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Abstract: The study examines the mediating role of competitive advantage among the JIT inventory system, customer involvement, supplier development, and manufacturing industry performance, and investigates the moderating role of institutional support among competitive advantage and manufacturing industry performance in the UAE. The study gathered data from employees of the manufacturing industry in the UAE using survey questionnaires. The study also used smart PLS to check the connections among the variables. The results reveal that the JIT inventory system, customer involvement, and supplier development are positively associated with manufacturing industry performance. The outcomes also revealed that competitive advantage significantly mediates the JIT inventory system, customer involvement, supplier development, and manufacturing industry performance, and institutional support significantly moderates competitive advantage and manufacturing industry performance. This study guides policymakers in formulating policies related to achieving industrial performance using an effective JIT inventory system, customer involvement, and supplier development.

Keywords: JIT inventory system; customer involvement; supplier development; competitive advantage; manufacturing industry performance.

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1 Introduction

In the present advanced era, competition among different business organisations is emerging and becoming acute in any market. It is intriguing that businesses dealing with similar products or services are in a race in the market. Organisations must struggle during this competition to win and exceed their rivals. To grow in the market in the presence of a large number of rival businesses, firms need to exhibit higher business performance, which catches potential customers (Wijaya and Suasih, 2020). Business performance is the firm's ability to exploit existing resources optimally to achieve its goals, keeping them aligned with customer demands. In the words of Haseeb et al. (2019), business performance is essentially the outcome of the firms' competitiveness, effectiveness, and efficiency in its procedural and structural components. They maintain that evaluation, piloting, efficiency, effectiveness, and quality determine firms' business performance. Firms with the best quality resources (informational, financial, physical, and human), effective integration of resources, high managerial talent, effective business processes, large marketing, high productivity, and large profits show better performance, and vice versa. Business performance includes all types of performance, such as financial, operational, production, and environmental (Hameed et al., 2021). The contribution of business performance to a country's economic growth is a topic worth exploring.

Lean management, that is, optimising process effectiveness by reducing time on non-value-adding activities (excessive transportation, operations, overproduction, waiting, etc.), tasks causing poor quality, and creating complications, enables a business firm to perform at an accelerating rate (Alkhaldi and Abdallah, 2019). Just-in-time (JIT) inventory systems, supplier development, and customer involvement are lean management practices. The JIT inventory system is an inventory management system in which the production process starts only when the demand for products arises. Here, inventory is not stored for long in advance, but a close relationship is developed with the suppliers, and inventory is acquired at the time of need. There is no sooner or later inventory that may cause waste or production problems. The JIT inventory system

operates with the goals of controlling production, reducing waste, upgrading efficiency, and increasing product compatibility with customers' expectations. This improves firms' performance by adding to their image in the market, increasing demand, and raising profits (Agyabeng-Mensah et al., 2020). Supplier development is a procedure consisting of evaluation, identification, and selection of the right suppliers to supply goods and services according to specific needs. It also includes a firm's contact and cooperation with suppliers to assist and motivate them to improve their products and services. Supplier development improves the quality of the raw materials and services used in business production and other operations. So, it leads to improvement in business performance (Uriona Maldonado et al., 2020). Customer involvement involves inviting and allowing customers to share their opinions and experiences with products and services from organisations and their expectations. This increases firms' access to quality information and improves their business performance (Baliga et al., 2020; Aljumah et al., 2023).

This study emphasises business performance in the UAE manufacturing industry. The UAE is economy lying at the 4th largest in the Middle East, just behind Turkey, Saudi Arabia, and Israel, with respect to gross domestic product (GDP), which is US\$498 billion in 2023. UAE surrounds different sectors like metal, rubber, chemical, petroleum, plastic, oil, food and many other manufacturing sectors. UAE is known as one of the top ten countries for its oil production. Abu Dhabi National Oil Company is famous as a global company for providing oil to its suppliers at a high level. It plays a significant part in increasing economic growth (Alefari et al., 2020). According to the International Trade Administration, the UAE produces 3.2 million barrels of oil daily and is trying to reach 5 million barrels of oil per day in 2030 to secure the future. It is recorded that UAE exports are based upon 40% of oil and gas of total exports, 28% of other metals, 9% of machines and 6% of transports of total exports. According to a survey, the GDP of the UAE manufacturing industry was USD 34.75 billion in 2020. UAE was recorded as the first manufacturing exporter in the Arab world in 2021. According to the Arab Monetary Fund, its total export value was \$142.6bn (Kurdi et al., 2023).

In the UAE, the manufacturing sector is expanding widely and is significant for meeting national and international needs and contributing significantly to economic growth. However, it is working lower than its potential, and the fulfilment of the needs of this industry's productivity is unsatisfactory (El-Khalil, 2022; Aljumah et al., 2023). There is a need to focus on manufacturing firms' business performance, and the present study takes steps forward to meet this need. The objective of the present study is to examine the influence of lean management practices, such as the JIT inventory system, supplier development, and customer involvement, on competitive advantages and business performance. It also examines the role of institutional support in the relationship between competitive advantages and business performance.

