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The Influence of Information Technology and Operational Competencies toward Supply Chain Agility: Findings from Textile Manufacturer

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Abstract. Supply chain agility become a critical strategic for business communities to gain the superior competitive advantage in the volatile and turbulent market. Previous studies on supply chain agility focus to the industries such as electrical and electronics industries. The limited study particularly in the context of supply chain agility in Malaysia motivates the study to further investigate the practices. The purpose of this study is to determine the relationship between information technology and operational competencies towards supply chain agility in firm. Data collection instrument used was a questionnaire which administrated to a total sample size of 60 executive officers, directors, CEO, managers and senior staff from 15 textiles and apparel companies from southern Malaysia. The respond rate is 63.3% which is only 38 respondents were responded to the survey. Sample selection was based on purposively sampling. The data were analysed by using mean, standard deviation and correlation between independent and dependent variables. The analyses involved statistical methods such as reliability, normality and nonparametric correlation. The finding showed that information technology and operational competencies have a positive relationship with supply chain agility respectively.

1. Introduction

In today's business environment, the competitions among the firms are very intense. The fast-changing on global market demands transform the supply chain level into an agile mode from the organization to its partners in supply chain [1]. Firms have realized supply chain agility (SCA) is essential in their business for survival and gain the competitive advantage in the uncertain market [2]. The firms are able to respond instantly and easily in the volatile market by achieving SCA. Firms must form an alliance with their suppliers and customers to achieve a competitive edge. The cooperation among these parties in the supply chain is able to form a streamline operation, as well as achieve a level of agility beyond individual companies.

As stated by [3], the firm's SCA directly impacts its ability to product, and delivers innovative products to their customers in a timely and cost effective manner to a constantly changing global competitive environment. An agile supply chain model consists of information-driven virtual integration, process integration and performance management, centralized and collaborative planning,

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and market sensitivity and responsiveness [4]. There are few empirical studies showed that successful SCA concept applied will give positive impacts to business performance [5]. However, SCA is a philosophically simple concept but difficult extensively to imply in a whole supply chain network due to the disparity in ability of the parties in a supply chain. Hence, the study aims to examine the two most influential competencies; information technology competence and operational competence will show a positive relationship towards supply chain agility of the firm.

1.1. Research background

Based on Ministry of International Trade and Industry report in 2014, textiles and textile products industry in Malaysia comprises into four sub-sectors, namely primary textiles which cover activities such as polymerization, spinning, weaving, knitting and wet processing; made-up garments; made-up textiles; and textile accessories. This industry are involved the upstream supply chain which the supplier to manufacturer and downstream supply chain which counted the end consumer.

Maslow's hierarchy of need states that textile and apparel are significant components of physiological needs. This implied that the textile and apparel are vital to human as there were the basic consumption which gives physical protection to individuals. Based on statistics [6] reported the textiles, clothing and footwear manufacturing have increased by 13% to RM12.12 billion to the growth in export for 2014. Textile and apparel industry in Malaysia has growth to be one of the export earners. It has been recognized in Malaysia's Third Industrial Master Plan (IMP3) for further development because it is potential to growth. In 2013, 1.4 per cent of Malaysia's total exports of manufactured goods are contributed by textile and textile product industry and this industry was ranked 11th top export earner to Malaysia. According to Malaysian Investment Development Authority (MIDA), the export of textile to USA, Japan, Indonesia, Turkey and China brought along RM10.3 billion income to Malaysia. The textile and clothing industry in Malaysia is planning to focus on high value fashion, dyeing and finishing, and technical textiles to sustain growth [7].

Textile and apparel industries has the market characteristics of short product life cycle, volatile demand patterns, low predictability, high impulsive purchases and complex supply chain [8]. The supply chain agility (SCA) is the integration of these four features which are responsiveness, competence, flexibility and speed for firms to react effectively and efficiently in the turbulent and volatile market. In other words, textile and apparel industries can indicates the effectiveness of competencies of information technology and operational toward SCA on business performance. Therefore this study tries to address this gap and test the level of SCA in firms.

1.2. Problem statement

A firm that wants to achieve supply chain agility is not simply as implementing rules or procedures [2]. According to [9] there are eleven barriers faced by firm instead of to achieve superior supply chain agility. Supply chain agility is about the collaboration among the parties involved in a supply chain. Every decision made such as location or allocation decisions, inventory control, production planning, transportation mode selection, and supplier selection in manufacturing will affect the agility in a supply chain network. Besides, the issues like organizational resistance to change, inter-functional conflicts, joint production planning, profit sharing, team oriented performance measures, shifts in channel power, information sharing, real time communication, and technical compatibility may also influence the SCA.

