THE FEASIBILITY OF AN MCC MODEL FOR FAR EAST–EUROPE/USA TRADE LANES OF GLOBAL RETAILERS BY TAKING SRI LANKA AS THE HUB COUNTRY

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ABSTRACT

Sri Lanka is a country which is uniquely and strategically located in the maritime silk route, and known as the pearl of the Indian Ocean. However, no any government or private entity in the recorded history from 1948 has understood the real value of this natural heritage and act upon it to utilize the resources and to bring out the true benefit to the nation. When considered the size of geography, population, and the technological advancements in Sri Lanka one can clearly identify and accept that the country can hardly compete with the developed and industrialized nations who have achieved superiority in production capacities and export generation. Production and export generation are the only means of economic development and wellbeing for a country. Countries like Singapore has already shown the answers for this question by utilizing the limited resources of their country in to a fortune by establishing manufacturing units, managing millions of TEU's of transshipments by means of bonding, value addition and Multi Country Consolidation (MCC).

The Far East – Europe/USA trade lane passes Sri Lanka in close proximity to the port of Hambanthota carrying 2/3 of containerized cargo volume destined to the giant retail stores in Europe and USA. But unfortunately around 90% of such cargo bypasses our country as non-value added merchandize directly exported from Far East and South East Asia to Europe and Americas. The value addition processes of these imports are carried out at the destinations with high expenditure of service charges and unnecessary lead time. In this thesis proposes a Multi Country Consolidation model for this trade lane by taking Sri Lanka as the hub country to implement consolidations, relevant value additions and finally the transshipment of merchandize. And also, the further research is conducted to validate this model by proving the feasibility of improving the overall cost efficiency and reducing the total average lead time. A thorough comparison is presented between the existing direct trade lane process and the proposed MCC hub model to prove the advantages of the proposed process.

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LIST OF ACRONYMS

CFS – Container Freight Station

MCC – Multi Country Consolidation

GTL – Global Transportation and Logistics (PVT) Ltd

MAC SC – MAC Supply Chain Solutions (PVT) Ltd

GRN – Goods Received Note

GDN – Goods Dispatched Note

CDN – Cargo Dispatch note

SLPA – Sri Lanka Ports Authority

CUSDEC – Customs Declaration

VAS – Value Addition Services

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Chapter 1 - Introduction

1.1 Research background

When one applies the basic economic theory of demand and supply to the international trade in today's world, we can clearly segregate and identify the geographical areas of production and consumption for specific product types. From ancient times the wealth and buying power of western countries has been more superior to Eastern countries so the direction of main trade lanes has been from east to west, more precisely from Asia to Europe & Americas. In early times the business model consisted of demanding western empires and supplying from eastern colonies. Then the ownership, control and management of entire trade supply chains were with emperors or their agents such as VOC (East Indian Trade Company of Netherlands). But later with global macro-economic changes such as Political, Economic Social and Technological advancements this authority shifted to massive scale multinational companies who have presence throughout the world via their well maintained, wide spread and massive supply chains. By observing the trade, they are involved in, we can argue that there are two main types of multinational companies in today's world as follows:

- Local established Multinational companies – those with western origins and ownership but almost all business functions have been outsourced to local counterparts. Main concern is to cater the growing markets in developing countries and attain maximum market power by utilizing local resources (e.g. Unilever, GSK)
- International Retail chains - Those with western origins and having international supply chains to source merchandize from all parts of world. Main concern is to serve their home markets in the most efficient and effective manner (e.g. Wal-Mart, Tesco)

In this study the main focus is on international Retail chains and their performance in Sri Lanka.

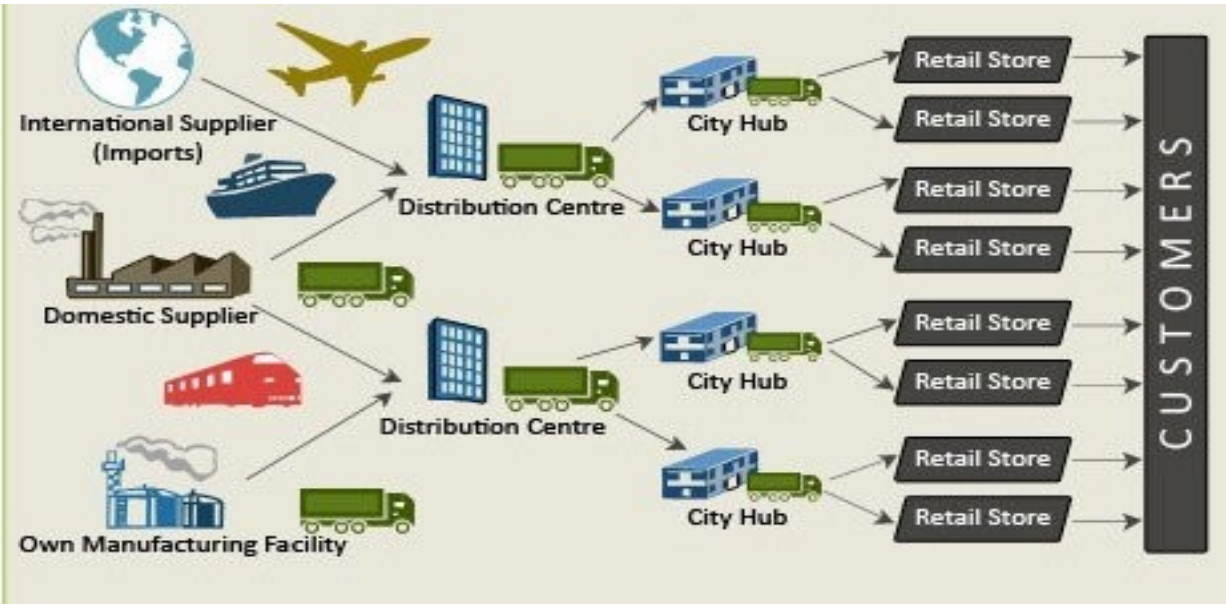
1.2 International Retail Chains

The initial concept of these companies was founded in USA with the startup of the Great Atlantic & Pacific Tea Company (A&P) in 1859. By the early 1920s, they boasted three national chains A&P, Woolworth's, and United Cigar Stores. Later this trend developed via Europe and quickly became very attractive among consumers due to the fact that they could have a worldwide shopping experience under one roof for a fair price (Gereffi, 1999). Worldwide experience is achieved by the merchandize sourced from every corner of the

world while fair price is obtained by the efficient and effective supply chain practices of these giant companies. In present the world's largest retail chain, Wal-Mart has become the world's largest corporation based on gross sales. Thus, international Retail chains contribute to the world economy in massive scale and it's very important to study their performance and propose ways to boost the overall efficiency and effectiveness consistently.

1.3 Prevailing business model

Figure 1: The current business model of international retail chains.



Source - (Container, Across, & Origins, n.d.)

Figure 1 above is a glimpse from which a brief idea can be taken about the current business model of international retail chains("gx-cip-2017-global-powers-of-retailing," n.d.). Here they have productive supply chain integration with all tiers of suppliers including domestic and international counterparts. Entire purchase order processing from order initiation until receiving confirmation generation, every effective step has been managed and coordinated via modern Enterprise Resource Planning IT systems which support multiple aspects of supply chain management solutions (e.g. SAP). The actual process depicted above can be briefly summarized as follows:

- **Receiving of inbound shipments Local and Imports**

Local – finished packed cargo are received as truck loads at the DC's (Distribution centers)
Imports -finished packed cargo from overseas suppliers are received as SFR (Sea Freight) or AFR (Air Freight) shipments after cleared from inland authorities (Customs etc.) and trucked to DC's

Here it should be highlighted that these receiving volumes are so high and require massive warehouse space for storage, handling and value addition activities. So a large space is automatically tied up for inventory at the DC's

- **Process at DC's**

The lengthy process at a DC can be summarized as follows

- ❖ Received shipments are segregated as per relevant destination hubs
- ❖ Cargo is checked for AQL(Accepted Quality Level)
- ❖ Value addition activities – carton replacing, box end sticker applications, inner package replacing, small finishing activities etc
- ❖ LCL shipments are consolidated as per their hub destinations by making FCL's

- **Process at Hubs**

Here a break-bulk operation takes place in two main ways as follows depending on the requirement of retail store

- ❖ Inventory replenishments – FCL's are unloaded and kept as inventory ready to dispatch as replenishment stocks to retail points
- ❖ Direct dispatch – arriving FCL trucks are directed to retail destinations providing a route plan and unloading plan for each retail point

1.4 Research Problem

There are so many time consuming intermediate processes after cargos are shipped from suppliers and before they are finally received at retail stores. In this study the entirely focus is on the trade lane from Asian suppliers to Europe or USA DC's where imports are directly shipped from Asia to the West without any intermediary value addition process along the path until the DC's. The followings are summaries of issues and concerns of the existing process:

1. Operational congestion inside DC's – as mentioned earlier to carry out operations such as receiving, handling, consolidations, value additions and storage at the DC's the space requirement is huge because entire imports plus the local shipments are received simultaneously in single areas. And, when meeting demand fluctuations in peak times/seasons this requirement further grows.

2. Inability to maintain JIT - In SCM excess inventory is the worst wastage ever to occur in a supply chain. This ties up money as inventory space and blocks productive investments that could have added value to the entire supply chain. And also in the current model cargo handling activities are very high as result of too many operations involving labor and MHE's under one roof. Thus, as a result, cargo handling charges would be higher than optimum.

3. No value addition of imports prior to the destination DC /direct shipping from suppliers – this is another negative aspect of the existing model. Here depending on the PO's cargos are released as direct imports. Most of the time they are LCL's by which the container spaces are not fully utilized. Further generating spontaneous and direct LCL shipments is a very costly process for the suppliers because of excess freight charges than required and high transit times. This has drastically increased the sourcing cost of entire supply chain which adds to price levels of commodities as a factor of total landed cost.

4. High cost for reverse logistics – this is another con caused by these direct long transit imports. In retail business return shipments are very common. Here an import shipment can be simply reversed due to a fail in AQL test conducted at a DC. But the return freight would be more expensive than the inbound due to rescheduling processes and the long transit itself. Thus, this generates additional costs

5. Effect on order fulfillment lead time – too much operational congestion inside the DC's due to poor space utilization would delay the overall process. Thus, this would affect to increase the lead time. According to Mark Taylor – Head of Operations UK Matalan Retails there's an opportunity cost involved due to unnecessary operational delays.

