The impact of green transformational leadership, green HRM, green innovation and organizational support on the sustainable business performance: evidence from China

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ABSTRACT

Currently, sustainable business performance has become the global requirement due to the recent economic disaster, and green measures have been considered the leading solution for it. This situation has gained the attention of recent literature and regulators; thus, the present study examined the green transformational leadership (GTL), human resource management (HRM), and innovation on the sustainable business performance of the manufacturing organizations in China. The moderating impact of perceived organizational support among the association of GTL, green HRM, green innovation, and sustainable business performance of the manufacturing organizations in China was also investigated. The questionnaires method was adopted to collect data, and the smart-PLS was used to test the hypotheses. The results indicated that GTL, green HRM, and green innovation have a significant and direct association with the sustainable business performance of the manufacturing organizations in China. The outcomes also revealed that organizational support significantly moderates among the nexus of GTL, green HRM, green innovation, and sustainable business performance of the manufacturing organizations in China. The current research provides help to the regulators while formulating policies and guides the new researchers while examining this topic in the future.

1. Introduction

As globalization and the progress in social media have created awareness in the general public about businesses' environmental and social responsibilities, companies must attain higher sustainable performance to fix their feet in the market both at the national and international level (Ch'ng et al., 2021). Sustainable performance is

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achieved when the companies carry their business activities without impacting the quality of the environment and society. A green company operates its business functions considering the welfare of the general public and the quality of natural resources even at the global level (Svensson et al., 2018). A company can have a highly sustainable business performance when the managers are aware of environmental and social requirements of consumers, potential customers, and government and do not compromise on environmental quality and society welfare just for having a little more profit. Such a company correctly observes the environmental issues arising from its activities and regulates its processes according to the requirements of environmental regulatory authorities (Orobia et al., 2020). A company can have sustainable business performance if it protects the quality of the natural environment and the well-being of the people in the region where it carries its operations. Thus, the company creates an environment where it can flourish its business (Freudenreich et al., 2020).

The concept of sustainable business performance has been an interesting topic for research among well-known scholars. In the highly competitive age, businesses are also required to give environmental and social protection to customers or the general public with the products and services (Schaltegger et al., 2019). In today's market, consumers not only want the products and services to meet their needs but also to take care of the environmental and social impacts of products and customer services, and they prefer businesses that do not disturb the environmental quality and society's well-being (Sun et al., 2018). The term 'sustainability' in business was first used by John Elkington as a triple bottom line concept to determine the business's long-term existence and growth. The sustainable business performance consists of social, environmental, and financial performance; thus, the company shows a great sense of responsibility towards the protection of natural resources which are to be used by future generations (Del Baldo & Baldarelli, 2017). The integration of the green concept into the business policies or strategies like human resource management (HRM), leadership, and innovation, the quality environment, and social well-being of the community where the business operates can be sustained or improved. Green HRM, green leadership, and green innovation can help remove the adverse impacts of business activities on the environment and society (Rossi et al., 2020).

This study aimed to analyze the inter-relationship of green transformational leadership, green HRM, green innovation, organizational support and sustainable business performance for the economy of China. China is a developing upper-middle-income country. It has a market-oriented and newly industrialized economy with a nominal gross domestic product (GDP) of $16.642 trillion in 2021 (Nguyen et al., 2021). Manufacturing is the major sector of the Chinese economy. According to the statistics of 2020, the country's total exports are accounted for $2.25 trillion, and the manufacturing sector contributes 94.3% to the country's total exports. Industrial growth has received much attention since the foundation of the People's Republic; as of 2011, 46% of China's national output was still allocated to investment, which is significantly greater than any other country (D'Souza et al., 2020). Machine-building and metallurgical industries have received the most attention among the many industrial branches. These two sectors now account for roughly 20–30% of total industrial output's gross value. However, in these, as in most other fields of industry, innovation has been

hampered by a system that rewards gains in gross output over improvements in variety, quality, and sophistication. As a result, China continues to import considerable quantities of specialty steel. Overall industrial output has increased at a rate of more than 10% per year, outpacing all other sectors in terms of economic growth and modernization (Xu et al., 2021). The major manufacturing industries include mining & ore processing, iron and steel, aluminum, textiles, chemical, petroleum, cement, automobile, food processing, fertilizers, transportation equipment, including rail cars, ships, and air crafts (Cheng et al., 2020). According to figures provided by the United Nations Statistics Division, China accounted for 28.7% of global industrial output in 2019. This gives China more than a tenth of a percentage point over the United States, which had the world's largest manufacturing sector until China took it over in 2010. In 2019, the Chinese manufacturing industries generated about $4 trillion in total value-added, accounting for about 30% of the total economic output of China. Furthermore, the manufacturing sector contributed slightly over 11% of GDP in the United States, indicating that the economy is becoming less reliant on it (Qu et al., 2020).

