

## **BUSINESS SUSTAINABILITY IN INDIA AND THE SIGNIFICANCE OF GREEN TRANSFORMATIONAL LEADERSHIP, GREEN HUMAN RESOURCE MANAGEMENT, GREEN INNOVATION, AND GREEN ORGANISATIONAL SUPPORT AND THEIR RESPECTIVE ROLES**

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### **ABSTRACT**

Due to the recent economic disaster, sustainable corporate performance has become a global demand, and green solutions have been viewed as the most effective way to address this challenge. This study analyzed the impact of GTL (Green Transformational Leadership), HRM (Human Resource Management), and innovation initiatives on Indian manufacturing organizations. We also examined the relationship between GTL, Green HRM (GHRM), Green Innovation (GIN), and Sustainable Business Performance (SBP) in Indian manufacturing firms, as well as perceived organisational support. We tested hypotheses with smart-PLS and collected data with surveys. The study observed that green HRM, innovation, and GTL increased Indian manufacturing enterprises' lifespan. The study observed a substantial correlation between green technology leadership, HRM practices, innovation, and sustainable business success in Indian industrial businesses. The present study will assist lawmakers write legislation and guide future studies in this sector.

**Keywords:** *Green Leadership, HR Practices, Innovation in business, Performance and Employability Sustainability, Sustainability and Green Leadership*

### **1. Introduction**

Globalization and social media have raised public awareness of businesses' environmental and social obligations; therefore, enterprises must improve their sustainability to compete domestically and outside of the national markets (Ch'ng et al., 2021). Companies achieve environmental sustainability by operating without harming the environment or society. Globally, a green corporation prioritizes public welfare and natural resource quality ((Svensson et al.,

2018). When managers know about customers or consumers', future consumers', and government organizations' environmental and social needs and do not sacrifice them for profit, a business can have a very high performance of sustainable business. This company accurately monitors its environmental impacts and follows environmental regulatory bodies' guidelines (Orobia et al., 2020). If a corporation safeguards the environment and local people, it can have sustainable business performance. Thus, the corporation fosters business growth (Freudenreich et al., 2020). Famous scholars have studied sustainable business performance. To remain competitive, businesses must demonstrate a commitment to environmental and social responsibility through their offerings (Schaltegger et al., 2017). Customers now want products and services that meet their needs and consider environmental and social impacts, so they prefer companies that don't hurt the environment or society.

(Sun et al., 2018). John Elkington introduced triple bottom line "sustainability" in business.

The corporation cares about protecting natural resources for future generations since sustainable business success includes social, environmental, and financial performance (Del Baldo & Baldarelli, 2017). The community's good around the environment and people's well-being can be improved by integrating the concept of green and its benefits into business and techniques including HRM, leadership, and innovation. The green version of green leadership, HRM, and innovation can reduce a business's environmental and social implications (Rossi et al., 2020). This study investigated the effect of transformational leadership in the domains of GHRM, Business Innovation, Environmental Support, and Sustainable Company Outcome on India's Gross Domestic Product (GDP).

Developing India. India adopts a market-driven strategy, a freshly industrialized economy using nominal GDP as a metric of \$3.469 thousand billion (Nguyen et al., 2021), and a PPP GDP of \$11.665 trillion. Manufacturing is its largest sector. In 2021, the country's overall exports were USD 420 billion, while the manufacturing sector contributed USD 335.44 billion. Since the new policies began, industrial growth has attracted much attention. In 2021, India allocated US\$28.5 billion of its national output to investment, (D'Souza et al., 2020) reported exceptionally high levels in this metric compared to other countries. The biggest attention has gone to machine building and metallurgy. 20–30% of gross industrial output comes from these two areas. In these and most other industries, a system that promotes average output out of variety is their quality and has impeded innovation. India imports more specialty steel. India's manufacturing sector has experienced phenomenal growth, exceeding 10% annually, surpassing all other sectors in economic expansion and modernization (Xu et al., 2021). This growth is fuelled by a robust industrial base encompassing mining, metals (iron, steel, and aluminium), ore processing, textiles, chemicals, cement, petroleum, automobiles, fertilizers, food processing, and transportation equipment (railcars, ships, and aircraft) (Cheng et al., 2020). As per UNSD data, India's industrial production surged by an impressive 22.32% to \$446.50 billion in 2021. This places India firmly as the world's second-largest manufacturing economy, surpassing its previous competitor (Qu et al., 2020).

India, one of the most populated nations, relies on manufacturing, which pollutes the air and harms living things. Manufacturing companies that address public environmental and social concerns grow sustainably. However, countries that prioritize profits over social well-being and environmental quality are behind in the market (Zang et al., 2020). Therefore, manufacturers must demonstrate sustainable business performance. This study addresses this demand. This research examines the relationship between green leadership practices, HRM, innovation, and SBP in the Indian manufacturing sector. Specifically, it examines how GTL and GHRM practices influence GIN, ultimately leading to sustainable business performance. Moreover, the research determines the moderating role of organizational support in these relationships. Existing research has established the individual effects of GHRM, green leadership, and innovation on sustainability. However, there's a gap in understanding how these factors interact and how organizational support might influence their combined impact. This research addresses the gap by focusing on the Indian manufacturing context. It's the first to examine the interplay of GTL, GHRM, GIN, and organizational support, in driving SBP within this specific industry and economy.

This document has five parts. After presenting the topic, the study outlines the relationship between GTL, GHRM, GIN, organizational support, and SBP based on previous literature. The third part outlines how the study's supporting data was collected.

This section explains data validity analysis and results. Past studies validate the study's findings. The study's conclusion, implications, and limitations follow.

## **2. Survey of the Literature**

The concept of sustainable business performance has gained significant traction in recent years. Achieving this requires corporations to operate in a way that minimizes environmental impact and fosters positive relationships with stakeholders, including customers, suppliers, regulators, and the public (Ng & Rezaee, 2020). Highly sustainable enterprises prioritize both economic success and environmental and social responsibility in their policies and strategies. The understanding of the elements that lead to sustainable company success is becoming more and more important to researchers and practitioners. This research focuses on the role of GTL, GHRM practices, GIN, and organizational support. While prior research has explored these elements individually, there is a gap in knowledge regarding their combined influence. Our research addresses this gap by studying how these factors interact to drive sustainable business performance within the Indian manufacturing sector. We leverage existing literature to define and contextualize transformational leadership in green, HRM in green, innovation in green, support of the organization, and business performance with sustainability.

GTL emerges as an important factor influencing sustainable business performance. Studies by (Çop et al., 2021) highlight this concept. (Çop et al., 2021) found that GTL inspires employees to participate in reducing a company's environmental impact, ultimately contributing to sustainability. Similarly, (Peng et al., 2022) emphasize how this leadership style fosters team

performance and motivates followers to implement green business practices, ensuring long-term success. Further research by (W. Li et al., 2020) explores the mechanism behind this effect. Their study suggests that GTL enhances intrinsic and extrinsic motivation, as well as employee creativity, ultimately leading to the expansion of eco-friendly products and services and contributing to sustainable corporate growth.

