

The Role of E-commerce Adoption in Enhancing Regulatory Compliance in Information Systems of Foreign Investment Management in Malaysia - A Moderating Effect of Innovation Management

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Citation: Zhu, B., & Ahamat, H. (2023). The Role of E-commerce Adoption in Enhancing Regulatory Compliance in Information Systems of Foreign Investment Management in Malaysia - A Moderating Effect of Innovation Management. *Journal of Information Systems Engineering and Management*, 8(3), 21797. <https://doi.org/10.55267/iadt.07.13611>

ARTICLE INFO

Received: 26 May 2023

Accepted: 17 July 2023

ABSTRACT

Over the years, the rise of e-commerce has brought about significant changes in the way businesses operate globally which also includes how foreign investment is managed. As more companies move on-line and engage in move-border transactions, foreign investment management has turned out to be greater complicated and requires a distinctive set of techniques. This study aims to examine the mediating role of IT capabilities and information security measures, as well as the moderating role of innovation management in this relationship. This study uses a cross-sectional research design. Data were collected from 230 Malaysian foreign investment management firms using a structured questionnaire. The measurement scales used were validated and adopted from previous studies. SPSS was used to analyze the data and test the hypothesized relationships. The findings of the study showed that e-commerce adoption has a significant and positive impact on regulatory compliance. Furthermore, this relationship is significantly mediated by IT capabilities and information security measures and moderated by innovation management. This study provides valuable insights into the effects of e-commerce adoption on regulatory compliance in the context of foreign investment management in Malaysia. The findings underscore the importance of developing strong IT capabilities and implementing strong information security measures to enhance regulatory compliance. Additionally, the study emphasizes the need for innovative management practices to effectively leverage e-commerce adoption for regulatory compliance.

Keywords: E-Commerce Adoption, Regulatory Compliance, IT Capabilities, Information Security Measures.

INTRODUCTION

In a global economy, foreign investment management plays an important role in shaping the economy of countries around the world. As record structures are the backbone of overseas investment management, ensuring regulatory compliance is critical. E-commerce has arisen as a transformational force with the rapid advancement of technology, transforming the way business transactions are performed (Kim, 2019). In Malaysia, the adoption of e-trade has gained great traction, presenting wonderful opportunities for enhancing regulatory compliance inside the records structures of foreign investment management (Xie & Wang,

2021).

The effective control of regulatory compliance in information systems is critical for maintaining transparency, security, and accountability in foreign investment management. It involves adhering to felony and regulatory necessities, industry requirements, and practices to make certain the integrity and reliability of the information systems. Managing regulatory compliance is a difficult and complex process, especially in today's increasingly digitalized and networked company landscape (Mulgund, Mulgund, Sharman, & Singh, 2021).

E-commerce characterized by way of the use of digital systems for purchasing, promoting, and replacing items and services, has the capability to streamline and give a boost to regulatory compliance in records systems (Brüel Grönberg & Hulthén, 2022). The adoption of e-commerce enables foreign investment management entities to automate processes, implement robust control mechanisms, and facilitate seamless reporting and auditing. By leveraging e-commerce technologies, organizations enhance the accuracy, efficiency, and effectiveness of their compliance-related activities (Nanda & Patnaik, 2023).

Innovation management, as a moderating factor, plays a crucial role in determining the extent to which e-commerce adoption enhances regulatory compliance in the information systems of foreign investment management. Innovation management involves the strategic and systematic approach to fostering innovation within an organization (Krajcsák, 2019). By effectively managing innovation processes, organizations harness the full potential of e-commerce technologies, unlocking new ways to enhance regulatory compliance (Geng, Lai, & Zhu, 2021). Regulatory compliance is important for e-commerce adoption as it builds trust, protects customer data, ensures good practices, helps international transactions, and helps increase online businesses in a legally compliant way. Personal, economic, and transaction facts are processed with the aid of e-commerce platforms (Mulgund et al., 2021). E-commerce enterprises must comply with legislation by implementing security measures, obtaining consent for data collection and processing, and protecting client information. E-commerce platforms must follow consumer protection rules to protect online buyers. Fair pricing, accurate product descriptions, delivery, return, and dispute resolution laws may be included. Such regulations build client trust, prevent fraud, and promote e-commerce adoption (Peña-García, Gil-Saura, Rodríguez-Orejuela, & Siqueira-Junior, 2020). Credit card-accepting e-commerce enterprises must follow the Payment Card Industry Data Security Standard, created by major card brands. These standards protect cardholder data during payment processing and storage. Adherence to Payment Card Industry Data Security Standard regulations secures sensitive financial information and reduces data breaches, encouraging e-commerce adoption by instilling client confidence (Lau et al., 2019).

E-commerce generally incorporates international trade and customs legislation. These regulations cover import/export, customs duties, product labeling, and industry standards. Compliance with cross-border e-commerce legislation allows enterprises to trade globally and promotes e-commerce adoption (Fang, Liu, Li, & Cai, 2021). Online retailers must collect and remit sales or value-added tax. The E-commerce boom has prompted tax reform everywhere. Tax compliance levels the playing field between online and brick-and-mortar shops and prevents tax avoidance, promoting fair competition and e-commerce adoption (Scarcella, 2020).

Despite the growth in studies on e-commerce adoption and its effect on regulatory compliance in information systems, there's a considerable gap in the literature concerning the position of e-commerce adoption in enhancing

regulatory compliance specifically within the context of foreign investment management in Malaysia. While there has been research carried out on e-commerce adoption and regulatory compliance in preferred, very few have examined this relationship inside the specific context of foreign investment management, particularly inside the Malaysian setting. This literature gap presents an opportunity for further exploration and investigation.

This study goals to discover the aim of e-commerce adoption in enhancing regulatory compliance inside the data structures of foreign investment management in Malaysia, with a specific cognizance of the moderating effect of innovation management (Yu & Fang, 2022). By studying the interplay among e-commerce adoption, regulatory compliance, and innovation management. The objective of the study is

- To analyze the relationship between e-commerce adoption and regulatory compliance in the information systems of foreign investment management.
- To examine the mediating effect of IT capabilities and information security measures on the relationship between e-commerce adoption and regulatory compliance.
- To examine the moderating effect of innovation management on the relationship between e-commerce adoption and regulatory compliance.

E-commerce in foreign investment management has improved regulatory compliance in Malaysian information systems. E-commerce has changed the way firms function in the country. E-commerce simplifies compliance for businesses. E-commerce systems have built-in security to protect data and prevent illegal access. These platforms help Malaysian foreign investment management organizations comply with data protection legislation. E-commerce helps international investment management organizations cut expenses and improve regulatory compliance. E-commerce platforms automate order processing and inventory management, reducing manual labor and paperwork. Foreign investment management organizations focus on their main business and increase efficiency.

