

**SUPPLY CHAIN SECURITY MANAGEMENT
AMONG SERVICE PROVIDER IN LOGISTIC INDUSTRY:
ROLE OF SUPPLY CHAIN SECURITY ORIENTATION
AS MODERATOR**

By

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TUGASAN RANGKAIAN KESELAMATAN LOGISTIK
DI KALANGAN FIRMA PERKHIDMATAN DALAM INDUSTRI LOGISTIK:
PERANAN TUGASAN RANGKAIAN KESELAMATAN ORIENTASI SEBAGAI
PENYEDERHANAAN

ABSTRAK

Di dalam kajian ini, mengkaji hubungan di antara tiga dimensi itu Inisiatif Tugas Rangkaian Keselamatan, Tugas Rangkaian Keselamatan Orientasi dan Prestasi Operasi Tugas Rangkaian Keselamatan. Inisiatif Tugas Rangkaian Keselamatan seperti Pengurusan Kargo, Pengurusan Kemudahan, Pengurusan Maklumat dan Pengurusan Sumber Manusia telah dipilih untuk mengkaji perhubungan dengan Prestasi Operasi Tugas Rangkaian Keselamatan. Manakala kajian ini juga mengkaji keberkesanan Tugas Rangkaian Keselamatan Orientasi sebagai penyederhanaan antara Inisiatif Tugas Rangkaian Keselamatan dengan Prestasi Operasi Tugas Rangkaian Keselamatan. Borang soal selidik digunakan untuk mendapat maklumat daripada semua firma yang telah berdaftar dengan Direktori Logistik Malaysia 2011/2012. Berdasarkan kepada analisis, ternyata ada hubungan yang ketara di kalangan semua ketiga-tiga dimensi yang telah dipilih dalam kajian ini. Pengurus harus memberi perhatian untuk menguatkan keselamatan kargo, tingkatkan aspek keselamatan kemudahan untuk menyimpan kargo, mengendalikan pengedaran informasi untuk kargo, pengambilan and pemerhatian pekerja yang mengendalikan kargo. Sementara itu, penguatkuasaan strategik dalaman dan luaran berhubung dengan aspek keselamatan juga mampu meningkatkan prestasi pengendalian kargo. Dengan ini, kajian seperti ini akan menjadi sebagai satu alah tuju dan rujukan kepada pengurus untuk mengambil tindakan and inisiatif untuk meningkatkan tahap keselamatan semasa mengendalikan urusan logistik. Maka firma dapat meningkatkan mutu layanan perkhidmatan

kepada pelanggan mereka. Akhir sekali, implikasi dan cadangan untuk kajian yang seterusnya turut dibincangkan pada penghujung kajian ini.

**SUPPLY CHAIN SECURITY MANAGEMENT AMONG SERVICE PROVIDERS IN
LOGISTIC INDUSTRY:**

ROLE OF SUPPLY CHAIN SECURITY ORIENTATION AS MODERATOR

ABSTRACT

In this research, service providers in logistic industry in Malaysia are selected to test the effect and relationship between three dimension such as Supply Chain Security Initiatives as the Independent Variables, Supply Chain Security Orientation as Moderator and Supply Chain Security Operational Performance as Dependent Variable. The supply chain security initiatives such as Cargo Management, Facility Management, Information Management and Human Resources Management are selected to test the relationship with the Supply Chain Security Operational Performance. The study also undertake Supply Chain Security Orientation as a moderator to test the effect between Supply Chain Security Initiatives and Supply Chain Security Operational Performance. A quantitatIVES study using structured questionnaire method used to gather data from all the service providers registered in Malaysia Logistic Directory 2011/2012. Based on the tested conducted, supply chain security initiatives such as Cargo Management, Facility Management, Information Management and Human Resources Management have significant relationship with the Supply Chain Security Operational Performance. The study also revealed that there are moderating effect between Supply Chain Security Initiatives and Supply Chain Security Operational Performance when moderator is greater. The study able to educate managers that cargo, facility, information and human resources management provide significant improvement to security aspect of the cargo hence gives confidence and commitment to their customers. Managers should focus on upgrading cargo safety, increase security measures for facility which stored the cargo, managed information flows of the cargo and hiring and

monitoring of firm's employees. All this aspect are necessary to improve and strengthen the security measures of the firm. Whereas, implementation of internal and external strategies related to security aspect also able to increase security operational performance. Hence, this research will act as an reference and directive for managers to perform future undertaking and initiatives to improve security measures to during movement of goods thus achieving higher customer satisfaction. Implication of the results and suggestions for future research are discussed at the end of research.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Supply Chain Digest (August,2010) reveals that large companies usually face major supply chain disruption every four or five years and businesses need to stride hard to protect their supply chains. This is observed closely after the 9/11 terrorist attacks through security enforcement. Supply Chain Security Management [SCSM] is identified as a new discipline for research area in the field of Operations Management Research. According to Hintsa et al. (2009), there are limited research conducted in this area and he commented there is need to further explore SCSM due to the recent concerns about security in global supply chains as SCSM plays an integral role in supply chain management. In another article by Gould et al. (2010) mentioned topic about security for supply chain and logistic function has risen to be important practically and also through research. This topic has emerged as its own area of research within supply chain management and logistic industry.

Supply chain security is currently perceived as an important area in managing business risk (Martens et al., 2011). The bombing events and terrorism attacks which occurred in New York and Washington (September 2001), Madrid (March, 2004), London (July 2005), Germany (July 2006), Glasgow (June, 2007) and Algiers (December, 2007) have changed the world thinking (Securitex, 2008). These events have changed the perceptions about security in supply chain and have made supply chain players, business owners, service providers, government and individuals to realize our world is exposed to vulnerability and unexpected events (Juttner 2005; Vrijenkoek 2005). Hence, when an unexpected incident incurs within the supply chain, it will cause disruption and delay the supply chain operation recovery if

preparation and precaution measures are not clearly defined in an organization (Sheffi et al., 2005; Hendricks & Singhal, 2005; Tang & Nurmaya Musa, 2010).