According to the directory of Federal of Malaysian Manufacturer, the textile and apparel industry in Malaysia is made up of 25 % large enterprises, 44% of medium enterprise, 30% small enterprises and 1% micro enterprises [10]. As a corollary, these small and medium size textile and apparel company might not aware on the information technology integration among the supply chain units due to their limited IT resources. Besides, they might face difficulties to coordinate with external supply chain partners due to the incompatible technology platforms and standards [11]. It is because they have limited capital to invest in IT to develop a complete information system with their supply chain partners. The information about the internal supply chain system for instance purchasing, materials

management, manufacturing and distribution flows inconsistently towards the external supply chain coordination.

Additionally, it is costly for small and medium size textile and apparel companies to adopt supply chain technology since they have resource limitation [8]. Thus, the poor IT infrastructures and facilities caused the textile and apparel companies failed to integrate either the departments in their own company or with their supply chain partners. The information sharing and spares information among units in firm or within firms has increase the difficulty to exchange data. Hence, the firms are enable to retrieve accurate customer's demand patterns of customer. This phenomenon will affect the cost of production indirectly, communication and the list of factors which related to the SCA. Yet, many organizations unrealized the importance of information systems in their supply chain structure. Thus it caused insufficient applications of IT in virtual enterprise.

Meanwhile, many company unwilling to share critical information with their suppliers and caused a poor correlation among the firm with their supply chain partners. According to [12], "over reliance on technology without willingness to share critical information pertaining to supply chain will not make the firms meaning fully connected." In other word, it caused failed on supply chain integration. Insufficient resources are available or dedicated to information technology, lack of trust among partners in supply chain network, and history of opportunistic behaviour limits the willingness to share more information than is necessary [13]. Besides, the firm armed with the trade secret is a tool for them to compete with others when there is a change in market.

Most of the textile and apparel companies in Malaysia are small and medium enterprises, trained their workers internally to enhance their skills and knowledge about supply chain technologies. Thus, these issues have direct impact toward the whole supply chain flexibility. Hence, the textile and apparel companies might face retardation on respond to the changes in market and making decision to transform the uncertainties into opportunities. It is critical for these firms to adhere with SCA concept to be competitive in future. The present study had four principal objectives, namely to:

- To determine the influence of information technology and operational competencies on supply chain agility.
- To identify degree of importance of information technology and operational competencies toward supply chain agility.

1.3. Scope of research

This study is focused on the effects of information technology and operational competence on enhancing the firm's SCA. The study is concentrated on the textile and apparel industry at southern Malaysia. A statistical analysis is performed and the questionnaire survey question is distributed amongst top level management and executive staff from various units such as operation, procurement, sourcing, logistics, warehousing or transporter at textile and apparel company. These groups of staff became target respondents because they are involved in the decision making on supply chain and understand the operations of the company with their supply chain partners. This study is organizational level of analysis.

1.4. Significance of study

The result of this study will become the stepping stone for future researcher on the field on supply chain agility toward firm's performance. This study contributes the body of knowledge and SCA awareness among textile and apparel industry in Malaysia. Besides, this study can be extended the other industries with different market characteristics for future study. On the other hand, this study provides a significant endeavour in modelling the relationship of the information technology and operational competencies on a firm's SCA and help them enhance their firm performance. This study is also beneficial to the parties in a supply chain's corporate strategies when they integrate their competencies in the cooperation will let them experience the changes on the firm's responses to the market and also the chain's performance. The firms may able to get quick responses when facing a

sudden change in the market by obtaining the right information within a short period and able to fully use their available resources to transform the uncertainties in market into business opportunities.

Moreover, this study may help and educate firms to understand the importance and criteria of each competency in the area of supply chain management which tools help their company sustain in the market and the key to grab the chance in the volatile market. It will also serve as a future reference for researchers on the subject of SCA.