China is one of the most populous countries whose economy primarily relies on manufacturing enterprises which are the major causes of pollution spreading into the air, adversely affecting the natural resources and health of living beings. The manufacturing organizations which are taking care of the environmental and social concerns of the general public have sustainable business development. On the other hand, the countries which are only interested in profits and do not care for environmental quality and social well-being have a backward position in the market (Zang et al., 2020). Thus, there is a need to show how manufacturing organizations can have sustainable business performance. This study is being presented to meet this need of the hour. The aim of our study was to elaborate on the role of green transformational leadership, green HRM, and green innovation in the achievement of sustainable business performance. The study also aimed to analyze the moderating influences of organizational support on the mutual association between green transformational leadership, green HRM, and green innovation and the achievement of sustainable business performance. Undoubtedly, many researchers or scholars have investigated the influences of green transformational leadership, green HRM, and green innovation on achieving sustainable business performance. However, limited studies have examined the influence of green transformational leadership, green HRM, and green innovation on achieving sustainable business performance simultaneously. Our study removed this literary gap by exploring the contribution of green transformational leadership, green HRM, and green innovation in achieving sustainable business performance. The existing literature mostly focuses on the direct impact of organizational support on green transformational leadership, green HRM, and green innovation, and the achievement of sustainable business performance. Nevertheless, only a few studies have taken organizational support as a moderator between green transformational leadership, green HRM, and green innovation and sustainable business performance. So, our study also removed this gap by exploring the organizational support as a moderator between green transformational leadership, green HRM, and green innovation and sustainable business performance. The

selection of the Chines economy and the manufacturing for the analysis of under-study constructs is a significant contribution to the literature as, prior to this, no studies were conducted to analyze the green transformational leadership, green HRM, and green innovation, and the achievement of sustainable business performance for the economy of China.

The structure of this paper consists of five parts. After introducing the topic, the paper gives the blueprint of the interrelationship of green transformational leadership, green HRM, green innovation, organizational support, and sustainable business performance in the light of past literary arguments. The third part describes how the supportive data for the study concepts has been acquired. This part also describes how the validity of data has been analyzed, and results, on account of this analysis, have been set. Afterward, the results of the study are approved by the past studies. Then, the implication, conclusion, and limitations of the study are given in the last.

2. Literature review

A business firm can achieve sustainable performance only when it undertakes the company's processes, functions, or operations so that these business activities do not damage the quality of the environment or the health of its customers. The business dealings must be performed to breed better social interactions with the stakeholders like suppliers, consumers, the general public, and regulatory authorities. Ng and Rezaee (2020) argue that a highly sustainable enterprise designs its policies and strategies to carry maximum business profits without compromising environmental quality and society's well-being. Nowadays, sustainable business performance and its constructs have gained considerable attention from researchers and practitioners. Our study focused on the contribution of green transformational leadership, green HRM, green innovation in sustainable business performance and checked the role of organizational support among green transformational leadership, green HRM, green innovation, and sustainable business performance. The interrelationship of green transformational leadership, green HRM, green innovation, organizational support, and sustainable business performance has a dominant place in the literary world as many authors have presented their views in this regard. This study presented its concepts about green transformational leadership, green HRM, green innovation, organizational support, and sustainable business performance taking help from past literary arguments:

A scholarly article was written by Çop et al. (2021) to focus on creating robust psychological capital in the firm through the leaders' transformative capability to combat environmental problems. The supportive data were attained from four, and five-star hotels in Turkey through the issuances of 351 questionnaires among hotels' employees, and the validity of the questionnaires was analyzed by Amos 20 version. The study concluded that green transformative leadership inspires and motivates the followers through their actual participation in the work with the followers that they must engage in job functions to minimize the negative environmental impacts of business activities. Thus, giving protection to environmental quality, transformational leadership can create sustainability in the business performance. The research study

of Li et al. (2020) investigates the interrelationship among green transformational leadership, green intrinsic and extrinsic motivation, and sustainable business performance. A research survey was conducted to collect insights from the IT industry operating in Dalian, China. Variance-based structural equation modeling was applied to analyze 298 respondents. The study highlighted that green transformational leadership develops both green intrinsic and extrinsic motivation along with green creativity. These passions or abilities enable the employees to manufacture eco-friendly products and services. Thus, the firm can achieve sustainable business development. According to the views of Peng et al. (2020), green transformational leadership plays a significant role in developing sustainability in business performance. Green transformational leadership focuses on the team's aggregate performance and supports and encourages individual followers to consider green improvements in business operations. The leader maintains an accessible communication network with his or her followers to encourage them to offer their ideas for improving green business performance to achieve long-term success. Hence, it can be said:

> **H1:** Green transformational leadership positively relates to sustainable business performance.