The topic of security supply chain was popularized by Sheffi (2001) from MIT, after terrorist attack at World Trade Center in 2001. Customs administrations, international organizations, researchers, and businesses have carried out diverse actions, and delivered different types of reports, and articles on the topic. The first pure supply chain security management paper was published at MIT (Sheffi, 2001), a few months after the terrorist attacks in September 2001.

Before Sept.11, 2001 incident, "security in supply chain" refers to the conventional meaning such as risk management, natural disaster and man-made disasters; equipment and facilities failure, issues related to employees, regulatory requirements; loss prevention; geopolitical events; and personnel strikes (Williams,2003; Li & Ye, 2008). After the Sept 11 attack, Li and Ye (2008) mentioned that supply chain security was taken to the next level of meaning and immediacy, many organization took the effort to implement various supply chain security measures (Martens et al., 2011). The World Trade Center incident has created new requirements for business operations. According to Williams et al. (2009), security evolved as a crucial area especially during the distribution of physical goods from supply chain partners till the goods reach the end customer. Supply chain security is needed to maintain the efficiency of a supply chain despite any emergency situation and to also ensure business continuity.

To date, logistic and SCM literature provides little help in understanding supply chain security (Closs & McGarrell, 2004; Hale & Moberg, 2005; Williams et al., 2008) and there is a gap in academic knowledge to understand about how supply chain security can be used and applied by business owners. This study is interested to

know to what extent service providers in logistic industry are practicing supply chain security initiatives to secure their supply chain. Thus, this study also intends to understand whether supply chain security orientation approach helps service providers in logistic industry to achieve better supply chain security operational performance. Hence the overall study shall be looking at how service providers in logistic industry are undertaking supply chain security measures to mitigate their firm's overall security risk during handling products, human, while operating and managing information from point of receiving until the point of destination.

This study starts with an introductory chapter which gives general view about the research topic and problem statement discussion with regards to the study. The chapter starts with providing background of the study. The chapter is then extended towards discussing the problem of the study, the compilation of research questions and objectives. Next, the chapter portrays the significance of the study, expected contributions in term of theoretical and practical contribution and finally explanation of defining key terms in this study.

1.2 Background of the Study

According to Williams et al. (2008) supply chain security became very important to organization after the 9/11 terrorist attack and this issue have brought modern supply chain to limelight. Academic scholars such as (Christopher & Peck, 2004; Williams et al.,2008) commented modern supply chain are at greater risk compared to conventional supply chain. The modern supply chain not only requires protecting for good and factories but also includes protection for supply chain service providers and partners, supply chain facilities, freight carriers, people and information. In order to protect customer's goods, intellectual property, infrastructure, brands and employees,

organizations need to implement a proper supply chain security programs (Sarathy, 2006; Williams et al., 2008). To ensure the continuity of a business Sarathy (2006); Williams et al., (2008) suggested supply chain security is essential for organization just like other marketing or financial strategies.

The research done by three business professors from Iowa State University College on supply chain security and its effectiveness in businesses nationwide explained that clear strategy is far more valuable in perceived effectiveness compared to availability of resources or management support. The survey conducted by MIT in 2006 as cited in Securitex (2008) indicates firms that invest in supply chain security, will be able to secure their supply chain effectively and experience benefits from the implementation.

Another study carried by Cross-border research association a research team in the area of supply chain security management did a study involving 800 BASC members. BASC is known as a Business Alliance for Secure Commerce, is a non-profit organization. This organization is a business-customs partnership created to promote a safe international trade in cooperation with governments and international organizations. The study included 10 different countries from various business functions such as service provider in logistic industry, manufacturer, port operators and traders. Table 1.1 represents the empirical results of the BASC survey. The survey result proves that companies were able to reduce security related issues such as theft, smuggling, risk and others in their business after implementing security related initiatives in their organizations.

Table 1.1

Empirical Study with BASC Members Companies Benefits of Investing in Security

Benefits of Investing in Security	%
Avoid smuggling	90%
Improve company image	82%
Reduce theft	81%
Reduce supply chain vulnerability	78%
Improve supply chain performance	77%
Reduce loss & damage	61%
Fast border crossing	60%
Reduce counterfeit	56%
Quick recovery from direct disasters	52%
Quick recovery from general disasters	50%
Preferential treatment in post situation	49%
Better custom compliance	49%
Direct operations cost savings	48%
Preferential treatment in alert situation	47%
Indirect operations cost savings	44%
Insurance cost reduction	39%

Source: Ximena Gutiérrez, EPFL, BASC global conference Cartagena, April 6 2006

Besides the benefits highlighted in Table 1.1, an industry survey conducted by Supply Chain Asia Magazine (September/October 2007) shows that companies in Asia only allocates minimum investment to be spend on security related issues as 83% of the respondents spend less than 5% of their profit on security needs. The survey respondent were mainly shippers, service provider in logistic industries and professional service providers and the survey findings also revealed that importance of supply chain security will continue to grow among business owners. However, an interesting finding from the survey shows that security actually helps organizations to increase their revenue. With security measure in place, firms are able to improve overall supply chain efficiency and this helps to increase revenue. Some of the survey findings by Supply Chain Asia Magazine (September/October 2007) presented in Table 1.2.

