

Driving Business Success: Unraveling the Fourth Industrial Revolution and Competitive Strategies in ASEAN Economies

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Abstract

Ease of doing business and effective management practices are significant growth drivers. It is long recognized that technological innovation and competitiveness are leading factors that impact activities related to the management of business processes. For this purpose, we study the effect of Industry 4.0 and competitiveness on ease of doing business and management practices in ASEAN countries. Components of comprehensive development index” developed by the author from secondary data collected from the World Economic Forum and World Development Indicators (WDI) from 2010 to 2019. The researchers used the Generalized Method of Moments (GMM) and the Random Effects to assess the relationships among these variables. The results indicate a positive and significant relationship between Industry 4.0—measured by medium- and high-technology industries and exports—and competitiveness, as reflected in the global competitiveness index, with the ease of doing business in ASEAN countries. These findings offer important insights for policymakers in formulating strategies for ease of doing business, Industry 4.0, and competitiveness.

Keywords: *Ease of Doing Business, Business Management, Competitiveness, Industry 4.0, ASEAN Countries*

INTRODUCTION

Industry 4.0, or the Fourth Industrial Revolution, originated in Germany and, although defined in various ways by different scholars, is widely acknowledged as a key driver of industrial business transformation (Ghobakhloo & Iranmanesh, 2021; Stentoft & Rajkumar, 2020). The term is most frequently associated with modern technology, digitalization, and robotization (Amjad et al., 2020). Currently, technological changes significantly impact both individuals and industries. These advancements present opportunities and challenges, fundamentally reshaping the global industrial landscape, particularly in the manufacturing sector (Sharma et al., 2020).

According to Bag & Pretorius, 2020, they pointed out that Industry 4.0 enables the automated and self-optimized production of goods and services through digital connectivity, with minimal human intervention. It incorporates self-adapting production systems that function based on transparency and predictive analytics. Decentralized control mechanisms manage value networks, allowing components such as manufacturing plants and transport vehicles to make autonomous decisions. The integration of Industry 4.0 with business management is crucial, as technological advancements have become essential for businesses globally. As global competition intensifies, organizations strive to gain a competitive edge and expand their market share. Competitiveness, driven by global factors and economic growth, is central to this endeavor. Industry 4.0 has already significantly transformed businesses and organizations across ASEAN countries (Govindaraju, 2020; Riadi, 2020).

A substantial body of research links the ease of doing business to economic development and business success. For instance, Djankov, McLeish, and Ramalho (2006) argue that regulatory reforms to simplify business processes significantly boost economic growth. Their study shows that reduced regulatory burdens allow businesses to allocate more resources to core activities, thus fostering expansion and innovation. Similarly, Klapper, Laeven, and Rajan (2006) found that reducing entry barriers for businesses leads to higher rates of firm formation, suggesting a direct relationship between business regulations and entrepreneurial activity.

Moreover, the World Bank's annual "Doing Business" reports have consistently highlighted that economies with streamlined business regulations—characterized by lower costs and simpler compliance processes—

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exhibit higher levels of private sector investment and innovation (World Bank, 2020). This correlation points to the importance of an environment that allows businesses to operate with minimal regulatory friction.

The ASEAN region has seen remarkable economic growth over the past few decades, partly attributed to its collective efforts to improve the ease of doing business. The ease of doing business is integral to fostering a conducive environment for investment, entrepreneurship, and cross-border trade, all contributing to economic growth. A favorable business environment tends to attract greater investor interest. The World Bank's annual *Doing Business* reports consistently show that several ASEAN countries, such as Singapore, Malaysia, and Thailand, rank highly in terms of ease of doing business, driven by efficient business registration processes, favorable investment policies, and robust digital infrastructures (World Bank, 2020). These countries have implemented systematic reforms to streamline procedures for starting a business, dealing with permits, accessing credit, and resolving insolvency. Singapore consistently ranks as one of the world's easiest places to do business due to its streamlined regulatory processes, strong legal framework, and digital government services (World Bank, 2020). Malaysia and Thailand have also made significant strides by implementing reforms in areas like tax payments, investor protection, and business registration.