Yong et al. (2020) investigated how the Green HRM practices can help get organizations to align business strategies with the environment. This study applied resource-based view theory to analyze the impact of green HRM practices on business sustainability, having collected cross-sectional data from 112 large-scale manufacturing enterprises in Malaysia. The green recruitment and green training impact on business sustainability were also analyzed. The study implied that as in green recruitment and selection, applications are received through online plate-forms, and telephone or video-based interviews are arranged to reduce any transportation-related environmental impact. Furthermore, green training enables the employees to tackle environmental issues and makes the business performance sustainable. Paulet et al. (2021) examined the significance of shaping HRM practices with the green view in developing business sustainability. The HR representatives and managers from 10 companies in Egypt and five companies in the UK were the study targets. Out of 300 expected HR representatives and managers, only 192 responded positively to the survey. The results of the investigation showed that green HRM practices such as green recruitment and selection, green training, green performance management, and green rewards enable the firm to have sustainable performance (environmental, social, and financial performance). A study attempted by Bose and Gupta (2017) states that the green HRM practices (green selection and recruitment, green learning and development, green performance evaluation, and compensation and rewards) enable an organization to develop sustainability in business performance by instilling green awareness and abilities in the employees who are responsible for carrying business operations. Based on the above arguments, it can be hypothesized:

> **H2:** Green HRM is in a positive relation to sustainable business performance.

A research was conducted by Fernando et al. (2019) to identify the relationship between environmental-friendly innovation and the achievement of sustainable business performance. A conceptual framework was applied, subjected to empirical

examination, conducted through a survey in 95 Malaysian enterprises that apply green technology. The respective data were acquired through online and postal questionnaires and analyzed through PLS-SEM. The study implies that the firms design their policies and strategies so that innovation can be brought into the technology as per up-to-date environmental requirements, the firms can develop consistency in business operations and have sustainable business performance. Similarly, Song et al. (2019) analyzed the role of innovation and creativity in developing sustainability in business, enabling the firm to have environmental and social performance along with the profits. This study implies that the development of creative skills in employees and innovation in business technology, resources, and techniques, with the primary goal of removing negative environmental impacts of business functions and products, improves business operational performance in the present and saves the natural resources for future use, ensuring sustainability in the business performance. Ullah et al. (2021) conducted a study that deals with green innovation in business resources and processes and sustainable business performance. They found that value addition to or applying something new entirely in applying or integrating business resources (physical and human resources) and business processes like operations, production, and marketing techniques with an intention to save the environment and society from firms' harmful impacts leads the firm towards sustainable business performance. That is why we can say:

H3: Green innovation is in a positive relation to sustainable business performance.

In-depth research was conducted by Kusi et al. (2021) to show the nature of association among organizational support, green transformational leadership, and business sustainability. The research suggested that when the organization provides economic and social support to its employees as represented by the transformational leader behavior towards the followers, the employees are more likely to act upon the leader's instructions about green reformation in their job functions. The employees who are committed to the organization or transformational leader show efforts beyond their abilities to bring green improvement in the processes, quality of products, and customer services so that the firm can have sustainable business performance. Likewise, Caldera et al. (2019) reported that green transformational leadership becomes more effective in leading the employees to work for the betterment of the firm considering the green requirements of customers and state regulatory authorities when the organization provides sufficient economic and social support to employees. In this way, it becomes possible for the organization to develop sustainability in the business performance as it is based on environmental and social performance along with profitability. Based on these arguments, we put the following hypothesis:

H4: Organizational support is a moderator between green transformational leadership and sustainable business performance.

Green HRM manages all the matters related to employees, considering the impacts of the decisions on the environmental quality and social integration with the stakeholders (Dentchev et al., 2018). Imran and Aldaas (2020) identified the association of organizational support with the implementation of green HRM and sustainable business performance. When the organization provides economic and social support to

employees, they are emotionally committed to the organization and try their best to act for the welfare of the business. Thus, the employees can learn more from green training and green performance evaluation and apply this knowledge while performing their functions within the organization. Consequently, the organization can successfully achieve sustainability in business performance. The academic article of Gopinath et al. (2021), presents the moderating influences of organizational support on the association between green HRM and sustainable business performance. Under organizational support, the green HRM practices like recruitment and selection, keeping a record of the employees, research and development, and compensation and reward can better be implemented as the employees cooperate. Moreover, the green improvement in the organizational processes assists in developing sustainability in business performances. These arguments of past authors focus on the following hypothesis:

H5: Organizational support moderates green HRM and sustainable business performance.