2. Literature review

2.1 Supply Chain Agility

The word "agility" is defined by [14] as the ability respond to the anticipated or unexpected changes in a proper ways and due time, survive unprecedented treats and able to take advantage of the changes by transform them into business opportunity. Supply chain agility is a new paradigm in supply chain management. There was no single accepted definition of supply chain agility (SCA). Most of the definitions of SCA shared the common elements with concept of agility for instance [5] defined SCA as the organization's ability to respond to unexpected market changes and convert these changes to business opportunities with the supply chain's capability to use resources in responding proactively or reactively to such changes, all in timely and flexible manner [15]. SCA is measured through four dimensions as presented in Table 1.

Table 1. The items of measurement for supply chain agility.

Dimension	Item of measurements	Adapted Sources
Supply Chain Agility	1. Market sensitivity includes the items of - market sensitiveness - new product introduction - minimizing resistance to change - minimizing uncertainty	[8] [9] [16]
	2. Virtual includes the - data accuracy - cost minimization - lead time reduction - trust development	
	3. Process integration - process integration - service level improvement - centralized and collaborative planning	
	4. Network based includes - delivery speed - use of IT tools - quality improvement - customer satisfaction	

2.2 IT competence

Information technology (IT) increases the capabilities of firms to sense and respond to the changes in market by allowing better inter-firms coordination [2]. Moreover, IT allow firms to communicate with the partners in a supply chain network and increase the volume and complexity of information about the accurate product demand, inventory, financial. IT also provides real-time supply chain information, inventory level, status of delivery, and scheduling plan and production planning to firms for controlling their supply chain activities [12]. Thus, IT competence is the fundamental support to supply chain agility. IT competence is the extent to which a firm is knowledgeable about the effectively utilizes IT to manage information within the firm [17]. IT competence is measured by two elements which are IT integration and IT flexibility.

IT integration is defined as the extent to which IT is used to coordinate and integrate information within a firm's function and with the firm's supply chain partners. [5]. IT integration enables firm to obtain more adequate and accurate data and information to making decision in the changing business environment. Firm apply IT integration intra and inter- organizational is aimed to achieve real-time transmission and processing of information required for supply chain decision making [12]. Hence, IT integration can enhance the supply chain agility capability of firm.

Firms only manage to change their business strategic according to the change of business environment when confronted with time and other pressures with accommodation adequate IT infrastructures [18]. Flexibility due to IT infrastructure is about the connectivity, compatibility and modularity of information technology components. IT flexibility can be defined as the ability of IT infrastructure to adapt to both incremental and revolutionary changes in the business or business process with minimal penalty to current time, effort, cost or performance [2]. It is mean the firm able to enhance their IT infrastructure based on market condition and changes according to the uncertainty happen in market in appropriate time. Table 2 lists the items of measurement of information technology competence.

Table 2. The items of measurement for information technology competence

Dimension	Item of measurements	Adapted Sources
Information Technology Competence	1. IT integration: To achieve real-time transmission and processing of information required for supply chain decision making the item of measurement include - efficient resource flow - inventory status - service capabilities - real time information exchange	[2] [5] [12]
	2. IT flexibility The ability of IT infrastructure to adapt to both incremental and revolutionary changes in the business or business process with minimal penalty to current time, effort, cost or performance. The items include - connectivity - compatibility - modularity	

2.3   Definition of Operational Competence

Operational competence is defined as the preparedness, skill, or capability that enables manufacturers to pursue a product-market specific business strategy [19]. Firms with operational competence can help to maintain an efficient flow of information and materials among different parties and functions along the supply chain, maintain continuous search of knowledge and reserve a wide variety of operational resources that can be activated quickly [14]. There are three dimensions contain in operational competence which are supply chain integration, supply chain flexibility and supply chain learning orientation.

The definition of supply chain integration is the formation of a network in which separate supply chain partners collaboratively manage intra and inter-organizational processes to arrive at mutually acceptable outcomes [20]. According to [21], firm not only can achieve efficient flows of information but also provide low cost and high speed of products and services, resources, and cash to provide maximum value to the customers.

Supply chain flexibility can be defined as the supply chain's ability to provide products and services in a timely and cost effective manner to an uncertain and rapid changing global environment [5]. According to the authors too, the supply chain flexibility in procurement, manufacturing,

distribution and product development give impacts on supply chain agility. Supply chain flexibility can be categorized into strategic flexibility and manufacturing flexibility. Strategic flexibility is the competence of firm to recognize the changes in business environment, facilitate resources quickly to adapt the changes and able to identify and act promptly when it is time suspend or reverse such resource commitment [22]. Manufacturing flexibility which meant by [23] is the competence of firms to manage their manufacturing resources and meet different customer requirement. It is summarized from the definition, strategic flexibility is related to the firm's ability to respond whilst manufacturing flexibility is related to firm's operational ability and capability to make strategic decisions.