LITERATURE REVIEW

E-commerce Adoption and Regulatory Compliance

The emergence of e-commerce has created fresh opportunities and challenges for regulatory compliance. Cross-border transactions are facilitated by e-commerce platforms, which frequently require enterprises to adhere to laws from several different countries. Legal frameworks governing consumer protection, data privacy, intellectual property rights, taxation, and other issues must be understood by businesses (MahdaviMazdeh, Saunders, Hawkins, & Dewald, 2021). The adoption of e-commerce has forced firms to improve their compliance practices in order to reduce legal risks and uphold stakeholder trust. Governments all around the world have put in place particular legal frameworks to guarantee regulatory compliance in the e-commerce industry. These frameworks cover topics including consumer rights, data protection, electronic signatures, and online contract formation. To comply with regulatory standards, the adoption of e-commerce has

required modifications in organizational procedures. To ensure secure transactions, data protection, and fraud prevention, businesses are investing in infrastructure and technology (Haddara, Salazar, & Langseth, 2023). Pethuraj et al. (2023) stress the significance of putting in place reliable systems for tracking and reporting compliance actions in the context of e-commerce. Tools for data analytics and automation are being used to speed up compliance procedures and spot potential infractions. Although regulatory compliance might be difficult for e-commerce companies, it also has many advantages. According to Shandilya et al. (2023), compliance fosters accountability, transparency, and consumer trust, all of which increase customer happiness and loyalty. Secure payment gateways and strong data protection methods are examples of compliance measures that help create a more secure online environment and promote long-lasting customer and company connections.

H1: E-commerce adoption has a significant and positive impact on regulatory compliance.

E-commerce Adoption and Information Technology Capability

In order to enable online transactions, customer interactions, and supply chain management, firms incorporate electronic platforms, technologies, and systems into their company operations. This process is known as e-commerce adoption (Ghazali, Mutum, Chong, & Nguyen, 2018). Implementing different e-commerce elements including online storefronts, payment gateways, inventory management programs, and customer relationship management technologies are all part of it. According to Melián-Alzola et al. (2020), information technology capability refers to a company's capacity to efficiently develop, implement, and manage IT resources and infrastructure to support its business objectives. Firms can increase operational effectiveness, boost decision-making procedures, and gain a competitive edge in the online market by having a strong IT capacity. The adoption of e-commerce comprises a number of crucial elements that are essential to its success. In order to facilitate online transactions, data storage, and safe information transmission, a strong technological infrastructure is first and foremost necessary (Szyjewski, 2019). This infrastructure consists of networks, hardware, software, and cybersecurity safeguards. Second, businesses need to modify their internal procedures to coordinate with online activities including order fulfillment, inventory control, and customer service. Reengineering these procedures is frequently required for a seamless shift to e-commerce. The integration of e-commerce platforms also requires the expertise of qualified IT experts, and developing the necessary human resource capabilities requires the implementation of training programs and knowledge-sharing efforts (Khaliq, Farooq, & Khan, 2022). Last but not foremost, the adoption of e-commerce paves the way for direct customer interactions and customized marketing strategies via targeted advertising, recommendation systems, and social media integration (Jiang et al., 2021). Businesses can improve consumer engagement and cater their marketing campaigns to specific client preferences by utilizing these skills. Through

automation, real-time data integration, and process optimization, e-commerce adoption enables businesses to increase operational efficiency, cut costs, and optimize their processes. Additionally, businesses provide convenient online purchasing experiences, tailored recommendations, and round-the-clock customer service by implementing e-commerce. This increases consumer satisfaction and loyalty. The adoption of e-commerce enables businesses to more quickly launch new products or services, adjust to changing client expectations, and respond to market developments (Shen, Dong, Tong, & Ngai, 2022). Effective e-commerce adoption strengthens a company's position in the market by enabling it to access new markets, expand into new geographic areas, and contend with both conventional and online-only rivals.

H2: E-commerce Adoption has a significant and positive impact on Information Technology Capability.

E-commerce Adoption and Information Security Measure

Over the years, e-commerce has made significant strides, from straightforward online purchases to intricate supply chain management. Organizations must develop strong information security measures due to the growing reliance on digital technology to safeguard sensitive consumer data, financial transactions, and confidential information (Wu et al., 2021). It is crucial to comprehend how the adoption of e-commerce impacts information security practices as it continues to develop. The advent of e-commerce introduces many dangers and vulnerabilities that can jeopardize information security. These include malware infections, phishing scams, identity theft, unlawful access, and data breaches (Scarcella, 2020). Cybercriminals and hackers frequently take advantage of holes in e-commerce platforms and systems, highlighting the necessity of strong security measures. To reduce the dangers linked to the use of e-commerce, organizations must deploy a variety of security measures. Technical, organizational, and managerial facets are all included in these metrics. Technical safeguards include things like encryption methods, firewalls, secure socket layer (SSL) protocols, and intrusion detection systems (Argilés-Bosch, Ravenda, & Garcia-Blandón, 2021). To provide a thorough approach to data protection, firms must also set up policies and processes, carry out frequent audits, and educate staff on information security best practices. Organizations that comply to these requirements are guaranteed to follow certain security procedures and precautions. Larger firms may have devoted resources to invest in information security, but e-commerce businesses frequently encounter considerable obstacles when putting strong security measures in place (Vinoth et al., 2022). E-commerce adoption of appropriate security procedures is hampered by limited resources, a lack of knowledge, and insufficient awareness (Ratten & Jones, 2022). As a result, companies turn into desirable targets for cybercriminals, highlighting the requirement for specialized security solutions and assistance for SMEs. Technology advancements including those in artificial intelligence, blockchain, and cloud computing are changing information security procedures and the e-commerce industry. These technologies present prospects for more robust security measures, such as blockchain-based transaction verification and AI-powered threat detection (Himeur, Sohail, Bensaali, Amira, & Alazab, 2022). For enterprises to keep ahead of changing

threats, they must investigate these emerging technologies and their effects on information security.

H3: E-commerce adoption has a significant and positive impact on information security measure.