Table 1.2

Importance of Supply Chain Security:- Summary of the Survey Findings by Supply Chain Asia Magazine (September/October, 2007)

No	Survey Questions	Findings
1.	Supply chains in Asia are less secure than in US and Europe?	70% of the respondent answered “Yes” and 25% “No”
2.	Asian economic which is taking the lead issue in Supply Chain Security?	The survey found that China is taking the lead issue
3.	Does your company participate in a best practice SCS system, such as C-TPAT, WCO Authorised Economic Operator, ISO 28000?	48% of the respondent answered they do not participate in SCS best practice system and 30% of the respondents admitted that their company participate in SCS practices.
4.	Demonstrating effective SCS will be a growing factor in your overall competitiveness?	62% of the respondent answered SCS is contributing factor for competitiveness and 14% responded as “No”

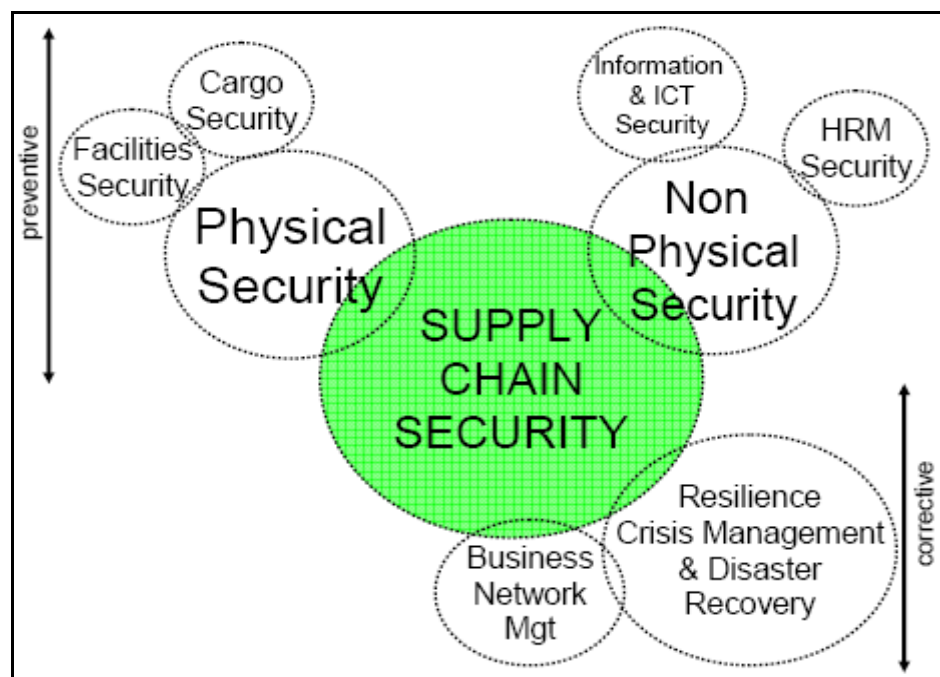
Source: Adapted from Supply Chain Asia Magazine (September/October, 2007)

The summary in Table 1.2 emphasis the importance of supply chain security practices among supply chain managers and logistic managers globally. The following sub section will discuss about supply chain security structure, stakeholders, dimensions and other relevant discussion about SCS.

1.2.1 Supply Chain Security Structure

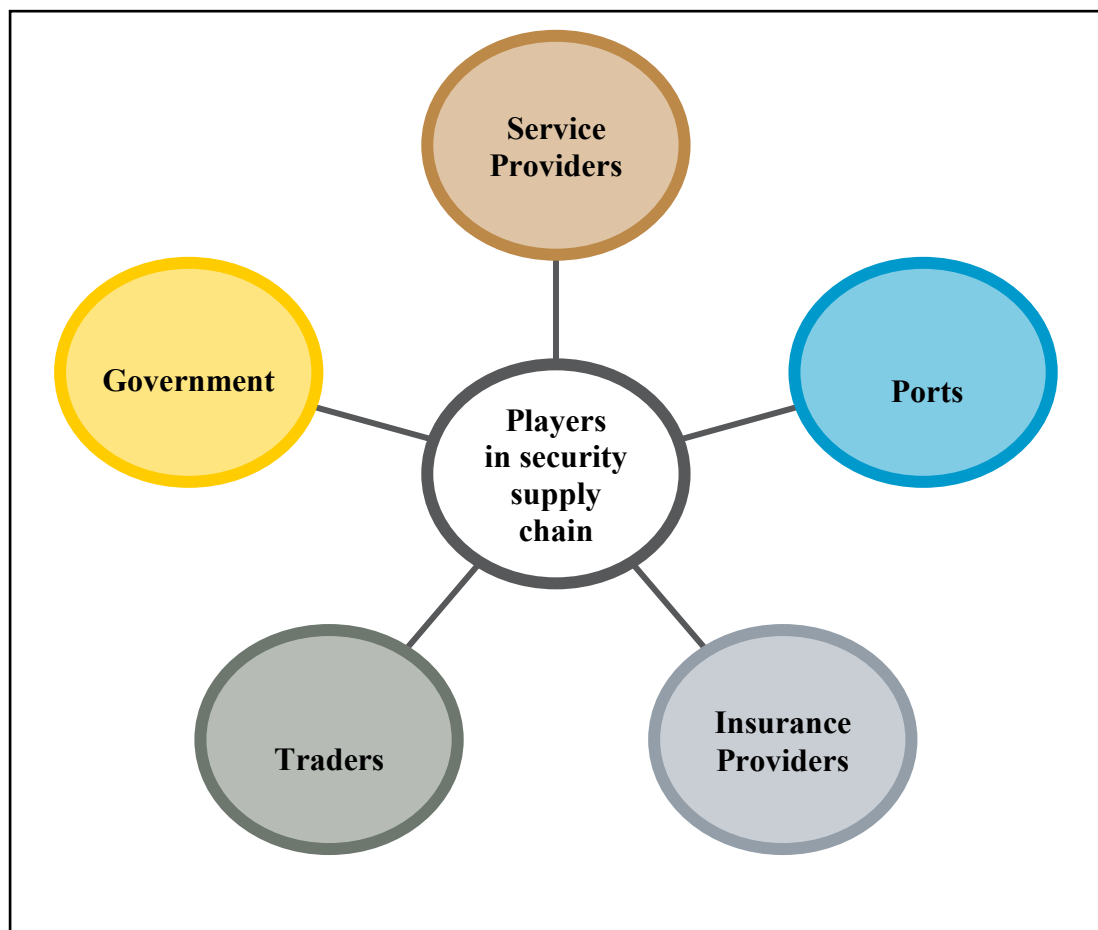
Van Oosterhout et al. (2007) presented a proceeding on a case study about Port of Rotterdam on visibility platforms for enhancing supply chain security, mentioned a secured supply chain refers to a supply chain where various measures have been taken to guarantee a certain level of security while operating, Figure 1.1 explains on the components of supply chain security. The proceeding also discussed about security measures needed to protect against terrorist attacks, smuggling, theft and