Active, alert, and responsible employees are needed along with business funds for implementing green creativity and green innovation into the business resources, technology, techniques, products, and services(Satta et al., 2019). Abbas and Sağsan (2019) reported that the organizations that support their employees (economic, social, or emotional support) resulted in employees' satisfaction and engagement, making them active, alert and responsible. Thus, enable them to develop green creativity and bring innovation in the business processes so that the negative business impacts can be removed from the environment and natural resources can be protected for future use. This creates sustainability in the business performance. Shakeel et al. (2020) studied the interrelationship between green innovation, organizational support, and sustainable business performance. The results implied that for green innovation, employees have to show extra efforts because their purpose is to raise profits and make the general public happy, removing their misconceptions about the environmental and social performance of the firm. The employees are ready to take extra effort to bring eco-friendly betterment in the processes, product, and service quality when the organization takes care of the employee's needs and encourages them for performance. In this situation, the organizational management can develop sustainability in the business operations and marketing. Hence, the organization support creates a strong link between green innovation and sustainable business performance. So, it can be said:

H6: Organizational support is a moderator between green innovation and sustainable business performance.

3. Research methods

The researchers examined the GTL, green HRM, and green innovation on sustainable business performance and investigated the moderating impact of organizational support among the association of GTL, green HRM, green innovation, and sustainable business performance of manufacturing organizations in China. The questionnaires

Table 1. Constructs and Items.

Constructs	Items	Questions	Source
Green Transformational Leadership	GTL1	"I inspire subordinates with the sustainable business plan."	Singh et al. (2020)
	GTL2	"I provide subordinates a clear sustainable business vision."	
	GTL3	"I encourage subordinates to work on the sustainable business plan."	
	GTL4	"I encourage employees to attain sustainable business goals."	
	GTL5	"I consider sustainable business beliefs of my subordinates."	
	GTL6	"I stimulate subordinates to think & share their green ideas."	
Green HRM	GHRM1	"Great effort goes into the select right person."	Singh et al. (2020)
	GHRM2	"Hiring only those who possess sustainable business values."	
	GHRM3	"Considerable importance is given to green staffing process."	
	GHRM4	"Every employee undergoes mandatory sustainable business development training."	
	GHRM5	"Sustainable business development training is designed to enhance employee's sustainable business skills & knowledge."	
	GHRM6	"Employees to use sustainable business development training in their jobs."	
	GHRM7	"Performance appraisal records sustainable business performance."	
	GHRM8	"Performance appraisal includes sustainable business incidents, responsibilities, concerns and policy."	
	GHRM9	"Employee gets reward for sustainable business management."	
	GHRM10	"Employee gets reward for acquiring specific sustainable business competencies."	
Green Innovation	GIN1	"My company uses materials that produce customer-oriented products."	Singh et al. (2020)
	GIN2	"My company uses materials that consume less energy and resources."	
	GIN3	"My company uses materials that design environment-friendly products and improve sustainable business."	
	GIN4	"My company uses materials that are easy to recycle, reuse, and decompose."	
Perceived Organizational Support	POS1	"The organizational values my contribution to its well-being."	Eairween (2018)
	POS2	"The organization strongly considers my goals and values."	
	POS3	"The organization care about my well-being."	
	POS4	"The organization is willing to extend itself in order to help me perform my job to the best of my ability."	
	POS5	"The organization tries to make my jobs as interesting as possible."	
	POS6	"The organization take pride in my accomplishments at work."	
	POS7	"The organization shows much concern for me."	
	POS8	"The organization cares about my opinions."	

(*continued*)

Table 1. Continued.

Constructs	Items	Questions	Source
Sustainable Business Performance	SBP1	"Sustainable business activities significantly reduced overall costs."	Singh et al. (2020)
	SBP2	"Sustainable business activities significantly reduced the lead times."	
	SBP3	"Sustainable business activities significantly improved product/process quality."	
	SBP4	"Sustainable business activities significantly improved the reputation of my company."	
	SBP5	"Sustainable business activities significantly reduced waste within the entire value chain process."	

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).

method was adopted to collect data, and these questionnaires were adapted from Singh et al. (2020) and Eairween (2018). Sustainable business performance (SBP) was used as the predictive construct with five items adapted from Singh et al. (2020). Perceived organizational support (POS) was employed as the moderating construct with eight items according to Eairween (2018). Three predictors were used in this study: GTL with six items, green HRM with ten items and green innovation with four items. These constructs with items are given as under in Table 1.

