

Supply Chain Disruptions That Impact on Factors of Supply Chain Efficiency Performance and Competitiveness

Siti Norhadibah Azman^{1*}, Harlina Suzana Jaafar²

¹Malaysia Institute of Transport (MITRANS), Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia. ²Faculty of Business Management, Universiti Teknologi MARA, Bandar Puncak Alam, Selangor, Malaysia.

*Corresponding Author: adiba2983@gmail.com

Abstract

Through the commitment towards regional liberalization transformation in ASEAN Community, Malaysia needs to identify the common strategy and established an enhanced supply chain efficiency activities and procedure to be added value in this competitive trade environment. This is to ensure the capability of Malaysia facilitation in trade can provide an utmost satisfaction to a foreign investor and lead a good direction to economic growth. Therefore, this paper is to highlight the supply chain disruptions factors which can impact the performance of supply chain efficiency competitiveness in Malaysia towards the trade liberalization and review the extend obstacles that contribute to a supply chain risk issues that affect the heart of the supply chain Malaysia in global trade. The research focused of this study is based on manufacturer perspective to identify the performance of supply chain efficiency in Malaysia which can connect the factors that impact on supply chain disruptions. The methodology used is based on a quantitative approach and analyse the data using the statistical software (SPSS) from the constructed questionnaire. The results on frequency show that there were three major factors contribute to the disruptions of supply chain efficiency performance in Malaysia trade. These factors which effect the performance of supply chain efficiency in Malaysia were interlinked with the global trade nature which can increase the exposed to a range of risks. Determine the factors early can provide benefits to the industry by tackling the issues that effect the disruptions of supply chain efficiency performance in Malaysia. The novelty of this study is founded on the results of analysis from the view of the manufacturer towards the supply chain performance and competitiveness.

Keywords: Supply chain efficiency, performance, factors that impact the disruptions, manufacturers in Malaysia, competitiveness in Trade Liberalization

Introduction

The transition of the global market to globalization and trade liberalization has led to the economic increase and sustainable growth in certain countries and it also enables the international trade volume to increase. The role and importance of supply chain services have become more prominent in facilitating global trade.

Based on a study by Vakharia and Yenipazarli (2009), the recent trends and developments within supply chains have turned into global development and solution which increased the use of outsourcing in manufacturing and improve the shorter product life cycles lead time buffers. It has created a long, lean, and interconnected chains of companies which are vulnerable to disruptions and potentially a devastating effects in the future.

As competitions between firms in the global trade become more competitive they are constantly finding new ways to win the competition and this has to increase various initiatives such as outsourced manufacturing and aggressively discovering with a better supply chain for lower cost, increase profitability and achieving customer satisfaction. Therefore, supply chain efficiency can be used as one of the important key value drivers to distinguish the reliability of the countries in a competitive market and the development can attract a foreign investment coming in.

However, this has given lots of pressure for developing countries to reach excellent services in order to provide an efficient supply chain flow when disruptions in the supply chain can interrupt the strategy development to improved performance. As indicated by (Craighead et, al., 2007; Hendricks and Singhal, 2009), there has been a sizeable research discovering on supply chain disruptions which made the supply chain more visible to critical consequences in trade globalization which contributed to relevant insights on such related issues like supply chain risks, vulnerability, resilience, and continuity.

Background of Study

Lorentz et.al, (2012) mentioned a study by Prasad and Sounderpandian (2003), which indicates that manufactured products and component engaged with trade globalisation has increased international exchange in the market. Through international trade, manufacturing will be facing a geographical distribution of supply chain which embraced onto international complex flow from suppliers, internal production and other facilities such as transportation, warehousing, sales

and marketing subsidiaries and the end of route towards the customers where it will strategically effect several locations in countries and regions of the world.

Based on trade development and competitive liberalization market that will be fully established in Malaysia industry in 2020, a new strategy to enhance the economic performance is extremely importance to develop. This is because Malaysia is dependent merely on export of manufacturing nor services. A hub for supply chain efficiency establishment in trade facilitation can provide an effective competitive advantage for Malaysia to regain investor trust and open up a new expansion in economic growth.

The aim of this paper is to identify the factors that can disturb and provide impacts to the overall performance of supply chain which can hinder the growth of a dynamic economy towards the trade liberalization through investigating the impact and critical factors that linked and hindered the supply chain efficiency performance growth towards the trade liberalization competitiveness.