1.5 Multi country consolidation (MCC)

MCC is a cost-effective economic solution that consolidates Less than Container Load (LCL) shipments from different countries of origin to build Full Container Loads (FCL) to single country destinations. This process can be effectively and efficiently implemented if below requirements are met:

- Availability of a hub country in a strategic location along the trade lane
- Hub country service provider should be able to maintain smooth logistics flow from receiving of LCL's to dispatch of FCL's
- High level supply chain integration between all tiers (Hub country/service provider & agents, Spoke countries/suppliers and destination country/consignee) by means of relationships and IT integration
- There should be a cost saving than the previous direct shipping process which will reduce total landed cost
- Overall lead time of the proposed MCC process should be lesser than the previous

Figure 2: MCC process

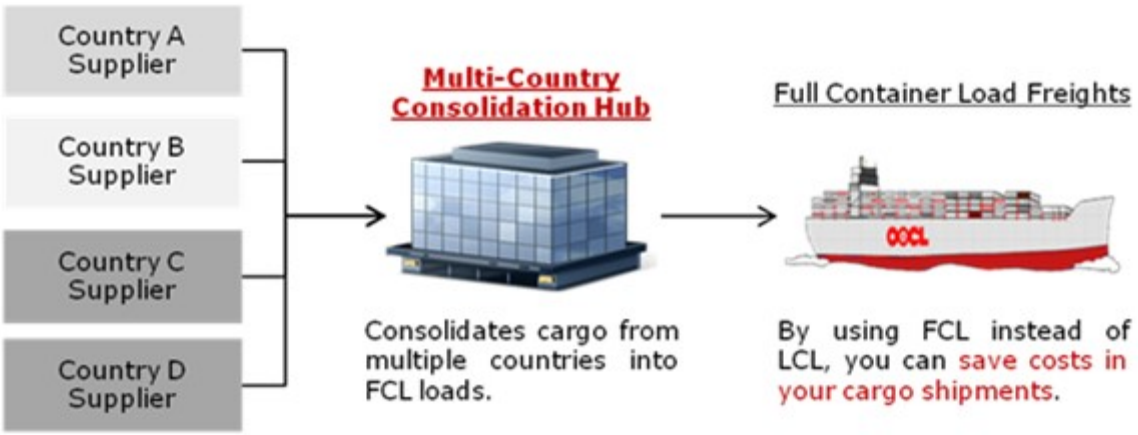


Figure 2 depicts that LCL shipments from different countries are received at the hub and FCL's are generated to be dispatched by either sea or air. (Container, Across, & Origins, n.d.)

Current MCC operations inside Sri Lanka

MCC operations were started in Sri Lanka about 2 decades ago inside the port limits of Colombo harbor. Here generally LCL transshipment cargo from Indian ports and local cargo were de-stuffed inside CFS warehouses and later consolidated with shipments from other countries. Due to the limited storage facilities and high handling charges only a few players like Freight Links managed to survive. But after the relaxation of customs and BOI procedure restrictions in 2013 freight forwarders got a valuable opportunity to implement MCC operations outside port limits of Colombo harbor. The amendments in finance act no 12 of 2013 can be pointed out as follows.

Finance Act, No. 12 of 2013 - Development Projects Act, No. 14 of 2008 –

(a) Entrepot trade involving import, minor processing and re- export;
(b) off-shore business where goods can be procured from one country or manufactured in one country and shipped to another country without bringing the same into Sri Lanka;
(c) Providing front end services to clients abroad; extending the application of provisions of the Strategic Development Projects Act, No. 14 of 2008 to certain enterprises.
(d) Headquarters operations of leading buyers for management of finance supply chain and billing operations;
(e) logistic services such as bonded warehouse or multi – country consolidation in Sri Lanka.

But unfortunately, there haven't been much new initiatives in this industry so far in Sri Lanka. Only a very few players like DHL Global and MAC SC have started some operations which belong to this MCC model. The attributes of these operations can be summarized as follows

- DHL Global Forwarding – this operation didn't involve any trade lane business of mega retailers. The process was to import dry foods and household items from South Asian countries as LCL's, to bring them in to DHL facility at peliyagoda and to re-export them as FCL's after consolidating with local cargo to Sri Lankan communities in Australia and middle east. The volume reportedly became so low and the operation had to be shut down by 2014.

- MAC SC – MAC SC has been successfully managing an MCC operation in Global Park where Imports from South Asian Ports (Indian, Pakistan and

Bangladesh) are received and re-exported after consolidating with local cargo to UK.

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Nevertheless none of the above operations include any business model with regards to global retailers and their main trade lanes from Far East to the western countries involving large container volumes.

The absence of Public-private partnership

When establishing new MCC operations this is very important because both parties have vital contributions towards its success. The company would follow market leads and attract potential trade lanes to Sri Lanka while the government would provide necessary infrastructure and superstructure. But unfortunately current situation doesn't favor the growth of this industry because there haven't been any partnership projects so far after 2013. It's a national requirement that all parties understand the importance of public private partnership.

Existing MCC operations in Sri Lanka vs. proposed model

Distinguishing features

1. The involvement of Far East to West trade lanes and high weekly volumes of global retail chains
2. The value addition process – ironing & pressing, repacking, pack ID sticker pasting, carton changing, poly bag changing, shrink wrapping, bubble wrapping etc.
3. The Accepted Quality Level checking(AQL) – Final inspection and quality assurance of all cargo before customer receipt
4. Sorting and picking of PO's for consolidation according to the final retail outlets and planning the export as per the delivery priority along the route after port clearance. So the final picking selection can be directly unloaded from the container at the destination

1.6 Research Questions

a) How the MCC concept can be effectively and efficiently used to find solutions for previously mentioned research problems
b) How the prevailing business model should be changed using the same concept
c) What are the methods of measuring cost savings and lead time reductions by comparing performance before and after

1.7 Research Objectives

a) Developing a new model for international retail supply chains to improve the efficiency and effectiveness of global sourcing of imports by taking Sri Lanka as a hub to carry out MCC operations
b) Developing a method to measure supply chain cost savings when shifted to new model
c) Developing a method to measure lead time savings when shifted to new model
d) Proving that the efficiency and effectiveness of international retail chains can be improved by using the proposed method

1.8 Research Limitations

The study about the existing trade lanes of global retailers from Far East to West involves a huge amount of diversified data which is quite confidential and hard to extract from relevant correspondents. Due to the same matter this research had to be narrowed down to a few trade lanes about which the author could carry out a practical survey to get relevant, accurate and up to date information by using the industrial contacts. And also rather than applying the model to a very broad geography it's practical to select a specific trade lane and test the before and after effects. As a result the Far East to Europe/USA trade lane of Matalan Retails UK/USA was selected and 22 active suppliers from China, Thailand, Myanmar, Malaysia, Indonesia and Vietnam were contacted during the process to obtain information about segmental costs and lead times of the existing model and the potential values of the proposed model.

- Practically as the study area considered in the research consists of a few existing trade lanes to analyze current performance (cost structure and lead time) and potential improved performance after implementing the MCC model. For this, the study has selected Matalan Retails (PVT) Ltd which is a UK based retail chain sourcing from many countries including South Asian, Far East and South East Asian suppliers. Although in the present they are also

sourcing from Sri Lankan local suppliers and maintaining an in house agent Container Freight Station (CFS) for local consolidations in Global Park (LSP) Seeduwa Sri Lanka they do not expose their Far East and South East Asian trade lanes to our country. So it's very important to study the feasibility of an MCC model to utilize these potential volumes.

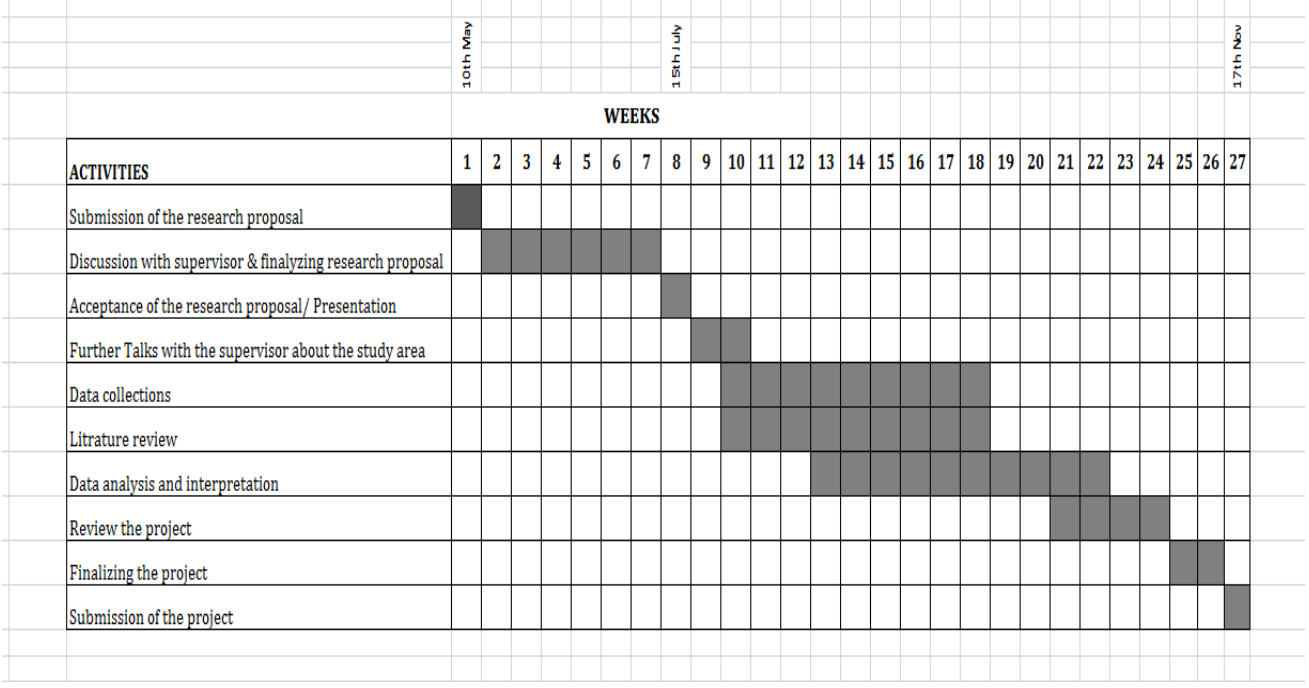
- For obtaining information from foreign supply chain partners the study has to rely and base on communication channels (email, online communication etc.) only. Interviews are not practical
- For cost structures the study accepts financial values given by the respondents as that is sensitive information

1.9 Analyzing the cost structure and overall lead time comparing before and after

Cost structure analysis –A simple formula to be built by the study for the total landed cost along the supply chain by taking every logistics cost component (freight cost, inventory cost etc.) in to consideration. Then the total landed cost of the previous one will be compared with the new one and proved that overall efficiency can be improved via the implementation of the new model

Lead time analysis – similarly as above another simple formula to be constructed by the study for supply chain lead time and in the same manner proved that the new model improves the overall effectiveness of the entire supply chain.

1.10 Time Schedule



2.1 Current trade lane activities and the growth of retail giants from Far East to Europe/USA

Global industrialization is the result of an integrated system of production and trade. Open international trade has encouraged nations to specialize in different branches of manufacturing and even in different stages of production within a specific industry. This process, fueled by the explosion of new products and new technologies since World War 11, has led to the emergence of a global manufacturing system in which production capacity is dispersed to an unprecedented number of developing as well as industrialized countries (Harris, 1987; Gereffi, 1989b). These developing countries generally include South Asian and African region while the industrialized countries include Far East and South-East Asia.

The revolution in transportation and communications technology has permitted manufacturers and retailers alike to establish international production and trade networks that cover vast geographical distances. While considerable attention has been given to the involvement of industrial capital in international contracting, the key role played by commercial capital (i.e., large retailers and brand-named companies that buy but don't make the goods they sell) in the expansion of manufactured exports from developing countries has been relatively ignored (Gereffi, 1999).

Buyer-driven commodity chains

Considering the industries in which large retailers, brand-named merchandisers, and trading companies play the pivotal role in setting up decentralized production networks in a variety of exporting countries, typically located in the Third World. This pattern of trade-led industrialization has become common in labor-intensive, consumer-goods industries such as garments, footwear, toys, consumer electronics, housewares, and a wide range of hand-crafted items (e.g., furniture, ornaments). International contract manufacturing again is prevalent, but production is generally carried out by independent Third World factories that make finished goods (rather than components or parts) under original equipment manufacturer (OEM) arrangements. The specifications are supplied by the buyers and branded companies that design the goods.