counterfeiting for supply chain owners. The same author commented, there are two main categories for supply chain security measures. The two categories are preventive measures and corrective measures. The preventive measures consist of physical security and non physical security such as facilities security, cargo security, information security and human resource management security. Preventive measures focuses mainly on preventing security related risk to occur in the supply chain whereas corrective measures focuses to limit the impact caused by security related risk. Hence another way for supply chain owners to protect their supply chain would be by having a proper corrective action when an unpredicted crisis occurs in the supply chain. Whenever a supply chain faces a crisis, corrective action will help firms to recovery to normal state quickly. Resilience management and business network management is an example of corrective measures approach (Sheffi, 2005; Van Oosterhout et al, 2007).



Source: Adopted from Van Oosterhout et al. (2007)
 Figure 1.1: Components of Supply Chain Security

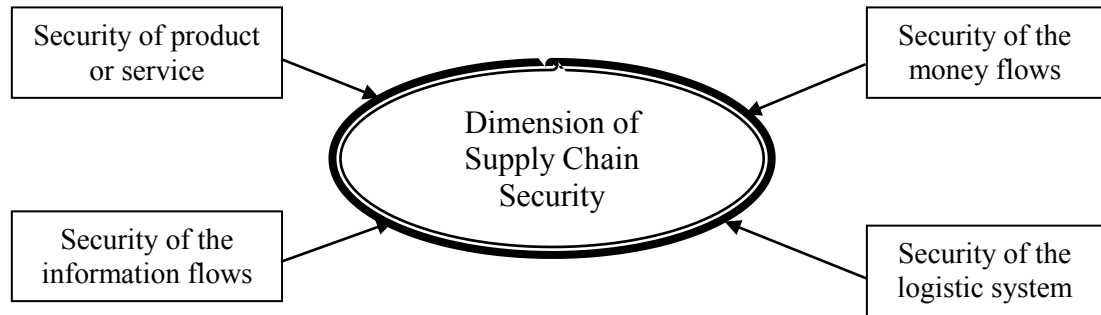
While operating, all stakeholders in a supply chain should operate efficiently to achieve continuity, synchronization, and enhanced final customer service (Banomyong, 2009). All players in the supply chain are dependent to each other so all basic security requirements in a supply chain must be fulfilled by all player or stakeholders in order to prevent and recover during disruptions while goods are in transit. In the context of supply chain security, there are several stakeholders involved to ensure the above mentioned inputs are enforced. Figure 1.2 shows the players involved in supply chain security.



Source: Adapted from Dulbecco and Laporte (2003); Banomyong (2009)
Figure 1.2: Players involved in the Security of the Supply Chain

Hence government here refers to customs, which plays the role to control the inbound and outbound of the cargoes in respective countries. Followed by traders, plays the role of expanding the product market through import and export activities globally. Service providers and insurance providers are the key players in terms of security as they protect the move of goods and information. Finally, port operator tries to be as competitive as possible in terms of security to protect their cargoes. The next paragraph will discuss about dimension involved in supply chain security.

According to Pope (2008), modern supply chain operates around the global with suppliers and customers around the world. Many firms have a tendency to have less contact and knowledge about their supplier. In this situation it is difficult to have control over the supplier's activities especially in terms of security. With regards to this, implementation of security becomes difficult to be practiced in supply chain due to the complexity of having various links of suppliers (Pope, 2008). An example to support this statement, an incident quoted by Zamiska and Kesmodel (2007) and Pope (2008) in their articles regarding the ginger imported by US from China market which contains pesticide aldifarb sulfoxide, a dangerous chemical for human. The contaminated ginger was discovered in a food store in California and the importer from US discovered seven suppliers links involved from the farmer in China to the retail stores located in US. The efforts to discover from where the contaminated source is originated may take months to be identified and generally suppliers for food related products can be different each time of shipment. In order to have control over the suppliers, security emerges as one of the way to protect the activities inflows and outflows of a supply chain. Figure 1.3 explains about the four important dimensions of supply chain security which firms needs to give importance to ensure a secured supply chain.