The Benefit of Supply Chain Efficiency

The strong benefit can be gain between trade and economic growth at the global level. Brooks (2012) has strongly identified that trade is particularly vital to the Asia-Pacific Economic Cooperation (APEC) economies and supply chains are therefore crucial to trade openness. When efficient supply chains came along it can shorten the transit time, lower the transportation and inventory costs, and facilitate the planning activities which can determining the ability to develop nations to attract foreign direct investments and as a key to the economic growth (Lu and Yang, 2007).

Khalid (2009) indicates that an efficient trade transport network is crucial for developing countries whose economic growth is trade-dependent and export-oriented. Malaysia is one of the countries that are trade-dependent economy for that reason they need to boost its competitive advantage around world trade throughout the world. The need for smooth, efficient and seamless supply chain

has become critical issues to promote with a greater speed and efficiency along the supply chain process.

Nevertheless, according to Housyar et, al., (2013) managing a supply chain in this uncertainty environment of global trade can result in certain challenges. There are a lot of risks like demand changes, political instability, transportation disruptions and natural disasters which can threat the stability of a chain member and increases the vulnerability of the whole supply chain. Supply chain disruptions and the associated operational and financial risks represent the most concern facing by firms that compete in today's global marketplace (Craighead et, al., 2007).

Disruptions in Supply Chain

Kleindorfer and Saad (2005) mentioned that an environment like supply chain which involved with the longer process and shorter delivery has prone to the disruption which has received increasing attention in last few years and disruption of operating performance can affects the costs, sales, and profits. Through understanding how disruptions can affect the risk of the firm, it is vital to signal a negative impact which can paralyse to the whole system of supply chain nevertheless can disturb the flow of entire country.

The example of supply chain disruption such as catastrophic of natural hazard, terrorist attack, political instability and breakdown of infrastructure has been categorised by Mitchell (1995) as “performance loss” or “time loss” due to supply chain failure. However, the impact of supply chain failure does not end with simply immediate performance and time losses but failure can extend to “financial losses” due to lost orders or the operational cost of treating the failure, “physical loss” of facilities or supplies in case of fire or flood and even to “social loss” of the firm reputation for reliability.

This research has been through via examination of the literature by investigates the possible reasons of disruptions in a supply chain and then classifies the risks which can cause disruption in a supply chain by highlighting

the major impact to the supply chain efficiency improvement in Malaysia. By recognising the worst impacts that disturb the supply chain efficiency from a manufacturer perspective, a new strategy which can control and mitigate the risk effect on the chain can be identified for a new enhancement of performance.

Disruptions Risk Factors

From a supply chain perspective, disruptions can lead to severe consequences such as experiencing disruptions in the supply chain can typically expect declines in sales growth, stock returns, and company value.

A survey by Business Continuity Institute in 2011 has found solid claims whereby 85% of companies involved in the global supply chain has experienced at least one supply chain disruption in the last twelve month. The impact of disruptions can be severe as costs of disruptions can be high, increase downtime, delays in delivery, reduce the revenues, loss of customers trust and damaged the reputation.

Vakharia and Yenipazarli (2009), has mentioned the slowing effect of supply chain disruptions through several recent observations which have led to an increased focus on supply chain disruption management. Therefore, supply chain managers are starting to recognize the impact of supply chain disruptions on their operations due to the emergence of globalization as a competitive strategy which across multiple countries.

Below in Table 1 shows the disruptions risk in the supply chain and the causes or effect that has been hindered the performance of the whole supply chain associations.

Table 1
Factor of Disruptions Risk in Supply Chain Efficiency and the causes/effects

Disruptions Risk	Causes/Effects	References
Natural Hazards	Earthquakes, hurricanes, floods and tsunamis such as devastation of New Orleans after hurricane Katrina and Andrew, tsunami in Thailand, Indonesia and India, Taiwan and Kobe earthquake Temporary shutdown of the	Dirk et, al., (2006) Pasadilla (2014) Balakrishnan et, al., (2008) Jira and Toffel (2013) Kleindorfer and Saad (2005)