One of the main characteristics of firms that fit the buyer-driven model, including athletic footwear companies like Nike, Reebok, and L.A. Gear (Donaghu and Barff, 1990) and fashion-oriented clothing companies like The Limited, The Gap, and Liz Claiborne (Lardner,

1988), is that frequently these businesses do not own any production facilities. They are not "manufacturers" because they have no factories. Rather, these companies are "merchandisers" that design and/or market, but do not make, the branded products they sell. These firms rely on complex tiered networks of contractors that perform almost all their specialized tasks. Branded merchandisers may farm out part or all of their product development activities, manufacturing, packaging, shipping, and even accounts receivables to different agents around the world.

The main job of the core company in buyer-driven commodity chains is to manage these production and trade networks and make sure all the pieces of the business come together as an integrated whole. Profits in buyer-driven chains thus derive not from scale economies and technological advances as in producer-driven chains, but rather from unique combinations of high-value research, design, sales, marketing, and financial services that allow the buyers and branded merchandisers to act as strategic brokers in linking overseas factories and traders with evolving product niches in their main consumer markets.(Gereffi, 1999)

Figure 3: Basic structure of buyer driven commodity chains (Gereffi, 1999)

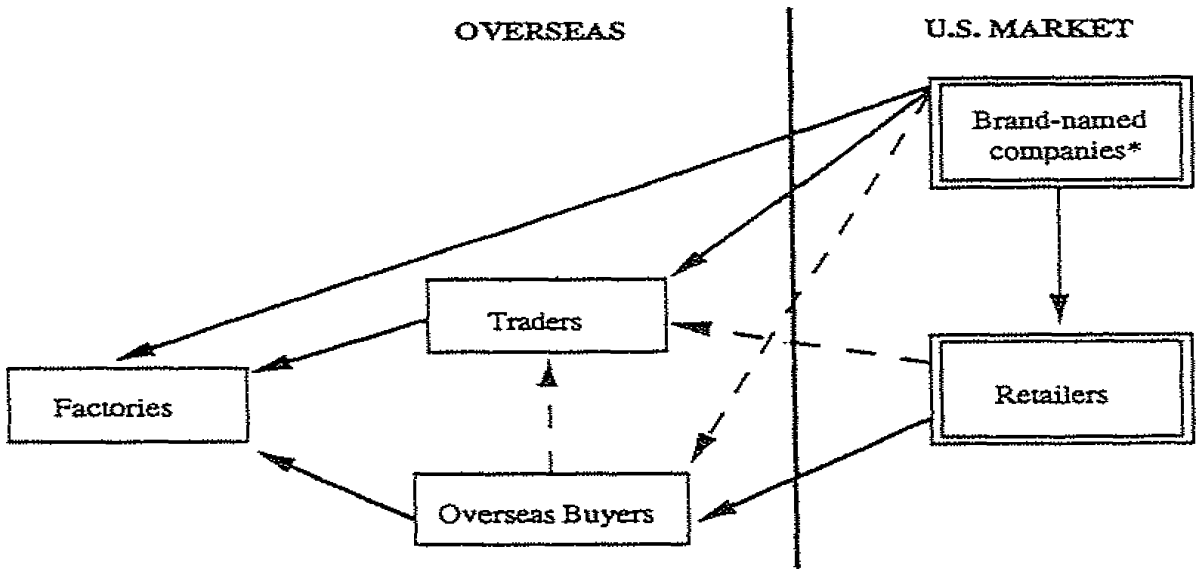


Figure 3 shows how own brand companies and retailers dealt with overseas traders simultaneously and separately at the initial times of millennia and the already existing tendency of branded companies to move towards retailers to improve the efficiency of

commodity chains. Later in 2000's commodity brands and retail giants became close supply chain stakeholders and started enjoying mutual benefits via massive economies of scale.

In today's world global retailers are the exact present representation of the traditional buyer driven commodity chain model**.** They have been contributing in massive scale to entire global economy by generating high volume trade lanes which connect far away regions with multiple economic transactions which have made nations so much dependent on them. Developing countries have embraced these operations by constructing free trade zones to facilitate production and logistics while the buying nations have provided catalysts to them such as the GSP tax reduction schemes.

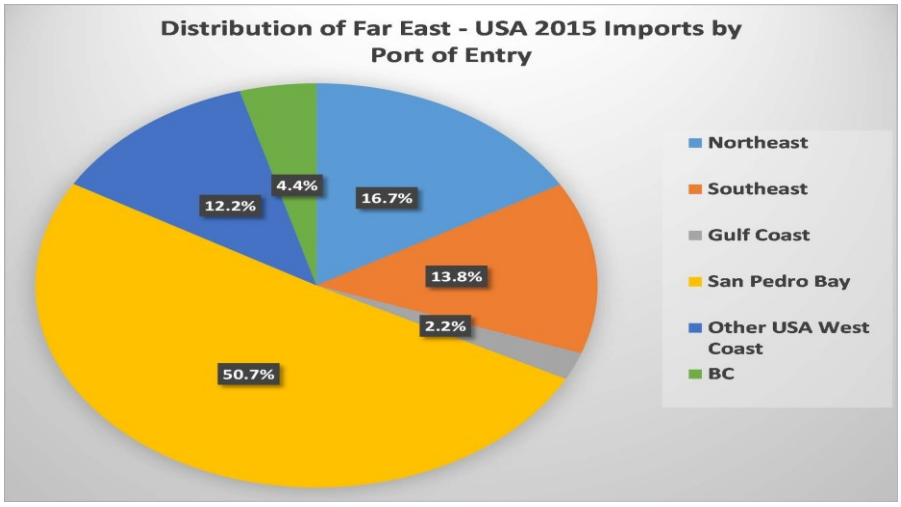
2.2 Determinants of International Retail Involvement the Case of Large U.S. and UK Retail Chains

Although retail operations traditionally have been considered poor candidates for international expansion, firms in mature retail markets are increasingly turning to international markets as a means for strategic growth. In the study about "Determinants of International Retail Involvement the Case of Large U.S. and UK Retail Chains" the authors examine how internal determinants affect the international ventures of large retail chains, comparing internal characteristics of international and domestic firms. The authors use the behavioral internationalization paradigm to develop a model of international retail involvement, which serves as a conceptual framework for the study.

Through a logistic regression model, the results support the relevance of six of eight explanatory determinants of international retail involvement. The findings highlight the powerful influence of the strategic management characteristics, competitive advantages related to retail concept and logistics, and a retailer's size. In contrast, neither previous experience in direct foreign sourcing nor competitive advantages related to retail merchandise were significant in this model. Thus it's obvious that global retailers are keen on improving their international expansion by using different strategic management aspects.

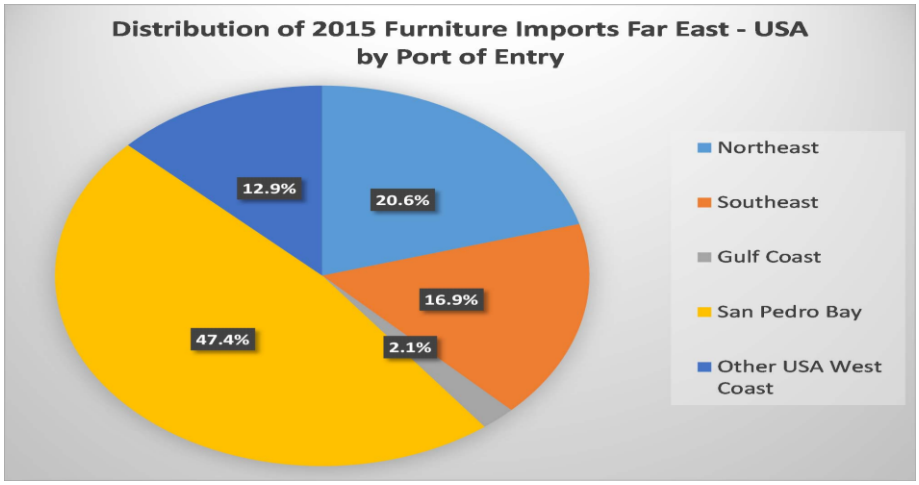
2.3 Analysis on volumes and other aspects of Far East – USA trade lane

Figure 4: Far East – USA imports distribution by ports of entry ("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017).



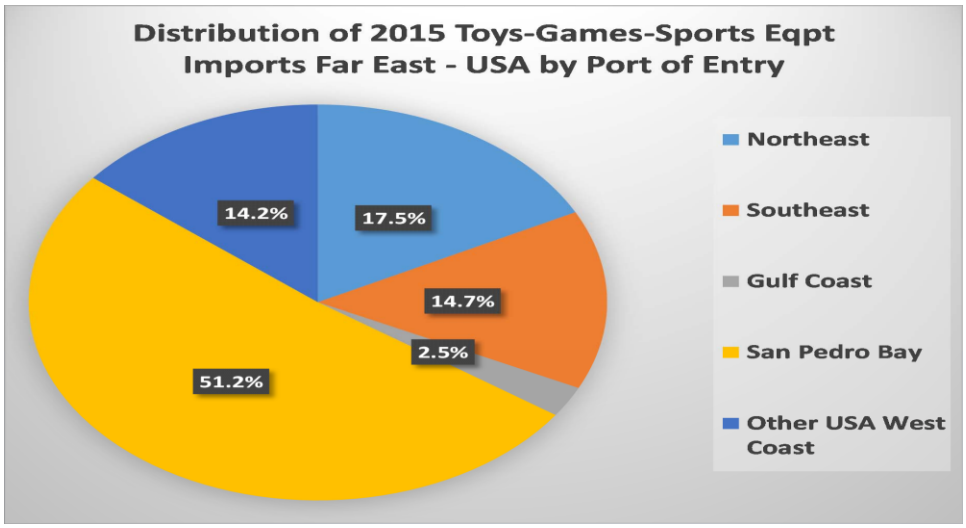
According to Figure 4 the coastal split of Imports to USA can be identified as a total 32.1% at the East coast and 67.9% at the west coast. These figures can have massive impacts if the Panama Canal expansion project kicks off

Figure 5: Far East – USA Furniture imports distribution by ports of entry("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017)



Here we can monitor a slight reduction of demand for these commodities in west coast when compared with east coast

Figure 6: Far East – USA Toys/Games/Sports Equipment imports distribution by ports of entry("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017).



Again similar implications as previous illustration where this commodity has been shared as per similar coastal % contributions (Figure 6).