**H1: There is a positive correlation between green transformative leadership and the performance of sustainable business.**

The effect of GHRM practices on company sustainability in Malaysian manufacturing companies was examined by Yong et al. (2020), using the resource-based view theory. Their study, based on different-section information from 112 big-scale companies, explored how green HRM can bridge the gap between corporate strategies and environmental considerations. Business sustainability was also examined through green recruitment and training. The study suggested that green recruiting and selection involves online applications and phone and video discussions or interviews to decrease traveling-related environmental effects. Training in green helps workers or employees address sounding or environmental challenges to save the performance of the business. (Paulet et al., 2021) evaluated how Human Resource management-green practices improve business sustainability. The study targeted HR managers from 10 Egyptian and five UK organizations. 192 HR managers and representatives replied to the poll. Several studies highlight the positive effect of GHRM practices on sustainable business performance. Research (Bose & Gupta, 2017) suggests that HRM in green and their practices, including recruitment and selection with training and performance management with their reward systems, contribute to an organization's financial, social, and environmental sustainability. Similarly, a study by (Yong et al., 2020) observed that GHRM practices like green selection, training, performance evaluation, and compensation can help businesses achieve sustainable performance by fostering environmental awareness and skills among employees.

**H2: There is a positive correlation between green HRM and sustainable business performance.**

(Fernando et al., 2019) investigated the link between eco-friendly innovations and achieving business with sustainability and their success. A survey of 95 Malaysian green technology businesses assessed a conceptual framework. PLS-SEM analyzed online and postal questionnaire data. The study suggests that organizations build their policies and strategies to innovate technology to meet current environmental criteria, develop consistency in company processes, and sustain corporate performance. (Song et al., 2019) explored how firms may achieve social and environmental sustainability while making a profit by utilizing creativity and innovation. According to this study, improving employee creativity and inventing new business tools, processes, and materials to lessen the environmental impact of operations and outputs will improve current operational performance, preserve natural resources for later use, and ensure the sustainability of the company. (Ullah et al., 2022) investigated the link between GIN in business processes and SBP. Their study revealed that integrating environmental and social considerations

into core business activities, such as operations, production, and marketing, leads to improved sustainability performance.

**H3: There is a positive correlation between green Innovation and sustainable business performance**

(Kusi et al., 2021) studied organizational support, GTL, and business sustainability. According to the research, employees are more likely to carry out their job responsibilities in accordance with the leader's green reformation directions when the company provides them with social and economic support, as demonstrated by transformational leader behavior toward followers. Committed employees or transformative leaders go above and above to enhance procedures, products, and customer service to sustain the performance of the business. According to (Caldera et al., 2019) transformational leadership in green flourishes when coupled with sufficient economic and social support from the organization, ensuring employee well-being and fostering a commitment to environmental initiatives. Thus, the corporation can establish sustainable performance in current business based on the current environment, society, and profitability. We hypothesise:

**H4: Organizational support moderates between Green Transformational Leadership and Sustainable Business Performance.**

GHRM considers the environmental and stakeholder consequences of employee decisions (Dentchev et al., 2018). This is also (Imran & Aldaas, 2020) linked organisational support to green HRM and sustainable company success. Employees who receive economic and social assistance are emotionally attached to the company and work hard for its success. Thus, staff can use green training and performance evaluation to improve their work. Thus, the business can sustain performance. In (Gopinath et al., 2021), organisational support moderates the relationship between GHRM and sustainable business success. With organizational assistance, employees can cooperate to implement HRM-Green practices like recruitment and their selection, personnel records, R & D, and compensation and its reward. Greening organizational processes helps sustain corporate performance. The authors have discussed the following hypothesis:

**H5: Organizational support moderates between Green HRM and Sustainable Business Performance.**

Green creativity, and innovation in company resources, technology, procedures, products, and services require active, aware, and responsible personnel and corporate capital (Satta et al., 2019) Organizational support plays a crucial role in fostering green innovation and achieving SBP. (Abbas & Sağsan, 2019) highlight that providing economic and social benefits, or emotional benefits and support to working employees increases their happiness and engaging and modifying them more proactive with environmental independence. This engaged workforce is then empowered to develop green creative solutions and innovate business processes to minimize environmental impact and conserve resources, ultimately contributing to sustainable performance. Building on this concept, (Shakeel et al., 2020) investigated the interplay between GIN, organizational support, and SBP. Their findings suggest that employee motivation is essential for successful green innovation, not just to increase revenue but also to address potential

public wrong conceptions about the company's social and environmental benefits and practices. When organizations address employee needs and provide motivation, employees are more likely to go the extra mile to improve green practices across procedures, products, and services. This, in turn, allows companies to maintain sustainable business operations and marketing strategies. Therefore, organizational support acts as a catalyst, amplifying the positive impacts of GIN on sustainable performance.

**H6: Organizational support moderates between Green Innovation and Sustainable business performance.**

### 3. Research Methodology

This study determines the association between GTL, GHRM, GIN, and SBP in the Indian manufacturing sector. We further investigate the effect of moderation of support of official organizations on these relationships. Data collection instruments were developed based on established research in these areas, drawing upon studies by (Singh et al., 2020) and (Gayan & Abdullah, n.d.-a). (Singh et al., 2020) factors were used to predict sustainable business. (Gayan & Abdullah, n.d.-a) used eight items to moderate perceived organizational support (Gayan & Abdullah, n.d.-a). This study uses GTL, green HRM, and green innovation. Table 1 Table 1 constructs with elements.

Table 1 Construction and their Items

S.N.	Construct	Item	Question	Source taken
1	Green-Transformational Leadership (GTL)	GTL-1	"I motivate subordinates with the help of a sustainable business plan"	(Singh et al., 2020)
		GTL-2	"I offer subordinates with a crystal-clear, long-term corporate vision."	
		GTL-3	"I encourage subordinates to concentrate on the company plan for sustainability."	
		GTL-4	"I encourage employees to pursue long-term business objectives."	
		GTL-5	"I consider the business philosophies of my subordinates,"	
		GTL-6	"I encourage subordinates to consider and communicate their green ideas."	
2	Green HRM	GHRM1	"Great effort is put into selecting the right individual."	(Singh et al., 2020)

		GHRM2	"Only hiring individuals with sustainable business values."	
		GHRM3	"The green staffing process is accorded considerable weight."	
		GHRM4	"Every employee is required to complete training in sustainable business development."	
		GHRM5	"Training in sustainable business development is intended to improve employees' sustainable business skills and knowledge."	
		GHRM6	"Employees will employ training in sustainable business growth in their jobs."	
		GHRM7	"Performance evaluation documents enduring business performance"	
		GHRM8	"Performance evaluations incorporate recurring business incidents, responsibilities, concerns, and policies."	
		GHRM9	"Employee receives compensation for responsible business management."	
		GHRM10	"Employee is compensated for acquiring specific, long-term business competencies"	
3	Perceived Organizational Support (POS)	POS 1	"The organization recognizes and appreciates my contribution to its success."	(Gayan & Abdullah, n.d.-b)
		POS 2	"The organization gives my goals and values considerable weight."	
		POS 3	The organization is concerned with my well-being.	
		POS 4	"The organization is willing to go above and beyond to assist me in performing my duties to the best of my ability."	