	factories	
Breakdown of infrastructure	Equipment malfunctions and system failures might delay a shipment Effects of a very major storm cause utilities struggled to get power back to customers within four weeks	Balakrishnan et, al., (2008) Kleindorfer and Saad (2005)
In-house disturbance of information system	System shutdown due to lightning can reduce or stop production until the system was operational again Software installation resulted in shipment delays and incomplete order shipments	Balakrishnan et, al., (2008) Pereira (2009) Granström (2017).
Political Instability	Sabotage and destructive competitive acts and political instability in different countries at different periods	Kleindorfer and Saad (2005) Robb and Bailey (2003)
Document	lack of title document, inadequate, inaccurate, and fraudulent documents which provide a negative financial impact on firm and industry performance	Pasadilla (2014)
Difficulties in Forecasting demand	Supply disruptions of consumer goods such as toys and food products have an impact on supply channels. Frequent unpredictable changes in external factors. Effect the long-term shareholder value, profitability, and share price volatility	Hendricks (2005) Aigbogun et, al., (2014) Kleindorfer and Saad (2005)
Disturbance in labour markets	Strikes, chaos arising from internal organization, cross-border campaigns, labour control regime, worker resistance	Anner (2015) Bertranou and Titelman (2016), Balakrishnan et, al., (2008), Kleindorfer and Saad (2005)
Financial Difficulties	Lack of capital, financial crisis, movements in market prices, debt payments, exchange rates, interest in trading certain assets, supplier goes bankrupt result in a work being stopped	Heckmann et, al., (2015) Pasadilla (2014) Balakrishnan et, al., (2008)
Lack of competent personnel	Lack of skills, knowledge, day to day decision making strategy, practices, and human interaction	Fawcett et, al., (2005)
Delays in payment	Credit period increases the operational cost (credit risk) and default risk to suppliers (failure to pay)	Li et, al., (2014)
Material shortage	Disturbance in the planned order scheduling to both internal and external, significant delays throughout the supply chain	Larrson (2008) Nor et, al., (2014)
Supplier weak delivery	Shortages can occur in manufacturing, quality problems, delays and discontinuations. Reduce sales revenue in short- term and result in long-term reduction in market share	Gurnani et, al., (2011) Association of State and Territorial Health Officials (2012) Nor et, al., (2014)

Determining the factors that impact the supply chain performance from a various literature has been a validity of risk perceptions with regard to supply chain disruption occurrence all over the world. Based on Table 1, factors that impact the value of supply chain risk performance has been identifying as frequent factors which increasingly happen in the supply chain due to the growing of trade global and complex nature. This factor has caused immediate consequences of supply chain disruptions.

Shukla et al., (2011) have mentioned on network disruptions can lead to supply uncertainty which all supply chain networks and logistics systems are subject to such disruptions periodically these days which effect the performance. Disruption factors that disturb the flow of goods can occur due to natural hazard like flood, hurricane, manmade factors like nuclear explosion, supplier delivery delay like terrorist attacks, union strikes and port closure, economic crisis and government regulation mostly vulnerable to supply chain performance.

Method

Various factors have been listed as main concern according to actual factors that happen which causes the disruptions in supply chain Malaysia whereas it can affect the efficiency competitiveness towards the trade liberalization. Random sampling approach has been used in the structured questionnaire for manufacturer companies. All of these factors listed below in the results are used to identify which factors have effected more towards the supply chain efficiency performance in conjunction with the trade liberalization in order to avoid any disruptions along the competitive open market.

The population of this study are based on Manufacturer Company under the directory of the 44th of Malaysia Manufacturer (FMM) in order to gather the sample size with a total of 129 respondents. The random respondent will be getting the questionnaire by mail and electronic mail method as the potential respondent will be a registered company in Malaysia manufacturing industry. Statistical

software (SPSS) has been used to analyse the data which have been collected through email and interview as the best method approach. Frequency has been used as a final table result of analysis data.

Result

The results in Table 2 have explored the types of worst impact factors on the supply chain where each of factors has contributed towards increasing the frequency of risk that had negative outcomes over the last two years.

