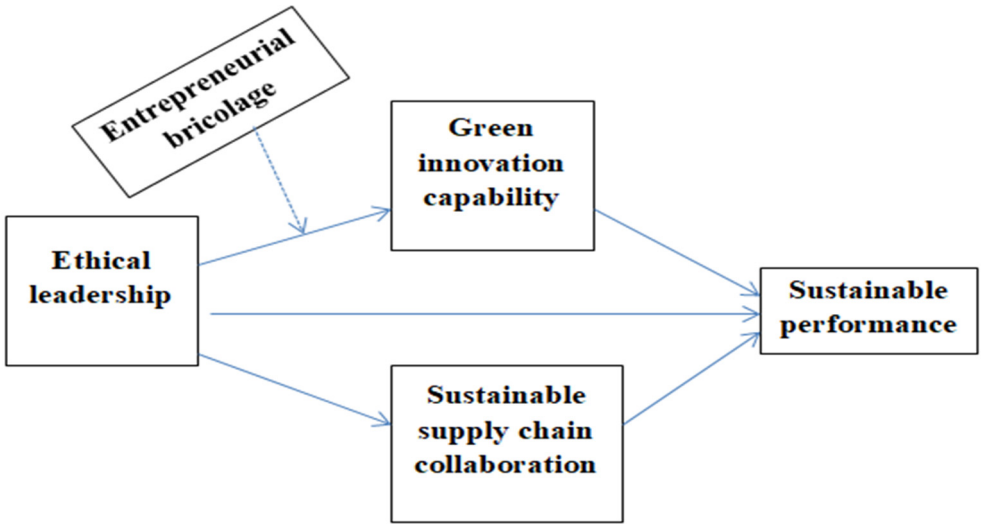

Figure 1. Conceptual Framework.

3. Methodology

This research includes participants from China's vast industrial sector, which has a major impact on the world economy. Due to its direct impact on environmental sustainability, the selected industry was suited for studying entrepreneurial bricolage, green innovation, and ethical leadership. The population included manufacturing companies in several industries with unique organizational structures and practices related to sustainability and ethical leadership. The research sample size was determined by statistical considerations and the need for persuasive results. Using the G*Power tool, the study sought 103 individuals to achieve the average social science response rate of 35.50%. A sufficient sample size was chosen to ensure statistical power and study validity. After distributed 400 surveys to the selected industrial companies, the researchers obtained 230 responses. The higher-than-expected response rate allowed for a larger dataset, which increased the study's statistical power and allowed researchers to draw more conclusions about green innovation capacity, entrepreneurial bricolage, and ethical leadership in Chinese manufacturing firms. Purposive sampling was used to select study participants in Chinese manufacturing firms. Through selective sampling, company employees who might provide insights into green innovation potential, ethical leadership, and entrepreneurial bricolage were selected. The research focused on experts in these domains to improve data relevance and accuracy. The HR departments of the selected industrial organizations allowed prospective participants to participate, making the sampling process efficient and successful. This allowed the research to actively incorporate people with specialized information and views, resulting in a more comprehensive understanding of the linkages under study. This study relied on a standardized questionnaire. A questionnaire was designed to quantify green innovation capacity, entrepreneurial bricolage, and ethical leadership. This method ensured that the data acquired was relevant to the study's goals while protecting participant confidentiality. We used partial least square structural equation modeling (PLS-SEM) with smart PLS to evaluate the measurement model and look for potential connections in this investigation. It has several advantages over standard regression analysis or covariance-based SEM, including fewer data assumptions, the capacity to examine complex conceptual models, and more acceptance of constructs with limited parts. We used SmartPLS software (Version 3.3.7, SmartPLS GmbH, Gewerbering, Germany) for data analysis. The model's internal validity and reliability were assessed using structural equation modeling (SEM) and confirmatory factor analysis. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the hypotheses developed among the research variables.

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Measures

The study assessed ethical leadership using a 10-item scale derived from [45], which demonstrated high reliability among industrial workers in Hubei, China [46]. We utilized a nine-item measurement scale of entrepreneurial bricolage developed by [47] to assess its monitoring effects. The current study used a 14-item scale developed by [48] to assess sustainable performance, which includes economic, social, and environmental components. Seven sustainable supply chain collaboration items were taken from [49]. The green innovation capability was assessed using a four-item scale taken from [50].

4. Results

4.1. Common Method Bias

This study also utilized Harman's single-factor technique to address frequent method bias. The variance explained by a single factor is 45.676%, which is below 50%, suggesting the absence of common technique bias in this study [51].

