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The role of technological advancement, supply chain, environmental, social, and governance responsibilities on the sustainable development goals of SMEs in Vietnam

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ABSTRACT
Technological advancement along with environmental, social, and governance responsibilities are the essential issues in the sustainable development goals of SMEs in Vietnam. Therefore, the purpose of this study is to examine the influence of technological advancement as well as environmental, social, and governance responsibilities towards sustainable development goals while also examining the moderating role of supply chain to the relationship between technological advancement and the sustainable development goals of SMEs in Vietnam. This study used a questionnaire as its data collection method and smart-PLS to analyze the data. The results indicate that technological advancement, environmental, and social responsibilities have a positive association with the sustainable development goals of SMEs in Vietnam. It was also revealed that supply chain significantly moderates the nexus between technological advancement and sustainable development goals. This study serves as a guideline for the regulators in developing regulations related to the sustainable development of business organizations.

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1. Introduction

The exponential increase in economic growth is imparting a destructive impact on the environment and natural resources across the world; yet the social action to overcome this problem is rather limited. Many researchers and scholars have addressed the impact of firm choices regarding their resources, operation, integration, and performance on resource protection and sustainable development (Kautish et al., 2020). As the attention to environmental protection and social well-being increases, it brings about other goals like commitment to social and environmental outcomes in addition

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to financial profit. These goals are known as sustainable development goals and can be classified into three groups, namely social, environmental, and economic performance sustainability. Based on the five Ps of planet, people, peace, prosperity, and partnership, the objective of these sustainable development goals is to establish a setting and condition that is appropriate for sustainable development, collective progress, healthy work environment, and effective natural resources utilization within the area's 'people' and 'prosperity'. From a business perspective, the objective of sustainable development goals is to promote an innovative and people-oriented economy. Our study aims to analyze the impact of constructs like technology advancements, social responsibilities, environmental responsibilities, and corporate governance towards achieving sustainable development goals (Williams et al., 2019).

Several social, corporate, technological, and environmental factors have been proven to impose significant influence over the development of SMEs in developed and developing countries. The importance of these factors varies, for instance, technological advancement is associated with the financial sector whereas social factor is associated with societal factors. Likewise, corporate social responsibilities (CSR) have become a significant obligation for corporations to handle due to the stakeholders' demand for companies to take responsibility over the environment and society. However, while businesses must assume responsibility for the economy, society, and environment, the extent to which they can do so is determined by the amount of available resources.

Vietnam is a developing country that suffered significant environmental, social, and economic damage due to the US war, making it one of the world's poorest countries in the 1990s. The reason to investigate Vietnam is due to the country's amount of obligation to the corporate, social, and environmental responsibilities as Vietnam has had significant economic growth over the previous 25 to 30 years, moving from a poor to a lower-middle-income country (Lopes de Sousa Jabbour et al., 2020; Singh et al., 2019). SMEs are part of the business society of a country which, like any other sectors, also put maximum efforts to achieve their sustainable development goals by fulfilling the social obligations. The ultimate aim behind any sustainable development goals is to achieve a better and prosperous future. Besides that, SMEs in Vietnam are commonly associated with legal (corporate) and economic issues. Statistics from the International Labor Organization show that SMEs often face three common issues in order to achieve their sustainable goals, namely financial resources availability, access to electricity, and knowledge about the environmental and legal (corporate) aspect of SMEs. Such case is similar with SMEs in Vietnam.

Environmental and social responsibility entails abiding by current environmental regulations and implementing environmental management systems to prevent damage to the environment. Free trade agreements like TPP impose severe environmental requirements on Vietnamese businesses. SMEs in Vietnam commonly comprise business units with less compliance to environmental and social rules and regulations. According to the MONRE statistics, only 5% from 615 industrial groups in Vietnam where SMEs operate have concentrated wastewater treatment facilities, with the remainder being discharged straight into rivers, streams, and canals (Le Van et al., 2019). SMEs' noncompliance exposes them to environmental, social, legal (corporate),

and financial concerns such as administrative penalties and operations suspension, which in turn diminish profitability. Furthermore, policy, funding, awareness, technology, human resources, and access to information are among the challenges faced by SMEs regarding environmental compliance (Kontodimopoulos et al., 2007). Such non-compliance on legal (corporate), environmental, social, and financial prompts us to address these SMEs' issues in Vietnam. Although the government and private business firms may be equally responsible for the environmental pollution and both must be equally regulated for higher social, environmental, and economic performance, it would be better to privatize most business enterprises for achieving better regulations and sustainable development goals (Kautish, 2010).

One of the influential factors behind the technological advancement and economic growth of companies is Research and Development (R&D). In discussing about the contribution of foreign aid into sustainable economic development, Sharma and Kautish (2019) stated that investment in R&D programs can provide a clear path for achieving technological advancements and sustainability in economic development. The interrelationship between the characteristics of companies, such as size and age, has generated a new group of large and small business organizations, which has been the subject of researchers' interest in the recent era. This small collection of fresh and highly creative businesses has been emphasized as the key driver in developing innovations and growing competitiveness over the long term (Bayar et al., 2021). In addition, place-based strategies have been recently adopted by emerging countries to promote private businesses. As for China and Vietnam, 'industrial zones', 'unique areas', and 'production zones' are a set of favorable policies for businesses to improve their output and raise economic growth. Preferential strategies are targeted at the impact of technological spillover (Li et al., 2020). The emphasis was recently placed on technical spillovers in the context of industrial zone growth. However, the appraisal of R&D decisions by businesses inside the industrial zone is generally almost invisible (Darginavičienė & Suchanova, 2020).