Figure 7: Far East – USA Auto parts/Motor Cycles imports distribution by ports of entry("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017)

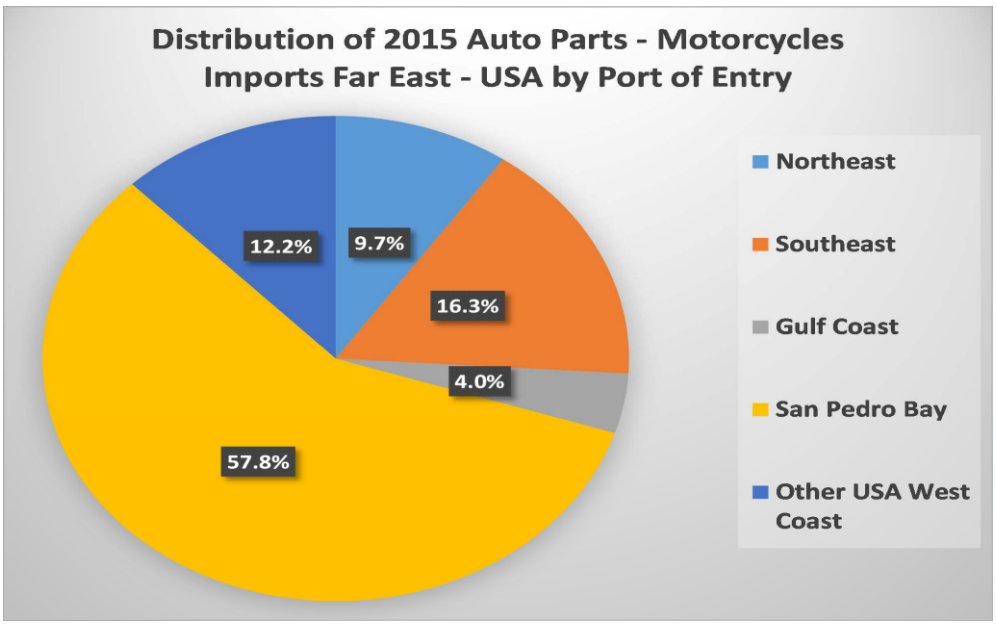
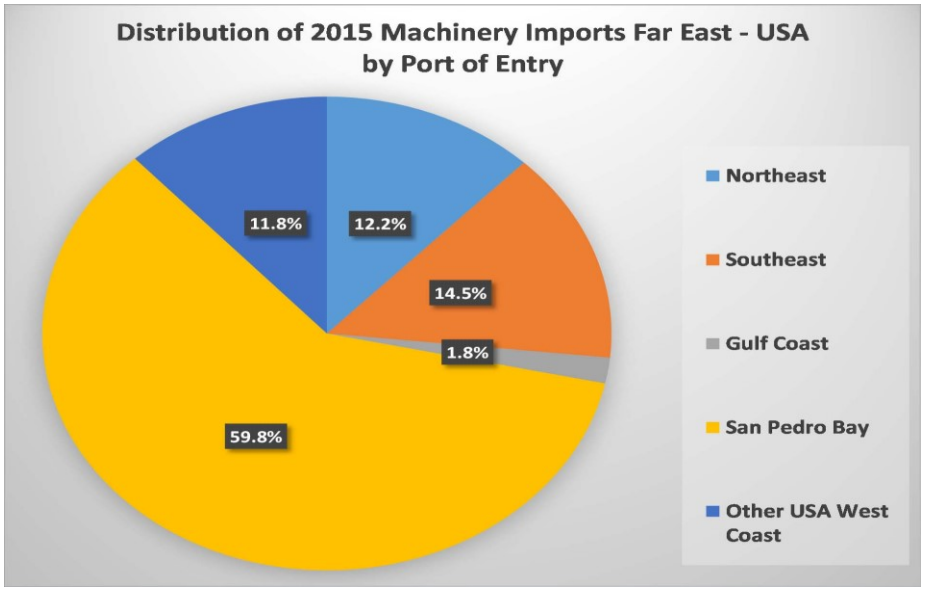


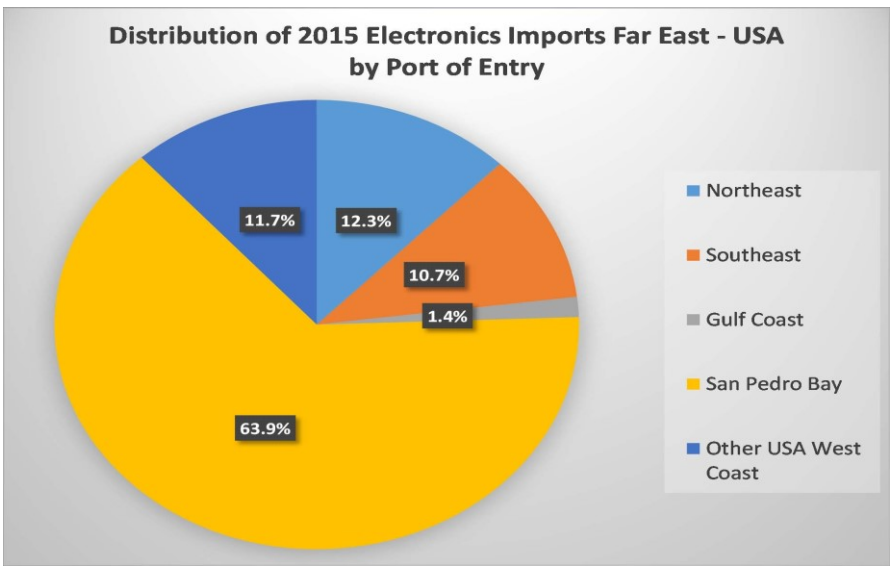
Figure 7 shows a clear difference in demand for auto parts between east and west coasts can be seen probably caused by many complexes of PESTALI forces.

Figure 8: Far East – USA Machinery imports distribution by ports of entry("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017).



Again same as above west coast has surpassed east coast in machinery imports due to many complexes of PESTELI forces.

Figure 9: Far East – USA Electronic imports distribution by ports of entry("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017)



The summary of all above illustrations can be presented in a nut shell as an analysis that most of the imports hubs operated by retail giants in USA are located in the west coast than in the east coast.

2.4 Top USA importers from Far East

World largest importer is USA and the following Table 1 presents top USA retail chain importers from Far East.

Table 1: Top USA retail chain importers ranked as per TEU volume

Importer	**2015 Volume (TEUs)**	**Importer type**
Wal-Mart	796,000	Big-Box retailer
Target	537,000	Big-Box retailer
Home Depot	353,000	Big-Box retailer
Lowe's	262,000	Big-Box retailer
Samsung	159,000	OEM
Family Dollar/Dollar Tree	153,000	Big-Box retailer
LG	142,000	OEM
Ikea	136,000	Big-Box retailer
Philips Electronics	130,000	OEM
Nike	106,000	OEM
Jarden	105,000	OEM

Source: Journal of Commerce (2016)

2.5 Far East container ports – TEU volumes

Most of the leading container ports belong to Far East which contributes to around 75% of container traffic sourced by retail chains in Europe and USA. Below is an illustration of TEU volumes

Table 2: Rankings of Chinese ports as per handled TEU volume("ECONOMICS OF," 2017)

CONTAINER TRAFFIC TEUs (Twenty-Foot Equivalent Units), 000s			
RANK	PORT	COUNTRY	TEUs
1	Shanghai	China	36,516
3	Shenzhen	China	24,142
4	Ningbo	China	20,636
5	Hong Kong	China	20,073
7	Qingdao	China	17,323
8	Guangzhou	China	17,097
10	Tianjin	China	13,881
13	Kaohsiung	Taiwan	10,264
15	Dalian	China	9,591
16	Xiamen	China	9,215
21	Laem Chabang	Thailand	6,780
22	Saigon Port	Vietnam	6,556
26	Tanjung Priok	Indonesia	5,154
27	Saigon New Port	Vietnam	5,026
33	Manila	Philippines	3,976
49	Keelung	Taiwan	2,666
81	Bangkok	Thailand	1,559
82	Taichung	Taiwan	1,447
95	Belawan	Indonesia	1,197

2.6 Growth potential in Far East- Europe/USA trade lane

Container volumes on the head haul Far East-Europe and Far East-North America trade lanes recorded a mild recovery in 2016, Alphaliner informed citing the latest statistics from CTS and PIERS. The Far East-Europe trade reached 15.08 million TEU in 2016, representing an increase of 1.2%. This follows a contraction of 3.1% on the trade recorded in 2015, caused mainly by a reduction in Russian demand. More stable volumes to Russia in 2016 have

helped to stem the fall in total volumes to Northern Europe, while strong growth in the West Med also helped mitigate flat volume growth in the East Med.

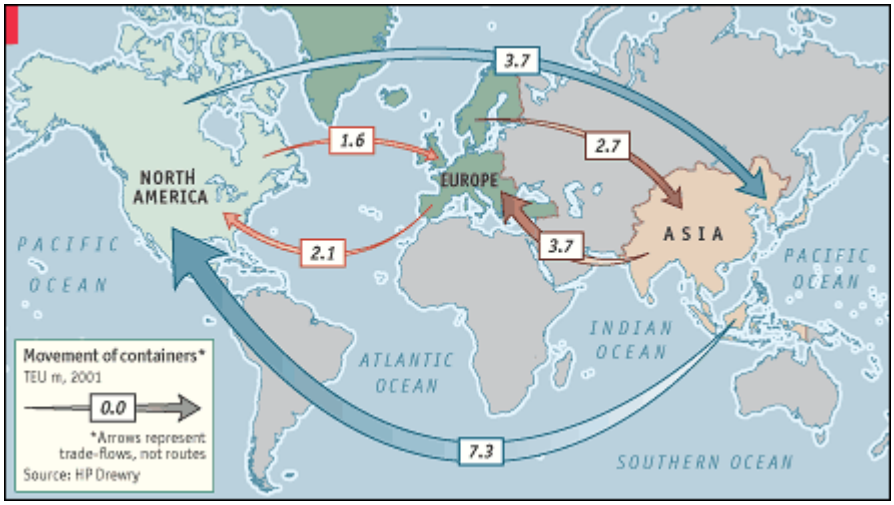
Overall Far East-Europe volumes remain below the peak of 2014, when a total of 15.39 million TEU was recorded, with Russian volumes still significantly below 2014 levels, according to Alphaliner. The Far East-US trade recorded a stronger 4.3% growth to reach an all-time high of 14.21 million TEU in 2016, based on data provided by PIERS. This marked the seventh consecutive year of positive volume growth on the transpacific trade.

Volume growth to the US West Coast and US East Coast was almost equally matched at 3.4% and 3.3%, respectively, with the opening of the new Panama Canal locks in June last year making no significant difference to the cargo split between the US West Coast and East Coast. However, volumes to the US Gulf recorded a 26.6% growth rate, mostly driven by the introduction of a new Far East-US Gulf 'TP-18/Lone Star Express' service by the 2M partners in May last year. As mentioned above the reduction of cargo volume difference between east and west coast of USA due to opening of Panama Canal locks is a seriously important aspect for the future of east to west transpacific trade lanes. This will definitely result in increases of trade volumes which will generate economic ripples throughout Asia.

The container-shipping industry relies on three main trade flows: *transpacific, transatlantic and Europe-Far East*. As America has sucked in more imports from Asia, the transpacific route has become the busiest, reflected in the fact that West Coast ports of America, such as Los Angeles, are now the biggest in the country.

As trade grew in the late 1990s (apart from a hiccup caused by the 1998 Asian crisis), carriers sought greater economies of scale by using bigger ships. The result has been a boom in orders for new vessels. The container-ship fleet grew by 12% in 2001 and a further 10% expansion this year is expected by consultants at H.P. Drewry (year).

Figure 10: Comparative illustration of trade flows



Traffic on most routes is organized within shipping alliances, which are often granted antitrust immunity because of the practical benefits they bring in terms of co-ordinated, regular and predictable services. These carrier alliances have responded to the overcapacity by laying up surplus ships, restructuring routes or suspending services. For example, the New World Alliance, which serves Asia-Europe trade, is cutting its capacity by 20% this year.