This study makes a significant contribution to the literature. First, in previous literature, the authors discussed the role of lean management or lean manufacturing in firms' business performance. Only a few studies have focused on lean management practices such as the JIT inventory system, supplier development, customer involvement, and their role in business performance. The present study, which investigates the impacts of lean management practices, such as the JIT inventory system, supplier development, and customer involvement on business performance, adds to the literature. Unlike previous literature, this study examines the mediating role of competitive advantages between the JIT inventory system, supplier development, customer involvement, and

business performance. Therefore, this study contributes to the literature. Moreover, this study examines the moderating role of institutional support between competitive advantage and business performance. Third, in the past literature, very few studies have checked the lean management influence on business performance in the UAE country. The present study, which collects evidence from the UAE to identify the relationship between the aforementioned factors, removes the literary gap (Nuseir and Refae, 2021; Alshawabkeh et al., 2021).

This paper is composed of several parts that are complete and distinctive. In Section 2, we review the literature and construct hypotheses regarding the relationship between the JIT inventory system, supplier development, customer involvement, competitive advantages, institutional support, and business performance. In Section 3, the processes used for the research are described briefly, and in the following section, the results of the hypothesised relationships were extracted from the analysis. In Section 5, the results are confirmed by a comparison with previous literature. The paper ends with implications, conclusions, and limitations.

2 Literature review

There is a long body of literature on the relationship between lean management and business performance. Different authors have examined the relationship between the JIT inventory system, supplier development, customer involvement, competitive advantages, institutional support, and business performance. The relevant literature is reviewed in the following paragraphs to construct hypotheses on the relationships between the JIT inventory system, supplier development, customer involvement, competitive advantages, institutional support, and business performance.

Under the JIT inventory system, raw material is acquired from the supplier when the management feels the need for production processes. No excess inventory is gathered in surplus amounts. Hence, management saves extra costs on inventory storage and helps eliminate waste, adding to business performance (Aljumah et al., 2020; Nugroho et al., 2020). Lee et al. (2022b) investigates the role of the JIT inventory system in business performance. The study population includes Malaysian manufacturing firms. After obtaining a minimal sample size of 43 manufacturing firms, 1,160 structured questionnaires were sent to firms through e-mail. And 63 responses were finalised as complete and usable. Partial least squares structural equation modelling (PLS-SEM) was used to assess the hypotheses. The results indicate that execution of the JIT inventory system improves business performance. Muchaendepi et al. (2019), if firms include policies to adopt a JIT inventory system; they may control their costs, assure the green quality of material, and respond exactly to customers' requirements. Thus, it improves the firm performance. Thus,

H1 JIT inventory system has a positive association with business performance.

In supplier development, processes such as monitoring, evaluation, quality assurance, and delivery assessments are performed. Therefore, contact with the best suppliers is developed and design is brought into the suppliers' products and services. Firms that conduct supplier development procedures thoroughly and achieve their objectives can implement innovative business strategies efficiently and produce goods/services according to market trends and customer requirements. Hence, firms may raise their

marketing for their products and increase their business performance (Valente et al., 2020; Nuseir et al., 2023). When business firms have a policy for supplier development, they can encourage suppliers to provide quality products and services that serve as raw materials and infrastructure for the firms. As a result of using high-quality raw materials, firms can attain higher production and marketing performance (Aljumah et al., 2022a, 2022b; Gu et al., 2021). Benton et al. (2020) examined the association between supplier development and business performance. The research population was decided to come from first-tier North American automotive suppliers, and 141 suppliers were the target. Structural equation modelling (SEM) was used to examine the research hypotheses and confirm or reject them. This study posits that supplier development contributes significantly to firms' operational and financial performance. Hence, it can be said:

H2 Supplier development has a positive association with business performance.

Some firms allow customer involvement through various communication media. Customer involvement increases knowledge of customer requirements. Acquired knowledge is used to make slight changes in resources, resource integration, and customer services. Consequently, firms offer better quality products and services in the market. It enables firms to increase their marketing and improve their financial performance (Wang et al., 2020; Aljumah et al., 2022a, 2022b). Zhang and Xiao (2020) investigate the role of customer involvement in B2B product innovation and business performance. The emphasis of this study is B2B product innovation. We used a web-based questionnaire to test this hypothesis. The unit of analysis was a B2B product innovation project. The data were acquired from 141 B2B product innovation projects carried out by firms in the US over the past three years, and the respondents were those who had management positions. The results indicate that when firms encourage customer involvement, they may make their new products go through the customer experience and gain popularity among potential customers. Hence, they can improve their marketing performance. Therefore, it can be hypothesised that

H3 Customer involvement has a positive association with business performance.