		POS 5	The company prioritizes creating a stimulating work environment.	
		POS 6	"My employer takes pride in my professional accomplishments."	
		POS 7	The organization demonstrates great concern for me.	
		POS 8	The organization is interested in my thoughts.	
4	Green Innovation	GIN1	"My business utilizes materials that produce customer-focused goods."	(Singh et al., 2020)
		GIN2	"My company employs materials with low energy and resource consumption."	
		GIN3	My company utilizes materials that contribute to the design of environment-friendly output which shows business sustainability.	
		GIN4	The organization utilizes recyclable, reusable, and decomposable materials.	
5	Sustainable Business Performance	SBP1	"Sustainable business practises substantially reduced overall expenses."	(Singh et al., 2020)
		SBP2	"Lead times have been greatly lowered by sustainable business practices."	
		SBP3	"Sustainable business practices substantially enhanced product/process quality."	
		SBP4	My company's reputation was vastly enhanced by its sustainable business practices.	
		SBP5	Sustainable practices slashed waste across the entire value "chain.	

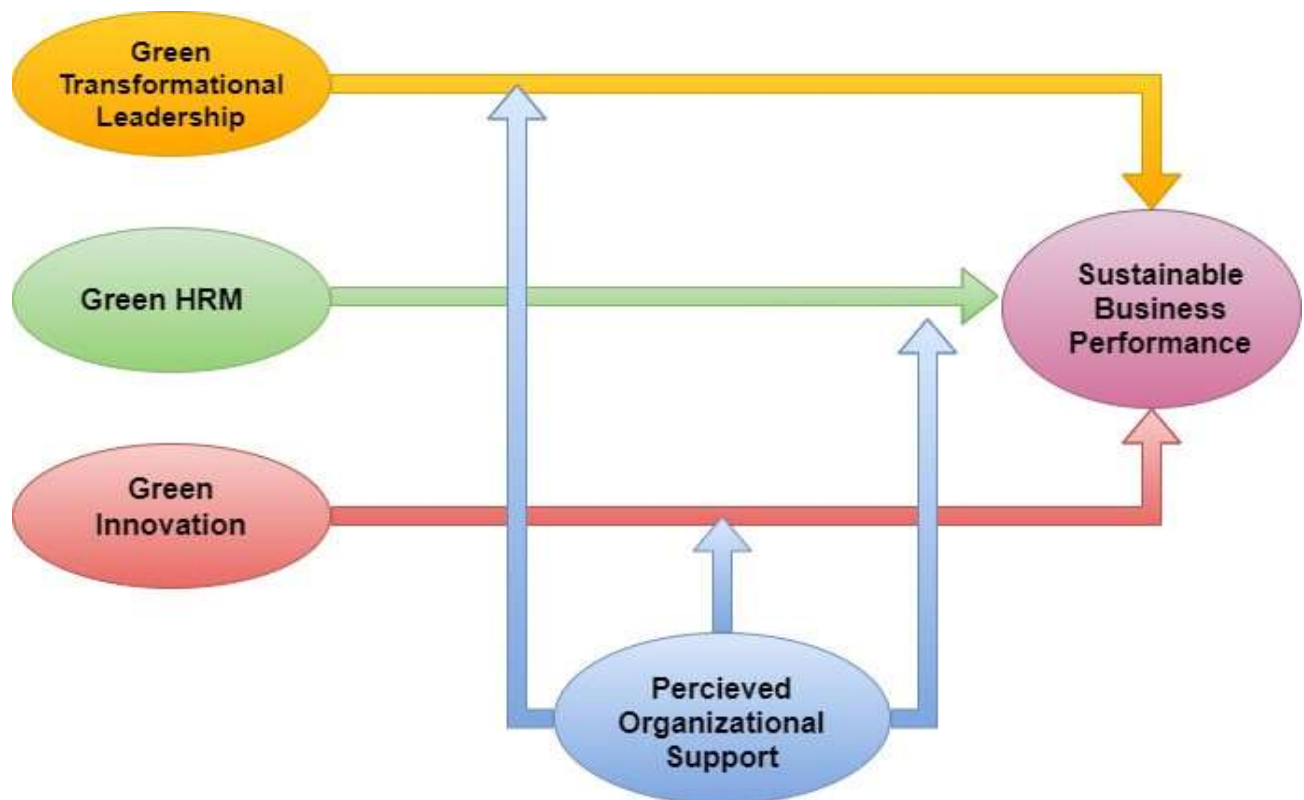


Note: GTL= Green Transformational Leadership, GHRM=Green Human Resource Management, GIN=Green Innovation, SBP=Sustainable Business Performance, POS=Perceived Organizational Support.

The questionnaires” were sent and delivered in person. Apollo Tyres, Hindustan Unilever Limited, Dabur India Limited, Godrej Group, Larsent & Toubro Limited, Mahindra & Mahindra Limited, Maruti Suzuki Limited, Bajaj Auto, Hero Honda Motors, and Ashok Leyland, were the top 10 Indian manufacturers by revenue. Thus, purposive sampling selected organizations and respondents.

A sample of 1300 department leaders from the Indian manufacturing sector participated in this study. Based on established sample size determination methods (Krejcie & Morgan, 1970), an initial target of 297 responses was established. However, to account for potential non-response, 525 surveys were distributed. After a 25-day collection period, 295 valid responses were received, resulting in a response rate of 56.19%. Due to the complexity of the research model and the large dataset, Smart PLS software was employed to analyze the hypothesized relationships (Hair et al., 2017). A visual representation of the research outline is presented in the given Figure 1.

Figure 1 Conceptual Model



Source: Author-drawn

Fig 1: Conceptual model

## 4. Empirical Results

Our study confirmed the convergent validity of the measurement instrument. All factor loadings surpassed 0.50, and Cronbach's Alpha values exceeded 0.70, indicating strong internal consistency Figure 2. Additionally, the Average Variance Extracted which is AVE values were all showing above 0.50, confirming that the constructs have sufficient convergent validity and capture distinct variance. These statistics indicate item correlation and convergent validity. Table 2 exhibits convergent validity.

Also evaluated was the discriminant validity of factors showing correlation. This study added Fornell Larcker and highly recommended cross-loadings to check correlations in Table 3 and Table 4. The outcomes showed that the variable value that indicates associations with it is larger than the others. Analysis revealed that some variable linkages appear weaker than intended. This is because the statistics indicate low correlation and potentially insufficient discriminant validity. This research was conducted using the HTMT ratio to verify discriminant validity. HTMT ratios are below 0.90, according to statistics. Thus, variable linkages are stronger than others. Low correlation and discriminant validity were found. Table 5 illustrates the HTMT ratio.