The supply chain factor of an organization can enhance innovation and firm performance. It has the capability to force firms to invest more in R&D while motivating the owners to invest in every innovative idea that leads them towards success. Therefore, the prime aim of this article is to examine the determinants that can lead small businesses within the industrial region to invest in R&D. This study contends that such barriers and challenges can contribute to small businesses not investing in R&D. As suggested by Gorączkowska (2020), the essence of every business is different since each has a different view towards a particular scenario. Furthermore, different procedures will emerge as businesses face the economic realities differently. If policymakers intend to help firms' R&D operations, they must recognize that such funding may not be the right strategy for all companies (Banelienė & Melnikas, 2020; Žydžiūnaitė & Arce, 2021). Past studies have indicated how relationship-specific relationships and acquisitions often influence a company's diverse decisions. It seems obvious, however, that similar investments may be connected to a large spectrum of problems (Amrin & Nurlanova, 2020; David & Grobler, 2020; López, 2020).

In Vietnam, a large number of SMEs are performing business functions and are expected to have a significant portion of GDP and the country's exports.

Unfortunately, the majority of SMEs only focus on profitability, and thus, may become a hurdle to achieve sustainable development (Parnell, 2018). Therefore, there is a need to direct the SMEs' attention on the importance of sustaining social and environmental performance for their benefit as well as the people in contact with them. Our study meets such need by exploring the influence of technological advancement, social responsibilities, environmental responsibilities, and corporate governance towards achieving sustainable development goals. The study also analyzes the mediating influence of the supply chain between technological advancement, social responsibilities, environmental responsibilities, and corporate governance in achieving sustainable development goals. This study addresses the gap in three ways: Firstly, many authors have discussed the role of undertaking social and environmental responsibilities by business firms in achieving sustainable business development, however these were done in separate research works. For instance, Salvia et al. (2019) only focused on environmental responsibility to attain sustainable development goals. Our study addresses this literary gap by exploring the impact of both social and environmental responsibilities towards achieving sustainable development goals. Secondly, most studies have discussed the role of innovation or creativity in achieving sustainable development goals. However, limited studies have dealt with technological advancement rather than innovation or creativity to achieve sustainable business development. Thirdly, this study makes a significant contribution to the literature by introducing supply chain as a moderator between technological advancement, social responsibilities, environmental responsibilities, and corporate governance in achieving sustainable development goals. The selection of SMEs in Vietnam as the center of analysis is also another contribution to the literature.

The article is arranged as follows: the following section contains a thorough review of relevant literature pertaining to the advantages and obstacles faced by small and medium-sized businesses in deciding to invest in R&D along with the environmental, social, and governance responsibilities impact on sustainable development goals. Section 3 explains the methods for data collection and analysis. This is followed by Sec. 4 which presents and discusses about the findings. Finally, Sec. 5 contains the conclusion and limitations of the study.

2. Literature review

Past studies have proposed the ideas behind the interaction between entrants and creativity (Al Khalifa, 2018; Chien et al., 2021a; Danielle & Masilela, 2020). Business structure is often revived by 'creative destruction' where competitors put creativity into traditional businesses. In addition, past studies also posit that economy is a 'creative accumulation' mechanism where current businesses implement creativity more often to improve their market positions (Dlalisa & Govender, 2020; Hussain et al., 2019; Nelson & Mattes, 2017). These two factors of coexistence characterize the economy and thus provide the nature and challenges of a business (Hussain et al., 2020; NgoNdjama et al., 2020). In this sense, young companies often have several advantages and drawbacks of R&D investment, but it has a significant impact on sustainable development goals (SDG) (Chien et al., 2021b; Koloba, 2020). For example,

in contrast with competing companies, young businesses may have greater management power and less bureaucratic competition. However, young companies can face difficulties due to the problems of scale and reach economies. Sunk entry costs will also impact the ease of inventing new entrants (Chien et al., 2021c, 2021f). Furthermore, supply chain is also an important driver that forces investors to invest in R&D and improve the SDG. Thus, the present study has included SDG as the predictor to boost the investment towards R&D.

Extensive research on the interaction between corporate size and R&D has revealed a significant relationship between R&D elasticity and corporate size as well as its prominent impact on SDG. The capital intensity of a business is generally overlooked in most analytical literature related to the determinants of the R&D sector. Such discovery is unexpected since modern devices and SDG usually require technological advances (Chien et al., 2021e; Li et al., 2021). A study by Sharma et al. (2021) investigated the role of export diversity and technological innovation in consuming non-renewable energy resources and gaining sustainable development. The study suggests that the added value in technologies or the invention of new technological products or processes enable business firms to apply renewable energy resources which could then be translated into the environmental impact of the business activities. Thus, technological innovation can assist in obtaining sustainable development goals. Based on this review, the present study has developed the following hypothesis:

H1: Technological advancement significantly and positively affects the sustainable development goals of SMEs in Vietnam.

Irrespective of its size, the prime aim of an organization is to attain sustainable development goals to ensure its prosperous future. Several factors play a vital role in the achievement of sustainable development, including social, environmental, technological, corporate, and legal. While a number of these factors are related to the economy, others are associated with the society and often deemed as more important. This is because society is a crucial element towards the prosperity of any enterprise. Social responsibilities refer to the social obligations of an institution towards the society. It describes how much an organization spends for the welfare of the society, as society is one of the external stakeholders of the organization. The concept of social responsibility has been gaining its importance over time. Nowadays, organizations that fail to obligate their social responsibilities are not ranked high in the business community and country level. Lopes de Sousa Jabbour et al. (2020) proposed that the financial performance of SMEs is often affected by several factors like concentration as well as their compliance with rules and regulations. Meanwhile, the social and environmental performance of a country is based on several drivers like compliance with corporate responsibilities and adoption of environment-friendly practices. Van and Nguyen (2019) propounded that the social performance of an SME is based on the fulfillment of its social obligation. Although the majority of SMEs in Vietnam are careful about their social responsibilities, many steps need to be taken to bind every enterprise. Vietnam is a developing country, and in such economy, stakeholders' high compliance with their social responsibility often reward them with more responses from the society. Such responses from the society (i.e., customers) serve as their initial step towards achieving sustainable development. Moreover, the sustainable

development of SMEs is also dependent on the fulfillment of social responsibility. The study by Sharma and Kautish (2020) examined the performance of social responsibilities by financial institutions and its impact on sustainable economic growth for middle-income countries in South Asia. Their results indicated that when financial institutions take care of their responsibility towards customers and design their policies in the best interest of the society, their sustainable development goals, which consist of social well-beings of people, can be achieved. Such argument thus leads to the following hypothesis:

H2: There is positive nexus between social responsibilities and sustainable development goals of SMEs in Vietnam.

One essential factor for the sustainable development of the society and business is environmental responsibilities. These responsibilities serve as a proper mode for the uplifting of coexisting ecosystems as well as the generations. It is primarily essential to design the clauses of environmental responsibilities to manage businesses and societies. This also helps businesses to maintain the channels of sustainable development with effective consumer and corporate needs. Mostly, the SME sector of Vietnam requires environmental responsibilities to develop the frequency of sustainable development. Consumers' attitudes are mostly prevalent in the changing perspectives of environmental responsibilities. Various practical implications of the environmental policies and advertising positively contribute a significant portion to the development and sustainability of SMEs (Chang et al., 2019; Chien et al., 2021d).

There is an urgent need to develop an environmental management system for the sustainable development of the SME sector in Vietnam. Environmental management plays a vital role in the improvement and settlement of disputes and constraints in SMEs. Generally, SMEs in Vietnam have significantly improved over the past few decades along with the frequent improvement of the business environment. The sustainability of SMEs in Vietnam is enhanced by the development of environmental responsibilities. These responsibilities have properly induced the soundness of positive impacts on the sustainable development of the society (Ikram et al., 2019; Kikulwe & Asindu, 2020). With the rapid development of cities and societies, there is an urgent need for sustainable SME businesses. This subsequently contributes to the idea of environmental responsibilities towards societies and businesses. With such crucial need, the environmental responsibilities have positively leveled an obligation to the SMEs in Vietnam. Different approaches to environmental responsibilities have been developed with the importance of community, business, and societal problems. These issues have been important for the sustainability of businesses, especially for the SMEs in Vietnam. Quality environmental responsibilities significantly contribute to solving elements for the business societies of various countries (Farag & Doheim, 2020; Malla & Brewin, 2020). Besides emphasizing the environmental responsibilities, industrial sustainability is equally essential as it directly relates with the factors of innovation and sustainable development, which arise from the frequent environmental issues. Therefore, the making of environmental responsibilities positively tackles the procedures which are essential for sustainable development. In this context, the SMEs in Vietnam serve as a major exploration of businesses that require environmental responsibilities. In the above scenario, the need for regulatory enforcement for

environmental responsibilities positively uplifts the sustainable development for SMEs. The Vietnam industry depicts various issues that require emphasizing means, and the environment means that there is a significant proportion that helps in sustainability (Ehsanullah et al., 2021; Yuan & Zhang, 2020). Jiao et al. (2021) analyzed the nexus among factors causing carbon emission and sustainable business performance. The study reported that when business firms manage their policies in such a way as to carry the business processes like the procurement of eco-friendly resources, applying energy-efficient technology, and using environmentally friendly logistics, they can reduce carbon emission and successfully attain sustainable development goals. Based on the above discussion, the third hypothesis of this study is as follows:

H3: There is positive nexus between environmental responsibilities and the sustainable development goals of SMEs in Vietnam.

The consistent challenges in the field of business often comprise numerous factors that are mostly and primarily prevalent to human's existence in the business societies (Hsu et al., 2021; Sun et al., 2020). Therefore, corporate governance has inserted an essential role in eliminating conflicts that prevail due to the leveled existence of the pandemics, inequality, conflict, and hunger with poverty. The establishment of SMEs in various countries has significantly improved the lifestyle of average and low standard people. SMEs in Vietnam have been increasing along with the corporate governance concepts, which have gained importance due to innovation and potential (Huang et al., 2020; Scherer & Voegtlin, 2020). The pillars of corporate governance have played a vital role among small and large businesses (Huang et al., 2021). To address sustainable development issues, corporate governance has arranged many elements that encourage various societies for corporate disclosures. These disclosures are essential for the uplifting of SMEs, which are consistently increasing in Vietnam. Friendly environment is also an important factor for sustainability as well as for the development of SMEs in Vietnam. Therefore, the treatment raised by corporate governance has significantly influenced sustainable development. Such influence has significantly proportionated the bifurcation of environments, which is a compilation of the corporate governance (Gangi et al., 2019; Li et al., 2021).