Competitive advantages enable firms to outperform their rivals. Competitive advantages may be in the form of outstanding strategies, moods of business, resources, and production that put the firm next to its rivals (Mondol, 2021; Nuseir et al., 2021). Firms that adopt the JIT inventory system may form inventory management and production systems to free themselves from waste and material spoilage. It provides a competitive advantage in the form of eco-friendly products and satisfies customer environment-friendly requirements. Hence, there is higher business performance, and competitive advantage mediates between the JIT inventory system and business performance (Marodin et al., 2019). Aityassine et al. (2021) examine the impacts of the JIT inventory system, green supply chain management, competitive advantages, and business performance. All the manufacturing firms in Jordan were included in this study. A total of 218 registered firms in the manufacturing industry were selected as the research sample. Path Analysis was employed to complete the analytical procedure and test the hypotheses. This study posits that the effective implementation of the JIT inventory system helps gain a competitive advantage in the form of timely and high-quality product delivery. Thus, it may improve the firm performance. For this reason, the following can be said:

H4 Competitive advantage mediates the relationship between the JIT inventory system and business performance.

Under supplier development, firms develop such relationships with the supplier as they may gain according to market requirements, and the higher responsiveness to quality products serves as a competitive advantage to attain higher performance (Adesanya et al., 2020). Subramaniam et al. (2020) integrates the relationship among supplier development, competitive advantages, and business performance. The research population consisted of multinational companies (MNCs) in Malaysia registered in the Federation of Malaysia Manufacturers' Directory 2017. The data for the selected factors were acquired from 141 MNCs through a complete set of questionnaires. For data analysis, the PLS-SEM technique was applied. The results reveal that firms following the supplier development approach can have greater competitive advantages, which further improves their business performance. Glavee-Geo (2019) identified the relationship between supplier development, competitive advantage, and business performance. The research model was tested using the PLS variance-based modelling technique, and a post-hoc analysis was conducted by applying the polynomial regression procedure. A survey based on the key informant approach was conducted on small-to micro-sized agro-commodity suppliers 444 times, and the desired data were acquired from those who knew about the financial and operational performance. Supplier development enables firms to achieve higher business performance to create competitive advantages. Therefore,

H5 Competitive advantage plays a mediating role between supplier development and business performance.

Competitive advantages are more valuable for improving a firm's ability to compete against rival firms and move forward by winning the market. If firms follow a customer involvement approach, they may ensure the achievement of competitive advantages, such as more efficient technology, effective business strategies, innovation in its resources, and eco-friendly products. When firms have competitive advantages, they set brand image and increase sales performance (Agrawal et al., 2022). Cheng and Shiu (2019) examined the role of customer involvement in competitive advantages and business performance using social media. It is a longitudinal study with a dataset spanning over three years, 2014–2016. Data on the research factors were collected from 976 SMEs. The data collection tools included structured questionnaires, 13 in-depth interviews, and telephone calls. The respondents belonged to management departments. The MPlus Exploratory SEM technique was used for the analysis. The research findings reveal that when supplier development is applied, firms may have competitive advantages, and different types of competitive advantages increase business performance.

H6 Competitive advantage plays a mediating role between customer involvement and business performance.

Business institutions, which are supportive of behaviours towards employees, customers, and other stakeholders, always try to be flexible in their policies and business strategies, as they feel needed. These firms may add value to the employed technologies, business infrastructure, raw materials, human resources, and business techniques. This results in the achievement of competitive advantages, and improvement is certain in business

processes, leading to improvement in business performance. Hence, institutional support strengthens the relationship between competitive advantage and business performance (Fatonah and Haryanto, 2022; Nuseir and Aljumah, 2020). Chatterjee et al. (2021) examines the relationship between institutional support, competitive advantage, and business performance. If there is support from institutions for employees, they are facilitated to perform their duties in their own departments. For this, ecologically friendly resources and technologies are replaced with old ones. This is one of the competitive advantages that lead a firm to show higher performance. Analysing the data from textile SMEs in Selangor Malaysia using SPSS, Udriyah et al. (2019) state that in the presence of institutional support, competitive advantage may play a key role in business performance. So,

H7 Institutional support is a moderator between competitive advantage and business performance.