In addition, the questionnaires were distributed among the respondents using mail and personal visits. The top ten Chinese manufacturing organizations were selected according to revenue generation, such as China Railway and Engineering Group, Huawei, SAIC Motor, China Minmetals, FAW Group, Hengli Group, China Baowu Steel Group, Dongfeng Motor Group, Sinopharm and Beijing Automotive Group. Therefore, purposive sampling was used to select the organizations and respondents. The leaders of the departments are the respondents of the study, and approximately 1300 leaders are working in these organizations. According to Krejcie and Morgan (1970), the sample size is 297; thus, 525 surveys were distributed. After 25 days, only 295 valid responses were taken and used for analysis showing a 56.19% response rate. Moreover, the smart-PLS was used to test the hypotheses because of model complexity and large data sets (Hair et al., 2017). The research framework is given in Figure 1.

4. Research findings

The convergent validity of the items that show the correlation among items was examined. The figures highlighted those Alpha values are cross the limit of 0.70 while factor loadings are cross the limit of 0.50 (Figure 2). In addition, the results indicated that average variance extracted (AVE) values are more than 0.50, and composite reliability (CR) values are higher than 0.70. These statistics are the indication of a high correlation between items and valid convergent validity. Table 2 given below shows the convergent validity statistics.

The discriminant validity of the variables that show the correlation among variables was also examined. The present study used the Fornell Larcker and cross-loadings to check the correlation among variables (Tables 3 and 4). The results highlighted that the variable value that shows the relationships with itself is bigger
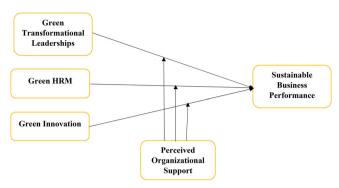
Figure 1. Theoretical model.
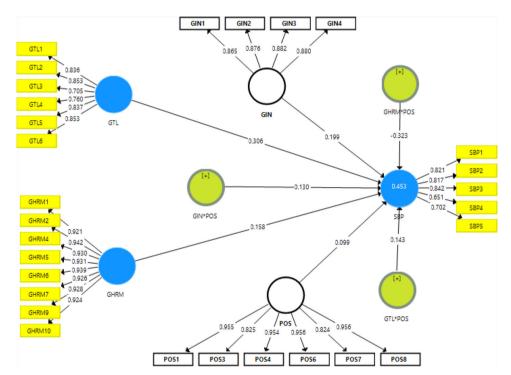Source: drawn by authors.

Figure 2. Measurement model assessment. Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: drawn by authors.

than those that show the relationships with other constructs. Thus, the relationships with the variable itself are stronger than other constructs. These statistics indicated a low correlation between variables and valid discriminant validity.

This study also used the latest criteria for checking discriminant validity, such as Heterotrait Monotrait (HTMT) ratio. The data highlighted that HTMT ratios are lower than 0.90. Thus, the relationships with the variable itself are stronger than other constructs. These results revealed a low correlation between variables and valid discriminant validity. Table 5 given below shows the HTMT ratio statistics.

Table 2. Convergent validity.

Constructs	Items	Loadings	Alpha	CR	AVE
Green HRM	GHRM1	0.921	0.978	0.981	0.865
	GHRM10	0.924			
	GHRM2	0.942			
	GHRM4	0.930			
	GHRM5	0.931			
	GHRM6	0.939			
	GHRM7	0.926			
	GHRM9	0.928			
Green Innovation	GIN1	0.865	0.899	0.929	0.766
	GIN2	0.876			
	GIN3	0.882			
	GIN4	0.880			
Green Transformational Leadership	GTL1	0.836	0.893	0.919	0.655
	GTL2	0.853			
	GTL3	0.705			
	GTL4	0.760			
	GTL5	0.837			
	GTL6	0.853			
Perceived Organizational Support	POS1	0.955	0.959	0.968	0.835
	POS3	0.825			
	POS4	0.954			
	POS6	0.956			
	POS7	0.824			
	POS8	0.956			
Sustainable Business Performance	SBP1	0.821	0.827	0.879	0.594
	SBP2	0.817			
	SBP3	0.842			
	SBP4	0.651			
	SBP5	0.702			

Note: Average variance extracted (AVE); composite reliability (CR); green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: authors estimation.

Table 3. Fornell Larcker.

	GHRM	GIN	GTL	POS	SBP
GHRM	0.930				
GIN	0.408	0.875			
GTL	0.494	0.422	0.809		
POS	0.499	0.372	0.522	0.914	
SBP	0.502	0.381	0.513	0.493	0.771

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: authors estimation.

The path analysis shows the direct associations among the constructs. The results indicated that GTL, green HRM, and green innovation have a significant and direct association with the sustainable business performance of the manufacturing organizations in China and accept H1, H2 and H3. Table 6 and Figure 3 given show the direct relationships statistics.