With the prevalence of corporate governance, auditing and regulation are among the essential needs that design the mechanisms to tackle sustainable development (Mohsin et al., 2021). In the absence of corporate governance, the mandatory regulative elements show resilience with corporate governance (Liu et al., 2021; Nawaz et al., 2021). In fact, corporate governance has been considered an important channel for the sustainable development of SMEs in Vietnam. It is upon the stakeholders' effort to sustain the SMEs in Vietnam and corporate governance replies accepting guidelines for the businesses. Most of the disclosed facts of many variables related to corporate governance positively contribute a significant proportion towards the sustainable development of SMEs (Manning et al., 2019; Sadiq et al., 2021b). The consistently rising global financial crisis also states on the importance of corporate governance. Such importance eliminates the elements that conflict with sustainable development and businesses (Nawaz et al., 2021; Othman et al., 2020). Therefore, corporate governance approaches remove the independence between the indicators of financial governance and sustainable development. Within the SMEs in Vietnam,

social and cultural elements are positively handled with the improvement in corporate governance. This also induces the implementation of proper systems with procedures that influences the sustainable development of SMEs and various other businesses in Vietnam even though the efficiency of income places synergetic effects on the sustainable development of SMEs in the world (Munteanu et al., 2020; Sadiq et al., 2021a). The fact is that the effective performance of corporate social responsibilities will result in better quality eco-friendly products. Kautish et al. (2020) investigated the association between value orientation, consumers' sustainability conscious, and firms' behavioral intentions towards eco-friendly products and its impact on sustainable development goals. Their data were collected through a structured questionnaire involving 410 respondents from northwestern India and the assessment of measurement and structural models was executed via two-step approach. The findings highlight that the manufacturing of eco-friendly products is ensured through corporate governance, which is a step to achieve sustainable development goals. Hence, we hypothesize that:

H4: There is positive nexus between corporate governance and the sustainable development goals of SMEs in Vietnam.

The term 'supply chain' has successfully proven its impact on the business community of every country. The majority of firms often embrace the concept of supply chain irrespective of its size. Similarly, most SMEs in Vietnam are concerned with the supply chain advancement, but all other industries are also linked to it. Therefore, supply chain describes its influence as a moderator towards sustainable development and technological advancement (Kim et al., 2019; Naciti, 2019; Xueying et al., 2021). However, technological development is considered as the green ideologies for sustainable development supply chain, which places logistic indices with the perspectives of emerging economies. Therefore, the trading and transportation infrastructure with the supply chain has moderating effects on the technological development of SMEs (Hassan et al., 2020; Madzivhandila & Niyimbanira, 2020; Moraes Silva et al., 2020). The adoption of technological advancement is strongly linked with the supply chain. This linkage is essential to assert the performance of sustainability among various businesses. The SMEs in Vietnam have also been significantly described with the induction of supply chain in order to enhance sustainable development with technological advancement (Khan et al., 2019; Singh et al., 2019; Xiang et al., 2021).

H5: Supply chain moderates the relationship between technology advancement and the sustainable development goals of SMEs in Vietnam.

3. Research method

The research reported in this article examined the influence of technological advancement, environmental, social, and governance responsibilities on SDG as well as the moderating role played by supply chain towards the relationship between technological advancement and SDG. The A questionnaire was used as the data collection method while the respondents were selected via purposive sampling among employees of SMEs attached to social and environmental responsibilities. The questionnaire were

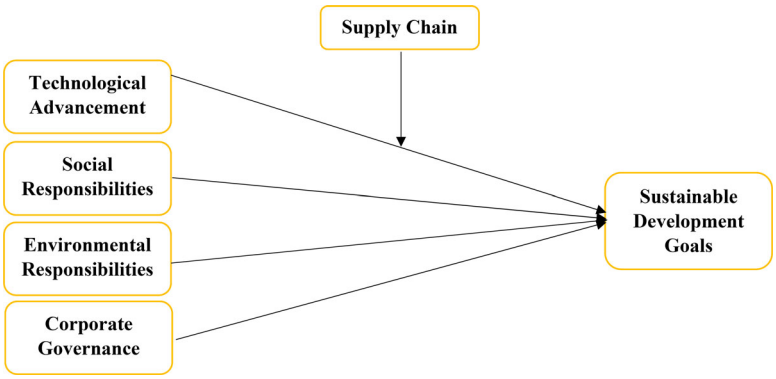

Figure 1. Theoretical framework.
Source: Authors' compilation.

distributed s to the chosen employees by personal visit. A total of 495 questionnaires were distributed to the selected respondents via personal visit to the respective SMEs and 290 questionnaires were returned, which represents a 58.59% response rate.

Smart-PLS was used to check the validity and examine the nexus among the variables. This statistical tool was selected as the purpose is hypotheses testing, the model is complex, and the sample size is large (Hair et al., 2017; Heinrich et al., 2020). Moreover, similar method was also used by past studies like Acquah et al. (2021), Sheko and Braimllari (2018), and Farooq and Salam (2020). This study examined the correlation of the items by employing composite reliability (CR) along with Alpha, AVE, and factor loadings. Whereas, the correlation among variables was determined via the Fornell Larcker and Heterotrait Monotrait (HTMT) ratio. The relationships between the constructs were investigated using path analysis involving four independent variables, namely technological advancement (TA) with four items (Do Thi Kim Tien, 2020), social responsibilities (SR) with thirteen items, environmental responsibilities (ER) with fourteen items, and corporate governance (CG) with fifteen items (Flores & Chang, 2019; Sultana et al., 2018). In addition, this study has employed supply chain as the moderating variable with eight items and sustainable development goals as the dependent variable with ten items. Figure 1 presents the theoretical framework of the current study.

4. Findings

Table 1 presents the convergent validity results that show the correlation between items. It was found the CR along with the Alpha values are higher than 0.70 and that factor loading and AVE are larger than 0.50. These values thus indicate a high correlation between the items.

Meanwhile, Tables 2 and 3 present the Fornell Larcker and cross-loading results, which show the discriminant validity that determines the correlation between variables. The results indicate that the current value of the variable itself is higher than the rest of the values, thus suggesting a low correlation between variables.

Table 4 contains results of the HTMT ratio. It was found that the HTMT ratio values are lower than 0.85, hence implicating a low correlation between variables.

Table 1. Convergent validity.