On the other hand, supply chain learning orientation is the ability of firm for learning continuously and has well prepared for any challenges in their business and environment. Commitment to learning which referred to the value placed on learning and open-mindedness which pertains to the willingness to evaluate critically the supply chain operations and accept new ideas. Besides, a shared vision which relates to the consensus on direction and focus of learning among organizational members [2].

Table 3. The items of measurement for operational competence

Dimension	Item of measurements	Adapted Sources
Operational Competence	1. Supply chain integration includes - effective flows of information, products and services, resources and cash - efficient flows of information, products and services, resources and cash - provide maximum value to customer with low cost and high speed.	[2] [14] [19] [21] [22] [24]
	2. Supply Chain Flexibility includes - the identify changes in the environment - the commit resources quickly to new courses of action in respond to change - recognition and act promptly when time to halt.	
	3. Supply Chain Learning Orientation is the - commitment to learning - open-mindedness - shared vision	

2.4   Conceptual Framework and Hypotheses
Based on the literature review discussed in previous section, a conceptual framework in figure 1 and several hypotheses have been developed as shown below.
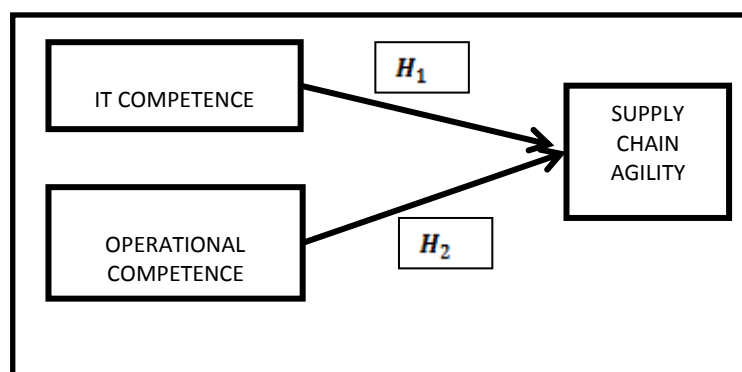

Figure 1: Conceptual Framework

Table 4. Research hypotheses

H_1 :	IT competence is positively related to supply chain agility.
H_2 :	Supply chain flexibility is positively related with supply chain agility.

3. Methodology

The study employed quantitative research using survey method. The collected data were analysed by using Statistical Package for Social Science (SPSS) version 22.0. The researchers choose quantitative compared into this qualitative because survey method rarely used on research of supply chain agility. The purpose of using survey questionnaire was to see the perception of the respondents towards supply chain agility in the selected company.

A flow diagram is established to ensure this research can be carried out smoothly. There are several stages found in the flow diagram. First, the research problem is identified and this research as the basis for solving those problems. Secondly, the literature reviews on the research topic are reviewed for better understanding of the terms to be investigated in this research. Then, the conceptual framework and several hypotheses are developed. After that, the questionnaire of this research is designed and undergoes the stage of pre-testing for further refinement. Next, data is analysed after the distributed questionnaires have been collected. Finally, the interpreted result is combined and reported.

3.1 Sampling design

Sampling is essential in the study because it is almost always impossible to study a large population. Purposive sampling technique is used in this research in which the researcher decides the tasks need to be identified and find the people who can provide the information by virtue of knowledge voluntary [25]. The target respondents need to be top level management who are from the unit of operation, procurement, sourcing, logistics, warehousing, transporter or executive staff in textile and apparel companies in southern Malaysia.

3.2 Population and sample

The population of this study is the 300 textile and apparel companies located at southern Malaysia listed in the Federation of Malaysian Manufacturers directory (FMM) and Malaysia External Trade Development Corporation (MATRADE) directory. Specially, the targeted respondents are the top level management who are the director, CEO, managers, senior executive who are direct involved in supply chain to give a response on the present study.

The unit of analysis in this study is the individual from the firms. The respondents were assumed to be knowledgeable and familiar with the operations related to the issues under investigation. The questionnaires were sent to the office of the respondent who willing to answered. Total of 38 respondents completed the survey questionnaire out of 60 respondents from the sampling frame.