Path analysis also shows the indirect associations among the variables. The outcomes also revealed that organizational support significantly moderates among the nexus of GTL, green HRM, green innovation and sustainable business performance of the manufacturing organizations in China and accept H4, H5 and H6. Table 7 and Figure 3 given show the indirect relationships statistics.

Table 4. Cross-loadings.

	GHRM	GIN	GTL	POS	SBP
GHRM1	**0.921**	0.380	0.455	0.465	0.446
GHRM10	**0.924**	0.351	0.444	0.468	0.492
GHRM2	**0.942**	0.400	0.471	0.457	0.467
GHRM4	**0.930**	0.407	0.475	0.450	0.448
GHRM5	**0.931**	0.376	0.462	0.473	0.459
GHRM6	**0.939**	0.396	0.468	0.462	0.468
GHRM7	**0.926**	0.354	0.446	0.471	0.495
GHRM9	**0.928**	0.376	0.455	0.469	0.458
GIN1	0.350	**0.865**	0.309	0.291	0.323
GIN2	0.354	**0.876**	0.389	0.342	0.328
GIN3	0.345	**0.882**	0.373	0.305	0.309
GIN4	0.376	**0.880**	0.403	0.360	0.368
GTL1	0.386	0.330	**0.836**	0.663	0.409
GTL2	0.451	0.351	**0.853**	0.731	0.449
GTL3	0.315	0.329	**0.705**	0.535	0.391
GTL4	0.398	0.348	**0.760**	0.662	0.380
GTL5	0.379	0.332	**0.837**	0.662	0.406
GTL6	0.456	0.360	**0.853**	0.723	0.450
POS1	0.460	0.322	0.765	**0.955**	0.455
POS3	0.442	0.373	0.719	**0.825**	0.451
POS4	0.463	0.324	0.758	**0.954**	0.456
POS6	0.462	0.324	0.773	**0.956**	0.443
POS7	0.444	0.374	0.717	**0.824**	0.446
POS8	0.459	0.319	0.763	**0.956**	0.444
SBP1	0.398	0.327	0.455	0.493	**0.821**
SBP2	0.430	0.359	0.460	0.446	**0.817**
SBP3	0.404	0.319	0.447	0.382	**0.842**
SBP4	0.359	0.185	0.305	0.278	**0.651**
SBP5	0.338	0.242	0.261	0.244	**0.702**

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS). The bold values representing cross-loading with values above 0.6 with parent constructs.
Source: authors estimation.

Table 5. Heterotrait Monotrait ratio.

	GHRM	GIN	GTL	POS	SBP
GHRM					
GIN	0.435				
GTL	0.527	0.471			
POS	0.515	0.399	0.886		
SBP	0.557	0.430	0.582	0.538	

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: authors estimation.

Table 6. Direct path.

Relationships	Beta	S.D.	T Statistics	p values	L.L.	U.L.
GHRM -> SBP	0.158	0.080	1.973	0.026	0.037	0.289
GIN -> SBP	0.199	0.074	2.702	0.004	0.084	0.317
GTL -> SBP	0.306	0.104	2.944	0.002	0.117	0.463

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: authors estimation.

The results of the coefficient of determination showed that the 45.30% variations in the sustainable business performance are due to the predictors such as green HRM, GTL and green innovation. Table 8 shows the R square statistics.
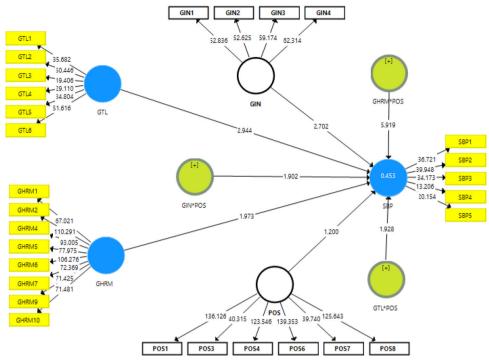
Figure 3. Structural model assessment. Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: drawn by authors.

Table 7. Indirect path.

Relationships	Beta	S.D.	T Statistics	p values	L.L.	U.L.
GHRM*POS -> SBP	−0.323	0.055	5.919	0.000	−0.415	−0.229
GIN*POS -> SBP	0.130	0.068	1.902	0.030	0.004	0.223
GTL*POS -> SBP	0.143	0.074	1.928	0.028	0.016	0.283

Note: Green transformational leadership (GTL); green human resources management (GHRM); green innovation (GIN); sustainable business performance (SBP); perceived organizational support (POS).
Source: authors estimation.

Table 8. Coefficient of determination.

	R Square	R Square Adjusted
SBP	0.453	0.439

Note: Sustainable business performance (SBP).
Source: authors estimation.