Source: Adapted from Pope (2008)

Figure 1.3: Dimension of Supply Chain Security

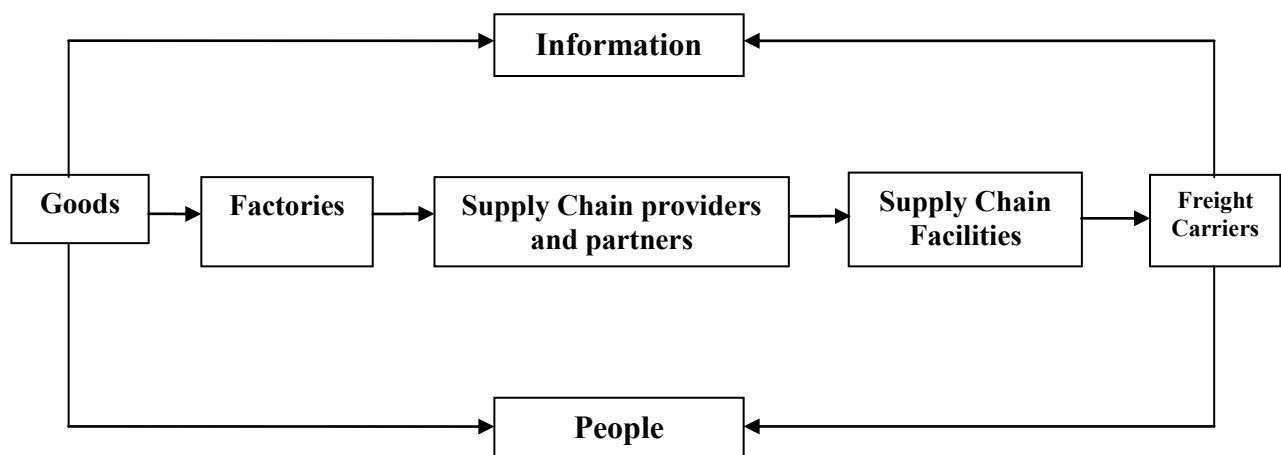
The first dimension refers to security of product or services, discusses about the products or services received by customer. The product or services must be made according to the standards, specifications using quality materials without using any type of illegal substitute material or duplicate standards and specifications which transforms to be a harmful product or services for customers. The second dimension refers to security of information flow, lately most of the firms are using electronic tools to transfer data to their suppliers and partners. There is a high tendency, the data can be hacked by intruders and the hacked data will be sold to competitors. The third dimension which is security of money, refers to the risk faced by companies and customers while handling money. For an example, credit card company and card holders are exposed to risk, when a transaction incurs payers payment can be diverted to another account and data about payee can stolen when payee use the card to make a purchase. Finally the last dimension refers to security of the logistic systems, which becoming more important as many manufacturer and companies using logistics service to transport their products globally and many risk are involved while products are flowing from one country to another country.

The section under background of the study have briefly discussed about why supply chain security is important for a firm, the components of security supply chain,

players involved in ensuring security in a supply chain and lastly this section ends with discussion on security dimension. Based on the information and facts elaborated, this study is interested to study about the supply chain security initiatives practiced by service providers in logistic industry. The following section will discuss about one of the major security issue faced by service providers in logistic industry in global as well as Malaysia.

1.2.2 Security related Risk in Supply Chain Management

Security plays an important role to ensure business continuity and competitive advantage for supply chain players to compete in the global market. It is necessary for all supply chain to create strategies and skills to meet with new security demands (Banomyong, 2005; Sarathy, 2006). Security related interruption can incur at any point along the supply chain and Figure 1.4 explains security related sources of risk in supply chain (Sarathy, 2006). The figure below explains that security risk can occur at any point of time from goods to freight carriers but at each of this point supply chain is also exposed to people and information related security risk.



Source: Adapted from Sarathy (2006)

Figure 1.4: Source of Security related Risk for Supply Chain Management

Sarathy (2006) mentioned that containers or cargoes are one of the major sources of security concerns as containers are used to smuggle illegal immigrants, weapons, and drugs. Container or cargo is one of the security sources of risk originated from goods and the same scholar also explains that supply chain players would take any measure to guarantee cargo security for their customers. The following subsection will discuss about the cargo theft which has become a major issue for service providers not only globally but in Malaysia as a whole.

1.2.3 Global Cargo Theft

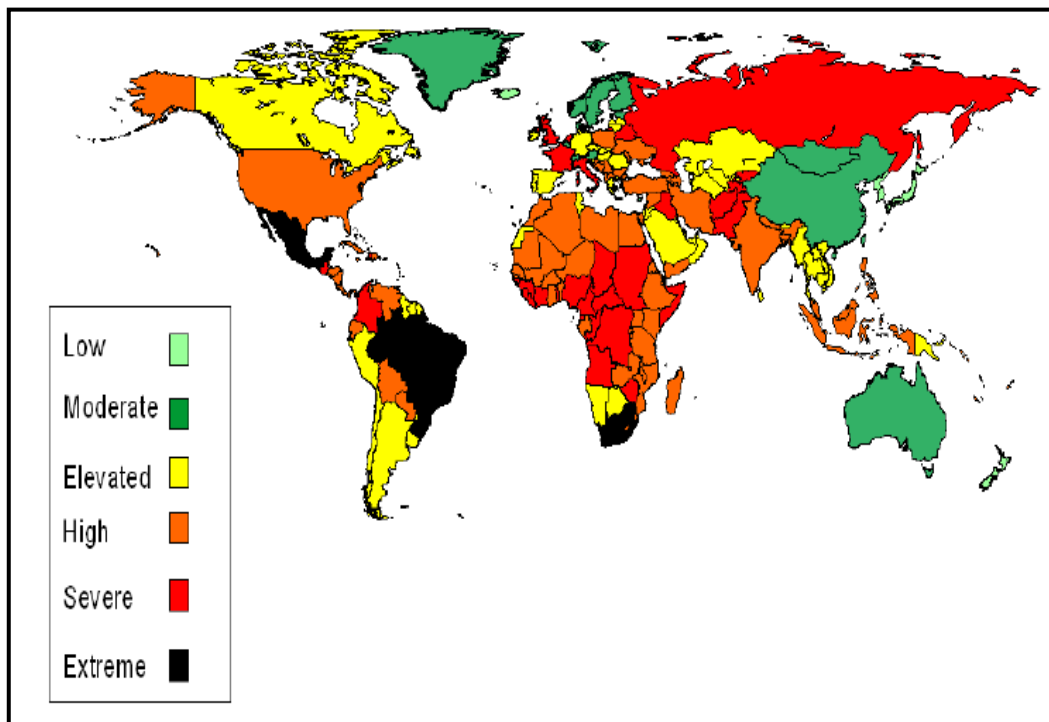
Lately cargo thefts are great challenge for multinational companies as their products are flowing through globally. Due to the recent rise in cargo theft, FBI agency has moved forward to track cargo theft under the uniform crime report. According to Freight Watch International (2009), U.S faces losses of 10 billion due to cargo theft each year. Table 1.3 shows the most common products targeted by the theft gang