3.3 Pre-testing and Data collection instrument

A pre-testing was undertaken to assess the reliability of the attributes, and to ensure that the wordings of the questionnaire were clear. As suggested by [26] pre-testing in this research was done by six experts in the related fields of this research topic with accompaniment of researcher. Some problems were identified with the wordings and implications of some questions, thus some minor revisions were made to avoid confusion. There are three sections consisted in the questionnaire which are demographic information of the respondents, IT competence with 9 items, operational competence with 13 items and SCA with 10 items. The measurement of these items is using a five-point Likert Scales which rank from 5=strongly agree until 1=strongly disagree. Total 60 samples of survey questionnaire has been distributed to 15 textile and apparel companies with each company received 4 surveys to avoid biases.

4   Data Analysis and Findings

The Statistical Package for the Social Sciences version 22.0 was used to analyze the data. Descriptive statistics analysis was used to measure respondent's perception. The means, standard deviations, and the difference scores were computed for each attribute. The means were computed by adding up the scores allocated by respondents for each attribute and dividing the total value by the number of respondents. Correlation analysis was employed for hypotheses testing. From the results, some conclusion on the competence toward SCA would be drawn.

4.1   Demographic analysis

Male respondents showed the highest frequency which is 26 person (68.4%) and only 12 person of female answered the questionnaire. Besides, most of the respondents are Malay which incurred 55.3% whilst Chinese respondent only 39.5% and the least is India respondents which is only 5.3%. Meanwhile, the age of majority of the respondents were in the range of 40-49 years old which are 28.9% with 12 respondents. 28.9% or 11 respondents are aged in the range of 30-19 years old, 21.1% or 8 respondents are below 30 years old and only 18.4% or 7 respondents are more than 50 years old.

There are 26.3%, 23.7%, 21.1%,18.4% and 10.5% respondents are work in units of others, procurement/sourcing, operation, warehouse/distributor and logistic respectively. Next, from the data collected, it is noticed that 57.9% (22 respondents) are work as manager, 7 people of them (18.4%) are directors and senior manager respectively, and only 5.3% are CEO. Due to this research is focused on top level management; most of the respondents (34.2 %) have 6-10 years of experience. Next is 8 respondents (21.1%) with 11-15 years of experience, 5 respondents (13.2%) with 16-20 and 26 above years experiences separately, 4 of them only below than 5 years of experience, and lastly only 4 (10.5%) are worked for 21-25 years.

About the company's position on supply chain, there are 60.5% of respondents are main manufacturer and main supplier to main manufacturer respectively. However, there are 65.8% of them are secondary supplier to main manufacturer and only 11 （28.9%）of them from the sample size are distributor or dealer. In term of the engagement of company with suppliers, 11 respondents (28.9%) have 16-20 suppliers. The other are 9 respondents (23.7%) engage with the range of 21 to 25 respondents, 18.4% with 26 and above suppliers, 6 respondents (15.8%) with 6 to10 suppliers and lastly 13.2% have 11 to 15 suppliers.

From the aspect of the frequency of the company provides IT training for staff, it is discovered that there is none of them are always provide the training. 15 of respondents are sometime provided the training for staff. The rest of 9 respondents (23.7%), 8 (21.1%) and 6 (15.8%) are never, rarely and often provide training for their staff. In the perspective of frequency to upgrade company's IT infrastructures, the highest is 2 years per time which are 9 respondents (23.7%). In contrast, 21.1% are upgraded their IT infrastructure more than 5 years once. 7 respondents upgraded 3 years once, 4 of them are never upgrade or upgrade their IT infrastructure every 5 years. The other of 6 respondents are equally separated in the frequency of once a year and every 4 years for upgrading.

4.2   Reliability analysis

Validity and reliability of the adapted or modified scale were established. Validity tests how well an instrument that is developed measures the particular concept it is supposed to measure. Reliability of a scale on the other hand indicates the stability and consistency with which the instrument measures the concept and helps to assess the goodness of a measure [27]. Reliability analysis was conducted by computing the Cronbach's alpha. The result showing that variables in the study had acceptable reliability with Cronbach's alpha ranged from 0.835 to 0.924. Nunnally and Bernstain [28] stated that values of Cronbach's alpha that are above 0.7 (ranging from 0.6-0.9) for all performance measures is acceptable.