3 Research methods

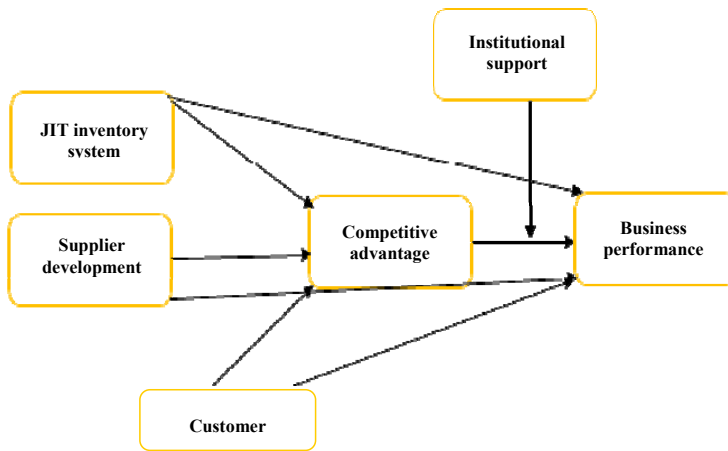
This study investigates the impact of the JIT inventory system, customer involvement, and supplier development on manufacturing industry performance and examines the mediating role of competitive advantage among the JIT inventory system, customer involvement, supplier development, and manufacturing industry performance, as well as the moderating role of institutional support among competitive advantage and manufacturing industry performance in the UAE. The study gathered data from employees of the manufacturing industry in the UAE using survey questionnaires. The study used the questions to measure the constructs such as JIT inventory system has four items taken from Mankazana and Mukwakungu (2018), customer involvement has five questions extracted from Gao et al. (2021), competitive advantage has six questions adopted from Singh et al. (2019), supplier development has four questions taken from Jean et al. (2010), institutional support has six items extracted from Islam and Ahmed (2018) and business performance has four questions adopted from Eiadat et al. (2008). The questions are listed in Table 1.

In addition, the employees of the manufacturing industry in the UAE were the respondents selected for the study. The employees were chosen using simple random sampling. The researchers distributed the questionnaires by mail and personal visits. The researchers distributed approximately 564 surveys, but only 295 were returned, with a response rate of only 52.30% response rate. In addition, the study also used Smart PLS to check the connections among variables. This is the best tool for the analysis of primary data and provides the best outcomes using large datasets and complex frameworks (Hair et al., 2020). Finally, the study used three predictors named JIT inventory system (JITIS), supplier development (SD) and customer involvement (CI), while the study also used one mediating variable named competitive advantage (CA), one moderating variable named institutional support (IS) and one predictive variable named business performance (BP). The constructs are shown in Figure 1.

Table 1 Variables and their measurements

<i>Items</i>	<i>Statements</i>	<i>Sources</i>
<i>JIT inventory system</i>		
JITIS1	Do you know what is the JIT system?	Mankazana and Mukwakungu (2018)
JITIS2	Has your company implemented the JIT system?	
JITIS3	Do you know the benefits of the JIT system?	
JITIS4	Has the JIT approach brought any changes in the company?	
<i>Customer involvement</i>		
CI1	My customers feel loyalty toward this firm.	Gao et al. (2021)
CI2	Even if this firm were difficult to reach, my customers would still keep buying there.	
CI3	My customers are very committed to this firm.	
CI4	My customers are willing to make an effort to shop at this firm.	
CI5	My customers care a lot about this firm from which I frequently purchase.	
<i>Competitive advantage</i>		
CA1	My firm's services are better than its competitors.	Singh et al. (2019)
CA2	My firm R&D capabilities are better than its competitors.	
CA3	My firm managerial capabilities are better than its competitors.	
CA4	My firm's profitability is better than its competitors.	
CA5	My firm image is better than its competitors.	
CA6	My firm competitive advantage is better than its competitors.	
<i>Supplier development</i>		
SD1	It is common to establish suppliers to solve operational problems.	Jean et al. (2010)
SD2	It is common to establish suppliers to analyse and discuss strategic issues.	
SD3	The atmosphere in supplier relations stimulates productive discussion encompassing a variety of opinions.	
SD4	We have a lot of face-to-face communication with suppliers.	
<i>Institutional support</i>		
IS1	My firm takes pride in my accomplishments.	Islam and Ahmed (2018)
IS2	My firm really cares about my well-being.	
IS3	My firm values contributions to its values.	
IS4	My firm strongly considers my goals and values.	
IS5	My firm shows concern for me.	
IS6	My firm is willing to help me when I need a special favour.	
<i>Business performance</i>		
BP1	Sales growth	Eiadat et al. (2008)
BP2	Market share	
BP3	Return on equity	
BP4	Return on investment	

Figure 1 Research model (see online version for colours)



4 Research findings

This study examines the correlation between items, called convergent validity. The results revealed that alpha and composite reliability (CR) values were greater than 0.70. In addition, the outcomes revealed that factor loadings and average variance extracted (AVE) values were higher than 0.50. These values show a high correlation between the items. The results are presented in Table 2.