Information Technology Capability and Regulatory Compliance

Dwivedi et al. (2022) highlighted the significance of IT infrastructure, such as hardware, software, networks, and databases, in supporting compliance processes and maintaining data integrity. Automation of compliance processes through IT capabilities can enhance efficiency and reduce the risk of non-compliance. Salleh and Janczewski (2019) emphasized that IT-enabled compliance automation reduces manual errors and improves the accuracy of compliance-related activities. Bai et al. (2019) found that organizations with advanced IT capabilities, including encryption mechanisms and access controls, are more likely to achieve and maintain compliance with data protection regulations. Effective IT governance practices contribute to regulatory compliance by establishing clear accountability and control mechanisms. In their study, Elmawazini, Atallah, Rafiqzaman, and Guesmi (2022) suggested that organizations with strong IT governance frameworks have a better understanding of compliance requirements and are more capable of aligning their IT processes accordingly. Integration of IT systems with regulatory reporting processes can streamline compliance reporting and facilitate accurate and timely submissions. Lacity et al. (2020) highlighted the importance of IT integration in compliance reporting, noting that organizations that leverage IT capabilities for data gathering and analysis can ensure compliance with reporting requirements more efficiently. IT capabilities enable continuous monitoring of compliance-related activities and support real-time detection of potential violations. Pal (2021) emphasized the role of IT-based monitoring systems in identifying compliance gaps and facilitating timely corrective actions. IT capabilities are instrumental in managing changes in regulatory requirements, allowing organizations to adapt their systems and processes accordingly. AlGhanboosi et al. (2023) emphasized the need for flexible IT infrastructures and agile software development methodologies to accommodate regulatory changes promptly.

H4: Information technology capability has a significant and positive impact on regulatory compliance.

Information Security Measure and Regulatory Compliance

Organizations comply with regulations by protecting sensitive data using access controls, encryption, and vulnerability monitoring. Information security and specialized legal and regulatory frameworks have been studied. Lundon (2023) studied the GDPR's effects on information security and compliance. Their findings revealed that organizations that implemented robust information security measures were better positioned to achieve GDPR compliance. Several studies highlight the significance of security awareness and training programs in enhancing regulatory compliance. Chen et al. (2022) noted that educating employees about information security policies and practices

positively influenced compliance with regulations. These programs contribute to improving employees' understanding of information security measures and their roles in complying with regulations. The use of technological solutions is another area explored in the literature. Research by Thapa and Camtepe (2021) examined the impact of security technologies, such as intrusion detection systems and security information and event management, on regulatory compliance. They found that organizations that leveraged these technologies experienced improved compliance outcomes. The influence of organizational culture on regulatory compliance in the context of information security measures has been investigated by several researchers.

H5: Information security measure has a significant and positive impact on regulatory compliance.

Information Technology Capability as Mediator

It is important to ensure that innovation management strategies are in line with regulatory requirements to maintain a harmonious relationship between e-commerce adoption and compliance. In addition, research has highlighted how managing innovation can improve adherence to regulations. In their study, Sunmola (2021) showed that by using innovative methods like blockchain technology and artificial intelligence, e-commerce businesses can make compliance processes more efficient, increase transparency, and achieve better compliance results. It encompasses technological infrastructure, IT knowledge and skills, IT governance, and alignment of IT with business strategy. IT capability enables organizations to harness the potential of e-commerce and overcome the challenges associated with regulatory compliance. Salleh and Janczewski, (2019) have highlighted the positive influence of IT capability on regulatory compliance in the context of e-commerce adoption. IT capability enables organizations to implement robust security measures, comply with data protection regulations, and monitor and report compliance-related activities effectively. Organizations with strong IT capabilities are better equipped to implement e-commerce platforms, integrate online payment systems, and ensure seamless customer experiences. The ability to adapt and leverage IT resources positively impacts the successful adoption of e-commerce practices (Gružauskas, Gimžauskienė, & Navickas, 2019). Organizational factors, such as top management support, IT infrastructure, IT governance, and IT knowledge, significantly influence the mediating role of IT capability. Organizations that prioritize IT investments, develop IT expertise, and establish effective governance structures are more likely to leverage IT capability to enhance regulatory compliance and drive e-commerce adoption. Environmental factors, including regulatory complexity, industry competition, and technological advancements, shape the impact of IT capability on e-commerce adoption and regulatory compliance (Al-Adwan, Al-Debei, & Dwivedi, 2022). The alignment of IT capability with external environmental factors determines an organization's ability to navigate regulatory challenges and capitalize on e-commerce opportunities.

H6: Information Technology Capability significantly mediates the relationship between E-commerce Adoption and Regulatory Compliance.

Information Security Measure as a Mediator

E-commerce adoption refers to the implementation and integration of electronic commerce within an organization. Legal and industry-specific regulations, standards, and policies are regulated compliance. Information security safeguards are confidential, secure, and accessible data. According to Wu et al. (2021), regulatory compliance encourages firms to implement e-commerce by building confidence, reducing risks, and ensuring transparency. In a similar vein, Valero et al. (2023) discovered that businesses that place a premium on adhering to regulations are more inclined to participate in e-commerce because of the positive effects it has on their legal standing and public image. Protecting consumer information, meeting privacy rules, and warding off cyber-attacks all require strong information security measures. Furthermore, Howard et al. (2019) argued that organizations that invest in information security measures are more likely to comply with regulatory requirements, as they demonstrate a commitment to protecting sensitive information.

H7: Information security measure significantly mediates the relationship between e-commerce adoption and regulatory compliance.

Innovation Management as a Moderator

E-commerce adoption involves using electronic platforms for business transactions, while regulatory compliance involves following government laws, regulations, and standards. As e-commerce grows, firms must comply with changing regulations in consumer protection, data privacy, taxation, and intellectual property rights. Organizations use processes, tactics, and structures to promote innovation and stay competitive. Innovation management methods help firms overcome regulatory compliance while reaping the benefits of e-commerce adoption by managing the link between the two. Cao et al. (2021) found that organizations with robust innovation management practices were better equipped to respond to regulatory changes and adapt their e-commerce operations accordingly. This finding suggests that innovation management can act as a catalyst for ensuring regulatory compliance in the face of evolving requirements. Furthermore, Krupcała and Januszewski (2020) explored the influence of innovation management on the development of e-commerce platforms that are inherently compliant with regulatory standards. Their findings indicated that organizations that prioritize innovation management are more likely to embed compliance measures into their e-commerce systems from the design stage, thus reducing the need for costly retroactive modifications and enhancing overall regulatory compliance. While innovation management can facilitate regulatory compliance in e-commerce, it also presents its challenges. Research by Doyle et al. (2019) identified the need for a balance between innovation and compliance, as excessive innovation can sometimes lead to non-compliance. To ensure e-commerce uptake and compliance, innovation management methods must be aligned with regulatory standards. Innovation management also improves regulatory compliance, according to research. Feng and Jin (2022) showed that blockchain plus AI may streamline compliance processes, promote transparency, and improve compliance outcomes in

e-commerce operations. Figure 1 has been developed based on the hypothesis development and discussed literature.

H8: Innovation management significantly moderates the relationship between e-commerce adoption and regulatory compliance.