Figure 2. “Measurement Model Assessment. GTL=Green Transformational Leadership, GHRM= Green Human Resource Management, GIN = Green Innovation, SBP = Sustainable Business Performance, POS = Perceived Organizational Support. Source: Drawn by Authors”

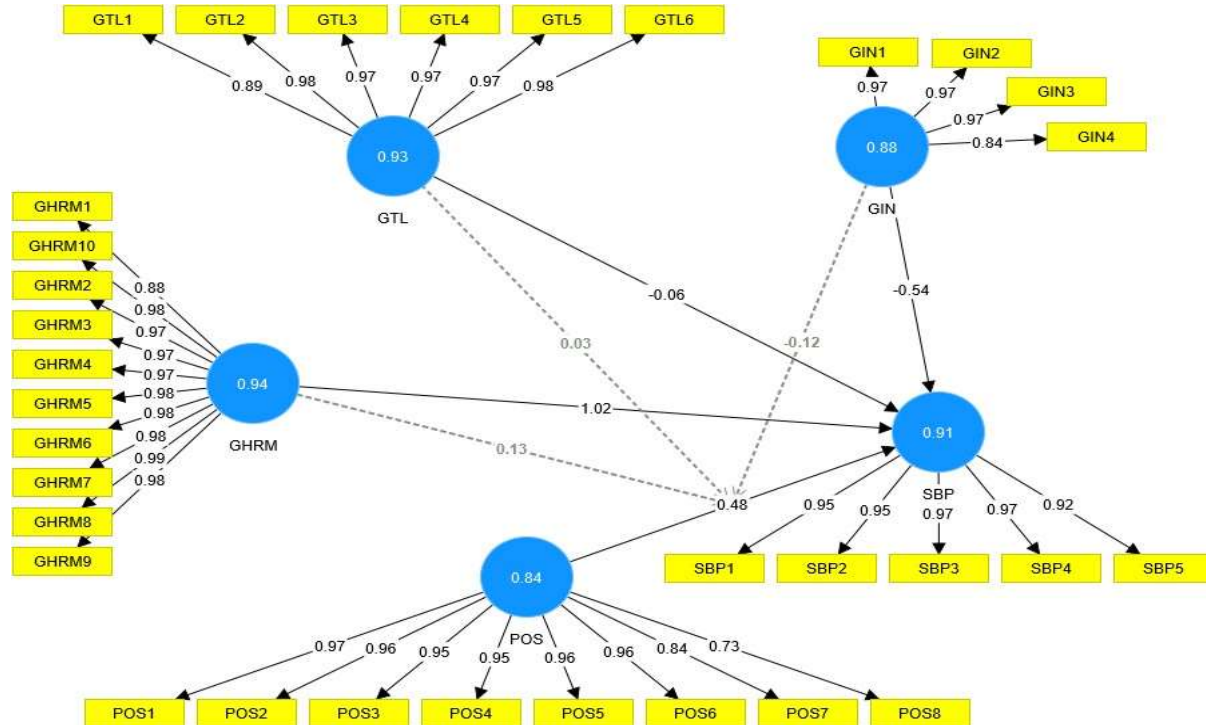


Table 2 Convergent validity

Constructs	Items	Loadings	Alpha	CR	AVE
GHRM	GHRM1	0.88	<b>0.99</b>	<b>0.99</b>	<b>0.94</b>
	GHRM10	0.98			
	GHRM2	0.97			
	GHRM3	0.97			
	GHRM4	0.97			
	GHRM5	0.98			
	GHRM6	0.98			
	GHRM7	0.98			
	GHRM8	0.99			
	GHRM9	0.98			
GIN	1	0.97	<b>0.96</b>	<b>0.97</b>	<b>0.88</b>
	2	0.97			
	3	0.97			
	4	0.84			
GTL	1	0.89	<b>0.98</b>	<b>0.99</b>	<b>0.93</b>
	2	0.98			
	3	0.97			
	4	0.97			
	5	0.97			
	6	0.98			
POS	1	0.97	<b>0.97</b>	<b>0.98</b>	<b>0.84</b>
	2	0.96			

	3	0.95			
	4	0.95			
	5	0.96			
	6	0.96			
	7	0.84			
	8	0.73			
SBP	1	0.95	0.97	0.98	0.91 <sup>1</sup>
	2	0.95			
	3	0.97			
	4	0.97			
	5	0.92			

Table 3 Fornell and Larcker

	GHRM	GIN	GTL	POS	SBP
SBP	0.75				
POS	0.65	0.73			
GTL	0.78	0.75	0.96		
GIN	0.92	0.94	0	0	
GHRM	0.97	0	0	0	0

Source: authors estimation.

Causal Path Analysis shows constructed relationships. G-TL, G-HRM, and GIN consist of a substantial and direct relationship with the SBP of the manufacturing sector of India (H1, H2, & H3). Figure 3 and Table 6 illustrate direct relationships.

<sup>1</sup> Note: AVE = Average Variance Extracted, CR = Composite Reliability, GTL = Green Transformational Leadership, GHRM = Green Human Resource Management, GIN = Green Innovation, SBP = Sustainable Business Performance, POS = Perceived Organizational Support (Source: author estimation).

Path analysis illustrates indirect variable relationships. Our findings further reveal that organizational support plays a moderating role in the relationships between GTL, GHRM practices, GIN, and SBP in Indian manufacturing firms (Hypotheses 4, 5, and 6). As illustrated in Figure 3 and Table 7, these results suggest the presence of indirect effects.

Table 4 Factor Loadings and Cross-Loadings

Column1	GHRM	GIN	GTL	POS	SBP	GIN x POS	GTL x POS	GHRM x POS
GHRM1	0.88	0.83	0.85	0.53	0.64	-0.02	-0.03	-0.03
GHRM2	0.97	0.95	0.74	0.65	0.75	0.01	-0.02	0
GHRM3	0.97	0.95	0.74	0.64	0.75	0	-0.03	-0.01
GHRM4	0.97	0.96	0.75	0.64	0.74	0.01	-0.03	0
GHRM5	0.98	0.95	0.74	0.63	0.73	-0.01	-0.05	-0.02
GHRM6	0.98	0.96	0.75	0.64	0.73	-0.01	-0.05	-0.02
GHRM7	0.98	0.97	0.76	0.65	0.75	0	-0.06	-0.01
GHRM8	0.99	0.97	0.77	0.64	0.73	-0.02	-0.06	-0.02
GHRM9	0.98	0.96	0.75	0.66	0.75	-0.01	-0.05	-0.01
GHRM10	0.98	0.95	0.75	0.65	0.74	0	-0.04	-0.01
GIN1	0.97	0.97	0.76	0.63	0.72	-0.01	-0.05	-0.02
GIN2	0.97	0.97	0.76	0.65	0.73	-0.02	-0.05	-0.02
GIN3	0.97	0.97	0.75	0.67	0.74	-0.01	-0.05	-0.01
GIN4	0.73	0.84	0.52	0.82	0.63	0.04	-0.01	0.04
GTL1	0.64	0.6	0.89	0.31	0.41	0	0	0.01
GTL2	0.77	0.72	0.98	0.4	0.51	-0.07	-0.06	-0.07
GTL3	0.77	0.73	0.97	0.39	0.51	-0.08	-0.06	-0.07
GTL4	0.78	0.74	0.97	0.41	0.52	-0.04	-0.05	-0.05
GTL5	0.77	0.75	0.97	0.45	0.54	-0.03	-0.04	-0.04