Table 1.3
Products Targeted for Cargo Theft Globally

No	Products	Types of Product Target for Cargo Theft
1	Consumer electronics	Cell phones, TVs, DVDs
2	Pharmaceuticals	Prescriptions and OTC
3	Computers	Computer parts, computer software
4	Food products	Frozen or nonperishable

Source: Adopted from Freight Watch International Global Threat Assessment (2009)

In 2008, cargo theft activity increased 13% in U.S and United Kingdom remains as high level of cargo theft among all other Western Europe country. It serves as a hub for all cargo theft activity. Below figure 1.5 which reflects a map to show the level of global cargo risk faced by countries around the globe.



Source: Adopted from Freight Watch International Global Assessment (2009)
Figure 1.5: Global Cargo Theft Threats

The Figure 1.5 shows that U.S, Mexico, Brazil, South Africa, Russia and United Kingdom are proven to be the country with high risk due to the cargo theft and immediate security initiatives must be implemented to address the cargo theft issues.

1.2.4 Global Cargo Theft in Malaysia

According to Freight Watch International Global Assessment (2011) Asia is rated with moderate level of cargo theft risk and the same report mention that cargo theft trend in Asia started to increase rapidly. Malaysian Insider (2011) among all other countries in Asia, Malaysia and Philippines are reported with a high cargo theft cases and on top of that US Daily 2011 quoted that US\$22.7(RM68.9million) worth of goods are stolen from Malaysian ports, airports, warehouses and trucks from 2007 to 2010.

Malaysia is known as a ground for multinational companies operating their manufacturing plants for high technology products and at the same Malaysia serves as one of riskiest country in Asia countries with high rate of cargo theft (Freight Watch International Global Assessment, 2011; Malaysian Insider, 2011). In Malaysia, cargo theft incidents mainly take place in areas such as Penang and Kuala Lumpur. There are around 75 to 80 hijackings are reported in Malaysia with majority occurring in North-South Highway between Penang and Kuala Lumpur. The targeted products are building products, electronic products, food products and finally consumer care products. Cargo theft in Malaysia occurs while cargoes are in transit and while stored at warehouse. Some of the methods used in Malaysia to steal cargo as report by Freight Watch International Global Assessment (2009) are armed hijackings, warehouse raids and truck break-ins.

1.3 Problem Statement

The modern supply chain have brought numerous changes to the ways firm operates and lately firms are giving greater attention to security by spending more money, time and resources in ensuring security exist in their supply chain. According to Veselko and Bratkovic (2009), security concern is also growing in the logistic industry just like other industry due to the following reasons: (i) borderless environment for flow of goods, people, capital and information, (ii) supply of product are from various product market globally, (iii) manufacturer are keep moving their operations to countries with cheap labor, (iv) supply chain of product starts in one country and ends in another country, (v) shorter production and delivery time, (vi) firms are depending on suppliers and logistic partners to have proper control on their operation rather having controlled by their customer and lastly due to uncertain and fluctuation of

demand and supply. So all these reasons have increased the source of risk in supply chain and logistic activities hence increase the need for greater security.

In another article by Closs et al. (2008) to support why security important in general, mentioned that security is needed in every firm for brand protection and provide assurance to customer that they are receiving the original product. Secondly, is to meet customer's security requirement because nowadays customer prefer to work with supplier who have proper quality certifications and basic security regulation and lastly pressure from the government to follow security regulation and mandatory while operating locally and internationally. Meanwhile, Gutierrez et al. (2007); Gould et al. (2010) mentioned that objective of having security is to tighten security of supply chain, improve efficiency of business process and improve response and resilience to security incidents. All of the above benefits will also improve the supply chain security operational performance. The study done by Peleg-Gillai et al. (2006) shows that security initiatives will bring positive performance for firms but firms should initiate security initiatives proactively. Peleg-Gillai et al. (2006) highlighted five benefits that can improve performance of a firm and the five benefits are related to operational performance such as inventory management and customer service, visibility, efficiency, resilience and customer relationships.

The world trade center tragedy is an eye opener for all business organization to incorporate security measures in their day to day activities. In the post era of 9/11, US government have allocated \$65 billion annually to secure their logistic and supply chain activities (Bernasek; 2002, Williamss et al; 2009). Deloitte (2005) reported that a survey conducted by Yankee Research Group in 2003 and Deloitte research firm itself in 2004 shows that companies are planning to increase their budget for security investment because it helps to drive efficiency into supply chain. There are many

drawbacks faced by companies due to improper security measures, Securitex (2008) reported that transit loss globally is estimated about \$30 to \$50 billion per year, Fortune 500 companies are having 2% to 8% reduction in income due to poor security, 80% of cargo thefts are “made to order thefts” and countries such as Brazil, Russia, South Africa, Indonesia, Nigeria and Malaysia are having “severe” threat rate and these clearly highlights operational performance of firms are affected.

Many organizations are aware of security importance because security related incidents can will impact firms performance and cause tangible & intangible damages to firm in terms of property, products, infrastructure, people, reputation, market position, goodwill and brand (Securitex, 2008). The same report highlights business owners who might be at stake of risk due to security issues while operating. The below Table 1.4 shows potential security problems which might be faced by business owners.