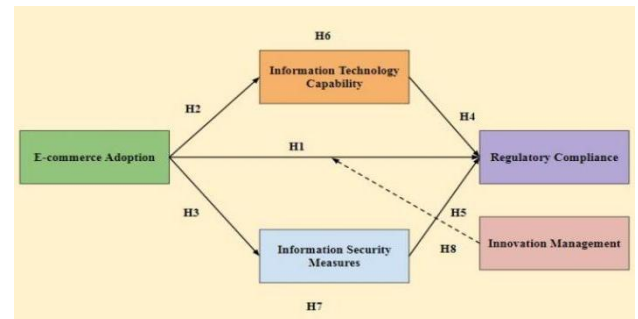


Figure 1. Conceptual Framework

METHODOLOGY

Research Design and Sample Size

A cross-sectional survey design was conducted in which data were collected only once. The research design was cross-sectional because the objective of the study was to determine the general relationship between study variables. This design is less expensive and faster than the longitudinal design. Cross-sectional studies are frequently preferred in terms of time and cost (Setia, 2016). This is because they can be conducted more rapidly and at a lower cost than other studies. This design made it much simpler to collect data in a brief amount of time. The study obtained data from 230 Malaysia-based foreign investment management firms. A technique of purposive sampling was used to select the participants.

Data Collection

A survey instrument was used to collect data, as questionnaires were the predominant method for acquiring primary data from respondents. A questionnaire survey instrument permits the collection of immense quantities of data and requires less time than interviews. In addition, when respondents have limited time for interviews, a questionnaire can be very beneficial, according to Kasoga (2021). Consequently, the study collected sufficient data to conclude the study variables through the use of a structured questionnaire.

Measure

Four modified items were used to measure the variable e-commerce adopted (Akour et al., 2022). Four items adapted from Changalima, Ismail, & Mwiseje (2022) were utilized to assess regulatory compliance. IT capabilities were assessed with four adapted items (Marchiori, Rodrigues, Popadiuk, & Mainardes, 2022), and Information Security Measure was measured with five adapted items (Neamah et al., 2022). Five items were used to quantify innovation management as a moderating variable adopted (Edeh et al., 2022). The items that were taken from this earlier research underwent some minor adjustments so that they could be used in the context of this new study and achieve their goal. Before the gathering of data on a large scale, pre-testing was carried out to verify that the

items measured the characteristics that they were intended to measure. Cronbach's alpha was utilized in this research

project to analyze the dependability of internal consistency, and the findings are summarized in **Table 1**.

Table 1. Result of Pilot Test

Variables	No. of Items	Cronbach's Alpha
E-commerce Adoption	4	0.845
Regulatory Compliance	4	0.812
IT Capabilities	4	0.745
Information Security Measure	5	0.874
Innovation Management	5	0.892

RESULTS

Demographic Profile of the Respondents

There are 47.8 percent of respondents who participated in the survey were male and 52.2% were female. The majority of respondents 34.8% were from the age group of 25-34

whereas 21% were from 18-24, 26% were from 35-44, 13% were from 45-54 years and 4% were 55 and above years. The majority of respondents (52%) had bachelor degrees while 34.8% of respondents had work experience of 1-3 years. Moreover, 100 participants were working in multinational companies, 70 were local. **Table 2** shows the result of the demographic profile of respondents.

Table 2. Demographic Profile of the Respondents

Demographic item		Frequency	Percentage
Gender	Male	110	47.8
	Female	120	52.2
Age Group	18-24 years	50	21.7
	25-34 years	80	34.8
	35-44 years	60	26.1
	45-54 years	30	13.0
	55 and above	10	4.3
Educational Level	High School	30	13.0
	Bachelor's Degree	120	52.2
	Master's Degree	60	26.1
	Ph.D	20	8.7
Work Experience	Less than 1 year	40	17.4
	1-3 years	80	34.8
	4-6 years	60	26.1
	7-10 years	30	13.0
	More than 10 years	20	8.7
Organization Type	Multinational Company	100	43.5
	Local Company	70	30.4
	Government Organization	30	13.0
	Non-profit Organization	20	8.7
	Other	10	4.3

Descriptive Statistics

The result of descriptive statistics provides information about the number of observations (N), the minimum and maximum values, the mean, and the standard deviation for each variable. The number of observations for each variable

is 230, whereas the minimum value is 1 and the maximum value is 5. Descriptive statistics for all variables (E-commerce Adoption (EA), Regulatory Compliance (RC), IT Capability (ITC), Information Security Measure (ISM), and Innovation Management (IM)) is presented in **Table 3**.

Table 3. Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
EA	230	1	5	4.63	0.657
RC	230	1	5	4.97	0.986
ITC	230	1	5	3.32	0.813
ISM	230	1	5	3.05	0.711
IM	230	1	5	3.37	1.496

Note: EA=E-commerce Adoption, RC=Regulatory Compliance, ITC=IT Capability, ISM=Information Security Measure, IM=Innovation Management.

Normality Assessment:

The normality of the data was assessed by using the values of skewness and kurtosis. The acceptable range for

both skewness and kurtosis is -2 to +2 (Xu, Zhang, Xu, Kou, & Qiu, 2021). **Table 4** shows that all the values of skewness and kurtosis are in the acceptable range which indicates that the data is normal and can be used for further analysis.

Table 4. Normality Assessment

	Skewness	Kurtosis
EA	0.732	-0.456
RC	1.130	0.430
ITC	0.534	-0.120
ISM	0.108	-1.172
IM	0.802	-0.983

Note: EA=E-commerce Adoption, RC=Regulatory Compliance, ITC=IT Capability, ISM=Information Security Measure, IM=Innovation Management.

Confirmatory Factor Analysis

After assessing the normality of the data, the next step was to confirm the internal consistency, reliability, and validity of the data. The findings of the analysis show that

factor loading values of all the items are greater than the threshold value i.e. 0.4. Moreover, **Table 5** also shows that the value of Cronbach's alpha of all variables is greater than 0.7 which indicates that the data has satisfactory reliability.

Table 5. Confirmatory Factor Analysis

Variables	Items	Factor loading	Cronbach's Alpha
E-commerce Adoption	EA1	0.625	0.789
	EA2	0.511	
	EA3	0.563	
	EA4	0.702	
Regulatory Compliance	RC1	0.797	0.809
	RC2	0.683	
	RC3	0.717	
	RC4	0.735	
IT Capability	ITC1	0.644	0.758
	ITC2	0.578	
	ITC3	0.692	
	ITC4	0.759	
Information Security Measure	ISM1	0.671	0.805
	ISM2	0.691	
	ISM3	0.847	
	ISM4	0.638	
	ISM5	0.644	
Innovation Management	IM1	0.828	0.965
	IM2	0.848	
	IM3	0.898	
	IM4	0.819	
	IM5	0.871	

Correlation Analysis

After assessing the reliability of the construct, the next step is to check the correlation between variables. Correlation measures the strength and direction of a relationship

between two variables. The values of correlation should be less than 1. **Table 6** shows the result of the correlation matrix and all the values are less than 1 which indicates that all relations are statistically significant.