4.2. Measurement Model

Before evaluating the associations stated in the study, the measuring model was reviewed to ensure the reliability and construct validity (both convergent and discriminant) of the measures used in this inquiry. It was confirmed that the measures in this study had convergent validity since all of the item factor loading scores on their respective constructs were above 0.50 and all of the construct average variance extracted (AVE) scores were greater than 0.50 [52]. All constructs' Cronbach's alpha and composite reliability (CR) values were higher than the acceptable threshold of 0.70, proving that the scales used in this study were reliable.

Table 1. Contrcut Reliability and Validity.

Variables	Items	Outer Loading	Cronbach's Alpha	CR	AVE
Entrepreneurial Bricolage	EB1	0.732	0.905	0.921	0.568
	EB2	0.693			
	EB3	0.618			
	EB4	0.733			
	EB5	0.646			
	EB6	0.854			
	EB7	0.841			
	EB8	0.806			
	EB9	0.821			
Ethical Leadership	EL1	0.786	0.888	0.915	0.642
	EL2	0.801			
	EL3	0.851			
	EL4	0.864			
	EL5	0.783			
	EL6	0.715			
Green Innovation Capability	GIC1	0.848	0.906	0.934	0.779
	GIC2	0.915			
	GIC3	0.895			
	GIC4	0.870			
Sustainable Performance	SS1	0.765	0.947	0.953	0.579
	SS2	0.749			
	SS3	0.758			
	SS4	0.797			
	SS5	0.685			

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	ES1	0.838			
	ES2	0.844			
	ES3	0.824			
	ES4	0.835			
	ES5	0.837			
	EnS1	0.783			
	EnS2	0.714			
	EnS3	0.679			
	EnS4	0.527			
	EnS5	0.717			
Sustainable supply Chain Collaboration	SSCC1	0.717	0.871	0.900	0.562
	SSCC2	0.684			
	SSCC3	0.725			
	SSCC4	0.789			
	SSCC5	0.772			
	SSCC6	0.785			
	SSCC7	0.769			

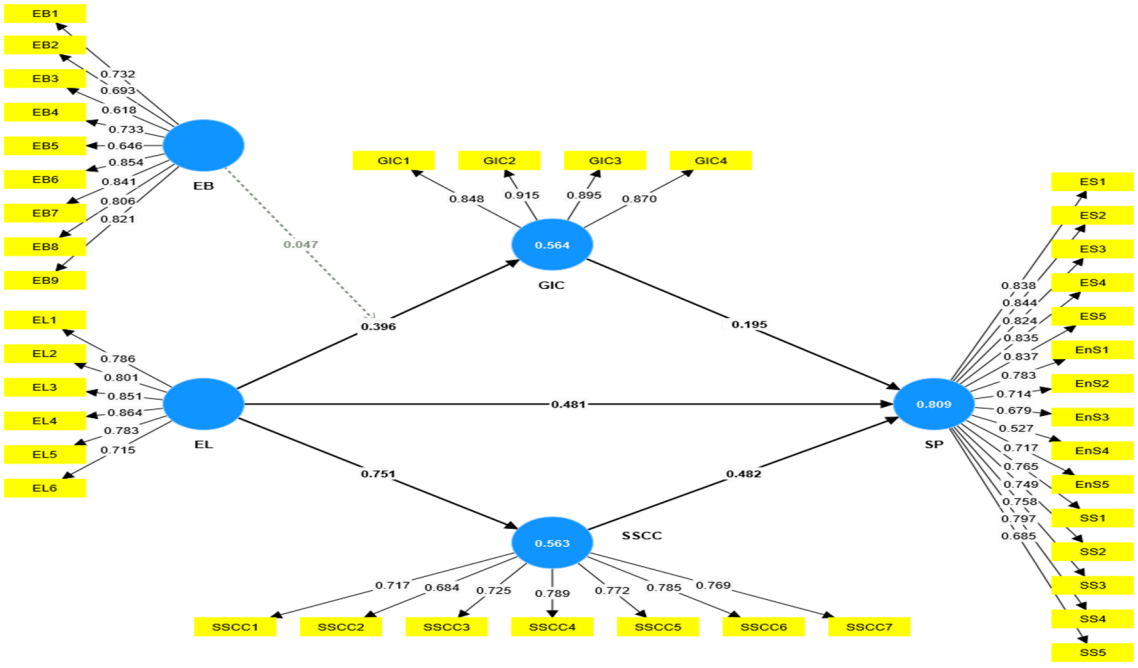

Figure 2. Conceptual Framework.