Table 1.4
Types of Security Problems for Business Owners

No	Types of Business Owners	Security Risk
1	Manufacturers	Counterfeit
2	Oil and Gas	Insurgency
3	Food and Beverage	Bio-Terrorism
4	Chemical and Pharmaceutical	Theft, counterfeit
5	Wholesale and Retail	Supply loss
6	Airports and Airlines	Terrorism
7	Logistic and Freight Forwarders	Smuggling
8	Transport Companies	Organized Crime
9	Ships, Ports and Terminals	Bomb in a box
10	Service Industries and Government	Migratory impact
11	Service Industries and Government	Migratory impact
12	Insurance	Damages

Source: Adopted from Securitex (2008)

Supply chain management requires security because of the complexity, dependence, and extensive trust and commitment between supply chain partners (Sarathy, 2006; Williams, 2008). Many firms have security practices in their

organization but the primary issues is organization are unable to know, how good their current security practices are in their organization is still not tested (Williams et al., 2008) and so far there is little literature which highlights about security practices and the relationship between firm security performance in terms of delivering better customer service, detecting security incidents, responding to incidents (Whipple et al., 2009; Gloud et al., 2010).

According to (Closs & McGarrell, 2004; Hale & Moberg, 2005; Williams et al., 2008; Gloud et al., 2010; Martens et al., 2011) to date there is little research done empirically to understand about supply chain security, this clearly highlights there is a gap and research is needed to enhance the academic and practical knowledge under this area. The following paragraph will discuss about security issues in Malaysia and how these security incidents have affected the security performance of the affected firms.

As mentioned under background of the study, Malaysia is now having a very high rate for cargo theft as compared to other countries in Asia and this creates a bad image and reputation to Malaysia as a industrial country. As a ground and hub for major MNCs to operate, security became a vital component in every single firm. The incident of microchip hijacked from 2nd Air Cargo Complex in Batu Maung, Penang worth RM47million which belongs to Intel in 2006 clearly shows there is a poor security practices in Malaysia. This incident has affected Penang as a FDI state and a few MNCs were considering to relocate due to security impact faced by Intel. The public and industry experts commented, the government has overlooked at the security policy and fail to pay sufficient attention to boost security initiatives and gain back the confidence among foreign investors after Intel hijack. The hijacking incident not only disrupted Intel's worldwide distribution of microchips and semi-conductor

products, but also created adverse headlines in the global press. Malaysia's image was under threat among other potential investors. The a recent case reported in Malaysia on Feb 2011, about the disappearance of 700,000 condoms worth of RM4.5mil while being transported to Japan and upon reaching Japan, the whole container was found empty(<http://www.asianewsnet.net/home/news.php?id=17413>). This clearly shows that logistic firm operating in Malaysia have poor cargo safety. On the other hand, the same source quoted above, highlighted that The Star newspaper reported Transported Assets Protection Association 2010 that Malaysia had goods worth RM70 million stolen last year. Table 1.5 highlights the types of goods stolen in Malaysia in 2010. The statistics in the table clearly explained that security is one of the main concern surrounding most of the manufacturers in Malaysia.

Table 1.5
Types of Goods Stolen in Malaysia

Merchandise Stolen		
<i>Type of Goods</i>	<i>Incident Count</i>	<i>Value(RM)</i>
CPU, Memory, Components	3	\$ 45,367,191.95
Cash Bullion	2	\$ 8,336,749.52
Metal	3	\$ 4,225,446.82
HDD, Storage	1	\$ 3,968,513.93
Mobile Phone/Smart Phone	1	\$ 3,067,362.30
Tobacco Products	2	\$ 1,675,790.61
Notebook/Netbook	2	\$ 1,500,623.97
Machinery/High Tech Equipment	1	\$ 905,759.98
Commodities	3	\$ 406,673.99
Food and Beverage	3	\$ 73,440.00
Desktop, Server, Network Cables	1	\$ 321.30
Grand Total		\$ 69,527,874.37

Source: <http://www.asianewsnet.net/home/news.php?id=17413>

Based on the literature review the pioneer research was done by Sheffi (2001) about barriers faced by companies due to security problems and the impact of 9/11

attack towards firms. Followed by topic such as applying total quality management philosophy for security supply chain (Lee & Wolfe, 2003; Lee & Whang, 2005), guidelines to sustain security in supply chain activities (Knight 2003), understanding security measures, initiatives, security programs (Rice & Canito, 2003; Sheu et al., 2006; Gutierrez et al., 2007, Hintsa & Hameri, 2009; Banomyong, 2005; Williams et al., 2008; Voss et al., 2009; Hintsa et al., 2009; Urciuoli, 2010), benefits of having supply chain security (Peleg-Gillai et al., 2006), supply chain security drivers, practices, culture, orientation (Williams et al., 2009; William et al., 2009b; Whipple et al., 2009; Autry & Bobbitt, 2008). On the other hand, some recent issues in supply chain security are security strategies and supply chain security effectiveness (Voss et al., 2009; Martens et al., 2011). Finally, Yang (2010) discusses about supply chain security in Taiwan Maritime.

In Malaysia, there are little empirical studies conducted in relation to practices and initiatives of supply chain security. From the journal search and Google scholar, found only one proceeding paper on security supply chain by Teck and Shah (2008) which is related to implementation about International Ship to sustain Port Facility Security. This paper reviews the existing audit approach used to understand the effectiveness of ISPS currently used is sufficient or an alternative approach that would supplement the Self-Assessment audit is needed to have early identification of weaknesses in the implementation of the Code for Port Facility. Unfortunately, to date, logistic and SCM literature provide „little help“ when it comes to understanding SCS initiatives an operational performance among service providers in logistic industry. Therefore, this study will help to add the literature and empirical results about security practices and the relationship between firms non financial security performance or better know as security operational performance.