Meanwhile, countries such as Indonesia, Vietnam, and the Philippines have improved considerably in recent years by simplifying administrative procedures and adopting digital solutions for business processes (ASEAN Secretariat, 2022).

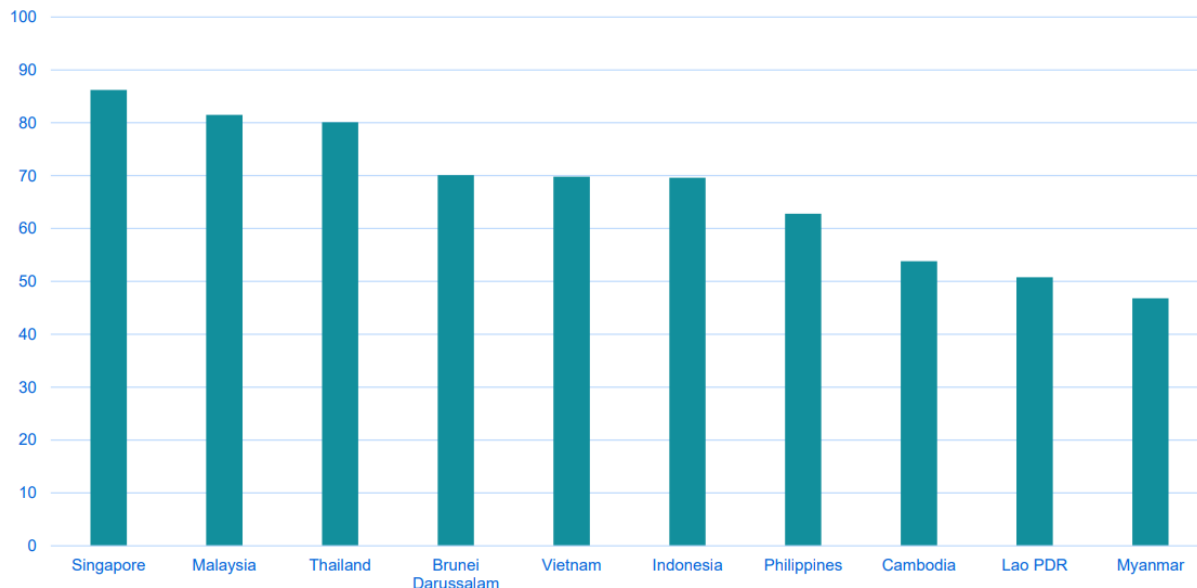


Figure 1: ASEAN countries ease of doing business scorecard 2020

Source: EASE OF DOING BUSINESS IN ASEAN by World Bank Group

https://web.iaiglobal.or.id/assets/files/file_publicasi/EoDB%20in%20ASEAN%20Presentation_SAGITA%20MUCO.pdf

Investor interest in ASEAN economies can be evaluated using their index ratings, with higher ratings indicating greater attractiveness to investors. Singapore, for example, emerges as a prime location for technology businesses due to its substantial business exports within the ASEAN region. However, the COVID-19 pandemic has drastically altered global business dynamics, significantly affecting the ease of doing business (McGrath, Brenner, & Warrillow, 2020). Prior to the pandemic, Industry 4.0 leaders focused on gaining a competitive edge, enhancing productivity, reducing costs, ensuring sustainability, and fostering innovation to improve the efficiency of well-established enterprises. Currently, however, many companies prioritize survival and mitigating the negative impacts of the pandemic. The resulting financial crisis has led to significant cuts in non-essential spending and reduced investments. Consequently, many planned investments in Industry 4.0 are being postponed as they are deemed non-essential in the context of the crisis (Jerry & Robert, 2020). This

situation raises important research questions, such as whether leading manufacturers should continue investing in Industry 4.0, its relevance, and future prospects.

The existing literature reveals several gaps in the study of Industry 4.0: 1) Industry 4.0 is frequently associated with supply chain management (Fatorachian & Kazemi, 2021), but there is limited evidence exploring its relationship with overall business management; 2) while some research examines Industry 4.0 within the ASEAN context (Riadi, 2020), there is a scarcity of studies investigating its connection to the ease of doing business; 3) despite extensive research on competitiveness (Dvorsky et al., 2020; Kiseľáková et al., 2019), it has not received the comprehensive attention it merits; 4) the interplay between Industry 4.0, competitiveness, and the ease of doing business in the ASEAN region remains underexplored; and 5) there is a need to investigate how the COVID-19 pandemic has impacted the relationship between Industry 4.0 and business operations.