On the transpacific route, the 14 members of the Transpacific Stabilization Agreement expect combined losses of $1.2 billion this year, on top of an estimated loss of $800m last year. H.P. Drewry forecasts a rise of only 1.3% in eastbound container traffic this year, after a 1% rise in 2001. Total cargo on the eastbound route in 2001 was 7.3m TEU compared with 7.2m in 2000 and with 3.7m TEU (3.8m in 2000) on the much smaller westbound route carrying American exports. On the Atlantic routes between Europe and North America, 2.1m TEU moved westbound and 1.6m eastbound in both 2000 and 2001.

The huge investment needed in ships, containers, port equipment and IT in order to be a global container carrier has meant that the industry has been consolidating through a series of mergers and acquisitions. Ironically, the United States, which led the way in the early days of containerization, has in recent years lost both of its global carriers in foreign takeovers: Neptune Orient Line of Singapore bought American President Lines, and a Danish conglomerate, Maersk, acquired Sea-Land, an industry pioneer.

Thanks to falling rates and the demands of consolidation, the container industry will find it hard to invest in new security devices. If governments want the trade to become more secure, they may need, at least temporarily, to pay some of the bill.

2.7 Sourcing from Asian countries – Retailers being proactive to avoid reputational spillovers

Global retailers are very keen on preserving their reputations when sourcing merchandize from developing countries. They monitor their supply chains by means of various audits and performance management measures. The research done by John Wiley & Sons, Ltd in 2015 provides insights to this. According to this study Firms reliant on supply chains to manufacture their goods risk reputational harm if the working conditions in those factories are revealed to be dangerous, illegal, or otherwise problematic. While firms are increasingly relying on private-sector "social auditors" to assess factory conditions, little has been known about the accuracy of those assessments. We analyzed nearly 17,000 code-of-conduct audits conducted at nearly 6,000 suppliers around the world. We found that audits yield fewer violations when the audit team has been at that particular supplier before, when audit teams are less experienced or less trained, when audit teams are all male, and when the audits were paid for by the supplier instead of by the buyer. We describe implications for firms relying on social auditors and for auditing firms. Thus, performance management and compliance audits play a huge role when retail giants source from developing countries, so this has a direct impact when implementing hub operations in a country like Sri Lanka.

Also, reputation spillovers have direct negative consequences towards the economies of developing countries because in such scenarios retails giants tend to switch sourcing options to other countries. Supply chain and reputational risks are often assumed to motivate firms to source production in developed, high-cost countries rather than developing, low-cost countries. To examine this assumption, we provide evidence from the collapse of the Rana Plaza building on April 24, 2013, which with its 1133 fatalities and 2438 injuries is seen as one of the worst industrial accidents in history. Do markets reactive negatively enough to such events to motivate firms to shift their sourcing strategy? We analyze the stock market reaction to the Rana Plaza disaster in the Bangladeshi ready-made garment industry to address this question. Our analysis is based on a sample of 39 publicly traded global apparel retailers with significant garment sourcing in Bangladesh. Stock market reaction to retailers

on the day of the Rana Plaza disaster is negative, but its magnitude and significance dissipate by the following day. We find no evidence of significant stock market reaction during the 11 trading days (approximately two weeks in calendar time) following the disaster. Retailers responded to the disaster by developing two different agreements to improve factory and worker safety in Bangladesh – the Accord on Fire and Building Safety in Bangladesh (AFBSB), and the Alliance for Bangladesh Worker Safety (ABWS). We find no evidence of significant stock market reaction to the announcements of the AFBSB and the ABWS. The insignificant negative economic impact from the Rana Plaza disaster suggests that retailers have little economic incentive to move sourcing out of Bangladesh or other low-cost countries so as to reduce the risk of being involved in such events. We discuss the implications of our results for retailers, non-governmental organizations (NGOs), garment factory owners in Bangladesh, the Bangladeshi government, and academic researchers (Holmes & Singer, 2016).

2.8 A challenge for the suppliers in developing countries

Through an analysis of clothing import patterns and sourcing practices of major clothing retailers in the United Kingdom, France, and Scandinavia, this paper uncovers salient differences between global value chains (GVCs) serving European clothing markets. It highlights entry barriers for developing country suppliers into the sourcing networks of UK retailers and relates these to corporate financialization in the United Kingdom. Although suppliers' entry and industrial upgrading remain easier in mainland European sourcing networks, the maturation of GVCs challenges classical "industrial upgrading" paradigms and the role of the clothing sector as a stepping stone in the industrialization of developing countries.

2.9 New trends of retail industry in Indian market

The new trend of India becoming a target market of global retailers can be utilized as a way of economic development for Sri Lanka by playing the role of consolidation or break bulk hub. According to the study Retailing in India is developing at a very rapid pace. Majority of the retail market is still untapped, and is key factor for global retail giants to make inroads, Formats of shopping malls is becoming attractive for global retail players. Most of the retail giants rapidly adopted the culture of shopping malls in large cities.

The shopping malls aim at attracting the customers, in order to provide great buying experience to the customers. Retailers have to provide quality services from entry to exit of the customer. The term service quality become widely used and implemented in all the sectors especially when service is a top priority. Retail is one arena where business carried out mostly depends on customer experience and satisfaction level. The proportion of organized grocery stores is 5% and it is expected to grow at a compounded annual growth rate of more than 25% with a prediction of Rs 37 billion by 2020.

There is greater opportunity in Indian grocery retailing to exploit the market, therefore providing the best service quality to customers becomes a challenge to retailers. The study gives an overview regarding the service quality and provides a relook at validation and reexamination of retail service quality scale given by Dabholkar et al (1996) in the context of the Indian rural setup especially in grocery stores. The sample consists of 100 respondents from two grocery stores of Jalandhar district of Punjab. A questionnaire on 5-point Likert scale was used. The findings obtained by using reliability test, confirmatory factor analysis and Structural equation modeling are that this Scale (RSQS) can be validated in the Rural Indian Context of Retail stores of groceries.

As mentioned above this new trend of global retail giants entering untapped Indian market can result in opening up of new trade lanes which source from Far East and destined to India. Such trade patterns can generate plenty of economic benefits to a country like Sri Lanka located in the Indian sub-continent with enormous potential to serve as a hub of temporary storage, value addition and transshipment (Bhat, 2016).

2.10 The position of global retailers by means of wealth, trade volume and other rankings

Global retail giants contribute to global economy in such massive scale that developing economies are so much dependent on them acting most of times as suppliers or other service providers. Table 3 is an illustration of top 10 players with their massive volumes, revenue and world dominance.

Table 3: World Rankings of Retail Giants as per revenue and net profit

Retail Company	**Origin Country**	**Annual revenue(FY 2015) – (US$M)**	**Net Profit %**	**Operating Countries**
Wal-Mart Stores	USA	482130	3.1	30
Costco Wholesale	USA	116199	2.1	10
The Kroger	USA	109830	1.9	1
Schwarz KG	Germany	94448	-	26
Walgreens Alliance	USA	89631	4.1	10
Home Depot	USA	88519	7.9	4
Carrefour SA	France	84856	1.4	35
Aldi Einkauf GMBH	Germany	82164	-	17
Tesco PLC	UK	81019	0.6	10
Amazon .com	US	79268	0.6	14

("Global Powers of Retailing 2017, The art and science of customers," 2017)

2.11 Risk analysis table

Below is a risk analysis table for US and UK retailers

Table 4: Risk Analysis table for US and UK Retailers("Top Risks In Retail 2017," 2017)

Risk	Description	Points to Consider
Competition	• Intense competition on a national and international level both in the U.S. and abroad. • Diverse retailers offer the same or similar merchandise and compete on the basis of price, quality, or speed to market. • Competitors may have greater resources or evolved business models that provide a better shopping experience. • Cost of entry into the market at all-time low, while a large number of niche players driving change.	• Pricing and promotional strategy (new normal?) • Physical and virtual location arbitrage • Business model differences based on culture, retail sub channel and history • Impact of mobile commerce / social media • Globalized retail markets and foreign retail entry into U.S. • Cost of delivery expectations • Impact and growth of a more socially conscious shopper • Pop up stores and lower cost of concept and entry • Next "big "thing (VR etc.)
Consumer Trends / Preferences	• Customer is the new point-of-sale. For today's connected consumer, the shopping 'experience' can be endless. • About half of consumers actually enter retail	• Consumer products & retail comprise roughly 20% of the country economy • Nearly 40% of households have Amazon Prime • 40% of men and 33% of

	stores. Shopping experiences that are meaningful, memorable, shareable, and personalized maintain traffic. • Incorporating technology into a brand persona through influencer marketing can be a powerful tool in driving customer habits. Marketing must be relevant to the product offering and meet consumer needs. • Brand building on the retail front has become a team sport for many firms that are generating significant results via partnerships that deliver competitive advantages.	women aged 18 to 34 would buy everything online if they could • 95% of Millennial want to build meaningful interactions with brands on social media • Amazon is #1 in customer satisfaction among both online and store-based retailers
General Economic Conditions	• GDP growth below expectations for first half of year, primarily due to impact of oil and gas sectors. • Expecting to see slow but steady growth in the US economy over next 2-3 years • Retail sales annual	Conditions impacting consumers perception and economic conditions include: • Impact of contentious Presidential election • Regional unemployment levels • Government gridlock • Impact of government spending, and tax policy • Minimum wage increases

	growth has decreased every year over the last 5 years from 7% to 2.2%. • 70 consecutive months of jobs growth in US. • Pressure for transformation is increasing. • Rise of "platform" companies in unexpected areas (Google in healthcare etc.). • Interest rates expected to stay the same until Dec.	Impact of changing economy (manufacturing based has moved to service and technology based)
Brand and Reputation	• Retailers run the risk that one innocuous post/video/comment from any angle (Board, customer, associate, and management) could trigger a significant brand protection situation which impacts sales or customer perspective. • High-volume of consumer touch points • Rapid expansion of social media. • Years to build reputation and seconds to destroy. • Can happen anywhere in chain.	• Most retailers react to situations as they happen. Need to proactively have plans in place • Types of brand damage • Long / slow / denial – Sears • Immediate – Target Cyber • Continuous hits -- Chipotle • Increase of disaster recovery plans for Brand situations • Monitoring of consumer sentiment

Transformation Risk	• Change fails when programs are exclusively focused on the technical excellence of the team. • Probability of failure increases if people and organizational resistance to change is not proactively managed.	Root cause of transformation issues: • Project management problems (32%) • Failure to define objectives (17%) • Lack of communication (20%) • Inexperience in scope and complexity (17%)

Risk	Description	Points to Consider
Security of Customer & Personal Information	• Risk of security breaches of business and customer data through cyber-attacks from hackers and sophisticated organizations. • Gaps in control structure due to reliance on 3rd party vendors. • Risk of significant business impact of key systems not being available (websites, core operating systems, e-mail etc. through methods such as Denial of Service attacks and others).	• Rise in regulations around cyber compliance • Leadership and governance • Human factors • Information risk management • Cyber security, business continuity and crisis management • Operations and technology • Legal and compliance • Back up and support
Compliance with Regulations and Taxation	• Increased regulation pertaining to operations, product liability, competition, consumer	• New revenue recognition and lease accounting rules • New ISO 37001 Anti-Bribery

	protection, and price controls social and environmental considerations. • More proactive adherence to compliance will be necessary. • Litigation against U.S. retailers is rising (i.e. class actions). • Litigation areas are extensive and require strong business controls and experienced legal departments.	Management System standard will be published and available for certification • FCPA/UK Bribery Act • Healthcare reform impact • Labor compliance (Min wage, FLSA, Minors, California) • ADA impact on Omnichannel • Corporate social responsibility and controls at partners • SOX and PCAOB changes • Class action lawsuits due to performance, compliance breach or other • International compliance for product safety, labor, pricing etc.
Dynamic technology	• Significant risk exists in the management of rapidly changing IT infrastructure due to the growing importance of technology and strategic shift in speed of technology change. • The temptation to continuously, incrementally improve legacy systems - beyond what is truly broken or required by regulation - is ongoing and often results in adding "technical debt"	• Updating POS to support transactions through all mediums • Mobile POS/re-platform of e-commerce and growth of use • Technology framework dilemma (ERP v best of breed) • Explosion of cloud based solutions • Expanded software licensing reach • Technology migration towards connected customer (loyalty programs linked with sales and social media) • Rapid evolution of consumer

	to already arcane infrastructure. • Aligning inventory, pricing, and customer systems is a must to deliver a seamless customer experience.	technology • "Best of Breed" vs. Integrated Enterprise tools • Ensure technology strategy / spend support the overall business strategy

As per above risk analysis Table 4, it's clearly depicted that retail giants in UK and USA have considered not only micro economic factors as risk sources but also macro-economic aspects. They have put weight on factors such as intense competition, adhering to updated ICT trends, economic and legal transformations, preserving brand reputations and compliance standards etc. Expanding or out sourcing costly and time-consuming supply chain operations to other feasible countries is a very suitable & proactive risk aversion technique to be adhered by international retail chains. In such a manner Sri Lanka can be mentioned as one of the most suitable geographical locations in the world for these retail giants to have in house agent operations to aid their international supply chains.