Table 2 displays the discriminant validity results of the constructs. The heterotrait–monotrait (HTMT) ratio is a newer tool used for assessing the discriminant validity of measures, noted for its robustness. The HTMT ratio score in this investigation was found to be less than 0.1, as recommended by [53]. The results presented in Table 2 confirm the discriminant validity of the constructs utilized in this investigation.

Table 2. Discriminant Validity (HTMT).

	EB	EL	GIC	SP	SSCC
Entrepreneurial Bricolage					
Ethical Leadership	0.905				
Green Innovation Capability	0.782	0.667			
Sustainable Performance	0.850	0.904	0.716		
Sustainable supply Chain Collaboration	0.804	0.831	0.921	0.915	

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4.3. Structural Model

Table 3 displays the direct and indirect path analysis of moral leadership and long-term success. The interaction between sustainable supply chain collaboration and green innovation is also displayed in the table. While t and p values suggest statistical significance, beta values show the strength of the link. According to the preliminary path analysis, sustainable practices are enhanced by ethical leadership. This association's t-statistic is 9.553 and beta coefficient is 0.481, both of which point to strong statistical significance. Ethically led organizations do better over the long term. The identification of this link is supported by a 0.000 p-value, which suggests that the correlation is incredibly unlikely to be the result of random chance. The study discovered that the influence of ethical leadership on sustainable performance is mediated by green innovation capability and sustainable supply chain collaboration. The beta values of sustainable supply chain collaboration and green innovation capabilities are 0.137 and 0.126, respectively. These figures show that even while indirect effects are less powerful than direct impacts, they nevertheless have an impact on sustained performance. With t values of 2.266 and 3.474, respectively, the mediating effects through sustainable supply chain collaboration and green innovation skills are statistically significant. The t-values for these pathways also show statistical significance. Accepting these links is supported by matching p-values of 0.000.

Table 3. Direct and Indirect Path Analysis.

	Beta value	T value	P value	Decision
EL -> SP	0.481	9.553	0.000	Accepted
EL -> GIC -> SP	0.126	2.266	0.000	Accepted
EL -> SSCC -> SP	0.137	3.474	0.000	Accepted

4.4. Moderation Analysis

Results of the moderation analysis are shown in Table 4. The study examines the moderating effect of and entrepreneurial bricolage between green innovation capability and ethical leadership. The beta value of 0.047 suggests a relationship between environmentally beneficial innovation and entrepreneurial bricolage and ethical leadership. The hypothesis was supported by a statistically significant connection with a T value of 1.858 and a P value of 0.032. The results suggest that entrepreneurial bricolage on environmentally friendly innovation is enhanced by ethical leadership. Innovation that is environmentally conscious is encouraged in firms' led by ethical individuals through entrepreneurial bricolage, encouraging moral leadership and creative entrepreneurship to spur innovation for sustainable environmental practices.

Table 4. Moderation Analysis.