GTL6	0.77	0.74	0.98	0.44	0.54	-0.03	-0.04	-0.04
POS1	0.57	0.67	0.37	0.97	0.58	0.09	0.02	0.07
POS2	0.56	0.65	0.36	0.96	0.57	0.1	0.03	0.08
POS3	0.56	0.66	0.37	0.95	0.57	0.09	0.03	0.07
POS4	0.57	0.67	0.37	0.95	0.56	0.07	0.02	0.06
POS5	0.56	0.67	0.36	0.96	0.57	0.06	0	0.05
POS6	0.56	0.65	0.35	0.96	0.56	0.07	0.01	0.06
POS7	0.63	0.64	0.4	0.84	0.75	0.06	0.01	0.04
POS8	0.65	0.67	0.41	0.73	0.89	0.05	0.01	0.03
SBP1	0.68	0.69	0.44	0.74	0.95	0.05	0.01	0.04
SBP2	0.69	0.69	0.45	0.71	0.95	0.07	0.04	0.06
SBP3	0.74	0.74	0.51	0.69	0.97	0.08	0.05	0.08
SBP4	0.79	0.78	0.54	0.7	0.97	0.09	0.05	0.08
SBP5	0.69	0.69	0.57	0.6	0.92	0.06	0.04	0.06
GIN x POS	-0.01	0	-0.04	0.08	0.08	1	0.68	0.99
GHRM x POS	-0.01	-0.01	-0.05	0.06	0.07	0.99	0.71	1
GTL x POS	-0.05	-0.04	-0.04	0.02	0.04	0.68	1	0.71

Source: authors estimation.

Table 5 Hetero Trait Mono Trait ratio

Column	GHRM	GIN	GTL	POS	SBP	GIN x POS	GTL x POS	GHRM x POS
GHRM								
GIN	1							

GTL	0.79	0.76						
POS	0.64	0.75	0.41					
SBP	0.76	0.78	0.54	0.71				
GIN x POS	0.01	0.02	0.04	0.08	0.08			
GTL x POS	0.05	0.04	0.04	0.02	0.04	0.68		
GHRM x POS	0.01	0.02	0.05	0.07	0.07	0.99	0.71	

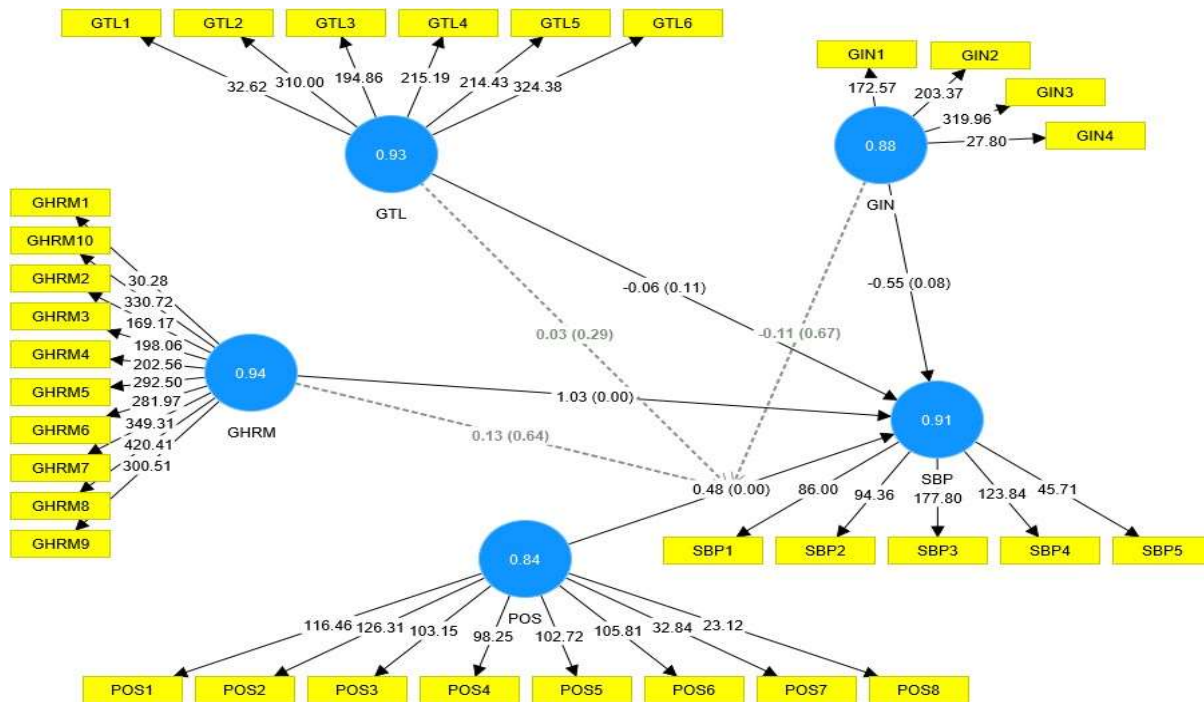
Source: authors estimation.

Table 6 Structural Coefficients

Column1	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	T statistics ( O/STDEV ) <sup>2</sup>
GHRM -> SBP	1.03	1.05	0.28	3.66	4.66
GIN -> SBP	-0.55	-0.57	0.31	1.76	2.76
GTL -> SBP	-0.06	-0.07	0.04	1.6	2.6
POS -> SBP	0.48	0.48	0.07	6.65	7.65
GIN x POS -> SBP	-0.11	-0.09	0.26	0.43	1.43
GTL x POS -> SBP	0.03	0.03	0.03	1.06	2.06
GHRM x POS -> SBP	0.13	0.11	0.28	0.47	1.47

Source: 1authors estimation

Figure 3 Model assessment with Structure. Source: drawn by authors



Our analysis revealed that GHRM practices, GTL, and green innovation collectively explain 68% of the variance observed in sustainable business performance. This suggests that these factors are significant drivers of sustainable business practices. The R-squared values are displayed.

Table 7: Proportion of explained variance

	R: square	R: square adjusted
SBP	0.68	0.67

Source: Estimation of Authors

The analysis revealed a negative moderating impact of POS on the relationship between GHRM and sustainable business performance (SBP) Figure 4. This suggests that when POS is low, the positive association between GHRM and SBP weakens.