Constructs	Items	Loadings	Alpha	CR	AVE
Corporate governance	CG1	0.717	0.967	0.969	0.677
	CG10	0.835			
	CG11	0.875			
	CG12	0.868			
	CG13	0.832			
	CG14	0.854			
	CG15	0.770			
	CG2	0.813			
	CG3	0.729			
	CG4	0.872			
	CG5	0.853			
	CG6	0.824			
	CG7	0.851			
	CG8	0.770			
	CG9	0.859			
Environmental responsibilities	ER1	0.437	0.941	0.945	0.569
	ER10	0.445			
	ER11	0.526			
	ER12	0.898			
	ER13	0.916			
	ER14	0.895			
	ER2	0.897			
	ER3	0.911			
	ER4	0.465			
	ER5	0.527			
	ER6	0.902			
	ER7	0.914			
	ER8	0.525			
	ER9	0.896			
Supply chain	SC1	0.953	0.959	0.968	0.834
	SC3	0.830			
	SC4	0.951			
	SC6	0.954			
	SC7	0.828			
	SC8	0.953			
Sustainable development goals	SDG1	0.573	0.920	0.934	0.588
	SDG10	0.788			
	SDG2	0.765			
	SDG3	0.841			
	SDG4	0.644			
	SDG5	0.809			
	SDG6	0.801			
	SDG7	0.783			
	SDG8	0.817			
	SDG9	0.804			
Social responsibilities	SR1	0.513	0.927	0.938	0.546
	SR10	0.766			
	SR11	0.750			
	SR12	0.807			
	SR13	0.763			
	SR2	0.529			
	SR3	0.526			
	SR4	0.821			
	SR5	0.857			
	SR6	0.848			
	SR7	0.802			
	SR8	0.800			
	SR9	0.697			
Technological advancement	TA1	0.849	0.867	0.909	0.714
	TA2	0.832			
	TA3	0.880			
	TA4	0.818			

Source: Authors' estimation.

Table 2. Fornell Larcker.

	CG	ER	SC	SDG	SR	TA
CG	0.823					
ER	0.378	0.754				
SC	0.173	0.498	0.913			
SDG	0.217	0.458	0.503	0.767		
SR	0.205	0.563	0.452	0.539	0.739	
TA	0.212	0.560	0.398	0.426	0.562	0.845

Source: Authors' estimation.

The results in Figures 2 and 3 further revealed that technological advancement, environmental, and social responsibilities have a positive association with SDG, which accept H1, H2, and H3. However, it was found that corporate governance has an insignificant association with SDG, which rejects H4. In addition, the results also indicate that supply chain significantly moderates the nexus between technological advancement and sustainable development goals, which accepts H5 (Figure 4). Table 5 shows the relationships between the variables.

Moreover, the R square results in Table 6 show that the R square value is 0.364. This suggests that 36.4% of variations in SDG are due to the variables under investigation in the study.

5. Discussion

The results of this study have indicated that technological advancement has a positive impact on sustainable development goals. This is in line with Corsi et al. (2020) who reported that the use of technological advancement has prompted better performance in different areas of the business enterprise such as information system, communication system, operation, production, and marketing. Thus, sustainable business development goals can be achieved. The finding is also similar to the study by Ahmed and Ozturk (2018) who reported that for sustainable business development to be achieved, business organizations must bring positive changes in the technology used in its operations so that the customers' up-to-date requirements can be met more effectively. Similarly, Joseph and Thomas (2020) posit that the adverse impact of business activities on the environment and natural resources can be reduced through the adoption of technological advancement like the use of energy-efficient technology. This not only protects the natural resources but also the public's health, which are the critical elements for sustainable economic development.

This study also found that social responsibilities have a positive association with sustainable development goals. The result is in line with the past study by Bowen et al. (2017) which reported that every business organization has certain responsibilities towards the respective region where they operate their business activities as well as the local people living there. These responsibilities comprise four categories, namely environmental, philanthropic, ethical, and economic responsibilities. When organizations try to meet these social responsibilities, they will bring improvement in the policies, business planning, and strategies, thus making the act of improved sustainability. Thus, social responsibilities are believed to assist in the achievement of sustainable business goals. The result is also supported by Xia et al. (2018) who

Table 3. Cross-loadings.