This study seeks to address these gaps by 1) examining the effects of Industry 4.0 and competitiveness on the ease of doing business in ASEAN countries; 2) providing insights for the manufacturing industry on the potential benefits of implementing Industry 4.0; 3) exploring the influence of competitiveness on overall business management; 4) offering Industry 4.0 professionals a deeper understanding to support informed decision-making; and 5) highlighting the importance of Industry 4.0 in the current business landscape.

The structure of this paper is as follows: the next section reviews existing literature on the ease of doing business, competitiveness, and Industry 4.0. The third section outlines the methodology for collecting and validating data on these variables. The fourth section compares the study's findings with those of other authors to provide validation. The paper concludes with a discussion of the implications, conclusions, and recommendations for future research.

LITERATURE REVIEW

Industry 4.0 has initiated a new era for nations and societies, creating numerous opportunities for governments, businesses, and individuals. These opportunities have contributed to addressing longstanding geopolitical and inequality challenges. In the ASEAN region, efforts to reduce inequalities have enhanced the ease of doing business. Industry 4.0 has introduced new pathways for business management and elements of competitiveness. For example, Savelyeva, Kuklin, Lapteva, and Malysheva (2019) examined how a machine-to-machine communication alert system improved monitoring and performance in the manufacturing sector.

The integration of Industry 4.0 and competitiveness presents both positive and negative implications for emerging businesses. The adverse effects of globalization remain a concern for global leaders, emphasizing the need for innovative solutions that leverage medium- and high-technology industries and exports. Critical components that enhance the ease of doing business include agility, technological innovation, flexibility, and skilled human capital, collectively driving economic success in ASEAN economies. Kuo, Hsu, Li, and Chao (2021) used regression analysis with various competitiveness indicators, demonstrating that improvements in competitiveness can attract investments in new businesses.

Industry 4.0 has significantly transformed the business environment in ASEAN countries, surpassing the capabilities of its predecessor, Industry 3.0. It utilizes interconnected production systems and automation, reducing reliance on human labor. Bal and Erkan (2019) investigated macroeconomic conditions, infrastructure, and innovation skills to understand investment trends and the role of Industry 4.0 in promoting ease of doing business. Key components of Industry 4.0, including extensive data management, augmented reality, integrated systems, and autonomous robotics, have positively influenced business practices, creating a favorable environment for starting and managing new enterprises.

Competitiveness and Industry 4.0 are intrinsically linked in promoting the ease of doing business. Torkanovskiy (2021) assessed the impact of new technologies on business competitiveness using both statistical and theoretical methods, revealing that these technologies enhanced national competitiveness within economic and business organizations. Unlike previous industrial revolutions, Industry 4.0 strengthens ongoing advancements rather than merely triggering economic, social, or political booms. Essential factors such as medium- and high-technology industries, exports, global competitiveness, and economic growth play a crucial role in shaping business operations, especially amidst the challenges faced by emerging and future businesses.

Medium- and high-technology industries, as integral aspects of Industry 4.0, offer significant opportunities to facilitate the ease of doing business, despite typically involving higher research and development costs. ASEAN countries heavily rely on these industries, contributing substantially to their economies. Wolfe and Patel (2021) analyzed the performance of technology industries, showing that changes in performance impact business startups and the ease of conducting business. Furthermore, Cunningham and Menter (2021) highlighted the role of advanced policies and technological transformation in fostering entrepreneurship, focusing on the German Excellence Initiative. Their findings suggest that integrating technology into entrepreneurial efforts improves outcomes and supports ongoing business operations.

Studies have also explored the interplay between market structure, innovation, and technology. Doshi, Kelley, and Simmons (2019) found that innovation in high- and medium-technology firms significantly enhances business performance. The emphasis on research and development in technology exports has opened vast opportunities for entrepreneurs and new businesses within ASEAN nations. Hayduk (2020) investigated the relationship between economic growth and high- and medium-technology exports, finding a strong connection between entrepreneurial efforts and optimal trade outcomes. Similarly, Dinh, Ngo, and Nguyen (2021) examined the impact of medium- and high-technology exports on energy consumption in ASEAN businesses, identifying a significant positive association with renewable energy use.