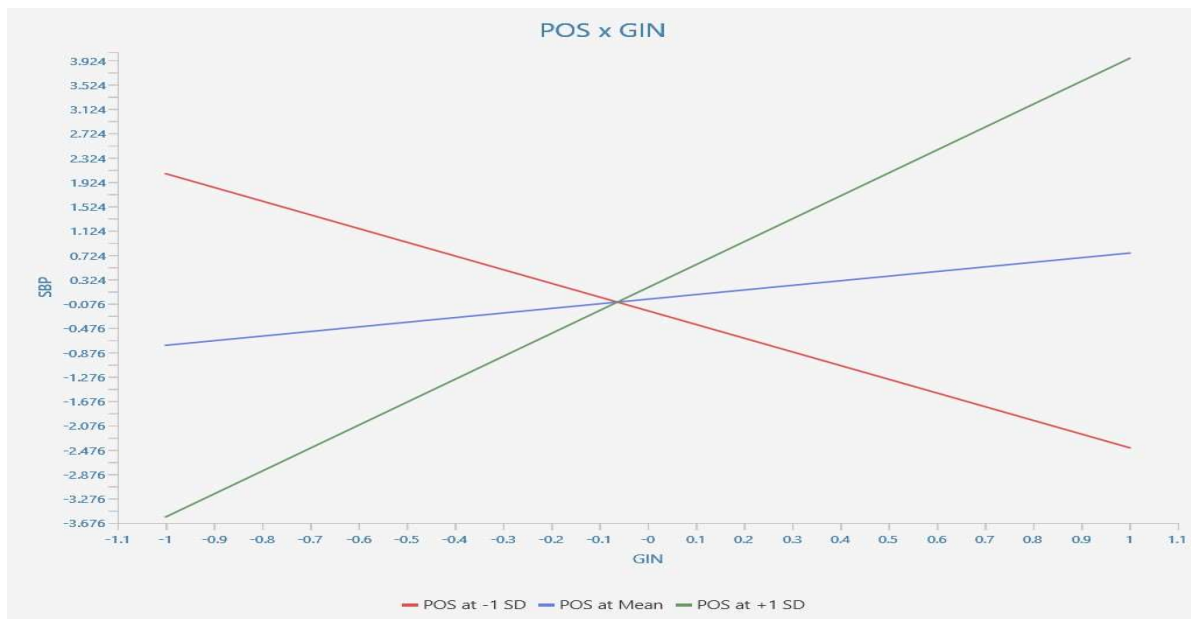
Conversely, Figure 5 and Figure 6 depict positive moderation effects of POS on relationships b/w green innovation = GIN, SBP, and green transformational leadership = GTL and SBP, respectively. In these cases, strong POS strengthens the positive associations between GIN/GTL and SBP.

Figure 4 GHRM-POS. “GHRM=Green human resources management; POS=perceived organizational support. Source: by authors





Figure 5 GINPOS. GIN = Green innovation; POS=perceived organizational support. Source: By authors”



## 5. Discussion & Findings

This study reinforces the positive effect of GTL on corporate sustainability performance, aligning with (Evangelista et al., 2017). Their work highlights how GTL leaders prioritize fostering green creativity in followers, encouraging them to identify environmental issues and propose solutions. This aligns with (Moin et al., 2021) who suggest that GTL not only focuses on collective performance but also empowers individuals to consider green practices. By encouraging

followers to express ideas on green business improvement, GTL can cultivate a workforce committed to sustainable practices (Moin et al., 2021).

Furthermore, the study supports the link between GHRM and sustainable performance. (Ababneh, 2021) emphasize the role of GHRM practices like green recruitment, training, and performance evaluation, in fostering employee green awareness and skills. This aligns with (Jain & D'lima, 2018) who observed that green HRM practices can influence employee environmental behaviour. Their work suggests that integrating environmental considerations into recruitment practices can steer organizations toward sustainable development.

Finally, the study confirms the positive influence of green innovation on sustainable business practices. (Asadi et al., 2020) posits that green innovation, encompassing creativity and technological advancements, aims to reduce the negative environmental effects of business operations and products. It promotes operational performance, reputation, and financial consistency. (Awan et al., 2019) got a report that an organization maintains green innovation, like accepting technology that is energy efficient, and green material, recruiting green-aware HR, green changes in the product pattern, design, and quality, and changes in green advertisement and processes of marketing, it achieves high performance in their environments, customer and public-confidence, with marketing and their sustainability benefits.

Figure 6 GTLPOS. Source: drawn by authors.



Organizational support moderates GTL and sustainable-company with performance, according to the study. Building on the work of (Sroufe, 2017), who highlighted the importance of organizational support for green transformational leadership GTL effectiveness, this research further determines how PSO strengthens the relationship between GTL and sustainable business development. In the organisational support and the Green-Transformational Leader = GTL may

direct, give inspiration, and motivate their follower to remove the impact of the environment on business activities to build business sustainability. (Suifan et al., 2018) analyzed that support of organizations increases green leaders' performance and company sustainability. Transformational leadership enhances sustainable corporate development with organisational support.

G-HRM and the company are sustainable their performance is moderated by organisational support. (Azudin & Mansor, 2018) found that organization support helps adopt GHRM practices like recruitment and selection, personnel records, R&D, and remuneration and reward. It boosts corporate sustainability. Our findings align with prior research. (J. (Justin) Li et al., 2019) demonstrated that support of organizations strengthens green HRM practices, leading to business with sustainable success. Green HRM practices themselves enhance sustainable performance. (Moslehpour et al., 2018) further revealed that the support of an organization facilitates the integration of green innovation into various aspects of a company, ultimately contributing to environmental, social, and financial sustainability. (Corrales-Estrada et al., 2021) support this notion, suggesting that employee support fosters the spread of green innovation within an organization, leading to improved performance across all three dimensions.

This research contributes to the field of corporate sustainability in two key ways. Firstly, it examines the combined effects of GTL, green HRM, as well as GIN on SBP. While previous analyses have explored the individual significance of these factors, ours is the first to analyse their combined influence. Secondly, we investigate the moderating role of POS in these relationships. Existing literature primarily focuses on the direct effects of organizational support. By examining its moderating effect, we provide a more nuanced understanding of how organizational support influences the pathway toward sustainable business practices.

This research also holds practical implications. With rising environmental concerns, consumers and stakeholders increasingly Favor companies demonstrating strong environmental and social responsibility alongside financial success. Our findings provide valuable insights for modern businesses seeking to achieve sustainable growth. It emphasizes the importance of fostering GTL leadership, implementing effective G-HRM practices, and actively pursuing innovation with green.

Finally, this investigation offers valuable insights for policymakers and future research directions. By highlighting the crucial role of GTL, GHRM, GIN, and organizational support in achieving sustainable business practices, our research can inform policymakers in developing strategies to encourage these practices within organizations. Additionally, our investigation into the moderating effect of organizational support opens avenues for further research on the specific mechanisms by which such support influences the relationships between these factors and sustainable performance.

## **6. Conclusion & Limitations**

With the growing economies experiencing pollution from climate change, industrialization, and population increase, businesses must focus on the performance of social, environmental, and

financial benefits. This investigation is directed to explore the effects of Green-TL, G-HRM, and GIN on the sustainable performance of companies with their reciprocal association. India's manufacturing companies provided the study's quantitative data. This outcome demonstrated that G-TL empowers and incentivizes people for the execution of their jobs without harming the environment or society. So, the company's performance may be sustainable. The survey also found that green HRM practices help employees to carry out company activities that meet many different requirements like the social and environment of consumers and society. The outcome showed that investigation, and innovation with finding something new in creativity in processes of business lessen environmental and human health implications. This ensures corporate sustainability. The study also indicated that firms that support their staff are more likely to implement GTL, GHRM practices, and green innovation. This study has limitations. These help authors and researchers better their work. This study examined the effects of GTL, GHRM, and GIN on sustainable company performance. Geography, conditions of the economy and our financial strength, and energy resource and their selection also affect sustainable business performance. This outcome doesn't cover this performance of sustainable business characteristics. Future scholars should narrow the study's scope and add more sustainable business performance constructs. This study examines the associations between GTL, GHRM practices, GIN, and sustainable business performance in Indian manufacturing firms. It is important to acknowledge that the specific context of India, including its geographical, climatic, and economic characteristics, may influence the observed relationships. Further research is needed to determine the generalizability of these results to other countries. Future studies must collect country-specific data (both developing and developed ones).