Table 5. Reliability Analysis

Variables	Cronbach's Alpha (Original)	Cronbach's Alpha after Item Delete	Number of Item Delete	Number of Item Left
IT Competence	0.835	0.835	None	9
Operational Competence	0.820	0.820	None	13
Supply Chain Agility	0.924	0.924	None	10

Table 5 indicates the reliability of all variables which Cronbach's Alpha values are higher than 0.7. IT competence is 0.835, operational competence is 0.820 and supply chain agility showed the Cronbach's Alpha value of 0.924. These results indicate that all measured items have achieved internal consistency and measuring the right construct. Thus, none of the items being deleted due to the high Cronbach's Alpha value shown.

4.3   Descriptive analysis

Respondents are required to answer each question in the survey by scoring a point of 1 to 5 according to their opinion. Then, the data is computed into mean and standard deviation. Morgan et al. [29] stated that the mean value obtained gives the average some of their response for each of the items that the respondents answered. While standard deviation is used to measure the dispersion of the data in which how close the entire set of data is to the average value. The lower the value of standard deviation, the closer is the data to the average value. Table 6 indicates the level of mean measurement which is ranked by the central tendency level according to [30].

Table 6. Level of Mean Measurement

Mean Range	Central Tendency Level
High	3.68 – 5.00
Moderate	2.34 – 3.67
Low	1.00 – 2.33

(Source, Wiersma, 1995)

4.3.1 Descriptive analysis of IT Competence items.

Table 7 shows that mean and standard deviation value of IT competence items. The mean values are in the range of 2.32 to 3.71 which indicated moderate mean score. Meanwhile, the standard deviation values are in the range of 0.98-1.32. The results show the data point are far grouping the mean value.

Table 7. Descriptive analysis of IT competence

Item of measurement	Mean	Std. Deviation	Interpretation
	Statistic	Statistic	
ITI_analyze	3.50	1.25	Medium
ITI_changeinfo	3.55	1.08	Medium
ITI_UGinventory	3.24	1.05	Medium
ITI_measure	2.66	1.21	Medium
ITI_monitor	3.47	1.22	Medium
ITF_staff_support	3.71	0.98	High
ITF_bintegrete	3.39	1.10	Medium
ITF_MIS	2.32	1.04	Low
ITF_Itmanager	2.34	1.32	Medium

Average mean score	3.13		Medium

4.3.2 Descriptive analysis of Operational Competence items

Table 8 shows that mean and standard deviation value of operational competence items. The mean values are in the range of 2.71 to 3.92. It is meant that the respondents are agreed on the items of measurement. However, the standard deviation of operational competence items is between 0.81 and 1.17 which showed the items are grouping far from to the mean.

Table 8. Descriptive analysis of operational competence

Item of measurement	Mean	Std. Deviation	Interpretation
	Statistic	Statistic	
OCI_communication	3.13	1.04	Medium
OCI_extendSC	2.71	1.18	Medium
OCI_marketing	3.39	1.13	Medium
OCLO_proTraining	2.84	1.20	Medium
OCLO_SClearning	3.76	0.88	High
OCLO_NewSCtech	3.29	0.98	Medium
OCLO_NewSCknow	3.45	1.16	Medium
OCF_seasonality	3.92	0.97	High
OCF_breakdown	3.87	0.81	High
OCF_delivery	3.42	1.06	Medium
OCF_newmarket	3.37	1.17	Medium
Average mean score	3.38		Medium

4.3.3 Descriptive analysis of Supply Chain Agility items.

Table 9 illustrates the mean and standard deviation values on the items of supply chain agility. The range of mean scores is 2.68 to 3.55 which classified as a moderate range of mean score. The range value of standard deviation under SCA items are from 0.92 to 1.25 which mean the respondents' answer is far grouping from the mean value.

Table 9. Descriptive analysis of supply chain agility

Item of measurement	Mean	Std. Deviation	Interpretation
	Statistic	Statistic	
SCA_leadtime	3.55	0.98	Medium
SCA_uncertainty	2.87	0.99	Medium
SCA_dataaccuracy	3.45	1.18	Medium
SCA_newPintro	2.68	1.23	Medium
SCA_delivery	3.42	0.92	Medium
SCA_Pcost	3.34	1.1	Medium
SCA_cusServ	3.45	1.13	Medium
SCA_marketneeds	3.39	1.13	Medium
SCA_quality	3.29	1.25	Medium
SCA_collaborative	3.24	1.2	Medium
Average mean score	3.268		Medium

4.4   Correlation analysis

Correlation is the term used to measure the strength of relationships between variables. Moreover, it is a statistical technique to determine the relationship between the independent variables and dependent variables. Correlation with the significance value below 0.05 is considered significant. Thus, the null hypotheses is rejected. Table 10 highlighted the final results.