The global competitiveness index serves as a key indicator of business mobility in ASEAN countries, encompassing elements such as innovation capacity, market size, and technological adaptation. Athari, Shaeri, Kirikkaleli, Ertugrul, and Ozun (2020) found that global competition significantly influences economic development and the ease of doing business. Loo and Iqbal (2019) also evaluated business opportunities in BRIC countries, emphasizing that sustainable growth is achievable through a competitive approach. Other studies, such as Loo (2018), explored global competitiveness as a critical factor in promoting trade and business opportunities between Canada and ASEAN countries.

Economic development is closely linked to the business environment, with factors such as funding, infrastructure, and regulation affecting the ease of doing business in ASEAN. Ncube, Soonawalla, and Hausken (2021) connected business environments to social and economic variables, highlighting that improvements in these areas significantly facilitate business operations. Iddrisu and Bokpin (2018) analyzed the effects of economic performance on ease of doing business, finding that robust economic conditions positively impact business facilitation. Research by Visvizi, Lytras, Damiani, and Mathkour (2018) identified strategic policies and innovations for smart cities as essential in fostering new business concepts and promoting sustainable development.

In summary, Industry 4.0, competitiveness, and ease of doing business are interconnected factors driving economic growth, particularly in ASEAN countries. The ongoing transformation driven by Industry 4.0, alongside enhanced global competitiveness, provides new opportunities for businesses, entrepreneurs, and policymakers aiming to improve business environments and navigate the complexities of an increasingly global market.

METHODOLOGY

The research investigates the impact of Industry 4.0 and competitiveness on the business management of the ASEAN countries. The researchers have selected secondary data sources for the collection of the data. The data were extracted from the World Economic Forum and WDI from 2010 to 2019. The equation of the study is given below:

$$EDBI_{it} = \alpha_0 + \beta_1 MHTI_{it} + \beta_2 MHTE_{it} + \beta_3 GCI_{it} + \beta_5 EG_{it} + e_{it} \quad (1)$$

Where;

EDBI = Ease of Doing Business Index

i = Country

t = Time Period

MHTI = Medium & High Technology Industry

MHTE = Medium & High Technology Export

GCI = Global Competitiveness Index

EG = Economic Growth

The researchers have taken business management as the dependent variable and measured it as the ease of doing business index. In addition, the current study has taken two predictors such as industry 4.0, and measured the medium & high technology industry (% manufacturing value-added) and medium & high technology export (% manufactured exports). In contrast, competitiveness is measured as the global competitiveness index. Finally, economic growth is used as the control variable and measured as the GDP growth (annual %). Table 1 shows the measurements of the constructs.

Table 1: Measurements of variables

S#	Variables	Measurements
01	Business Management	Ease of doing business index
02	Industry 4.0	Medium & high technology industry (% manufacturing value-added) Medium & high technology export (% manufactured exports)
03	Competitiveness	Global competitiveness index
04	Economic Growth	GDP growth (annual %)

The descriptive statistics of the study show the total observation and also show the standard deviation and mean values. In addition, descriptive statistics also show the minimum and maximum values of all the constructs. Moreover, the correlation matrix has also shown the correlation among the variables. It shows the direction of the nexus but not the significance. The current study has also investigated multicollinearity with the help of variance inflation factor (VIF). If the values are more than five, then multicollinearity exists, but if values are less than five, there is no multicollinearity issue. Additionally, the study has used the Hausman test to extract the suitable model among random and fixed models. If the probability value is less than 0.05, then the fixed model is suitable, but if the probability value is more than 0.05, then the random model is appropriate. In addition, the study used the REM to test the relationships between the constructs. The equations for REM are given below:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \varepsilon_i + u_{it} \quad (2)$$