	CG	ER	SC	SDG	SR	TA
CG1	**0.717**	0.301	0.138	0.259	0.201	0.275
CG10	**0.835**	0.300	0.105	0.114	0.138	0.116
CG11	**0.875**	0.350	0.199	0.224	0.218	0.180
CG12	**0.868**	0.324	0.162	0.142	0.168	0.152
CG13	**0.832**	0.303	0.102	0.115	0.077	0.135
CG14	**0.854**	0.287	0.096	0.094	0.127	0.110
CG15	**0.770**	0.228	0.122	0.095	0.144	0.121
CG2	**0.813**	0.341	0.142	0.200	0.161	0.174
CG3	**0.729**	0.301	0.134	0.261	0.206	0.268
CG4	**0.872**	0.328	0.178	0.220	0.192	0.152
CG5	**0.853**	0.317	0.149	0.140	0.164	0.144
CG6	**0.824**	0.299	0.099	0.106	0.087	0.147
CG7	**0.851**	0.298	0.105	0.110	0.130	0.105
CG8	**0.770**	0.230	0.118	0.104	0.135	0.119
CG9	**0.859**	0.324	0.157	0.147	0.172	0.152
ER1	0.256	**0.737**	0.169	0.160	0.384	0.596
ER10	0.116	**0.745**	0.211	0.150	0.361	0.615
ER11	0.264	**0.726**	0.188	0.183	0.350	0.644
ER12	0.345	**0.898**	0.469	0.420	0.486	0.401
ER13	0.326	**0.916**	0.457	0.432	0.485	0.422
ER14	0.311	**0.895**	0.468	0.453	0.466	0.372
ER2	0.360	**0.897**	0.465	0.413	0.489	0.412
ER3	0.316	**0.911**	0.450	0.409	0.495	0.438
ER4	0.156	**0.765**	0.229	0.168	0.382	0.608
ER5	0.273	**0.727**	0.184	0.166	0.356	0.636
ER6	0.357	**0.902**	0.473	0.421	0.491	0.403
ER7	0.328	**0.914**	0.462	0.436	0.484	0.420
ER8	0.268	**0.825**	0.188	0.175	0.351	0.651
ER9	0.305	**0.896**	0.471	0.455	0.469	0.370
SC1	0.170	0.454	**0.953**	0.454	0.776	0.342
SC3	0.142	0.452	**0.830**	0.472	0.776	0.394
SC4	0.164	0.454	**0.951**	0.458	0.767	0.343
SC6	0.173	0.457	**0.954**	0.446	0.784	0.348
SC7	0.137	0.455	**0.828**	0.466	0.778	0.399
SC8	0.160	0.451	**0.953**	0.447	0.774	0.344
SDG1	0.257	0.325	0.279	**0.573**	0.307	0.218
SDG10	0.158	0.388	0.493	**0.788**	0.480	0.341
SDG2	0.140	0.422	0.446	**0.765**	0.483	0.343
SDG3	0.193	0.351	0.404	**0.841**	0.446	0.364
SDG4	0.173	0.324	0.245	**0.644**	0.273	0.243
SDG5	0.183	0.405	0.383	**0.809**	0.453	0.339
SDG6	0.136	0.314	0.398	**0.801**	0.390	0.323
SDG7	0.123	0.330	0.360	**0.783**	0.401	0.369
SDG8	0.155	0.341	0.403	**0.817**	0.443	0.363
SDG9	0.179	0.296	0.378	**0.804**	0.390	0.329
SR1	0.111	0.392	0.302	0.389	**0.713**	0.634
SR10	0.139	0.418	0.670	0.389	**0.766**	0.367
SR11	0.193	0.402	0.663	0.406	**0.750**	0.359
SR12	0.113	0.367	0.680	0.400	**0.807**	0.380
SR13	0.091	0.357	0.657	0.305	**0.763**	0.347
SR2	0.197	0.509	0.324	0.280	**0.829**	0.694
SR3	0.186	0.497	0.317	0.263	**0.826**	0.691
SR4	0.153	0.410	0.736	0.463	**0.821**	0.370
SR5	0.161	0.439	0.794	0.453	**0.857**	0.373
SR6	0.162	0.431	0.767	0.453	**0.848**	0.366
SR7	0.204	0.444	0.777	0.466	**0.802**	0.340
SR8	0.136	0.461	0.723	0.454	**0.800**	0.373
SR9	0.132	0.332	0.530	0.340	**0.697**	0.339
TA1	0.188	0.458	0.306	0.332	0.461	**0.849**
TA2	0.178	0.497	0.354	0.303	0.499	**0.832**
TA3	0.167	0.478	0.373	0.424	0.472	**0.880**
TA4	0.189	0.467	0.309	0.361	0.474	**0.818**

Source: Authors' estimation.

Table 4. Heterotrait Monotrait ratio.

	CG	ER	SC	SDG	SR	TA
CG						
ER	0.382					
SC	0.168	0.488				
SDG	0.204	0.452	0.527			
SR	0.201	0.636	0.785	0.570		
TA	0.208	0.738	0.434	0.467	0.663	

Source: Authors' estimation.

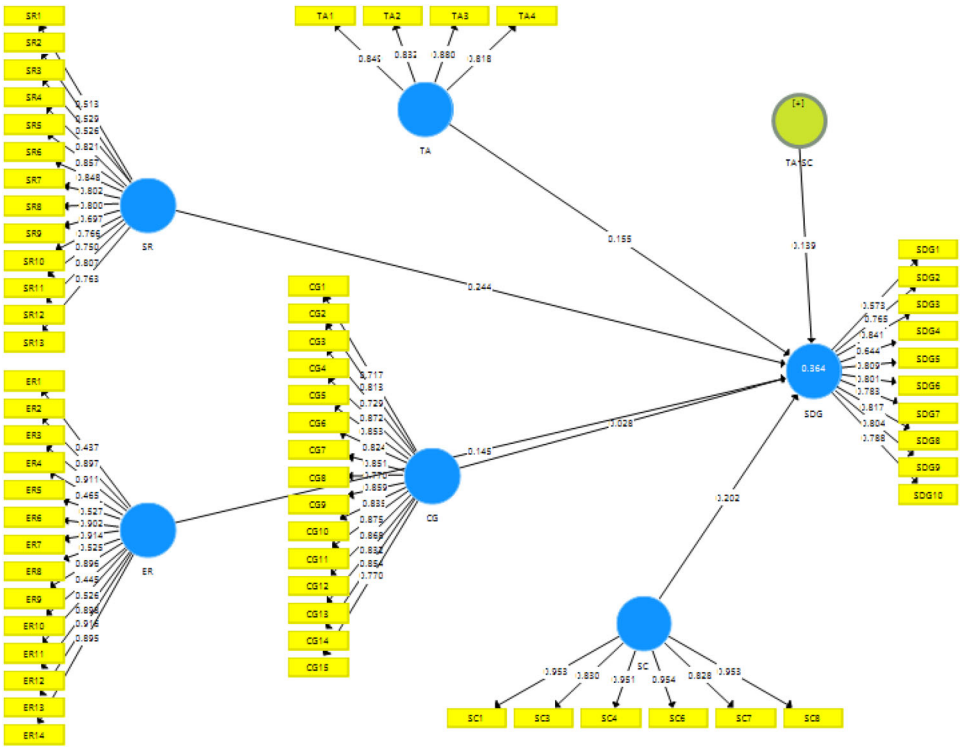

Figure 2. Measurement model assessment.
Source: Authors' estimation.

analyzed the impact of social responsibility on business performance in emerging economies. Their findings suggest that when business organizations have a sense of responsibility towards the society and take care of the environment, the heath of the people, the economic well-being of the society, and ethical interaction with the society, these organizations often have more ability to achieve sustainable development goals. This is also supported by Lu et al. (2018) who reported that when organizations attempt to meet their social responsibilities, they often will improve the quality of resources, technology, and energy resources so that the social requirements have good quality products at minimum prices, and they will also adopt social-friendly behavior while interacting with the customers. These initiatives help the organizations to create sustainability in their performance.