Table 10. Descriptive analysis of supply chain agility

			IT competence	Operational competence	SCA
Spearman's rho	IT competence	Correlation Coefficient	1.000	.632**	.491**
		Sig. (1-tailed)		.000	.001
		N	38	38	38
	Operational competence	Correlation Coefficient	.632**	1.000	.529**
		Sig. (1-tailed)	.000		.000
		N	38	38	38
	SCA	Correlation Coefficient	.491**	.529**	1.000
		Sig. (1-tailed)	.001	.000	
		N	38	38	38

The significant value of IT competence towards supply chain agility is 0.001 which is less than 0.005. It indicates that the correlation is significant. The Spearman's rho correlation coefficient is 0.491 or 49.1% which stated that there is a positive relationship between IT competence and SCA. Thus, H0 is rejected. In addition, the degree of importance of IT competence toward SCA is 49.1%.

The significance value of operational competence towards SCA is 0.000 <0.005. It is meant that the correlation between variables is significance. Meanwhile, the Spearman's rho correlation coefficient is 0.529 or 52.9%. It indicates that there is a positive relationship between operational competence and SCA. Thus, H0 is rejected. Moreover, the degree of importance of operational competence toward SCA is 52.9%.

5   Discussion

This study is conducted to determine the influences between the independent variables (IT and operational competence) towards the dependent variable (supply chain agility). Moreover, it is objectively to prove there is a significance correlation between those two competencies towards supply chain agility.

5.1 Relationship between IT competence towards SCA

H_1 shows the relationship between IT competence and SCA. The values of Spearman's rho correlation coefficient is +0.491**. It is meant that the relationship has moderate correlation among two variables. This result indicates that the competence of IT of a firm will influence the achievement of SCA.

This result congruent with the study of [2] which stated that IT integration and IT flexibility are enablers of supply chain agility. Moreover, the study of [11] found that information systems had a positive effect on supply chain agility based on network management to enhance the firm's ability to transform the uncertainty into business opportunities.

5.2 Relationship between Operational competence towards SCA

H_2 shows the relationship between operational competence and SCA. The values of Spearman's rho correlation coefficient is +0.529**. It is meant that the relationship between two variables was positively correlated. The present study supports the finding of [2] who did prove that the operational competence had positively correlated with SCA. Besides, [5] also recognize the supply chain flexibility had significant direct impacts on supply chain agility. The author mentioned that the higher level of supply chain flexibility might leads to higher SCA. It is also suggested that the alignment of IT infrastructure and flexibility can behave as complementary capabilities that facilitate agility [30].

6   Recommendation and Conclusion

This study was conducted to identify the influence of IT and operational competencies of textile and apparel industry in Malaysia toward its company's SCA. The findings from literature reviews revealed that IT and operational competencies plays an important role for textile and apparel companies to reached supply chain agility. Similarly, this study was expected to show a positive correlation between the two competencies with supply chain agility respectively in Malaysian textile and apparel industry. However, researcher discovers that some of the practice of textile and apparel companies in local is divergence with overseas. Most of the companies in Malaysia are not develop their owned information system with their supply chain partners and caused a failed business integration. Beside the importance of providing staff for IT training and upgrading IT infrastructure is not notified by local textile and apparel companies. However, many top level management are willing to provide their staff new supply chain knowledge and technology if within their ability.

This study has certain limitations in its findings and conclusions. Data are collected from average of two respondents in each related company. It might contained bias although the selected respondents with substantial knowledge on the issue discussed. The results obtained from 15 companies may not be generally applied considering the sample size. However, researcher convinced that this study able to provide a concept of how the IT and operational competencies enhance the firm's SCA.

The textile and apparel company in Malaysia should improve on the integration of information system with their supply chain partners. It is because the information might update on time and can be used to analyse the solutions for uncertainties. Besides, the companies should no longer only focus on solely on internal competence development but need to expand their competence align with their partner in supply chain. It is an insight for the top level management strategically plan for the advancement of supply chain agility to achieve a satisfactory supply chain with a good inter-organization collaborations.

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