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + w_{it} \quad (3)$$

The equation (3) $w_{it} = \varepsilon_i + \mu_{it}$ and ε_i shows the “individual-specific error component”, and μ_{it} shows the “time-series error component”. REM, also called a “variance components model”, is a statistical model in which parameters are random variables. REM is a kind of “hierarchical linear model” that assumes the data being analyzed are drawn from different populations whose differences are according to that hierarchy. The REM equation by adding the constructs used by the researchers is given as follows:

$$EDBI = \beta_1 + \beta_2 MHTI_{it} + \beta_3 MHTE_{it} + \beta_4 GCI_{it} + \beta_5 EG_{it} + w_{it} \quad (4)$$

Finally, GMM was used to test the relations among the constructs because the model has “heterogeneity issues”. GMM evaluations can be recognized by any set of moments from the data. In addition, the moments are considered as the parameters to evaluate, and moments are independent enough to “identify the parameters”. The GMM equation is mentioned below:

$$Y_{it} = \delta Y_{i,t-1} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + u_{it} + \varepsilon_{it} \quad (5)$$

GMM model is also considered the best estimation when autocorrelation and heteroscedasticity issues are present. The GMM equation with understudy variables is given as under:

$$EDBI_{it} = \delta CE_{i,t-1} + \beta_1 MHTI_{it} + \beta_2 MHTE_{it} + \beta_3 GCI_{it} + \beta_4 EG_{it} + u_{it} + \varepsilon_{it} \quad (6)$$

RESEARCH FINDINGS

The descriptive statistics show the total observation and the standard deviation and mean values. In addition, descriptive statistics also show the minimum and maximum values of all the constructs. The results indicated that the mean value of EDBI is 97.744, while the average value of MHTI is 1.156. In addition, the average value of MHTE is 8.712, while GCI means the value is 95.510, and the average value of EG is 5.625. Table 2 shows the figures of descriptive statistics.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EDBI	100	97.744	1.377	90.028	122.675
MHTI	100	1.156	0.112	0.905	1.532
MHTE	100	8.712	0.325	7.876	9.128
GCI	100	95.510	2.926	89.470	114.060
EG	100	5.625	0.392	4.308	6.399

The correlation matrix has also shown that it exposed the correlation among the variables. It shows the direction of the nexus but not the significance. The figures indicated that MHTI, MHTE, GCI, and EG have a positive association with EDBI. The results show that with a one percent change in MHTI, the EDBI will change by 0.351 in the same direction. Moreover, the figures also show that one percent change in MHTE, the EDBI will change by 0.110 in the same direction. In addition, one unit increase in GCI will increase the EDBI by 0.249 units, and if there is a one percent increase in EG, then the EDBI will also increase by 0.273 percent. Table 3 shows the correlation matrix.

Table 3: Correlation matrix

Variables	EDBI	MHTI	MHTE	GCI	EG
EDBI	1.000				
MHTI	0.351	1.000			
MHTE	0.110	0.208	1.000		
GCI	0.249	0.405	-0.044	1.000	
EG	0.273	-0.065	-0.097	0.265	1.000

The current study has also investigated multicollinearity with the help of VIF. If the values are more than five, then multicollinearity exists, but if values are less than five, there is no multicollinearity issue. The figures indicated that VIF values are less than five and that no multicollinearity is exposed in the model. Table 4 shows the VIF.

Table 4: Variance inflation factor

	VIF	1/VIF
GCI	1.353	0.739
MHTI	1.317	0.759
EG	1.120	0.893
MHTE	1.069	0.935
Mean VIF	1.215	.

The study used the Hausman test to extract suitable models from random and fixed models. If the probability value is less than 0.05, then the fixed model is suitable, but if the probability value is more than 0.05, then the random model is appropriate. The results indicated that the probability value is more than 0.05, which shows REM is suitable. Table 5 shows the Hausman test.

Table 5: Hausman specification test

Coef.

Chi-square test value	7.38
P-value	0.117

REM results revealed that industry 4.0 (medium & high technology industry and medium & high technology exports) and competitiveness (global competitiveness index) positively and significantly associated with the ease of doing business or business management of the ASEAN countries. The results show that a one percent change in MHTI will change the EDBI by 1.767 in the same direction. Moreover, the figures also show that one percent change in MHTE, the EDBI will change 1.221 in the same direction. In addition, one unit increase in GCI will increase the EDBI by 1.015 units, and if there is a one percent increase in EG, then the EDBI will also increase by 0.312 percent. Finally, the R square value indicated that 47.5 percent of changes in EDBI are due to all selected predictors. Table 6 shows the REM results.