	Beta value	T value	P value	Decision
EB x EL -> GIC	0.047	1.858	0.032	Accepted

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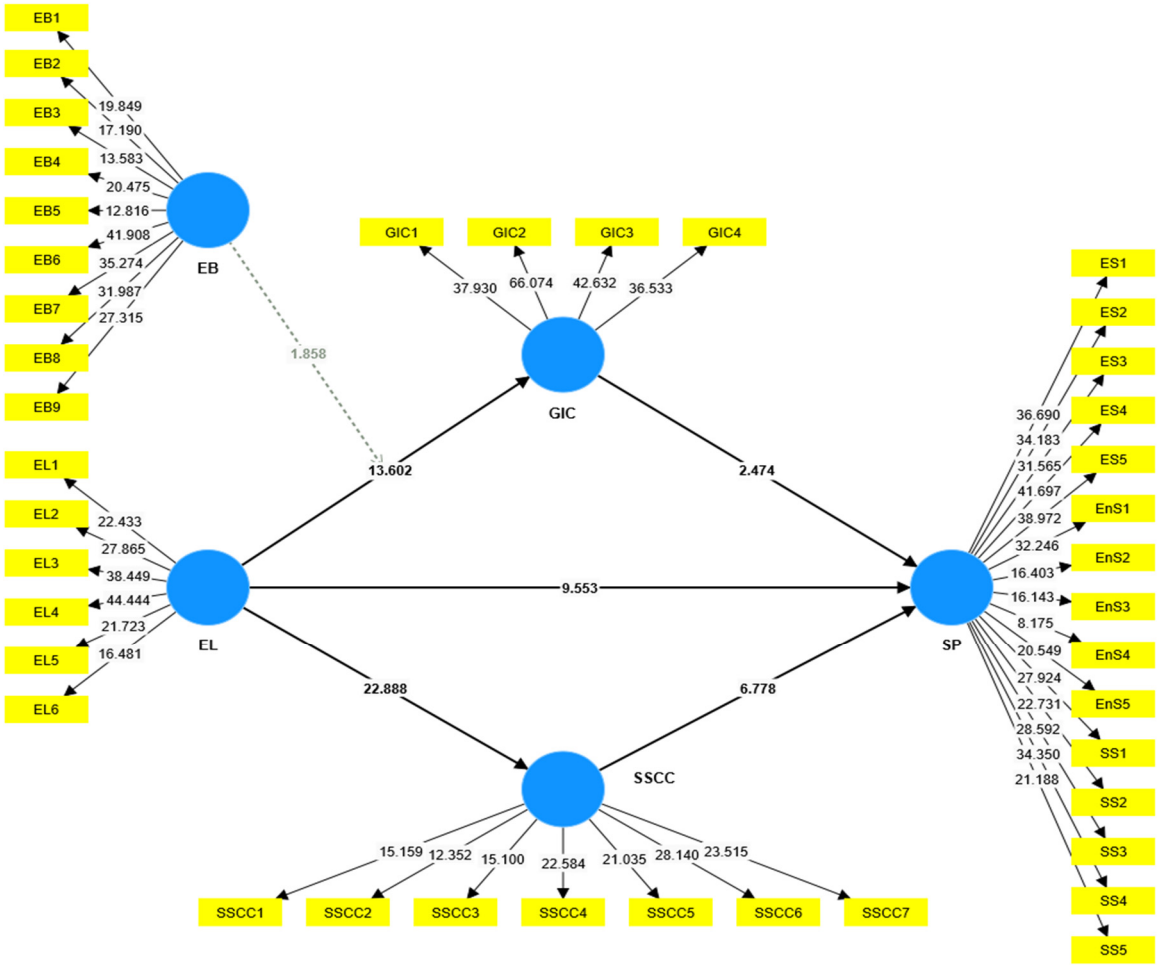

Figure 3. Structural Model.

5. Discussion

In the discussion section, this study analyzes and interprets its findings in light of past research. This study examines how ethical leadership affects long-term performance. The study also examines sustainable supply chain collaboration, green innovation, and entrepreneurial bricolage as mediators. The discourse will also compare the current study to previous studies to help readers understand its contributions and subtleties. The research hypothesis (H1) was that ethical leadership improves China's manufacturing companies' long-term success. Empirical data strongly supports the premise that ethical leadership leads to organizational long-term performance goals. After comprehensive data research, firms that practice ethical leadership such as morality, honesty, and devotion to ethical principles often outperform others over time. This study supports [26], which underlines the importance of ethical leadership in steering firms toward sustainable practices. This supports the concept that ethical leaders create a positive ethical atmosphere in their firms, which boosts performance. The research revealed that ethical leadership is crucial to creating an organizational culture that values conscientious decision-making, social accountability, and environmental protection [27]. The current research adds to the literature by offering empirical findings on Chinese manufacturing businesses. By identifying the particular contextual aspects that affect ethical leadership's long-term effectiveness in this market, the findings are more generalizable [29]. Ethical leadership promotes ethical behavior and drives organizational sustainability, as this study shows. The research also shows that sustainable performance involves social, environmental, and economical factors. This aligns with the expanding literature, which evaluates organizational sustainability beyond financial indicators. The findings demonstrate the importance of ethical leadership in promoting a balanced and accountable business culture and holistic sustainability.

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Hypothesis 2 (H2) states that green innovation mediates the relationship between ethical leadership and sustainable performance in Chinese manufacturing companies, establishing a crucial pathway by which ethical leadership affects sustainability. H2 is supported by actual data showing that ethical leadership greatly impacts sustainable performance by creating a green innovation culture. An significant data analysis shows that firms led by ethical executives that value honesty, morality, and ethics are more likely to innovate green [34]. This study shows how ethical leadership affects an organization's ability to implement green ideas and improve sustainability. This study supports [35] claim that green innovation competence mediates ethical leadership and organizational sustainability. This study adds to the literature by offering a more nuanced view of Chinese manufacturing enterprise mediation. This study examines how ethical leadership practices encourage green innovation in China's manufacturing industry, a culturally and industrially unique context [31]. This context-specific knowledge makes the findings more relevant and valuable, contributing to ethical leadership and sustainable practice innovation discourse. The research also emphasizes the importance of green innovation capabilities, boosting company sustainability [32]. The research suggests that ethical leadership can inspire creative environmental solutions in addition to the traditional definition of sustainable performance... The growing concept of sustainability emphasizes the role of innovation in achieving comprehensive and long-term effects.