Table 2 Convergent validity

<i>Constructs</i>	<i>Items</i>	<i>Loadings</i>	<i>Alpha</i>	<i>CR</i>	<i>AVE</i>
Business performance	BP1	0.741	0.728	0.828	0.547
	BP2	0.799			
	BP3	0.699			
	BP4	0.717			
Competitive advantage	CA1	0.898	0.898	0.923	0.670
	CA2	0.665			
	CA3	0.740			
	CA4	0.934			
	CA5	0.761			
	CA6	0.878			
Customer involvement	CI1	0.633	0.844	0.890	0.623
	CI2	0.656			
	CI3	0.851			
	CI4	0.874			
	CI5	0.894			

Table 2 Convergent validity (continued)

<i>Constructs</i>	<i>Items</i>	<i>Loadings</i>	<i>Alpha</i>	<i>CR</i>	<i>AVE</i>
Institutional support	IS2	0.932	0.935	0.953	0.835
	IS3	0.916			
	IS5	0.901			
	IS6	0.906			
JIT inventory system	JITIS1	0.854	0.883	0.919	0.739
	JITIS2	0.918			
	JITIS3	0.893			
	JITIS4	0.765			
Supplier development	SD1	0.537	0.524	0.735	0.617
	SD2	0.534			
	SD3	0.788			
	SD4	0.689			

This study examined the correlation among items, called discriminant validity. This was checked using Fornell-Larcker and cross-loadings. The outcomes revealed that the figures that exposed the linkages with the construct itself were larger than the figures that exposed the linkages with other constructs. These values show a low correlation between the variables. The outcomes are shown in Tables 3 and 4, respectively.

Table 3 Fornell-Larcker

	<i>BP</i>	<i>CA</i>	<i>CI</i>	<i>IS</i>	<i>JITIS</i>	<i>SD</i>
BP	0.740					
CA	0.545	0.818				
CI	0.617	0.682	0.789			
IS	0.394	0.249	0.270	0.914		
JITIS	0.464	0.397	0.429	0.666	0.860	
SD	0.411	0.465	0.481	0.043	0.169	0.646

This study examined the correlation among items, called discriminant validity. This was checked using the Heterotrait Monotrait (HTMT) ratio. The results showed that the values were < 0.90 . These values show a low correlation between the variables. The results are presented in Table 5.

This study examines the association among variables using a direct path analysis. The results reveal that the JIT inventory system, customer involvement, and supplier development are positively associated with manufacturing industry performance and accept H1, H2, and H3. The results are presented in Table 6.

This study examines the association among variables using an indirect path analysis. The outcomes also revealed that competitive advantage significantly mediates the JIT inventory system, customer involvement, supplier development, and manufacturing industry performance and accepts H4, H5, and H6. The study also revealed that institutional support significantly moderates competitive advantage and manufacturing industry performance, and accepts H7. The results are presented in Table 7.

Table 4 Cross-loadings

	<i>BP</i>	<i>CA</i>	<i>CI</i>	<i>IS</i>	<i>JITIS</i>	<i>SD</i>
BP1	0.741	0.447	0.369	0.201	0.238	0.277
BP2	0.799	0.312	0.419	0.316	0.303	0.292
BP3	0.699	0.372	0.404	0.288	0.380	0.226
BP4	0.717	0.461	0.579	0.335	0.415	0.386
CA1	0.437	0.898	0.514	0.140	0.288	0.379
CA2	0.405	0.665	0.576	0.192	0.339	0.316
CA3	0.560	0.740	0.681	0.272	0.311	0.372
CA4	0.470	0.934	0.542	0.170	0.345	0.447
CA5	0.369	0.761	0.450	0.300	0.360	0.295
CA6	0.371	0.878	0.510	0.134	0.296	0.443
CI1	0.438	0.327	0.633	0.233	0.278	0.354
CI2	0.522	0.401	0.656	0.234	0.329	0.379
CI3	0.468	0.638	0.851	0.198	0.358	0.399
CI4	0.503	0.613	0.874	0.229	0.359	0.371
CI5	0.516	0.640	0.894	0.194	0.363	0.404
IS2	0.333	0.197	0.190	0.932	0.576	0.002
IS3	0.396	0.270	0.300	0.916	0.649	0.086
IS5	0.401	0.241	0.268	0.901	0.629	0.049
IS6	0.285	0.187	0.209	0.906	0.563	0.003
JITIS1	0.351	0.263	0.292	0.605	0.854	0.058
JITIS2	0.419	0.358	0.375	0.615	0.918	0.142
JITIS3	0.502	0.439	0.452	0.665	0.893	0.223
JITIS4	0.260	0.253	0.320	0.334	0.765	0.120
SD1	0.319	0.342	0.476	0.139	0.279	0.537
SD2	0.224	0.225	0.203	0.107	0.089	0.534
SD3	0.277	0.329	0.315	-0.182	-0.031	0.788
SD4	0.198	0.259	0.155	0.067	0.064	0.689