## References

- [1] Ababneh, O. M. A. (2021). How do green HRM practices affect employees' green behaviors? The role of employee engagement and personality attributes. *Journal of Environmental Planning and Management*, 64(7), 1204–1226. <https://doi.org/10.1080/09640568.2020.1814708>
- [2] Abbas, J., & Sağsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. *Journal of Cleaner Production*, 229, 611–620. <https://doi.org/10.1016/J.JCLEPRO.2019.05.024>
- [3] Asadi, S., OmSalameh Pourhashemi, S., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Aljojo, N., & Razali, N. S. (2020). Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry. *Journal of Cleaner Production*, 258, 120860. <https://doi.org/10.1016/J.JCLEPRO.2020.120860>
- [4] Awan, U., Sroufe, R., & Kraslawski, A. (2019). Creativity enables sustainable development: Supplier engagement as a boundary condition for the positive effect on green innovation. *Journal of Cleaner Production*, 226, 172–185. <https://doi.org/10.1016/J.JCLEPRO.2019.03.308>

- [5] Azudin, A., & Mansor, N. (2018). Management accounting practices of SMEs: The impact of organizational DNA, business potential and operational technology. *Asia Pacific Management Review*, 23(3), 222–226. <https://doi.org/10.1016/J.APMRV.2017.07.014>
- [6] Bose, I., & Gupta, V. (2017). Green HRM Practices in Private Health Care & Banking Sectors in India. *Indian Journal of Industrial Relations*, 53(1), 48–58. <https://www.jstor.org/stable/26536436>
- [7] Caldera, H. T. S., Desha, C., & Dawes, L. (2019). Evaluating the enablers and barriers for successful implementation of sustainable business practice in ‘lean’ SMEs. *Journal of Cleaner Production*, 218, 575–590. <https://doi.org/10.1016/J.JCLEPRO.2019.01.239>
- [8] Cheng, R., Li, W., Lu, Z., Zhou, S., & Meng, C. (2020). Integrating the three-line environmental governance and environmental sustainability evaluation of urban industry in China. *Journal of Cleaner Production*, 264, 121554. <https://doi.org/10.1016/J.JCLEPRO.2020.121554>
- [9] Ch’ng, P. C., Cheah, J., & Amran, A. (2021). Eco-innovation practices and sustainable business performance: The moderating effect of market turbulence in the Malaysian technology industry. *Journal of Cleaner Production*, 283, 124556. <https://doi.org/10.1016/J.JCLEPRO.2020.124556>
- [10] Çop, S., Olorunsola, V. O., & Alola, U. V. (2021). Achieving environmental sustainability through green transformational leadership policy: Can green team resilience help? *Business Strategy and the Environment*, 30(1), 671–682. <https://doi.org/10.1002/BSE.2646>
- [11] Corrales-Estrada, A. M., Gómez-Santos, L. L., Bernal-Torres, C. A., & Rodriguez-López, J. E. (2021). Sustainability and Resilience Organizational Capabilities to Enhance Business Continuity Management: A Literature Review. *Sustainability* 2021, Vol. 13, Page 8196, 13(15), 8196. <https://doi.org/10.3390/SU13158196>
- [12] Del Baldo, M., & Baldarelli, M.-G. (2017). Renewing and improving the business model toward sustainability in theory and practice. *International Journal of Corporate Social Responsibility* 2017 2:1, 2(1), 1–13. <https://doi.org/10.1186/S40991-017-0014-Z>
- [13] Dentchev, N., Rauter, R., Jóhannsdóttir, L., Snihur, Y., Rosano, M., Baumgartner, R., Nyberg, T., Tang, X., van Hoof, B., & Jonker, J. (2018). Embracing the variety of sustainable business models: A prolific field of research and a future research agenda. *Journal of Cleaner Production*, 194, 695–703. <https://doi.org/10.1016/J.JCLEPRO.2018.05.156>
- [14] D’Souza, C., McCormack, S., Taghian, M., Chu, M. T., Sullivan Mort, G., & Ahmed, T. (2020). An empirical examination of sustainability for multinational firms in China: Implications for cleaner production. *Journal of Cleaner Production*, 242, 118446. <https://doi.org/10.1016/J.JCLEPRO.2019.118446>
- [15] Evangelista, P., Colicchia, C., & Creazza, A. (2017). Is environmental sustainability a strategic priority for logistics service providers? *Journal of Environmental Management*, 198, 353–362. <https://doi.org/10.1016/J.JENVMAN.2017.04.096>

- [16] Fernando, Y., Chiappetta Jabbour, C. J., & Wah, W. X. (2019). Pursuing green growth in technology firms through the connections between environmental innovation and sustainable business performance: Does service capability matter? *Resources, Conservation and Recycling*, 141, 8–20. <https://doi.org/10.1016/J.RESCONREC.2018.09.031>
- [17] Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2020). A Stakeholder Theory Perspective on Business Models: Value Creation for Sustainability. *Journal of Business Ethics*, 166(1), 3–18. <https://doi.org/10.1007/S10551-019-04112-Z/METRICS>
- [18] Gayan, E. A., & Abdullah, O. Y. (n.d.-a). *PERCEIVED ORGANIZATIONAL CULTURE, PERCEIVED ORGANIZATIONAL SUPPORT AND SELF-EFFICACY ON WORK ENGAGEMENT AMONG ACADEMIC STAFF IN UNIVERSITI UTARA MALAYSIA*.
- [19] Gayan, E. A., & Abdullah, O. Y. (n.d.-b). *PERCEIVED ORGANIZATIONAL CULTURE, PERCEIVED ORGANIZATIONAL SUPPORT AND SELF-EFFICACY ON WORK ENGAGEMENT AMONG ACADEMIC STAFF IN UNIVERSITI UTARA MALAYSIA*.
- [20] Gopinath, U. M., Nawaz, N., Gajenderan, V., & Balasubramaniyan, H. (2021). Antecedents of Emotional Intelligence: Perceived Organizational Support Impact on Ambidextrous Behavior of Standalone Business School Faculty. *Sustainability* 2021, Vol. 13, Page 8227, 13(15), 8227. <https://doi.org/10.3390/SU13158227>
- [21] Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management and Data Systems*, 117(3), 442–458. <https://doi.org/10.1108/IMDS-04-2016-0130/FULL/XML>
- [22] Imran, R., & Aldaas, R. E. (2020). Entrepreneurial leadership: a missing link between perceived organizational support and organizational performance. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(4), 377–388. <https://doi.org/10.1108/WJEMSD-10-2019-0077/FULL/XML>
- [23] Jain, N., & D’lima, C. (2018). Green HRM - a study on the perception of Generation Y as prospective internal customers. *International Journal of Business Excellence*, 15(2), 199–208. <https://doi.org/10.1504/IJBEX.2018.091916>
- [24] Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- [25] Kusi, M., Zhao, F., & Sukamani, D. (2021). Impact of perceived organizational support and green transformational leadership on sustainable organizational performance: a SEM approach. *Business Process Management Journal*, 27(5), 1373–1390. <https://doi.org/10.1108/BPMJ-09-2020-0419/FULL/XML>
- [26] Li, J. (Justin), Bonn, M. A., & Ye, B. H. (2019). Hotel employee’s artificial intelligence and robotics awareness and its impact on turnover intention: The moderating roles of perceived organizational support and competitive psychological climate. *Tourism Management*, 73, 172–181. <https://doi.org/10.1016/J.TOURMAN.2019.02.006>