Hypothesis 3 (H3) asserts that sustainable supply chain collaboration mediates ethical leadership and long-term success in Chinese manufacturing businesses. The empirical data support Hypothesis 3, showing that ethical leadership directly and indirectly enhances sustainable performance through supply chain collaboration. In-depth data research shows that firms that respect ethical leadership principles—morality, integrity, and ethics—create a cooperative supply chain. The study found that this collaborative mindset boosts long-term success. According to the [54], ethical leadership encourages collaboration that improves the organization's sustainability and sets the stage for sustainable actions. This study provides empirical evidence relevant to Chinese manufacturing businesses, making a significant scholarly contribution. It describes how ethical leadership promotes sustainable supply chain collaboration in this industrial and cultural context. Supply chain connections are complex, and this study examines how ethical leaders promote cross-organizational collaboration. This analysis confirms [38] findings. The research also adds sustainable supply chain collaboration as a mediating component to organizational sustainability. Collaboration can improve long-term performance; hence, this perspective emphasizes it together with individual organizational strategies [39]. This fits the current sustainability philosophy, which emphasizes cooperative and linked ways to addressing sustainability's many issues.

Hypothesis 4 (H4) states that entrepreneurial bricolage moderates green innovation in Chinese manufacturing businesses. The entrepreneurial bricolage of an organization's people may affect how much ethical leadership encourages green innovation. The empirical results support hypothesis 4, showing that entrepreneurial bricolage in the business greatly affects ethical leadership's ability to promote green innovation. After thorough data analysis, firms led by ethical leaders who uphold morality, honesty, and ethics excel in green innovation. This link changes dynamically when entrepreneurial bricolage is prevalent in a company. The research shows that ethical leadership has a larger positive impact on green innovation in businesses with more entrepreneurial resourcefulness and adaptive creativity [55](Saleh & Brem, 2023). Through empirical data relevant to Chinese manufacturing businesses, this study contributes significantly to previous research. It illuminates how cultural and industrial contexts moderate entrepreneurial bricolage. The research emphasizes the need of ethical leadership and an environment that supports entrepreneurial bricolage, which [56] define as resourceful problem-solving and creative flexibility. The study also improves our understanding of organizational sustainability by addressing the complex relationship between ethical leadership, entrepreneurial bricolage, and green innovation. The findings imply that ethical leadership can set a precedent for environmentally sensitive actions, but this depends on the organization's ability to encourage innovation. This supports the idea of [44] that corporate sustainability involves ethical standards and a forward-thinking culture that can adapt to changing environmental concerns.

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6. Conclusion

This study examined how Chinese manufacturing organizations use entrepreneurial bricolage, ethical leadership, and green innovation. The quantitative analysis used data from 230 industrial company employees in China. We picked persons using purposive sampling. The study sought to understand the complex relationships between green innovation capacity, ethical leadership, entrepreneurial bricolage, and the manufacturing industry long-term performance. The study shows that moral leadership fosters creativity, entrepreneurship, and green innovation in the workplace. Moral leaders promote morality and ethics to inspire employees to work on creative and environmentally friendly projects. Moral leadership improved entrepreneurial bricolage and green innovation capability, supporting the idea that moral leaders catalyze positive organizational outcomes. Green innovation capacity may moderate the association between ethical leadership and sustainable performance, according to the study. The study found that moral leadership affects sustainable performance by influencing environmentally friendly innovation. This conclusion highlights the necessity to create an organizational culture that values innovation, sustainability, and ethical leadership for long-term success. Another significant part of this research was investigating how entrepreneurial bricolage moderates ethical leadership and green innovation abilities. The study found that entrepreneurial bricolage in organizational culture affects ethical leadership and green innovation capabilities. To maximize green technology's benefits, creative problem-solving and ethical leadership are needed.