Table 6. Correlation Matrix

	EA	RC	ITC	ISM	IM
EA	1				
RC	.552**	1			
ITC	.402**	.644**	1		
ISM	.659**	.744**	.723**	1	
IM	.246**	.652**	.745**	.704**	1

Note: EA=E-commerce Adoption, RC=Regulatory Compliance, ITC=IT Capability, ISM=Information Security Measure, IM=Innovation Management.

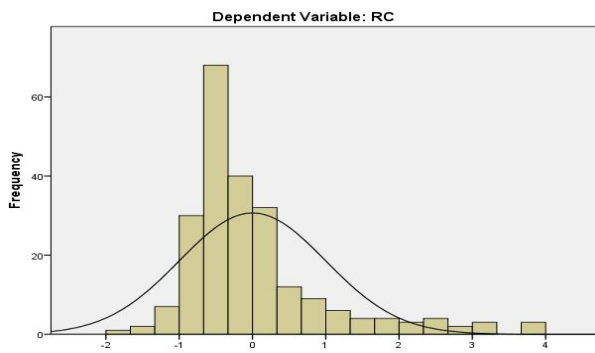
Regression Analysis

The first hypothesis of the study indicates that E-commerce adoption has a significant and positive impact on regulatory compliance. The findings of the study show that the relationship between E-commerce adoption and

regulatory compliance is significant and positive ($t=10.00$, $p=0.000$). Furthermore, the value of R2 also shows that a 1 unit change in EA will bring a 30.5% change in RC. **Table 7** and **Figure 2** show the result of regression analysis between EA and RC.

Table 7. Regression Analysis between EA and RC

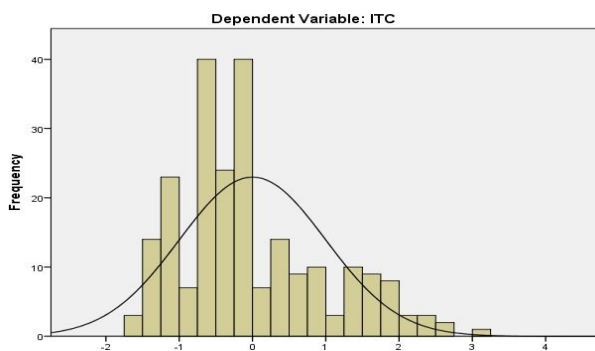
Hypothesis	Relation	Beta Value	R2	F	P value	Hypothesis Supported
H1	EA-> RC	0.829	0.305	10.000	0.000	Yes

**Figure 2.** Regression Analysis between EA and RC

The second hypothesis of the study indicates that E-commerce adoption has a significant and positive impact on IT capabilities. The findings of the study show that the relationship between E-commerce adoption and IT capabilities is significant and positive ($t=6.632$, $p=0.000$). Furthermore, the value of R2 also shows that a 1 unit change in EA will bring a 16.2% change in ITC. **Table 8** and **Figure 3** show the result of regression analysis between EA and ITC.

Table 8. Regression Analysis between EA and ITC

Hypothesis	Relation	Beta Value	R2	T value	P value	Hypothesis Supported
H2	EA-> ITC	0.498	0.162	6.632	0.000	Yes

**Figure 3.** Regression Analysis between EA and ITC

The third hypothesis of the study indicates that E-commerce adoption has a significant and positive impact on information security measures. The findings of the study show that the relationship between E-commerce adoption and information security measures is significant and positive ($t=13.329$, $p=0.000$). Furthermore, the value of R2 also shows that a 1 unit change in EA will bring a 43.5% change in information security measures. **Table 9** and **Figure 4** show the result of regression analysis between EA and ISM.2.

Table 9. Regression Analysis between EA and ISM

Hypothesis	Relation	Beta Value	R2	T value	P value	Hypothesis Supported
H3	EA-> ISM	0.714	0.435	13.329	0.000	Yes

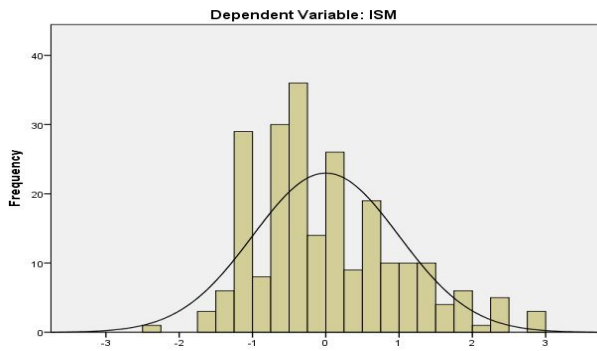


Figure 4. Regression Analysis between EA and ISM

The fourth hypothesis of the study indicates that IT capabilities has a significant and positive impact on regulatory compliance. The findings of the study show that the relationship between IT capabilities and regulatory compliance is significant and positive ($t=12.710$, $p=0.000$). Furthermore, the value of R2 also shows that 1 unit change in IT capabilities will bring 41.5% change in regulatory compliance. Table 10 and Figure 5 show the result of regression analysis between ITC and RC.

Table 10. Regression Analysis between ITC and RC

Hypothesis	Relation	Beta Value	R2	T value	P value	Hypothesis Supported
H4	ITC-> RC	0.781	0.415	12.710	0.000	Yes

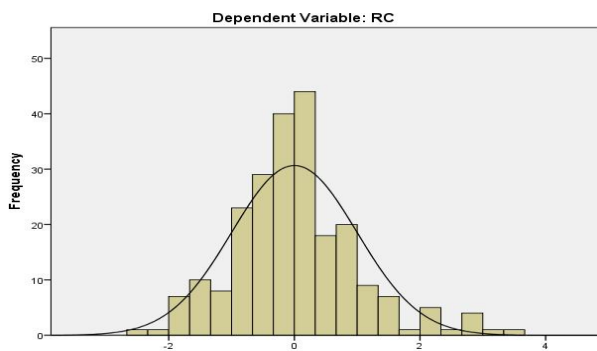


Figure 5. Regression Analysis between ITC and RC

The fifth hypothesis of the study indicates that information security measure has a significant and positive impact on regulatory compliance. The findings of the study show that the relationship between information security measures and regulatory compliance is significant and positive ($t=16.799$, $p=0.000$). Furthermore, the value of R2 also shows that 1 unit change in information security measures will bring 55.3% change in regulatory compliance. Table 11 and Figure 6 show the result of the regression analysis between ISM and RC.