1.4 Research Objectives

With the reference of the above problem statement, the following research objectives are concluded:-

- 1) To investigate which supply chain security (SCS) initiatives influences the most to the supply chain security operational performances among service providers in logistic industry.
- 2) To examine the effect of supply chain security orientation as a moderator between supply chain security (SCS) initiatives and supply chain security operational performance among service providers in logistic industry.

1.5 Research Questions

In line with the research objectives, the questions of this research are as follows:

- 1) Which of the Supply Chain Security (SCS) initiatives influence the most on the supply chain security operational performance among service provider in logistic industry?
- 2) What is the role of supply chain security orientation between supply chain security initiatives (SCS) and supply chain security operational performance among service providers in logistic industry?

1.6 Significance of the Study

Significance of this study highlights on the expected theoretical contributions and practical contributions this study may contribute to service provider from logistic industry:

1.6.1 Theoretical Contribution

Due to the increasing importance and remarkable expansion for logistic industry in Malaysia , thus this research is timely for adding the proper knowledge about how to improve the security initiatives among the service provider in logistic industry. Malaysian Insider 2011, reported the Economic Transformation Programme focus to invest in oil & gas and electrical and electronics sector will help to boost the logistics industry(<http://www.themalaysianinsider.com/business/article/frost-sullivan-sees-strong-growth-in-logistics/>). Front & Sullivan commented that Malaysia's logistics sector is expected to boost 11.5 per cent which will contribute to RM121 billion. The consulting firm also mentioned that Malaysia's external trade will increase by 10% this year and this will increase the total number of cargo entering the country to 498 million tonnes (Malaysia Logistics Directory,2011). Logistics industry in Malaysia is a big and growing market as Frost & Sullivan reported that in Malaysia there are almost 2000 service providers of road haulage, 327 service provider for sea transporters, 1025 of freight forwarders and 161 courier service providers. Eventhough the logistics industry is expected to grow, there are some limitation such as lack of skilled logistics professionals, lack of security measures and lack of emphasis on value added services which will impact the growth of logistics industry in Malaysia. (<http://www.themalaysianinsider.com/business/article/frost-sullivan-sees-strong-growth-in-logistics/>)

This research will further contribute and increase the literature for supply chain security management which is relatively limited under SCM field. This research will contribute to the new empirical findings under supply chain security and further identify which supply chain security initiatives will improve the supply chain

operational performance. Hence, this study is expected to increase the following knowledge about supply chain security:

1. The study investigates about the supply chain security initiatives employed by service providers from logistic industry and these initiatives will improve the security performance of the service providers
2. The study also intend to know, the existence of supply chain security orientation will help to improve the relationship between security initiatives and security performance of service provider of logistic industry.
3. The study will also intend to know the number of service provider have implemented of ISO 28000 in logistic industry.

1.6.2 Practical Contribution

The study is expected to enhance the knowledge and performance of service providers from logistic industry in following ways.

1. Practitioners will benefit from the framework and empirical results from the study. The empirical results will highlight which security initiatives practices will have significant benefits for the service providers.
2. The study will help to increase the awareness about supply chain security management among managers and executives of service providers.
3. The research will be an eye opening and motivate other academic researcher to further expand supply chain security as their area of research interest. This study intends to provide reliable information to enhance the knowledge for practitioners under supply chain security management.
4. This study may act as a primary guidelines for government agencies that are developing policies and strategies to ensure Malaysia is secured landmark for

exporting cargoes and give assurance to the local and international investors to continue their investment.

1.7 Scope of the Study

In this research, the unit of analysis will be service providers in logistic industry. This study is an explanatory research. The study will focus on four main Supply Chain Security Management initiatives such as Cargo Management, Facility Management, Information Management and Human Resources Management.

1.8 Definition of Key Terms

To clarify the terms and understanding of this study, the below are some of the definition for important key terms used in this study:-

Supply Chain Security Management (SCSM)

- is the application of policies, procedures and technology to protect supply chain assets (product, facilities, equipment, information and personnel) from theft, damage or terrorism and to prevent the unauthorized introduction of contraband, people or weapons of mass destruction into the supply chain (Closs & McGarrell, 2004)

Supply Chain Security (SCS)

- obligation to meet security requirement to protect supply chain is known as “Supply Chain Security” (William et al., 2008)

Service Providers in Logistic Industry

- consist of facilitation service (such as freight forwarder, custom brokers, ship brokers, shipping agents, consolidators and non-vessel operating common carriers), distribution services (warehousing and transportation, inventory management and domestic and regional distribution and courier companies), integrated logistic services

(3PL) and lead logistic providers (4PL) and business support service (ICT service providers, banking and insurance, education and training, equipment handling, maintenance and repairs and security) (Jumadi & Zailani 2010)

Supply Chain Security Initiatives or Measures

- security initiatives that will help to protect supply chain from terrorist activities as well as other type of security breaches and at the same time protect product and brand from being jeopardize in the market.(Closs et al., 2008)

Cargo Management

- is protecting cargo during all steps of manufacturing, shipping and transport processes (Hintsa et al., 2009)

Facility Management

- is guaranteeing the security of the facilities where goods are manufactured and cargo is stored and handled (Hintsa et al., 2009)

Information Management

- is protecting critical business data and exploiting information as tool for detecting illegal activities and preventing security breaches (Hintsa et al., 2009)

Human Resources Management

- is guaranteeing trustworthiness and security awareness of all personnel with physical or virtual access to the supply chains (Hintsa et al., 2009)

Supply Chain Security Orientation

- a firms organization-wide propensity to partner, plan, adapt, collaborate and communicate, both internally and with externally trading partners and governmental entities, toward the dual goals of strategically preventing and responding to potential