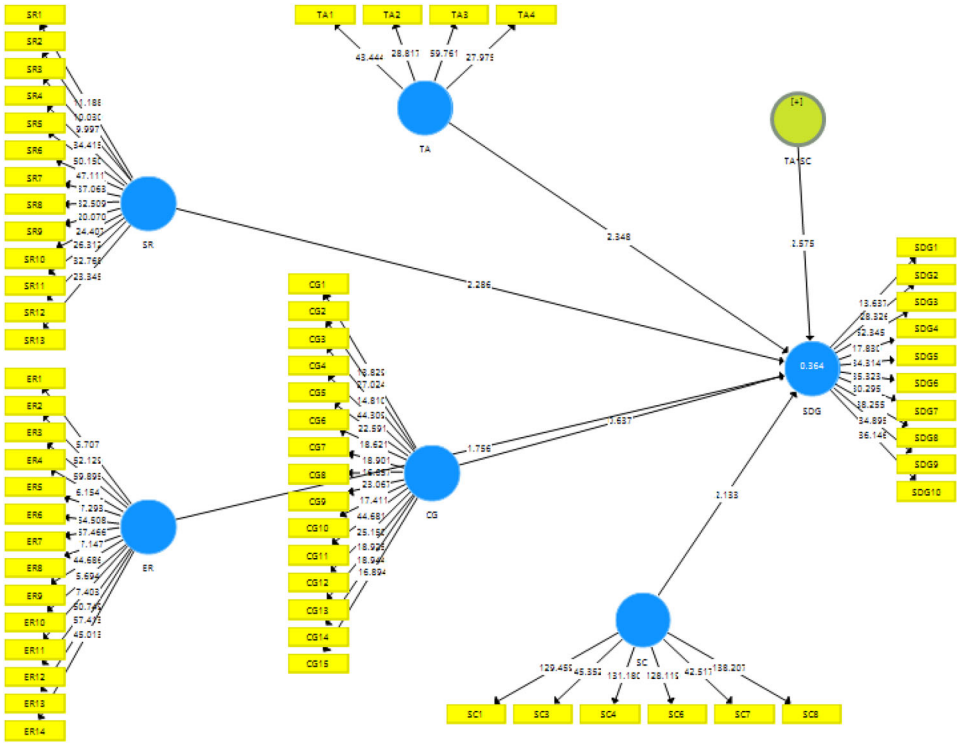

Figure 3. Structural model assessment.
Source: Authors' estimation.

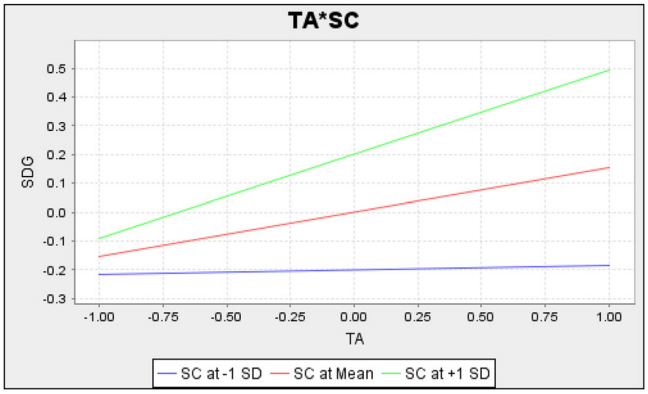

Figure 4. TA*SC.
Source: Authors' estimation.

The results of this study also suggest that the environmental responsibilities of business organizations have a positive association with sustainable development goals. This is in line with the previous study by Annan-Diab and Molinari (2017), which revealed that the organizational management's intention to meet the environmental responsibilities will motivate the managers to run ecological friendly programs within the organization. This results in sustainable environmental performance and assures

Table 5. Path analysis.

Relationships	Beta	S.D.	*T* statistics	*P* values	L.L.	U.L.
CG -> SDG	0.028	0.045	0.637	0.263	−0.042	0.103
ER -> SDG	0.145	0.082	1.756	0.041	0.022	0.260
SC -> SDG	0.202	0.095	2.133	0.018	0.022	0.345
SR -> SDG	0.244	0.107	2.286	0.012	0.088	0.433
TA -> SDG	0.155	0.066	2.348	0.010	0.039	0.257
TA*SC -> SDG	0.139	0.054	2.575	0.006	0.060	0.224

Source: Authors' estimation.

Table 6. R square.

	R square	R square adjusted
SDG	0.364	0.35

Source: Authors' estimation.

the sustainability of natural resources and a healthy workforce, which make the organizational performance sustainable. The result is further supported by Silvestre and Ţîrcă (2019) who concluded that business organizations with a greater sense of responsibility towards environmental quality are more likely to achieve sustainable business performance as compared to those which ignore their environmental responsibilities.