Table 11. Regression Analysis between ISM and RC

Hypothesis	Relation	Beta Value	R2	T value	P value	Hypothesis Supported
H5	ISM-> RC	1.032	0.553	16.799	0.000	Yes

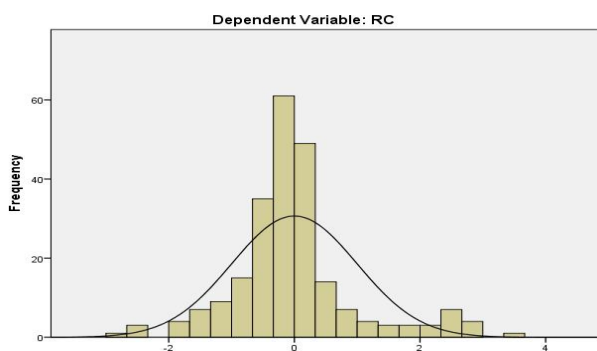


Figure 6. Regression Analysis between ISM and RC

Mediation Analysis

SPSS PROCESS macro is used to test the mediation hypotheses of H6 and H7. The prediction for H6 is that IT capabilities positively mediates the effect of EA on RC. The result provides support for the hypothesis that the mediation effect of IT capabilities ($t=2.469$, $p= 0.014$) on the relationship between EA and RC. The prediction for H7 is that information security measures positively mediate the effect of EA on RC. The result provides support for the hypothesis that the mediation effect of information security measures ($t=6.220$, $p= 0.000$) on the relationship between EA and RC. Table 12 shows the results of mediation analysis.

Table 12. Mediation Analysis

Hypothesis	Relation	Beta	T value	P value	Hypothesis Supported
H6	EA-> ITC -> RC	0.212	2.469	0.014	Yes
H7	EA-> ITC -> RC	0.656	6.220	0.000	Yes

Moderation Analysis

The eighth hypothesis of the study stated that innovation management significantly moderates the relationship

between EA and RC. The findings of the study showed that the relationship between EA and RC was significantly moderated by IM ($t=4.236$, $p=0.000$). Hence H8 is accepted.

Table 13 shows the result of the moderation analysis.

Table 13. Moderation Analysis

Hypothesis	Relation	Beta	T value	P value	Hypothesis Supported
H8	EA x IM -> RC	0.253	4.236	0.000	Yes

DISCUSSION

E-commerce platforms enable transparent business transactions. They track internet transactions for traceability. This transparency helps regulatory authorities enforce consumer protection, taxation, and data privacy rules. E-commerce's digital infrastructure simplifies regulatory compliance. E-commerce platforms often have built-in regulatory compliance features and solutions (Kim, 2019). These platforms automate tax calculation, invoicing, and record-keeping. E-commerce adoption streamlines compliance efforts by reducing manual intervention and human error, saving time and resources. Secure payment methods, buyer evaluations, and return policies protect consumers on e-commerce sites. Such techniques build buyer-seller trust, boosting online transaction confidence. E-commerce regulatory compliance protects consumers from fraud, counterfeits, and deception. E-commerce platforms protect consumers and businesses by enforcing strict compliance (Liu, Yang, Gao, Li, & Liu, 2023). Regulating international e-commerce is considerably more important due to different legal systems. To enable cross-border trade, e-commerce requires regulation harmonization. Thus, governments and regulatory agencies collaborate and set uniform standards, creating a more robust and consistent compliance landscape. E-commerce standards help businesses compete fairly. E-commerce platforms store massive volumes of sensitive data (Zhao, Lin, Knerr-Sievers, Lu, & Mardani, 2023). E-commerce enterprises must employ strong security measures to protect customer data, comply with GDPR, and address privacy issues. E-commerce platforms build consumer trust by prioritizing data protection and privacy compliance (Whitelock-Wainwright, Tsai, Drachsler, Scheffel, & Gašević, 2021).

The second hypothesis investigates the impact of e-commerce adoption on information technology capability. E-commerce adoption has improved IT compliance. Businesses using e-commerce platforms need a strong IT capability structure. E-commerce adoption has enhanced IT capability in several ways. First and foremost, e-commerce adoption has forced firms to develop strict security measures to secure client data and financial transactions. Online shoppers expect their data to be protected (Shen et al., 2022). Thus, firms must invest in encryption, secure payment gateways, and enhanced authentication mechanisms. These measures protect consumer data and ensure IT compliance with PCI DSS and GDPR. E-commerce adoption also improved data management. E-commerce platforms create massive transactional, customer, and inventory data. Data storage, backup, and retention strategies must be efficient to assure

compliance (Li, Tan, Ip, & Wu, 2023). Data encryption, backups, and access controls are examples of measures. These procedures assure data integrity and GDPR compliance. E-commerce adoption also necessitated IT governance frameworks. E-commerce platforms need firms to integrate their IT systems and procedures with industry standards and best practices. This has led to the adoption of ITIL (Information Technology Infrastructure Library) and COBIT (Control Objectives for Information and Related Technologies) frameworks to ensure compliance, streamline operations, and improve service delivery (Izuagbe et al., 2019). These frameworks improve compliance by guiding IT governance, risk management, and compliance. E-commerce adoption also necessitates regular IT audits and evaluations. IT infrastructure, systems, and procedures must be assessed to detect vulnerabilities, hazards, and regulatory compliance. For industry compliance, e-commerce platforms undergo extensive security examinations. Organizations proactively resolve compliance gaps and improve IT compliance measures by routinely auditing and assessing (Gao, Fan, & Wang, 2020). Finally, e-commerce adoption has automated compliance processes. Businesses may expedite compliance operations, monitor security controls, and manage compliance status with specialist software. Automation tools boost efficiency and allow firms to respond quickly to compliance and regulatory changes. Automating compliance measures reduces human error and maintains consistency across the organization (Guamán, Rodriguez, del Alamo, & Such, 2023).

Vinoth et al. (2022) examined how e-commerce adoption affects information security in major organizations. E-commerce adoption promoted proactive security measures, according to their research. They said that e-commerce necessitated safe payment gateways, data storage, and frequent security assessments. These measures secured customer data and improved the company's reputation and confidence. Wu et al. (2021) examined how financial information security measures were affected by e-commerce adoption. They found that e-commerce adoption led to enhanced security measures like two-factor authentication, biometric identification, and real-time transaction monitoring. These measures strengthened client confidence and protected financial institutions from fraud, which increased adoption rates and customer loyalty.