6.1. Implications

6.1.1. Theoretical Implications

The study's theoretical implications illuminate ethical leadership's multifaceted role as a catalyst that promotes morality and ethical decision-making and significantly impacts organizational entrepreneurial bricolage and green innovation. This research also broadens the conceptual framework for green innovation and helps us comprehend the complex factors that drive organizations to adopt innovative, eco-friendly practices. This study strengthens current views by stressing ethical leadership as a forerunner to green innovation-friendly organizations. Entrepreneurial bricolage moderates the complex interplay between moral leadership and green innovation, challenging innovation and entrepreneurship knowledge. Entrepreneurial bricolage, often associated with resource-constrained circumstances and innovative problem-solving, shapes organizational adaptation and innovation by ethical leadership. This research expands sustainable performance theory by examining the many ways moral leadership affects results. Prior research has shown that ethical leadership improves sustainable performance, but this study investigates the causes and finds that green innovation may moderate the effect. This theoretical proposal illuminates the mechanisms that link ethical leadership to an organization's long-term success, advancing sustainable business practices.

6.1.2. Practical Implications

This study has practical significance for practitioners and organizational executives interested in fostering sustainability in manufacturing firms, with an emphasis on China's ever-changing environment. Organizational leadership development and training emphasize ethical leadership, which is essential to sustainable performance. Leaders may improve their organizations' ethical climate and long-term performance by emphasizing morality, integrity, and ethics.

Empirical data supports the mediation effect of green innovation capability, emphasizing the practical need of developing environmentally friendly innovation. Organizations may encourage innovation and creativity by giving staff the incentives and resources to find and implement green solutions. Taking this proactive strategy allows companies to keep up with sustainable practices and address environmental challenges while being competitive in the global market. Recognizing sustainable supply chain collaboration as an intermediary demand cultivating supply chain-wide collaboration. Through a shared commitment to sustainability with suppliers, distributors, and other

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stakeholders, enterprises can actively participate in the debate. An organization can improve its sustainability by producing a ripple effect throughout the supply chain by collaborating, sharing best practices, and addressing environmental issues. Entrepreneurial bricolage as a moderator emphasizes the pragmatic need to promote innovative problem-solving and flexible creativity. Organizations may foster employees' willingness to try new things, adapt to changing conditions, and innovate sustainably. Leadership actions that foster entrepreneurial mindsets can maximize the benefits of ethical leadership on green innovation.

6.2. Limitations and Future Directions

Despite the study's effectiveness, multiple limitations may limit its applicability and scope. First, the cross-sectional study design precludes causal linkages between components. To better understand the causal relationships between ethical leadership, green innovation capabilities, sustainable supply chain collaboration, and entrepreneurial bricolage over time, longitudinal research could track their temporal dynamics. Self-reported data may also lead to common method bias, as individuals respond to social conventions. The responses were protected, but future studies should use multi-source sdata collection methods like objective performance metrics and supervisor ratings to reduce common method bias and improve results. The research focused solely on Chinese manufacturing businesses, limiting its applicability to other sectors or cultures. To determine the associations' wider relevance, this study may need to be expanded to include other sectors and areas. Cultural differences, industrial concerns, and legal frameworks may affect ethical leadership, innovation, and sustainability. Thus, contextual elements must be examined more thoroughly. Overreliance on a small collection of variables ignores moderating or mediating elements that could improve comprehension of the researched relationships. To understand the complex processes that drive ethical leadership and sustainable outcomes, external stakeholder involvement, organizational culture, and employee engagement should be examined.

This study suggests future research on sustainable performance, entrepreneurial bricolage, green innovation capabilities, sustainable supply chain collaboration, and ethical leadership. The temporal dynamics of these relationships can be examined using longitudinal study methods. This would show how ethical leadership practices evolve and affect sustainability. Comparative analyses across different business sectors and cultures may also improve applicability. Examining ethical leadership operational dynamics across sectors or domains can reveal sustainability initiative efficacy disparities and reveal context-specific elements that may affect trends. Such cross-cultural studies would help construct more comprehensive and context-sensitive theoretical frameworks. Technology's effects on industrial sustainability, innovation, and ethical leadership need further study. Industry 4.0 presents a chance to study how ethical leaders use digital tools to improve collaboration, communication, and innovation to promote sustainability. Sustainability, ethical leadership, and technology may help manufacturing companies handle modern difficulties. Due to the dynamic nature of corporate social responsibility (CSR), more research may be needed to determine how ethical leadership promotes CSR efforts. Understanding the links between ethical leadership and organizations' social ansd environmental responsibility can help define sustainable performance. These study pathways may yield novel ways to integrate ethical leadership concepts into corporate social responsibility frameworks.

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