2.12 Key findings of a research based on online retailing and connected customers

The Connected Consumer

Smartphone penetration has reached 78 percent of U.S and Europe consumers, and more than half own a tablet (55 percent). Emerging device ownership includes wearable fitness trackers (18 percent), smart watches (13 percent), virtual reality headsets (9 percent) and personal drones (7 percent).

More than a quarter of consumers (27 percent) own some kind of in-home smart device, including smart appliances (16 percent), thermostats (14 percent) and lights (13 percent). More consumers now pay for at least one digital TV service (68 percent) than a traditional cable subscription (52 percent). Almost a third (32 percent) owns a streaming device like Roku or Apple TV. Nearly a quarter of consumers (24 percent) own a voice-controlled device like Amazon Echo (16 percent) or Google Home (6 percent). Another 20 percent plan to purchase one in the next year (Consumer, 2017).

Connected Commerce

Nearly half of consumers (46 percent) now prefer to shop online instead of in-store, including mobile and voice commerce. Almost a third of consumers (29 percent) shop online at least weekly, a number that jumps to 37 percent for Millennial. Only 4 percent of consumers don't shop online at all. The majority of consumers (65 percent) have mobile shopping apps on their phones, and two-thirds have made a purchase through a mobile app (66 percent). More than one in four consumers (29 percent) report that they always or often shop via mobile app, and 38 percent regularly shop on mobile websites. One in five consumers (19 percent) have made a voice purchase through Amazon Echo or another digital home assistant, and another third (33 percent) plan to do so in the next year.

Thus, according to above findings about consumer markets it's obvious that retailers should improve the 3A's in supply chain which are Agility, Adaptability, and Alignment. They should move from traditional pull models to modern push models where the connected consumer initiates the order. Here it's advisable to implement hub models by which Supply chain operations can be expanded in to more than one country along the sourcing trade lane and carry out logistics or manufacturing postponements.

2.13 The rise of E Commerce and the Retailers adaptability to change

The rise of E Commerce over the last 10 years has forced retailers to adapt to the changes demanded by consumers. E Commerce growth continues to accelerate and outpace growth in the brick-and-mortar channel. Online sales accounted for almost 20% of the total UK sales this holiday season based on preliminary estimates. In addition, department stores have offered discounts and promotions as a key tool to drive demand and bring consumers into stores. Over time, this strategy can dilute a store's brand and leave stores looking picked through. Also, it trains consumers to wait for discounts instead of buying products at full price.

There have been a significant number of store closures in the last few years and we expect that to accelerate in 2017 and to continue. As the department store channel shrinks, and more brands fight for less space, we think brands will need to be more creative, flexible, and diversified in their approaches. One way brands can disrupt the more traditional wholesale channel without taking on the significant real estate risk that comes with opening their own

stores is to open pop-up stores. With pop-ups, brands have complete creative control of the brand experience and how their messaging is communicated to consumers. They can tell the story they want to tell and explain in their own voice what the brand stands for. ("Global Powers of Retailing 2016 Navigating the new digital divide," 2016)

Again, retailers must focus more on pull supply chain models to cope up with ever increasing demand of online purchases and to balance their main sourcing channels from Asia.

2.14 Eliminating run way to retail gap

One of the most buzzed about concepts in the retail industry is the idea of "runway to retail" which has put the fashion industry in the midst of an intense debate, with the announcement of "in-season fashion shows" by several major designers and brands declaring that the time is ripe for the industry to explore change. Should runway fashion be available to buy immediately, or should it come to market four to six months later based on the century-old industry calendar? This shift has profound consequences for all aspects of the retail organization.

To eliminate the months of delay between runway excitement and retail availability, brands will have to shift their design processes, planning cycles, and merchandising timelines to provide product to consumers more quickly. Here a Sri Lankan hub model will play a huge role and make positive contributions to eliminate this time gap and improve the overall efficiency (Marino, 2017).

2.15 Increased competition between retailers in grocery and apparel industries

The level of competition in the US & Europe grocery and apparel segments intensified in 2017 due to new entrants and greater competition from existing players. In grocery, a wave of European retailers is set to enter or expand in the US. Emerging grocery concepts, enhanced services, and convenience are bringing increased competition. US grocery sales are estimated to have reached $1.13 trillion in 2017, representing a five year CAGR of 1.1%. In apparel, Amazon's push into fashion specifically, its expansion of its private-label offerings, and consumers' increasing comfort with purchasing apparel online will likely pose a greater threat to those apparel retailers that are primarily value oriented. Euro monitor estimated US apparel and footwear sales were $384.94 billion in 2016, representing a five year CAGR of 2.1%.

Competition in the grocery segment is intensifying due to the aggressive expansion of German discount supermarket Aldi and its fellow German competitor Lidl, which has announced plans to enter the US market in 2017. In addition, emerging concepts with enhanced service offerings such as Amazon's smart grocery store concept, Amazon Go, will fight for share in the market. Amazon Go is in test phase and is expected to open in Seattle in early 2017. The MonarchFx Alliance, a new operating paradigm, which is directionally the future state for smarter logistics, links all points of contact as a supply network, including multiple channels and multiple ways to distribute on a collaborative platform. The MonarchFx Alliance allows retailers to sell beyond their current channels in support of their business objectives. Jim Tompkins founded this preeminent supply network and recorded a video, which explains the future state of the supply network.

Here UK and USA retailers have faced immense competition from the entry of German retailer Aldi who's having the world rank of 8. So it's wise for UK and USA retailers to adhere to hub models which can boost their competitiveness (Consumer, 2017).

2.16 Labor issues faced by UK and USA retailers

Retailers in the US and UK are grappling with higher labor costs due to higher minimum wage legislation, pension contributions, and warehouse worker labor strikes during critical periods such as the weeks leading up to Christmas. US retailers also face the burden of health insurance costs, which have been rising. At the same time, some big retailers such as Wal-Mart are actively hiking wages for their lowest-paid workers in order to retain and incentivize staff. Retailers are being forced to seek new ways to leverage technology in order to lower costs and progressively decrease their dependence on human employees.

2.17 Digital tools to enhance customer service of retailers

The use of technology from the supply chain to delivery is transforming retail structures and shopper experiences. Mobile technology has changed the way consumers interact with brands and retailers, as integrated mobile platforms in the hands of store associates are essential for a true multi-channel customer experience. Beyond personalization services, these mobile technologies integrate hassle-free, on the spot-payments, eliminating long checkout, and waiting times.

From supply chain to purchase delivery, digitalization will continue to remake the entire retail experience this year. Retailers increasingly will incorporate end-to-end digitalization,

including the use of radio-frequency identification (RFID), block chain technology to speed the supply chain, in-store price tags that can be changed with a click, mobile technology for store associates, self-checkouts, and new equipment such as drones to expedite package delivery ("distribution industry outlook Economy Consumer mindsets Enabling technology Platforms," 2017).

2.18 Retail Stores closing and consolidating

Fast-fashion and off-price retailers are proving to be tough competition as consumers are finding on-trend pieces at affordable prices at these stores. Specialty retailers such as The Limited, The Banana Republic, and Gap, where women traditionally shopped for wardrobe staples, have all announced store closures. The teen category has also struggled, with five retailers declaring bankruptcy in 2015 and 2016. Express reduced its store count by 21% and American Eagle Outfitters reduced its store count by 10% from 2015 to 2016.

There have been a significant number of store closures in the last few years. Store formats are changing, and becoming smaller to serve shoppers' demand for convenience. Malls will continue to see reorganizations, more closures, and tenants asking for smaller format. Strip malls have been outperforming department stores, but that they are not taking market share away from E Commerce.

Thus, modern pull supply chain models seem to have been overrunning traditional departmental store models in UK and USA. Here Matalan retails is also a growing retail chain in UK which have already incorporated modern E commerce applications very positively and serving the consumer market with trending garment and household brands for affordable prices via both online and physical stores ("Global Powers of Retailing 2016 Navigating the new digital divide," 2016).

2.19 Enhancing shopping experience in retails

Retailers must continue to look for opportunities to remove friction during the in-store shopping experience by piloting low-risk, low-investment technology concepts. Some of the main sources of friction during the shopping journey include inventory management, merchandising, and labor cost. Thus, these aspects can be improved by an MCC hub model amidst the sourcing import trade lane of the retailers due to following aspects

- In store inventory will be reduced due to cross docking orders
- Labor cost is automatically reduced as a result of all the value addition and handling has already been done along the way amidst the trade lane.
- Merchandizing cost is also reduced

2.20 Challenges faced by retailers in the dynamic business environment

Retailers today are confronted by a more complex and diverse business environment than at any other time. With more information at the hands of consumers, new ways they engage with products and brands and a more dynamic competitive landscape, traditional retail is going through a period that is more akin to a revolution than an evolution. The old guard of retailers will need to take drastic measures to remain relevant in this new retail order that is defined by information and technology.

There is no single strategy that is right for every company. The start is the business strategy needed to define required capabilities since the future is uncertain. Businesses need to design for flexibility and speed of execution applying best practices and design to meet objectives and achieve excellence. The digitalization of a business refers to the strategy, planning, and execution of the right digital initiatives that align with, and enable, the business strategies of the enterprise. Digital is a broad topic, composed of numerous new technologies, new business processes, new business models, and customer experiences. In short, it is a new way of doing business, both externally with customers and internally, including with trading partners.

Companies of all types are facing challenges that are unprecedented, in terms of digital disruptions, competitive innovations, and customer-centric advances. Supply chains are not excluded from these disruptions. In fact, smart digitalization of supply chains can be the foundation for responding to (or getting out in front of) these threats. Amazon is the perfect example its supply chains are fast, efficient, high performing, and customer-centric. (“Global Powers of Retailing 2016 Navigating the new digital divide,” 2016)

2.21 Matalan retails (PVT) ltd

Matalan is a British fashion and home ware retailer based in Knowsley, United Kingdom. It was established by John Hargreaves in 1985. Matalan have 217 stores across the United Kingdom. The current managing director of Matalan is Jason Hargreaves. From the day Matalan started back in 1985, to today over 30 years on, their mission has always stayed the same; to provide outstanding value for modern families. In their website their path so far has been explained as follows

"We take our time to listen, understand and evolve to fit changing modern family needs, always with an emphasis on providing the highest quality clothing and homeware for the lowest price. 12 million UK families each year trust us with their precious family budgets and to provide the range, style, quality and value that enable them to run a modern, happy, family home. It's no surprise then that we were recently awarded a prestigious Gold Award at the Mumsnet Family Friendly awards for the third year running.