Regulatory compliance is a critical aspect of modern businesses, ensuring adherence to legal and industry-specific guidelines. IT capabilities significantly improve an organization's regulatory compliance. Organizations automate and streamline compliance operations including

data collection, analysis, and reporting with IT. By implementing robust IT systems, businesses create standardized processes, track compliance activities, and efficiently manage documentation (Gauvin, Zimmermann, & Dalton, 2022). Automation reduces manual errors, enhances accuracy, and facilitates real-time monitoring of compliance activities, leading to improved regulatory adherence. Ensuring privacy rights and protecting sensitive data are typically important aspects of regulatory compliance (Mulgund et al., 2021). Organizations use IT capability to put in place strong security measures like encryption, access controls, and intrusion detection systems. These measures help to protect data from unauthorized access or breaches. Organizations use IT systems to monitor and report in real-time, which helps them keep track of compliance metrics, detect possible problems, and take proactive steps. Risk management and regulatory compliance depend on IT competence (Ismail, Hariri Bakri, & Norazmi Nordin, 2021). Risk assessment, predictive analytics, and compliance management technologies enable firms to detect and minimize compliance issues. Technology-driven risk management methods help firms identify compliance gaps and comply with regulations. Businesses struggle to keep up with shifting laws and regulations (Martins, Mamede, & Correia, 2022). IT allows firms to access regulatory intelligence services that update law changes and compliance obligations. Automated regulatory update monitoring helps organizations quickly adjust their processes and procedures to comply, decreasing the risk of penalties or non-compliance. Strong IT systems facilitate regulatory audits by documenting and proving compliance. IT systems' audit trails and electronic records let auditors evaluate compliance (Zheng, Zhou, Lu, & Lin, 2022). Organizations demonstrate their regulatory compliance by keeping well-organized and conveniently available compliance documents, potentially reducing audit frequency and duration.

The fifth hypothesis is to investigate the impact of Information Security measures on regulatory compliance. E-commerce enterprises manage a lot of customer personal and financial data. This includes credit card, address, and other PII. The GDPR and PCI DSS protect sensitive data (Guamán et al., 2023). E-commerce enterprises meet regulatory requirements by using effective information security safeguards. Encryption protects customer data when stored and transmitted, preventing illegal access. E-commerce enterprises show their commitment to protecting client data by following these security procedures, which increases their regulatory compliance. Information security helps e-commerce enterprises manage risk (Beach, Hippolyte, & Rezgui, 2020). Data breaches and hacking efforts pose considerable hazards to customer data and corporate operations owing to developing cyber threats. To mitigate these risks, regulatory compliance requirements emphasize the importance of adequate security and incident response procedures (Alrammah & Ajlouni, 2021). Firewalls, intrusion detection systems, and frequent security audits reduce security problems in e-commerce enterprises. Proactively mitigating threats protect client data and maintains regulatory compliance. Information security also builds customer and stakeholder trust. Data breaches are making

people more cautious about sharing their personal information online (Shaikh & Siponen, 2023). Customers trust a corporation that follows strong data security rules. Communicating security and compliance measures help e-commerce businesses stand out and attract more customers. E-commerce relies on trust in online transaction security. Information security helps develop confidence.

The sixth hypothesis is to investigate the mediating impact of information technology Capability on the relationship between E-commerce adoption and regulatory compliance. E-commerce improves customer satisfaction, market coverage, and cost. However, data privacy, security, intellectual property rights, consumer protection, and other legal and regulatory issues arise. Information technology helps e-commerce adoption satisfy regulatory compliance criteria (Sunmola, 2021). The process of e-commerce entails gathering, keeping, and handling large quantities of confidential customer information. By utilizing IT capability, businesses enforce strong security measures such as encryption protocols and access controls to safeguard their data against unauthorized access or breaches. This enforces financial restrictions. Businesses must record transactions, customer interactions, and other relevant data to comply with rules (Marchiori et al., 2022). Information technology makes record-keeping and compliance easier by collecting, preserving, and accessing data. E-commerce operations be monitored and compliance reports are generated by utilizing IT systems. This involves keeping track of sales data, managing inventory, calculating taxes, and monitoring other metrics that are essential for meeting regulatory requirements. By leveraging IT capability, businesses automate these processes, which helps to minimize the chances of errors and enhances overall compliance (Salleh & Janczewski, 2019).

The seventh hypothesis is to investigate the mediating impact of information security measures on the relationship between E-commerce adoption and regulatory compliance. Effective information security measures have a significant impact on the relationship between e-commerce adoption and regulatory compliance. Considering enhanced data protection is crucial. It is essential to protect sensitive customer information, such as personal data, credit card details, and transaction records, and information security measures are vital in accomplishing this goal (Hoffmann, Napiórkowski, Protasowicki, & Stanik, 2020). By implementing robust security measures, companies effectively reduce the likelihood of data breaches and unauthorized access. Consequently, complying with data protection regulations becomes simpler and customers are more assured that their information is being adequately protected. Mitigating security risks is also a crucial aspect to consider. The adoption of e-commerce brings in new risks such as cyber threats, hacking attempts, and fraud. To reduce these risks, security measures are put in place that include preventive controls and detection mechanisms (Muhammad, Sukarno, & Wardana, 2023). Organizations are often required to implement specific security measures as per the compliance requirements. If businesses adopt these measures effectively, they are more likely to comply with regulatory

standards. This is because they show a proactive approach to dealing with security risks that come with e-commerce operations. It is crucial to have well-defined incident response procedures in case of security incidents. By implementing information security measures, businesses quickly identify and address security incidents, which helps to reduce the negative effects on their operations and customer information (Martí, Caballero, & Sellabona, 2020). Moreover, these measures enable organizations to meet the reporting obligations specified by regulatory authorities. Having a strong incident response capability has a positive impact on compliance efforts because it demonstrates that an organization is capable of effectively handling security incidents and fulfilling its obligations to report and address them. When an organization implements effective information security measures, it shows that they are dedicated to safeguarding customer data and following applicable regulations (Hoffmann et al., 2020). Businesses demonstrate their commitment to safeguarding the security and privacy of customer information by putting in place and upholding these measures. Making this commitment fosters a good rapport with regulatory bodies and showcases the company's dedication to following rules and regulations when undergoing audits or inspections. Organizations that have strong information security measures are viewed by regulators as proactive and responsible, which boosts their confidence in the organization's compliance efforts (Sari et al., 2021).