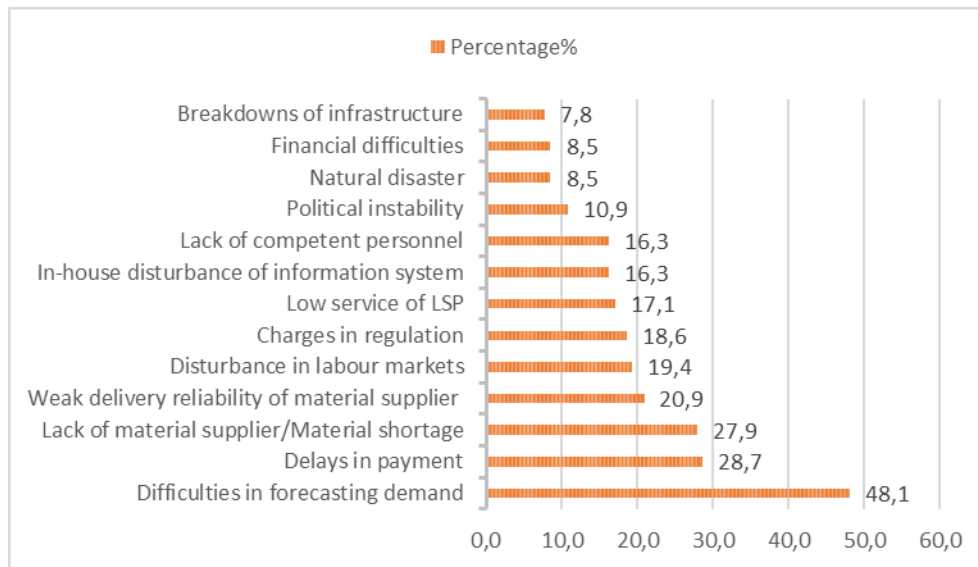
Malaysia needs to improvise its mission for the smooth of trade flow when the AEC has fully utilized by monitoring the environmental changes. It is because the spontaneity of the changing direction of fully free flow of trade in 2020 will be given higher implication to firms that are not aware and lack of strategy that lies ahead to face highly competitiveness market between ASEAN countries. This implication can give benefit to other foreign firms to monopolize the situation instead to the local business environment.

As the supply chain becomes more efficient, it also becomes more vulnerable to different disruptions. Recent globalization and the increasing length of the supply chain have exposed each supply chain to be riskier in several factors (Nor et, al. (2014). Factors like forecasting demand, delays in payment and material shortage are the highest factors of disruptions happens in Malaysia supply chain efficiency performance along with another factors which impacts the capability of national trade to the globalization which can integral the uncertainties (Balakrishnan and Bowen, 2008).

Figure 1 shows that by far the greatest concern about supply chain disruption in Malaysia is more likely was high demand variations or difficulties in forecasting demand represent 48%. Followed by customer non-payment or delays in payment represent almost 29% and lack of material suppliers or material shortage (28%) of respondents cited among their top two concern aside from forecasting demand. Respondent also have significant concern about weak delivery reliability of material suppliers (21%), disturbance in labour market

(19.4%), charges in regulation (18.6%), low service level of LSP (17%), in-house disturbance of production or information system and lack of competent personnel each of this factors represent 16.3% and political instability (10.9%). The lowest concern among the executive is a natural disaster and financial difficulties (8.5%) and breakdowns of infrastructure (7.8%) significantly.

Figure 1: Factors Disruptions that Impact the Supply Chain Efficiency in Malaysia



Discussion

Sizeable studies show the negative impact of supply chain disruptions on the companies and trade environment globally regardless of the sizes. According to Balakrishnan and Bowen (2008), the number of factors that available in supply chain disruptions put many firms largely unaware of the uncertainty effects that can cause a great lose to the supply chain environment. The risk that cannot be clearly determined can increasingly prone to complexity and uncertainty in a way that contributes to the significant firm profit margin.

The results show that supply chain Malaysia encountered disruption from difficulties in forecasting demand, material shortage and weak delivery of material from the supplier. This type of disruptions factor is critical to the performance of supply chain efficiency towards the competitive market in trade liberalization.

Disruptions within this area can gain a negative impact on firms value and the operational performance as global supply chain on a wide range of risks which results towards negativity is frequently unpredicted by any firms. Most of the firms in industries stated that supply chain disruptions had become more costly. The problem in one area can quickly have a swell effect up and down the supply chain and create the economic impact tumbled than before.

Effect of natural disaster in supply chain Malaysia is less compared to other countries. Respondents believe that Malaysia is strategically located under a safe natural hazard. Based on Dirk et, al., (2006), major disruptions like Hurricane Katrina, global financial crisis, flooding in Thailand and Japanese earthquake are among main interruptions that disclosed a lack of preparedness of supply chain management towards uncertain potential of failure in global supply chain.

Conclusion

Through evaluating the disruptions factors that cause the efficiency of supply chain performance industry to become potentially vulnerable and overwhelming, early detection of major disturbing causes can provide an improvement that affects the competitiveness in Malaysian in order to cater the competencies of major trade through domestic and internationally. Initial precautions of the disturbing existing factors and a new strategy will deliberately create a dynamic economy to Malaysia environment. Therefore, it is important to identify the critical factor that disrupts related to supply chain efficiency performance issues to face trade liberalization in the near future to achieve competitive advantages. Thus from the identification of supply chain disruption factors, it can produce a strong trust among the investors towards the strategy development for a better economic growth in trade liberalization.

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