Our free Matalan reward card gives our members access to the best family offers all year round in any of our 221 stores or at Matalan.co.uk. Our location, late night openings, free convenient parking, 'everything under one roof' set up and free click and collect service are just some of the reasons why our customers love shopping at Matalan."
Current trade lanes of Matalan which builds up entire supply chain

1. Sourcing of merchandize from South Asian ports of India(Mumbai, Tuticorin, Cochin, Papavav, JNP, Chennai etc), Pakistan(Karachci), Myanmar(Yangong) and Bangladesh(Chittagong) to Europe/UAE
2. Sourcing from Sri Lankan suppliers(garments)
3. Sourcing of merchandize from South East Asia from Thailand (Bangkok), Malaysia (port Klang), Indonesia(Jakarta)
4. Sourcing of merchandize from Chinese suppliers (Xiamen, Fuzhou, Xingang, Guanshou etc)

Prevailing hub operation in Sri Lanka

Currently Matalan Retails manage a hub operation in Sri Lanka for the 1st and 2nd trade lanes as mentioned above. This is located in Global park Seeduwa Liyanagemulla Sri lanka which is in close proximity to Katunayaka airport and to Colombo- Katunayaka express way.

Matalan have in house representatives at Global park while Mac supply Chain solutions pvt ltd(Mac SC) acts as the main freight forwarder for the imports and exports while GTL pvt ltd handles entire supply chain activities ranging from clearing & forwarding, warehousing and transportation etc.

Basic process involved in the hub operation which includes:

i. The receipt of weekly forecast of imports from the suppliers in sub-continent countries stating the vessel schedules of inward containers, import manifests and other cargo descriptions.
ii. Preparing weekly budgets with regards to labor, MHE, transportation, other necessities and getting the resources supplied
iii. Clearance of imports from port of Colombo and inland transportation to Global park
iv. Receiving and put away of import cargo inside the bonded warehouse as per import manifests and considering PO's(Purchase Orders) and Line codes(Style codes) – this is done by counting unloaded cargo
v. Receiving and put away of LCL shipments from local suppliers in the same warehouse but in different locations.
vi. Provision of 10% quantity from all PO's for the purpose of quality checking (QC) done by in house Matalan representatives. For any PO to be exported this test should be passed.
vii. Value addition process - this is done as per the requirement of Matalan reps in the form of a bar code sticker pasting, packing changing and carton to GOH(Garment on Hanging)etc.
viii. Planning of passed PO's to export containers – here the stuffing plans should adhere to loading instructions given by Matalan UK. We have to make sure that maximum space is utilized for each destinations(DC's in UK)
ix. Consolidation process – here both import and local cargo are consolidated to achieve best utilization of export containers
x. Loading and dispatch of export containers to port of Colombo – Here Mac SC has agreements with reputed shipping lines to pre reserve empty export containers as per weekly demand of the operation. For air freight exports they daily coordinate and get updated with air lines to match the potential demand. Then GTL manages their prime mover fleet to pick empty containers from yards and bring them inside for loadings. Once loadings done containers are dispatched to port after doing relevant export

formalities (passing of custom entries/boat notes, CDN document preparation and BOI verification etc.)

xi. Receipt and delivery of PO's at the destination – after the sea or air transit containers are received at UK which then after clearing process will be transported to the DC's as per the loaded sequence which has utilized the lead time and land transport cost to the maximum.

xii. From the DC's the PO's are either cross docked or kept as very temporary storage to replenish the final retail out posts.

When considering 3rd and 4th trade lanes of Matalan which are Far east and South East Asian trade lanes currently they operate directly from origin to destination without touching Sri Lanka containing a huge trade volume of 40-50 containers per week. There's a huge potential for Sri Lanka to generate wholesome business opportunities if this volume is taken to Sri Lanka and a hub operation is carried out. To supplement this argument we can point out many inefficiencies and waste points of the current direct trade lane operation which can be briefly summarized as follows:

Current process of Far East and South East Asian trade lanes of Matalan Retails

i. Origin suppliers generate PO's as per the demand and acknowledge vessel schedules to UK/USA buyers after considering transit times of the direct sea voyages from origin ports to UK/USA ports.

ii. Non-value-added PO's are exported from origins as soon as the production is finished to catch pre planned vessel schedules. Most of the time LCL's are planned because there's risk in waiting to consolidate with more cargo due to tide vessel schedules.

iii. After the voyage transit imported containers are cleared at destination ports and transported to main DC's which are Knowsly, Skelmersdale and Corby and then unloaded and put away at the warehouse to initiate QC and value addition processes. Generally, this is the most time consuming and costly segment of the entire supply chain due to shortage and high cost of labor and inventory space in UK/USA.

iv. Value added PO's are planned as per the retail store network and re loaded to LCL containers to be delivered to relevant retail outposts.

Inefficiencies and other negative aspects of this current process

i. Origin suppliers have had to work with tide vessel schedules to save supply chain lead time and to make goods available at UK/USA DC's on time to initiate QC and value addition process which is top most important and urgent.

ii. When meeting these schedules a lot of LCL export shipments have to be planned which is more expensive than FCL shipments. And also if FCL's are planned underutilization of containers is the serious problem which leaves a huge opportunity cost.

iii. High inventory cost at UK/USA DC's – in Supply Chain Management excess inventory and stock holding is one of the top most wastage. In western countries like UK and USA this is a significant cost component which can financially cripple mega operations in long term. So in the current process of Matalan this issue is available.

iv. High labor and MHE cost at UK/USA DC's – excess inventory is always followed by excess labor charges and Material Handling Equipment (MHE) cost. This is also very significant cost component.

v. Unnecessary transport cost at UK/USA DC's – here transport should be provided for cleared imports from the ports to DC's as well as after the value addition from DC's to retail out posts. Generally, land transport is another high expensive segment in UK/USA so this practice adds up to the entire supply chain cost.

2.22 The importance/ potential of Sri Lanka as a hub

When researching on above subject we can take important insights from scholarly articles based on countries similar to Sri Lanka by means of location and trade patterns. Taiwan is such country which has been recently developed as a result of relevant economic policies prepared by far sighted intellectuals. Below is a fraction extraction of such policies. International trade is very important to an island like Taiwan. To improve Taiwan's competitiveness and economic development, it is vital that the government sets up free trade

ports. Therefore, improving the free trade ports' international competitiveness is a crucial subject. In this study, an evaluation framework was developed after discussing the literature and expert interviews.

Expert questionnaires and the Fuzzy IPA research methods were used to explore strategies that enhance the competitiveness of Taiwan' free trade ports. Based on research results, initial improvements can be made on (a2) Establish an interdepartmental coordination mechanism, (a3) Integrate free trade zones, bonded zones and logistics parks into a special economic zone, (a4) Actively join various free trade organizations, (e2) Introduce reputable logistics service providers, expand the supply of goods, build public
Warehousing facilities and develop a multi-national container consolidation (MCC) and international logistics system and (e3) Develop cargo outsourcing to apply the "Front Shop, Back Factory" concept, at the free ports. So even for Sri Lanka similar strategies to above can be used after relevant modifications to enhance the economic development as a hub in Indian Ocean (Chiang & Hsia, 2016).

2.23 Repositioning in the global apparel value chain in the post-MFA era: Strategic issues and evidence from Sri Lanka

Structural adjustments which took place in the world apparel trade following the abolition of Multi-Fibre Arrangement (MFA) quotas had a negative effective towards the apparel industry in Sri Lanka. The evidence suggests that, in a quota-free global market, individual exporting countries have room for carving out a niche in specific products. The Sri Lankan apparel industry has managed to maintain growth dynamism through specialization in intimate apparel and upmarket casualwear. The expansion of the industry and its adjustment to MFA abolition was aided by an easily trainable domestic workforce and collaborative actions of industry associations and the government, with foreign buyers playing a pivotal role in linking the Sri Lankan firms to the global value chain. So in such circumstances Sri Lanka as a country should look in to more options rather than stagnating in quality labor towards modern supply chain solutions which can provide value additions to global retail networks including multi country consolidations (MCC) (Marino, 2017).

2.24 Industrial upgrading in the apparel value chain and the role of designer in the transition: Comparative analysis of Sri Lanka and Hong Kong (from CMT/OEM to ODM/OBM)

The apparel industry is a major export industry in Sri Lanka that depends upon labor intensive manufacturing. The Sri Lankan apparel industry is transitioning from Cut, Make, Trims (CMT) assembly and Original Equipment Manufacturing (OEM) to Original Design Manufacturing (ODM) and Original Brand Manufacturing (OBM), experiencing the economic benefits of apparel product export. The transition relies on having expert professionals who can provide creative, commercial, technical, and leadership skills in the process. Second, a comparison of Hong Kong and Sri Lankan apparel industries contextualizes the development of fashion design within each nation's industry as a competitive advantage. In each country we examine three factors that demonstrate growth in fashion design: development of fashion design education; development of exportable own brands and the establishment of local showcases to a global audience. The examples of both Hong Kong and Sri Lanka demonstrate the ways in which creative roles may act as a bridge between production and marketing networks, buyers and producers in maintaining and building industry value-adding for highly sophisticated and competitive fashion production systems. Although the Sri Lankan apparel industry has not progressed as far as Hong Kong in this arena, evidence suggests the industry is actively growing design capabilities.

2.25 Sri Lanka's strategic location in Indian Ocean – potential as a hub

Sri Lanka's location has shaped its history intrinsically for millennia and will continue to be so in the future. In ancient times, Sri Lanka was important as the half-way point between the two great empires of Rome and China and near the equator where our navigational winds and monsoon effects changed directions. Therefore, it has strategic geographical advantages where global and navigational contexts were concerned. It featured prominently in the spice routes which were also called maritime silk roads. In fact, it is said that cinnamon from Sri Lanka and cassia from China found their way along the Spice Routes to the Middle East as far back as 2000 BC. Foreign merchants were attracted to ancient Taprobane because of its importance as a center of international trade and some of them even settled in the islands, particularly Moors, descendants of Arab traders. They were a dominant influence on the

islands' international trade in the Polonnaruwa period, between the 11th to 13th century periods. The Moors maintained this dominance until the early decades of the 16th century.

An examination of the foreign relations of the island under the Polonnaruwa Kings reveals political linkages with Southeast Asia, in particular Myanmar and Cambodia. Peace and prosperity along the Maritime Silk Road helped increase the volume of international trade via the Indian Ocean from which Sri Lanka naturally profited. Much of the trade was in luxury goods, and in that respect Sri Lanka was the transit point as well as a terminal point. The latter was due to Sri Lanka's own considerable luxury products such as gems and pearls. However, ancient Sri Lanka was a largely self-sufficient agrarian economy, where the role of trade was a generally peripheral activity. It was only after the collapse of the ancient Hydraulic civilization in the Polonnaruwa period that the country's rulers began to give greater attention to the economic possibilities of trade. Exports of spices, particularly cinnamon, became a particularly lucrative activity.