It was also revealed in this study that corporate governance has an insignificant association with sustainable development goals. The result is supported by the recent study of Monteiro et al. (2019) which reported that when rules, practices, and processes are ineffectively imposed, it is unlikely for business organizations to have sustainable development goals. The result also agrees with the findings by Gangi et al. (2019) who found an insignificant relationship between corporate governance and sustainable development goals. Moreover, the present study has found that supply chain is a significant moderator between technological advancement and the achievement of sustainable development goals. Such finding agrees with Zhang et al. (2019) who propounded that when enterprises of a particular industry are associated within a supply chain, they often have more chances to bring advancement in the technology used for business operations, production, and marketing processes. As a result, they are in a better position to achieve sustainable development goals. Similar finding is also advocated by Dobrotă and Dobrotă (2018) who found that the integration of organizations within the supply chain strengthens the impact of technological advancement on sustainable business development goals.

The present study also indicates that supply chain is a significant moderator between social responsibilities and the achievement of sustainable development goals. Such finding agrees with the past study by Grover et al. (2019), which stated that the integration of business firms within the supply chain helps them to build good relations with the stakeholders while taking care of the social well-being of the people, thus prompting them to achieve high sustainable economic growth. Furthermore, our study also revealed that supply chain is a significant moderator between environmental responsibilities and the achievement of sustainable development goals. Such result agrees with Bebbington and Unerman (2018) who reported that effective management of the supply chain assists the chain nodes in

getting higher environmental performance and achieving sustainable development goals. In this way, supply chain improves the role played by the environmental performance of chain nodes in obtaining sustainable development goals. It was also found that supply chain is a significant moderator between corporate governance and the achievement of sustainable development goals. This result supports the findings by Ilyas et al. (2020) where the integration of firms within the supply chain often eases the corporate governance, thus proving helpful to achieve sustainable development goals.

6. Theoretical implications

This study offers significant theoretical contribution to the business sustainability literature. This is because investigation on the four indicators of sustainable business development goals (i.e., technological advancement, social responsibilities, environmental responsibilities, corporate governance) and its contribution to the development of sustainable development goals has a significant place in the body of literature. To date, scarce studies have addressed a maximum of two of the abovementioned factors as the contributors towards achieving sustainable business goals. Moreover, this study has explored the moderating influence of supply chain on the nexus between technological advancement and sustainable development goals. This serves as a significant contribution to the literature as most past studies have discussed the influence of supply chain either on technological advancement or on the achievement of sustainable development goals. However, not many research has looked on the moderating effects of supply chain on the association between technological advancement and the achievement of development goals.

7. Empirical significance

The major source of environmental pollution is the human beings themselves, their movements, as well as their domestic and economic activities. In this regard, environmental pollution has shown a parallel increase with industrialization and the increase in population. This imposes a significant threat to the sustainability in social progress and economic development. In response to the issue, many sustainable development goals have been set to achieve sustainable economic performance and social progress. The objective of sustainable development goals is the social, environmental, and economic well-being of people both in the present and future. The study also has prominent empirical significance in the emerging economy of Vietnam as it assists towards promoting the sustainable development of local SMEs. The findings reported in this study can serve as a guide for business managements on how to design their policies in order to be able to achieve sustainable development goals. This study posits that sustainable development goals can be achieved in an effective manner with advancement in technology, attention to social and environmental responsibilities, and effective corporate governance. Furthermore, our findings also suggest that the effective integration of firms within the supply chain and the effective performance of supply

chain management is helpful in making and implementing policies for technological changes, meeting social and environmental responsibilities, and corporate governance.

8. Conclusion

The purpose of the study is to examine how technological advancement, social responsibilities, environmental responsibilities, and corporate governance influence the achievement of sustainable development goals in SMEs. The main objective is to explore the moderating influence of supply chain towards the nexus between technological advancement and sustainable development goals. For this purpose, this study had conducted a research involving local SMEs within the economy of Vietnam to analyze the degree to which technological advancement, social responsibilities, environmental responsibilities, and corporate governance influence the companies' sustainable development goals. The research also looked on the influence of supply chain on the relationship between technological advancement and the achievement of sustainable development goals. The results indicate that advancement in technology brings sustainability to business development. It was found that enterprises that show a great sense of responsibility towards the social welfare often keep their operations pollution-free and create agility in their operations. Our results also indicate that the enterprises show great responsibility towards environmental health, which help them to develop sustainability in productivity, marketing, and financial performance. Moreover, if the rules, practices, and processes to govern and control the enterprise are not effectively implemented, the enterprises cannot effectively achieve sustainable development goals. Finally, the study concluded that sustainable development goals are more likely to be achieved with technological advancement, social responsibilities, environmental responsibilities, and corporate governance, only if the respective business firms are effectively integrated and collaborated within the supply chain.

9. Limitations and future direction

The current study has certain limitations that should be addressed by future researchers. First, this study has only addressed the four factors of technological advancement, social responsibilities, environmental responsibilities, and corporate governance, and its contribution to sustainable business development. This places a limitation to the scope of the study as it has excluded various other economic, geographical, and managerial factors that also have a prominent influence on the achievement of sustainable development goals. Furthermore, the data on technological advancement, social responsibilities, environmental responsibilities, corporate governance, supply chain, and sustainable development goals were extracted through a single data collection source. This gives limited supportive data and leaves a chance of the question to the validity of the study.

Considering the need to address the above limitations, future researchers are recommended to change their point of view and expand their scope of study. Future studies can also investigate the affecting economic, geographical, and managerial factors along with technological advancement, social responsibilities, environmental

responsibilities, and corporate governance while analyzing the achievement of sustainable development goals. Moreover, as the quantitative data on the constructs under investigation were collected through a questionnaire and might create a lack of validity, it is recommended for future studies to use multiple sources for data collection.

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