Table 5 Heterotrait Monotrait ratio

	<i>BP</i>	<i>CA</i>	<i>CI</i>	<i>IS</i>	<i>JITIS</i>	<i>SD</i>
BP						
CA	0.652					
CI	0.769	0.754				
IS	0.458	0.265	0.305			
JITIS	0.539	0.429	0.483	0.703		
SD	0.623	0.650	0.679	0.273	0.267	

Figure 2 Measurement model assessment (see online version for colours)

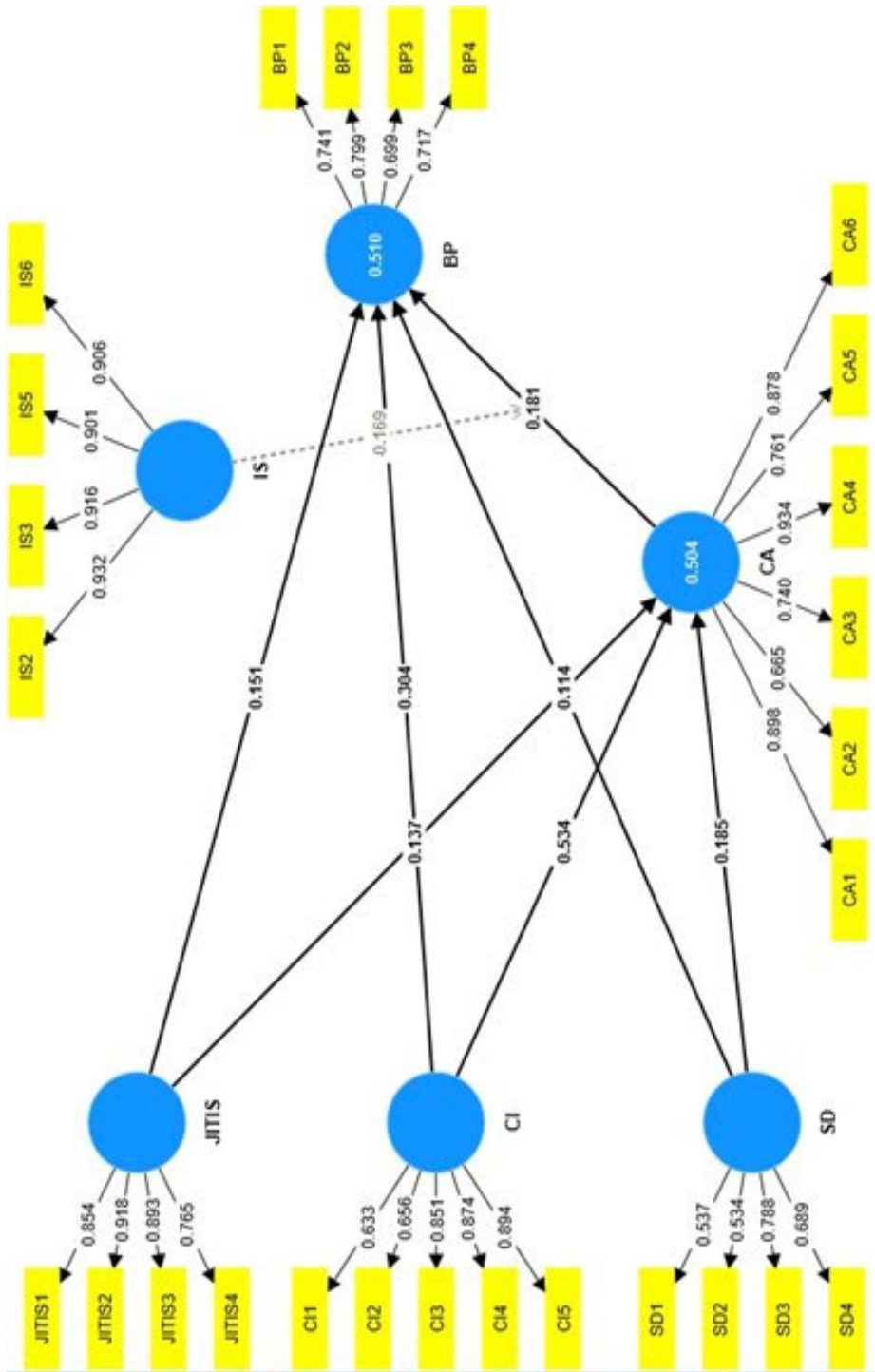


Figure 3 Structural model assessment (see online version for colours)