The eighth hypothesis is to investigate the moderating impact of innovation management on the relationship between e-commerce adoption and regulatory compliance. In the context of E-commerce Adoption and Regulatory Compliance, Innovation Management acts as a moderator that influences the relationship between these two factors. Effective Innovation Management practices enable organizations to navigate the complexities of regulatory compliance while leveraging e-commerce technologies (Novitasari et al., 2022). It facilitates the development of innovative approaches, tools, and systems that aid in compliance with evolving regulations. For example, organizations use innovative data encryption techniques to protect customer information, employ advanced fraud detection algorithms to ensure secure online transactions and implement robust privacy policies to comply with data protection regulations. Moreover, Innovation Management promotes agility and adaptability, allowing organizations to swiftly respond to changing regulatory landscapes. It enables them to anticipate regulatory requirements, proactively align their e-commerce practices, and implement necessary changes to maintain compliance (Xiao, Wu, Xie, & Hu, 2019). This could involve employing agile development methodologies, fostering collaboration between legal and technology teams, and integrating compliance considerations into the product development lifecycle. Furthermore, Innovation Management drives the creation of innovative business models that inherently incorporate regulatory compliance (Feng & Jin, 2022). By adopting a proactive approach, organizations develop e-commerce strategies that prioritize compliance from the outset. For instance, they

explore partnerships with regulatory bodies or industry associations to gain insights into upcoming regulations and shape their e-commerce initiatives accordingly (Cao et al., 2021).

CONCLUSION

The study examined the impact of e-commerce adoption on regulatory compliance in the information systems of foreign investment management in Malaysia, with a focus on the mediating role of IT capability and information security measures, as well as the moderating role of innovation management. The findings of this research shed light on the complex dynamics between e-commerce adoption, regulatory compliance, and various factors that influence this relationship. Firstly, it was found that e-commerce adoption positively influences regulatory compliance in the information systems of foreign investment management in Malaysia. This suggests that embracing e-commerce platforms and technologies can enhance compliance with regulatory requirements, enabling organizations to operate more efficiently within the legal framework. Moreover, the mediating role of IT capability and information security measures was identified in this study. It was observed that organizations with strong IT capabilities and robust information security measures are more likely to achieve higher levels of regulatory compliance when adopting e-commerce. These findings emphasize the importance of investing in IT infrastructure and security measures to effectively manage regulatory compliance in the context of e-commerce adoption. Furthermore, the study explored the moderating role of innovation management. It was revealed that innovation management positively influences the relationship between e-commerce adoption and regulatory compliance. This implies that organizations that effectively manage innovation processes are better equipped to navigate the challenges associated with regulatory compliance when adopting e-commerce. By fostering a culture of innovation and implementing appropriate innovation management strategies, organizations can leverage e-commerce technologies while adhering to regulatory requirements.

IMPLICATIONS

This study's theoretical implications are important as they enhance our comprehension of how e-commerce adoption and regulatory compliance are related in the context of foreign investment management in Malaysia. Ensuring compliance requires aligning e-commerce practices with regulatory requirements, which is of utmost importance. The study highlights the importance of organizations improving their IT capabilities and implementing strong security measures to comply with regulations in the e-commerce industry. This is emphasized by the identification of IT capability and information security measures as mediating factors. Moreover, the research emphasizes how innovation management plays a crucial part. It suggests that companies that can efficiently handle innovation procedures can leverage their innovative methods to improve regulatory

compliance in the e-commerce industry. The discovery highlights the importance of adopting an innovation-focused strategy to ensure that e-commerce activities comply with regulatory requirements.

This study provides useful insights for managing foreign investments in Malaysia. Organizations need to create plans for regulatory compliance that take into account the adoption of e-commerce. To ensure compliance, it is important to have a deep understanding of the applicable regulations, utilize IT capabilities, establish strong information security measures, and manage innovation effectively. For organizations that want to implement e-commerce and follow regulations, it's essential to invest in developing their IT capabilities. This means improving the technical setup, implementing appropriate software solutions, and developing the required abilities and expertise among staff members. When you enhance your IT capabilities, it helps to simplify your operations and ensures that you comply with regulatory requirements. To ensure the security of information, organizations need to focus on implementing thorough security protocols and practices, as these measures play a crucial role in mediating potential risks. This involves using encryption methods, performing frequent security assessments, setting up access restrictions, and offering training programs for staff members. Organizations can safeguard sensitive data, retain customer trust, and comply with regulatory standards by implementing strong information security measures. In addition, it is important to promote a work environment that encourages innovation and implements efficient methods for managing innovative ideas. This means promoting creativity, giving employees the ability to participate in innovation processes, and creating ways to gather and execute innovative ideas. Organizations can use their innovative practices to comply with regulations and adopt e-commerce by managing innovation effectively.

LIMITATIONS AND FUTURE DIRECTIONS

The small sample size could affect the statistical analysis and ability to detect significant relationships, which is a potential limitation. Another limitation of the study is to use cross-sectional research design because it may limit the ability to establish causal relationships between variables. Finally, using self-report data comes with the possibility of response bias and social desirability bias. This is because participants may give answers that they think researchers want to hear or may not accurately remember or report their experiences and actions. To improve the overall applicability, accuracy, and comprehension in this area, it is recommended that forthcoming studies tackle these constraints.

The regulatory framework in Malaysia must adapt to keep up with the evolving e-commerce landscape, effectively address new challenges, and ensure compliance in foreign investment management. To move forward, it would be beneficial to create thorough regulations that deal specifically with e-commerce, managing foreign investments, and addressing security and privacy concerns related to

information systems. To handle e-commerce adoption and regulatory compliance efficiently, organizations need to concentrate on improving and developing their IT capabilities. To safeguard sensitive data, maintain data privacy, and avoid cyber threats, organizations must give importance to information security. It is recommended to implement certain measures such as using advanced encryption, ensuring secure payment gateways, conducting regular security audits, and providing cybersecurity training to employees. The adoption of e-commerce and compliance with regulations are influenced by the capabilities of IT and the security of information. To fulfill their legal responsibilities, organizations must enhance their IT and information security measures. By considering these factors, it will be possible to manage e-commerce efficiently and comply with regulations. The impact of regulatory compliance on e-commerce adoption is moderated by innovation management. To address regulatory issues in e-commerce, organizations need to encourage and facilitate innovation. Encouraging collaboration, promoting continual improvement, and being flexible with regulations are important aspects of innovation management. Constant monitoring and adaptation are important for both e-commerce adoption and regulatory compliance. Organizations need to keep an eye on regulatory changes, technology advancements, and potential threats. Performing routine audits can help identify any gaps and ensure adherence to regulations. Stakeholder participation is necessary for managing foreign investment. Collaboration among industry groups, regulatory bodies, and e-commerce platforms is necessary to establish regulatory compliance standards and best practices. By adopting this collaborative approach, foreign investment management in Malaysia's e-commerce ecosystem will be able to establish trust, minimize risks, and create a fair playing field.

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