The moderation results showed that the blue line is above the red and green lines, which indicates negative POS moderation among green HRM and SBP. Figure 4 shows the moderation results of POS among green HRM and SBP.

The moderation results also indicated that the green line is above the blue and green lines, which shows positive POS moderation among green innovation and SBP (Figure 5).

Besides, the moderation results also indicated that the green line is above the blue and green lines, which shows positive POS moderation among GTL and SBP as shown in Figure 6.
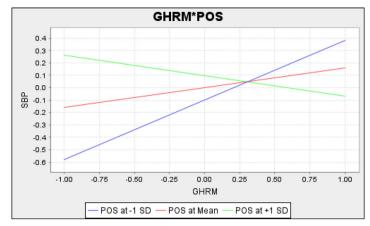
Figure 4. GHRM*POS. Green human resources management (GHRM); perceived organizational support (POS).
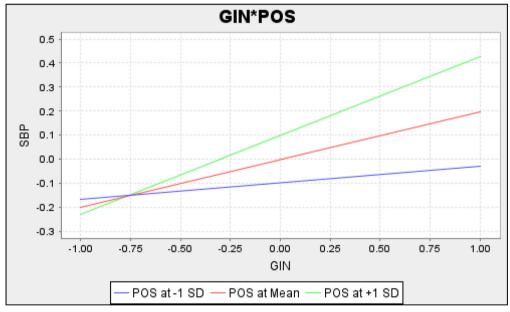Source: drawn by authors.

Figure 5. GIN*POS. Green innovation (GIN); perceived organizational support (POS).
Source: drawn by authors.

5. Discussion and implications

The study results indicated that GTL has a positive association with sustainable business performance. These results are in line with the previous study of Evangelista et al. (2017), which implies that under the GTL style, the leader does not care for the status, but he wants and tries to develop green creativity in the followers through constant encouragement. He encourages them to ponder the situation, find out the environmental issues, if there is any in the business operations, and find out the
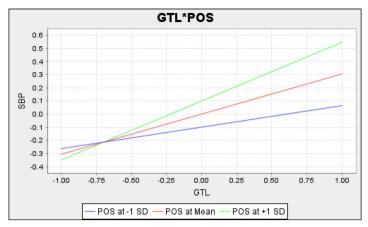
Figure 6. GTL*POS.
Source: drawn by authors.

solution to these issues by doing something new. Hence, GTL creates environmental behavior in business and enables it to achieve sustainable performance. These results also corroborated the previous study of Moin et al. (2021), which analyzed the significance of green integration into a transformational leader in a sustainable business. The study proposed that a GTL not only focuses on the team's collective performance under his influence but also supports and encourages the individual followers to think about green improvement in the business processes. The leader has a convenient communication network with the followers to encourage them to share their views for green business improvement to achieve sustainable business performance. The present study also indicated that green HRM has a positive association with achieving sustainable business performance. These results are supported by Ababneh (2021), which analyzed the role of green HRM in developing a sustainable business. This research emphasized that effective implementation of green HRM practices like green selection and recruitment, green learning and development, green performance evaluation, and compensation and rewards enable the organization to have highly sustainable business performance as it creates green awareness and skills in the employees who operate all activities. Jain and D'lima (2018) analyzed how the green HRM develops environmental behavior among employees within the organization. The authors found that when the HR managers critically analyze the Curriculum Vitae (CV) description of the candidates and ask such questions which indicate the intention and skills of the candidates that they have environmental awareness and guts to earn maximum without destroying the environmental quality, it is possible to lead the company towards sustainable development.

Additionally, the present study revealed that green innovation has a positive relationship with sustainable business development. These results are agreed with Asadi et al. (2020), which stated that the creativity development in the organizational employees and innovation in the business technology, resources, and techniques whose basic objective is to remove the negative environmental impacts of business processes and products. This improves the business's operational performance, enhances its reputation, and develops consistency in its financial development. Awan et al.

(2019) reported that when the organization carries its business processes by maintaining green innovation, like the adoption of energy-efficient technology, green material, hiring of human resources who have green awareness, green change in the design and quality of the products, green alterations in advertisement and marketing processes, it enjoys high environmental performance, achieves customers' and general public confidence, and sustainable marketing.

Furthermore, the study results suggested that that organizational support moderates green transformational leadership and sustainable business performance. These results corresponded with Sroufe (2017), which stated that organizational support to employees (both leader and followers) make GTL more effective and helps achieve sustainable business development goals. Therefore, under the availability of organizational support, the green transformational leader can better guide, inspire and motivate the followers to work to the best of their abilities for removing environmental impacts of business activities so that sustainability can be developed in the business performance. Suifan et al. (2018) found that organization support improves the performance of green transformational leaders and the sustainability creation and development in business performance. Hence, organizational support improves the contribution of transformational leadership to sustainable business development.