- [27] Li, W., Bhutto, T. A., Xuhui, W., Maitlo, Q., Zafar, A. U., & Ahmed Bhutto, N. (2020). Unlocking employees' green creativity: The effects of green transformational leadership, green intrinsic, and extrinsic motivation. *Journal of Cleaner Production*, 255, 120229. <https://doi.org/10.1016/J.JCLEPRO.2020.120229>
- [28] Moin, M. F., Omar, M. K., Wei, F., Rasheed, M. I., & Hameed, Z. (2021). Green HRM and psychological safety: how transformational leadership drives follower's job satisfaction. *Current Issues in Tourism*, 24(16), 2269–2277. <https://doi.org/10.1080/13683500.2020.1829569>
- [29] Moslehpour, M., Altantsetseg, P., Mou, W., & Wong, W. K. (2018). Organizational Climate and Work Style: The Missing Links for Sustainability of Leadership and Satisfied Employees. *Sustainability* 2019, Vol. 11, Page 125, 11(1), 125. <https://doi.org/10.3390/SU11010125>
- [30] Ng, A. C., & Rezaee, Z. (2020). Business sustainability factors and stock price informativeness. *Journal of Corporate Finance*, 64, 101688. <https://doi.org/10.1016/J.JCORPFIN.2020.101688>
- [31] Nguyen, T. H. H., Elmagrhi, M. H., Ntim, C. G., & Wu, Y. (2021). Environmental performance, sustainability, governance and financial performance: Evidence from heavily polluting industries in China. *Business Strategy and the Environment*, 30(5), 2313–2331. <https://doi.org/10.1002/BSE.2748>
- [32] Orobia, L. A., Tusiime, I., Mwesigwa, R., & Ssekiziyivu, B. (2020). Entrepreneurial framework conditions and business sustainability among the youth and women entrepreneurs. *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(1), 60–75. <https://doi.org/10.1108/APJIE-07-2019-0059>
- [33] Paulet, R., Holland, P., & Morgan, D. (2021). A meta-review of 10 years of green human resource management: is Green HRM headed towards a roadblock or a revitalisation? *Asia Pacific Journal of Human Resources*, 59(2), 159–183. <https://doi.org/10.1111/1744-7941.12285>
- [34] Peng, J., Yin, K., Hou, N., Zou, Y., & Nie, Q. (2022). How to facilitate employee green behavior: The joint role of green transformational leadership and green human resource management practice. *Acta Psychologica Sinica*, 52(9), 1105–1120. <https://doi.org/10.3724/SP.J.1041.2020.01105>
- [35] Qu, W., Shi, W., Zhang, J., & Liu, T. (2020). T21 China 2050: A Tool for National Sustainable Development Planning. *Geography and Sustainability*, 1(1), 33–46. <https://doi.org/10.1016/J.GEOSUS.2020.03.004>
- [36] Rossi, E., Bertassini, A. C., Ferreira, C. dos S., Neves do Amaral, W. A., & Ometto, A. R. (2020). Circular economy indicators for organizations considering sustainability and business models: Plastic, textile and electro-electronic cases. *Journal of Cleaner Production*, 247, 119137. <https://doi.org/10.1016/J.JCLEPRO.2019.119137>

- [37] Satta, G., Spinelli, R., & Parola, F. (2019). Is Tourism Going Green? A Literature Review on Green Innovation for Sustainable Tourism. *Tourism Analysis*, 24(3), 265–280. <https://doi.org/10.3727/108354219X15511864843803>
- [38] Schaltegger, S., Hörisch, J., & Freeman, R. E. (2017). Business Cases for Sustainability: A Stakeholder Theory Perspective. <https://doi.org/10.1177/1086026617722882>, 32(3), 191–212. <https://doi.org/10.1177/1086026617722882>
- [39] Shakeel, J., Mardani, A., Chofreh, A. G., Goni, F. A., & Klemeš, J. J. (2020). Anatomy of sustainable business model innovation. *Journal of Cleaner Production*, 261, 121201. <https://doi.org/10.1016/J.JCLEPRO.2020.121201>
- [40] Singh, S. K., Giudice, M. Del, Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762. <https://doi.org/10.1016/J.TECHFORE.2019.119762>
- [41] Song, M., Fisher, R., & Kwoh, Y. (2019). Technological challenges of green innovation and sustainable resource management with large scale data. *Technological Forecasting and Social Change*, 144, 361–368. <https://doi.org/10.1016/J.TECHFORE.2018.07.055>
- [42] Sroufe, R. (2017). Integration and organizational change towards sustainability. *Journal of Cleaner Production*, 162, 315–329. <https://doi.org/10.1016/J.JCLEPRO.2017.05.180>
- [43] Suifan, T. S., Abdallah, A. B., & Al Janini, M. (2018). The impact of transformational leadership on employees' creativity: The mediating role of perceived organizational support. *Management Research Review*, 41(1), 113–132. <https://doi.org/10.1108/MRR-02-2017-0032/FULL/XML>
- [44] Sun, J., Wu, S., & Yang, K. (2018). An ecosystemic framework for business sustainability. *Business Horizons*, 61(1), 59–72. <https://doi.org/10.1016/J.BUSHOR.2017.09.006>
- [45] Svensson, G., Ferro, C., Høgevd, N., Padin, C., & Sosa Varela, J. C. (2018). Developing a theory of focal company business sustainability efforts in connection with supply chain stakeholders. *Supply Chain Management: An International Journal*, 23(1), 16–32. <https://doi.org/10.1108/SCM-12-2015-0461>
- [46] Ullah, H., Wang, Z., Mohsin, M., Jiang, W., & Abbas, H. (2022). Multidimensional perspective of green financial innovation between green intellectual capital on sustainable business: the case of Pakistan. *Environmental Science and Pollution Research*, 29(4), 5552–5568. <https://doi.org/10.1007/S11356-021-15919-7/METRCS>
- [47] Xu, J., Wang, X., & Liu, F. (2021). Government subsidies, R&D investment and innovation performance: analysis from pharmaceutical sector in China. *Technology Analysis & Strategic Management*, 33(5), 535–553. <https://doi.org/10.1080/09537325.2020.1830055>
- [48] Yong, J. Y., Yusliza, M. Y., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212–228. <https://doi.org/10.1002/BSE.2359>



- [49] Zang, Y., Liu, Y., Yang, Y., Woods, M., & Fois, F. (2020). Rural decline or restructuring? Implications for sustainability transitions in rural China. *Land Use Policy*, 94, 104531. <https://doi.org/10.1016/J.LANDUSEPOL.2020.104531>