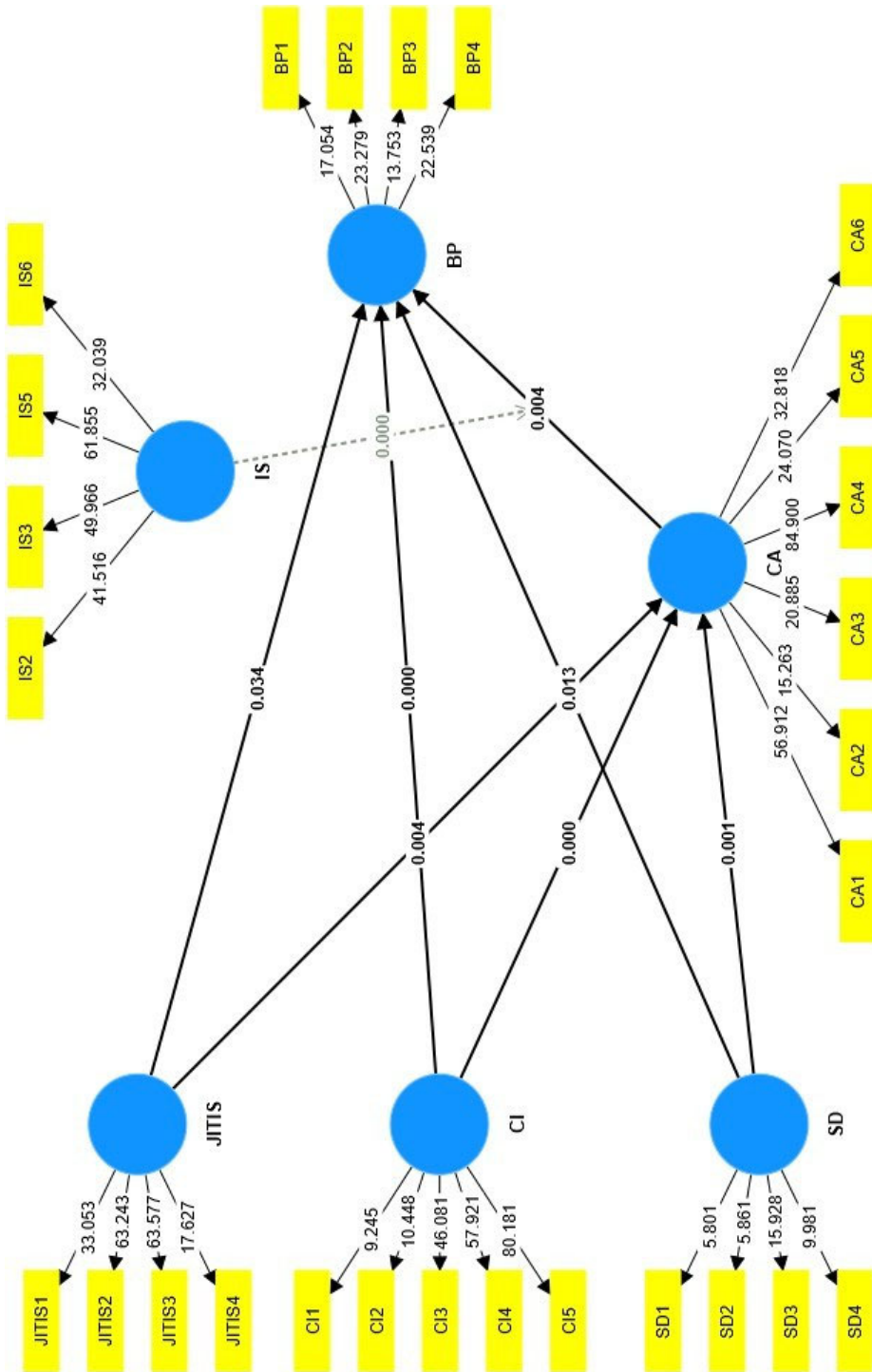


Table 6 Direct path analysis

<i>Relationships</i>	<i>Beta</i>	<i>Standard deviation</i>	<i>T statistics</i>	<i>P values</i>
CA → BP	0.181	0.063	2.863	0.004
CI → BP	0.304	0.067	4.527	0.000
CI → CA	0.534	0.062	8.599	0.000
IS → BP	0.143	0.064	2.231	0.026
JITIS → BP	0.151	0.071	2.122	0.034
JITIS → CA	0.137	0.048	2.870	0.004
SD → BP	0.114	0.046	2.491	0.013
SD → CA	0.185	0.057	3.233	0.001

Table 7 Indirect path analysis

<i>Relationships</i>	<i>Beta</i>	<i>Standard deviation</i>	<i>T statistics</i>	<i>P values</i>
SD → CA → BP	0.034	0.017	1.985	0.048
JITIS → CA → BP	0.025	0.012	2.083	0.047
CI → CA → BP	0.097	0.034	2.837	0.005
IS × CA → BP	0.169	0.048	3.519	0.000

5 Discussion

The results show that the JIT inventory system is positively associated with business performance. These results are supported by Lee et al. (2022a), which implies that if the JIT inventory system is established and carried out effectively, it improves business operations in the production and marketing departments, leading to higher business performance. These results are also in line with Shaturaev and Bekimbetova (2021), who highlight that when business organisations effectively implement the JIT inventory system, they tend to spend their money and time optimally and, therefore, gain higher business performance.