The results showed that organizational support moderates green HRM and sustainable business performance. These results are approved by the previous study of Azudin and Mansor (2018), which implied that organization support assists in implementing green HRM practices regarding recruitment and selection, keeping a record of the employees, research and development, and compensation and reward. It also assists in accelerating sustainability development in business performance. These results are also in line with the recent study of J. J. Li et al. (2019), which shows that organizational support improves both execution of green HRM practices and the rate of sustainable business performance. Thus, the contribution of green HRM to the achievement of sustainable business performance also increases.

Other than that, the current study found that organizational support moderates green innovation and sustainable business performance. These findings corroborated with Moslehpour et al. (2018), where organizational support is helpful in implicating green innovation into business processes, resources, and the quality of products and services. It is also helpful in the achievement of sustainable business performance, which is the combination of environmental, social, and financial development of the organization. Besides, when the organization provides economic or social support to its employees, it becomes possible to bring green innovation in all the organizational departments and improves the environmental, social, and financial performance of the firms (Corrales-Estrada et al., 2021).

The current study has both theoretical and empirical implications. It has excellent theoretical importance because it contributes greatly to the literature on business sustainability. This study addresses three significant constructs of sustainability business performance such as GTL, green HRM, and green innovation. Additionally, this study gives a detailed description of the contribution of GTL, green HRM, and green innovation to the achievement of sustainable business performance (environmental, social, and financial performance). In the past literature, many studies have discussed

the role of GTL, green HRM, and green innovation in creating or developing sustainability in the business performance, but none of these studies have addressed GTL, green HRM, and green innovation contribution to the development of business sustainability at the same time. Thus, our study is an addition to the literature. In this study, organizational support to employees has been addressed as a moderator between GTL, green HRM, green innovation, and sustainable business performance. The existing literature has explored the direct impacts of organizational support on GTL, green HRM, green innovation, and sustainable business performance. However, scanted attention has been given to organizational support as a moderator between the variables mentioned above. Furthermore, the present study has tremendous importance in the practical economy. The increasing population and industrialization have greatly increased environmental pollution. In this modern age, the general public and customers are aware of environmental issues and prefer organizations that give high environmental and social performance along with profits earning. This research gives a guideline to the businesses on how they get sustainable development in this modern age. The current research provides help to the regulators while formulating policies and also guides the new researchers while examining this topic in the future. The results suggested that to achieve sustainable business performance, the organizations must promote GTL, implement green HRM practices efficiently, and bring green innovation in the business processes.

6. Conclusion and limitations

In the emerging economies that are facing pollution due to climate change, industrialization, and population growth, it is necessary for economic enterprises to focus on sustainable business performance, which consists of environmental, social, and financial performance. The current study aimed to examine the influences of GTL, green HRM, and green innovation on sustainable business performance and determine the impact of organizational support on GTL, green HRM, green innovation, and sustainable business performance and their mutual association. The quantitative data that supported of the study concepts were collected from the manufacturing organizations in China. The results showed that GTL inspires and motivates followers to perform their job functions so that their actions do not cause any harm to the environmental quality and well-being of society. Therefore, the enterprise may have highly sustainable business performance. The results of the study also indicated that the green integration in the HRM practices manages the human resource matters in such a way as to enable the employees to carry the concerned business processes meeting the environmental and social requirements of the consumers and general public. The results proved that the development of innovation and creativity in the business processes reduces the negative impacts on the environmental quality and health of living beings. This leads to sustainable business performance. The study also found that organizations that tend to provide support to their employees could implement GTL, green HRM practices, and green innovation and are likely to have higher sustainable business performance.

However, there are some limitations to this study. These allow the authors or researchers to show their intellect in their studies by making improvements. First, this study analyzed the influences of just three factors: GTL, green HRM, and green innovation on sustainable business performance. There are many other factors significantly influence sustainable business performance, such as geographical characteristics, economic conditions, financial strength, and selection of energy resources. Nonetheless, this study did not include these significant constructs of sustainable business performance. Hence, limit the study's scope, and it is recommended to future scholars to increase the number of constructs of sustainable business performance. For results about the relationship between GTL, green HRM, green innovation, and sustainable business performance, research was done for the manufacturing organizations in China. China is a populous country having different geographical characteristics, nature of the climate, and economy from other countries. Thus, the study may not be equally valid in countries other than China. Therefore, future research must collect supportive data from many countries (both developing and developed ones).

Disclosure statement

No potential conflict of interest was reported by the authors.

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