Table 6: Random effect model (REM)

EDBI	Beta	S.D.	t-value	p-value	L.L.	U.L.	Sig
MHTI	1.767	0.363	4.86	0.000	1.055	2.479	***
MHTE	1.221	0.494	2.47	0.015	0.600	1.159	**
GCI	1.015	0.461	2.20	0.022	0.103	1.134	**
EG	0.312	0.134	2.34	0.019	0.050	0.574	**
Constant	3.158	1.467	2.15	0.034	0.034	1.717	**
Overall r-squared		0.475	Number of obs		100		
Chi-square		31.650	Prob > chi2		0.000		
R-squared within		0.576	R-squared between		0.464		
*** $p < .01$, ** $p < .05$, * $p < .1$							

The results of the GMM model revealed that industry 4.0 (medium & high technology industry and medium & high technology exports) and competitiveness (global competitiveness index) have a positive and significant association with the ASEAN countries' ease of doing business or business management. The results show that by one percent change in MHTI, the EDBI will change 2.143 in the same direction. Moreover, the figures also show that one percent change in MHTE, the EDBI will change 1.668 in the same direction. In addition, one unit increase in GCI will increase the EDBI by 1.068 units, and if there is a one percent increase in EG, then the EDBI will also increase by 0.766 percent. Table 7 shows the GMM results.

Table 7: Generalized method of moments (GMM)

EDBI	Beta	S.D.	t-value	p-value	L.L.	U.L.	Sig
MHTI	2.143	0.383	5.59	0.000	1.382	2.904	***
MHTE	1.668	0.445	3.75	0.006	0.552	1.215	**
GCI	1.068	0.082	13.02	0.000	0.232	6.095	***
EG	0.766	0.214	3.57	0.001	0.340	1.192	***
*** $p < .01$, ** $p < .05$, * $p < .1$							

Discussion and Implications

The study results have indicated that the medium and high technology industry, the consequence of Industry 4.0, has a positive association with the ease of doing business. The study results are in line with the previous study of Ramingwong, Manopiniwes, and Jangkrajarn (2019), which analyzes the revolution brought by the 4.0 industry in the business world. This study examines that with the Industrial 4.0 revolution, the use of medium and high technology increased in the industries to facilitate the business processes in the concerned business units. These results are also supported by the previous study of Bilgen (2021), which states that when the organization focuses on the need to change the old machinery or plants, which also need manual efforts, and replace them with medium and high technology, they can save money, time, efforts, and achieve business effectiveness. The study results have also indicated that the medium & high technology exports in the industry 4.0 have a positive association with the ease of doing business. The study results align with Kraus and Kraus's previous study, which examines the evolution in technology over the years and checks its influences on business management. The study reveals that with the evolution of Industrial 4.0, there is the production of medium

and high digital technologies, and its exports to foreign nations, which are needed, increase the source of foreign revenues and investment in domestic businesses. These results are approved by the literary work of Iyer (2018). This study examines the economy where the business organization has the tendency to produce medium or high technology or its parts and to sell it not only in the national market but also in the international market can create convenience for the business enterprises to which the technology is sold and give them a chance to get business effectiveness.

The study results have revealed that global competitiveness has a positive association with the ease of doing business. These results are supported by the previous study of Tan, Amri, and Merdikawati (2018b), which states that now, in this modern age, businesses have to face competition not only at the national but also at the international level. To stay in the international market and to prove its worth, the particular business organization has to maintain the quality of its resources, technology, material, products and services, so it focuses on the effectiveness of information and communication systems, research and development processes which create convenience in the business management. These results are also approved by the study of Tan, Gopalan, et al. (2018), which suggests that internal trade and global competitiveness encourage the domestic industries, whether they deal in manufacturing or trading of goods, to create dynamic capabilities in their personnel and improve the effectiveness of the technology and processes applied for undertaking business functions so the requirements of customers in the international market can be met. By doing so, the management creates convenience and agility in the business administration. The study results have revealed that economic growth has a positive relationship with the ease of doing business. These results are supported by the past study of Nawawi, Hanif, and Sholihah (2021), which states that a country's economic conditions and economic policies affect the business decisions, management, productivity, and marketing. If the economy has a high rate of growth, the business organizations are prosperous and have large financial resources. Thus, they can make an investment in technology and business processes to facilitate business management in different departments.