The results show that supplier development is positively associated with business performance. These results are supported by Tukimin et al. (2021), which implies that when firms conduct supplier development processes, they mould the supplier delivery policy according to their own needs. Ultimately, with better-quality production, business performance can be improved. These results also agree with Bai and Satir (2020), who state that under supplier development, firms can identify and differentiate among suppliers and find the best ones. Dealing with the best suppliers improves the operational and financial performance of firms.

The results show that customer involvement is positively associated with business performance. These results are supported by Varadarajan (2020), who indicates that when a company's representatives do not ignore customers' interests and encourage their involvement through sharing their views, they may know about and adapt to market requirements. Thus, a company may have higher business performance. These results are also in line with Garg et al. (2020), which indicate that customer involvement helps the firms meet customers' requirements and, thereby, improves business performance.

The results show that competitive advantage plays a mediating role between the JIT inventory system and business performance. These results are supported by Aslam et al. (2021), which highlights that the adoption of the JIT inventory system overcomes costs, secures financial resources, and opens ways to gain competitive advantages. Hence, a company may have higher business performance. These results are in line with those of Mtar and Smondel (2019). This study claims that the JIT inventory system enables a country to achieve competitive advantages, which clears the path to achieving higher business performance.

The results show that competitive advantage mediates the relationship between supplier development and business performance. These results are in line with Cole and Aitken (2019), who indicate that supplier development creates advantages such as quality information, best quality material, effective relations, better quality production, and, so on thereby, increasing business performance. These results agree with Powell and Coughlan (2020), which explains that the achievement of competitive advantages is possible if supplier development is performed and the business performance is higher than earlier.

The results show that competitive advantage mediates the relationship between customer involvement and business performance. These results agree with Zaborek and Mazur (2019), who posit that customer involvement increases competitive advantage, which further accelerates business performance. These results are also in line with De Oliveira Santini et al. (2020), which states that if customer involvement is preferred in an organisation, competitive advantages can be attained and firm performance can be accelerated.

The results indicate that institutional support moderates competitive advantage and business performance. These results agree with Lestari et al. (2020). According to this study, institutional support helps accomplish multiple tasks and achieves competitive advantage, which in turn improves business performance. These results also match those of Arsawan et al. (2022), which proclaims that institutional support strengthens the relationship between competitive advantage and business performance.

6 Implications

The present study directs the authors because of its contribution to economic-based literature. This study examines the relationship among the JIT inventory system, supplier development, customer involvement, competitive advantages, institutional support, and business performance. This study has a significant economic significance. It provides a set of guidelines that leads firms to have higher business performance. This study guides firms to adopt the JIT inventory system in an effective manner so that business performance can be improved. This study also posits that supplier development should be executed following all its principles to improve firm performance. There is also a guideline that customer involvement in business must be allowed to increase business performance. This study implies that the JIT inventory system must be implemented to attain competitive advantages and increase firms' business performance. This study posits that supplier development should be pursued to achieve competitive advantages and improve business performance. The study reveals that business administrators should encourage customer involvement to attain competitive advantage and increase business performance. In addition, the study conveys that business institutions must be supportive

of their behaviour. Thus, this may improve the role of competitive advantage in business performance. This study guides policymakers in formulating policies related to achieving industrial performance using an effective JIT inventory system, customer involvement, and supplier development.

7 Conclusions

The study was conducted with the aim of examining the influences of lean management practices, such as the JIT inventory system, supplier development, and customer involvement, on competitive advantages and business performance. It also examines the role of institutional support in the relationship between competitive advantages and business performance. Evidence for this analysis was obtained from the UAE. The results reveal a positive association between the JIT inventory system, supplier development, and customer involvement in competitive advantages and business performance. Under an effective JIT inventory system, inventory is not stored in surplus amounts, and a delay in the inventory system is avoided. Hence, production quality improves, and delivery time is minimised, in addition to business performance. The results reveal that when a firm follows supplier development processes, it assures the acquisition of better-quality resources and the supply of quality products in the market. Thus, it improves the firm performance. The results indicate that customer involvement helps to keep products adaptive to customer requirements and improve business performance. The study concludes that when a firm applies the JIT inventory system, supplier development, and customer involvement, it achieves competitive advantages, which helps improve business performance. Moreover, the research revealed that institutional support moderates competitive advantage and business performance. If institutional support is available, competitive advantage plays a more effective role in business performance.

7.1 Limitations

However, the present study has some limitations. Here, the authors examined the role of lean management practices such as the JIT inventory system, supplier development, and customer involvement in business performance. Many other managerial, financial, and regulatory factors have also been ignored. In future research, more factors that may influence business performance should be covered. Furthermore, the research survey was conducted only in the UAE, a developed economy. Therefore, the research may not be valid in all states and requires a general analysis.

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