The present study has remarkable theoretical significance on account of the additions it makes to the literature based on business management. The study examines how the Industry 4.0 revolution, like the use of medium & high technology within the enterprises in industry and the export of medium & high technology, global competitiveness, and economic growth, can develop convenience in business management and lead the business towards success. Since the introduction of the Industry 4.0 concept, many researchers and scholars have paid attention to the contribution of this concept to the industrial world. Still, little attention has been given to the medium & high technology exports along with the use of medium & high technology in the industrial world. Our study removes this gap by analyzing the utility of Industry 4.0 in the business world with the measurement of the use of medium and high technology in the industry and the exports of medium and high technology. In addition, past studies may have addressed the industry 4.0 revolution along with the realization of business competitiveness while analyzing the business administration or effectiveness. However, there are few studies that analyze the direct impacts of global competitiveness on convenience in business administration, which our study does. This is the first time in this study that influences of industry 4.0 revolution, like the use of medium & high technology within the enterprises in industry and the export of medium & high technology, global competitiveness, and economic growth, on ease of doing business has been analyzed for the ASEAN economies. Thus, this study achieves a significant place in the literature. Besides the theoretical implications, this study also has great empirical significance. These outputs provided guidance to the policymakers while establishing policies related to the ease of doing business with reference to Industry 4.0 and competitiveness. This study is useful to economists and business management for it guides how to create convenience in performing business functions to achieve targets. The study highlights that the effective implementation of industry 4.0 business strategy and taking the global competitiveness in a positive manner, and high economic growth, business administration can be made easy.

CONCLUSION AND LIMITATIONS

In many developing economies, though they are industrialized, still improvement in the business administration is needed. Many business organizations were making rapid progress once, but as the changes occurred in technology and the industrial world did not keep pace with these changes and failed in the market. The aim of our study was to elaborate industry 4.0 revolution and increasing global competitiveness and their contribution to the business administration and effectiveness. The study also analyzes the industry 4.0 revolution and the competitiveness with the consideration of economic growth. The study analyzed the contribution of the industry 4.0 revolution, like the use of medium & high technology within the enterprises in industry and the export of medium & high technology, global competitiveness, into the ease of doing business in the economies of ASEAN countries. This empirical analysis assists in extracting results of the influences of the industry 4.0 revolution, like the use of medium & high technology within the enterprises in industry and the export of medium & high technology, global competitiveness, and economic growth on the business management. The study results indicated that the use of medium & high technology which can itself understands, communicate, or follow the instructions just like human workers, is useful in the business enterprises as in this way maximum products can be manufactured in minimum output without any break in business activities. The study results have also revealed that the Industrial 4.0 revolution led to the production of medium & high digital technology. Its exports to foreign countries, while needed, raise the source of foreign earnings and investment in domestic business organizations. The results also showed that the competitiveness both at the national and international level forces the commercial enterprises to make alterations in their policies, strategies and preferences to keep pace with the change in the market trends and customers wants.

The current study has certain limitations, which are expected to be removed with some specific contributions and intellectual efforts in future studies when there will be a need to extend or replicate this study. This study examines influences of only two factors, the industry 4.0 with the measurement of the use of medium & high technology within the enterprises in industry and the export of medium & high technology, and global competitiveness on the ease of doing business in the economies of ASEAN countries. However, there are many other factors like investment strategies, innovation, and organizational structure which have strong impact on the ease of doing business. Still, as these significant factors have been ignored, this study is not comprehensive. For a comprehensive study, the authors in future should not only rely on industry 4.0 and global competitiveness while analyzing the convenience in doing business. The validity of this study is based on the data which it takes from ASEAN economies for a limited time period. Thus, it is likely that the validity of the study would be questioned. Hence, it is recommended to the future authors that they must analyze the influences of industry 4.0 like the use of medium & high technology within the enterprises in industry and the export of medium & high technology, global competitiveness, on the ease of doing business for a longer period and in other than ASEAN economies.

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