During the 13th and 15th centuries, Sri Lanka's position as a trade hub on the East-West maritime route had been established, as had its position as a gateway to India. Sri Lanka had direct commercial links with Malacca and with regions in India such as Gujarat and Bengal. During the colonial rule by the Portuguese, Dutch and lastly the English, the volume of trade expanded. The tea trade, which was started by the British, still plays a significant role in the Sri Lankan economy. However, in the last 500years, the Indian Ocean region lost its geo-political and geo-economic relevance first to colonial dictates and, thereafter, post-colonial cold war concerns.(Gajanayaka, 2015)

2.26 Sri Lanka's Strategic Role in the Indian Ocean

Now for the first time in five centuries, global economic balance of power is once again shifting towards Asia. It is estimated that, by 2030, Asia will surpass North America and Europe combined in global power based on gross domestic product (GDP), population size, military spending and technological investments. The global financial system is also moving away, albeit slowly, from the dollar dominated international system to a more multi-currency system. The new consumer markets are emerging all across Asia, and the Asian middle class is expanding rapidly. Of the four largest economies of the world – US, China, Japan and India –three are located in Asia. The busy East-West shipping route passes just six to ten nautical miles south of the island with more than 60,000 ships plying this route annually

carrying two-thirds of global petroleum, half the supply of container cargo and more. Thus, Sri Lanka's situation in the nautical corridor between the East and West is not only of importance from a geostrategic perspective but also from a maritime, economics and security perspective. Considering these facts it's obvious that Sri Lanka is an ideal location to carry out Multi Country Consolidations (MCC) along the Far East – West trade lane.

Along with many opportunities, the renewed interest in Asia will also bring vulnerability to emerging competition among major naval powers. The blue water naval capabilities of key Asian states have ushered a new strategic environment and the Indian Ocean has become an important geo-strategic space. While the maritime space of Asia is strongly connected to the Indian and Pacific Oceans through trade and commerce routes, there is a difference in the power dynamics of the Pacific and Indian Oceans. The power play in the Pacific is dominated by its proximity to the US, centrality to the US security policies and now the rise of the Chinese naval power. In contrast, the Indian Ocean region has a multipolar characteristic.

This transition in global power to Asia started with the economic awakening of East Asia, driven by the growth of China and the complementary growth of the Association of Southeast Asian Nations (ASEAN) countries, particularly Indonesia and Vietnam. While the South Asian region has not matched the same level of development, the region is acquiring an intrinsic significance of its own, underpinned by the growth of India. Currently India is the fastest growing large economy in the world. In the future, the power transition in the Indian Ocean will be heavily influenced by South Asian developments.

The Indian Ocean plays a crucial role in the future of both China and India. The sea routes through the Indian Ocean are very important to China's maritime trade and energy supply. Therefore, both countries will have to respect each other's legitimate interest in ensuring that their future prospects are not affected in the long term.

Unlike the Asia Pacific, the Indian Ocean region is not economically integrated. No single power or coalition will be able to maintain peace and stability on their own in the Indian Ocean. In capacity terms also, no country is capable of handling the maritime security threats and challenges in isolation, no matter how advanced or developed it might be. In addition, it is preferable that the region continues its historic and multipolar characteristics to prevent a spill-over of tensions from other regions. In such a background, all maritime nations have a role to play in ensuring the overall balance of strategic weight. Smaller nations such as Sri

Lanka, even with comparatively limited maritime resources, can become an integral element of security in the region.(Gajanayaka, 2015)

2.27 Multi country consolidations (MCC) explained

Faster speed to market and shorter product lifecycles demand more frequent and smaller order quantities from across a diverse supplier base, while the need to reduce costs and optimize inventory remains an imperative. Using Multi-Country Consolidation hubs to assemble full container loads from multiple origins for individual destinations allows you not only to continue to source smaller quantities economically, but also to quickly add new origins and destinations, speed-up or slow-down your cargo flows, and customize your products to make them suitable for destination markets. You regain economies of scale without impairing the brands agile, high frequency, and low inventory retail model (Container et al., n.d.).

The Benefits of MCC

• By consolidating full loads for single or multiple destinations closer to countries of origin, transport, handling and administrative costs and environmental impacts are reduced.

• Value added services such as repacking, labeling and other destination-specific requirements can be provided at lower labor cost.

• The benefits of trade agreements amongst origin, hub and destination countries can be explored with the right paper work, permissions and policies

• MCC gives you maximum flexibility to switch between consolidated and full container load (FCL) traffic, and by using ‘free storage’ periods to postpone shipments to meet changing market conditions.

• Highly secure systems operate throughout hubs and in transit. You have end to end visibility of your shipments through ‘track & trace’ and configurable ‘milestone’ reporting

2.28 Evaluating key factors influencing the development of multi-country consolidation for ocean freight forwarders in Taiwan

Taiwan is a country which has benefited with multi country consolidation models by providing feasible directions for major ocean freight forwarding firms. There are some important factors to consider with the development of multi-country consolidation services. Cost is the most important aspect influencing the development of multi-country consolidation services. In order of relative importance, the top eight key factors influencing the development of multi-country consolidation services for ocean freight forwarding firms in Taiwan are cargo accuracy, tracking management, consolidation cost, deregulation of operations, transport cost, integrated logistics information management, high frequency of ship sailings, logistics-related operating costs, and convenience of customs clearance respectively. Furthermore, some discussions and recommendations concerning practical implications are provided for ocean freight forwarding firms operating in the multi-country consolidation market. Above highlighted characteristics are key for making an MCC operation successful in any hub country(Chiang & Hsia, 2016)

Chapter 3: Research Methodology

3.1 Identification of the research idea

Currently I've been employed in GTL (pvt) ltd which is one of the largest logistics companies located inside global park Seeduwa, Sri Lanka which is considered the biggest warehouse complex in South Asia providing its customers a spectrum of Supply Chain services and solutions ranging from warehousing, distribution, bonding, transportation, and storage and value addition services. I'm in the business of Container Freight Stations (CFS) which usually manages consolidations where cargo from local suppliers as inbound LCL shipments are received, put away, value added, consolidated, and dispatched as FCL's.

Matalan Retails is one of the special CFS key accounts handled in GTL which has significant differences than others (M&S retails, Superdry wholesale, Decathlon, Asda stores) because it's the only entity which has a Multi Country consolidation (MCC) operation outside the port limits of Colombo, that's inside Global Park. In this MCC operation as I explained in chapter 2, shipments from sub-continent countries are received as imports, cleared from the port of Colombo, transported to GTL, unloaded, value added, consolidated and exported as FCL shipments destined to final retail outposts. The entire process is closely monitored by operational KPI's which are made visible to all stakeholders via KPI dash boards which clearly illustrates the actual performance of any process segment at any given time. Basically, in this MCC process all the inbound shipments must be dispatched after the value addition and consolidation within one week which is a challenging task for any operation manager. But so far, we have been successfully maintaining reputable standards in the industry by handing an average of more than 25 export FCL containers per week.

As mentioned in Chapter 2, the local network of suppliers and the sub-continent supply chain are not the only trade lanes existing for Matalan retails. There are 2 more trade lanes which currently operate directly from origin to destination without touching Sri Lanka which are South East Asia – UK/USA trade lane and Far East – UK/USA trade lane carrying a total volume of 50 plus containers per week. This is indeed a huge business potential not only for GTL but also for the country itself. I started contacting Matalan officials in UK and USA via their local in-house agents to get information on these trade lanes and they willing disclosed that the current performance of these lanes are not as efficient and effective as initially stipulated. As mentioned earlier in chapter 2 the study could investigate some negative

aspects and scenarios of the current trade lane structure which add up to the aggregate supply chain cost as follows.

i. Origin suppliers have had to work with tide vessel schedules to save supply chain lead time and to make goods available at UK/USA DC's on time to initiate QC and value addition process which is top most important and urgent.
ii. When meeting these schedules, a lot of LCL export shipments have to be planned which are more expensive than FCL shipments. And also, if FCL's are planned underutilization of containers is the serious problem which leaves a huge opportunity cost. Aggregate cost for freight has been unnecessarily increased to a high level.
iii. High inventory cost at UK/USA DC's – in Supply Chain Management excess inventory and stock holding is one of the top most wastage. In western countries like UK and USA this is a significant cost component which can financially cripple mega operations in long term. So, in the current process of Matalan this issue is available.
iv. High labor and MHE cost at UK/USA DC's – Excess inventory is always followed by excess labor charges and Material Handling Equipment (MHE) cost. This is also very significant cost component.
v. Unnecessary transport cost at UK/USA DC's – here transport should be provided for cleared imports from the ports to DC's as well as after the value addition from DC's to retail out posts. Generally, land transport is another high expensive segment in UK/USA so this practice adds up to the entire supply chain cost.
vi. Reverse logistics being impracticable – the need for reverse logistics is generally high in a retail supply chain. But in the current model it's very costly to manage return shipments from QC/VAS points in UK/USA to the origin suppliers in Asia due to lengthy return voyage which generates a lot of additional logistics costs (freight, clearance, transportation etc.)

Then the study came up with the research idea to propose a hub model for these trade lanes taking Sri Lanka as the point of value addition, consolidation and re-export and to prove the feasibility that efficiency and effectiveness of the current model can be improved by reducing the total lead time and overall SC cost.

3.2 Geographical presentation of the existing model – here imports are directly shipped separately from each other from origin to destination without touching Sri Lanka (Figure 11).

Figure 11: The existing direct export model of Far East – Europe/USA trade lane

3.3 Geographical presentation of the proposed MCC model – Here imports from Far East are received at Sri Lanka, value added, consolidated and exported in single trade lane as FCL's (Figure 12).

Figure 12: The proposed MCC model for Far East – Europe/USA trade lane

As illustrated above, using proposed model we can consolidate shipments from various Far East and South East Asian countries inside Sri Lanka and execute FCL shipments. According to industry experts Hambanthota port is the ideal location for such an operation but there's still no feasibility due to lack of relevant infrastructure. Our next option is the port of Colombo but yet again there's no available warehouse space inside there to handle a huge

volume of 60+ import containers per week due to other dedicated MCC customers. So automatically Global Park gets selected as the most feasible option due to 2 important reasons.

a) GTL in Global Park has already been handling the local and sub-continental CFS operation of Matalan Retails successfully for about 4 years.

b) GTL has the only dedicated warehouse in Sri Lanka for Matalan Retails which can accommodate receiving, VAS and loading operations for 60+ weekly import containers. (dedicated space = 75000 sqft)

3.4 The process comparison between the existing direct trade lane model and the proposed Sri Lankan MCC hub model

Process of the existing model

i. Transportation from supplier premises to carrier hub – these are either FCL's or LCL's comprising of non-value added finished products. FCL's would directly be transported to a sea port while LCL's would be delivered to a Matalan consolidation hub at the origin and consolidated with other Matalan LCL shipments and dumped to port in FCL's. But it should be highlighted that FCL's are more frequent and LCL's are rare.

ii. Export formalities (Customs, other authorities etc.) - Not like in Sri Lanka, this segment is very efficient and effective in far east and South East Asian countries. They have in house facilities for all services under one roof in close proximities to sea ports and air ports.

iii. Most efficient and effective voyage to destination by sea (UK or USA) (best transit time they can bargain from a forwarder) – the freight rate depends on the export volume and the relationship history of the suppliers with the carrier. The transit time depends on the efficiency of liner service.

iv. Destination (UK or USA) import formalities (Customs, other authorities etc.) – here imports from Asian countries go through a lot of formalities before granting clearance. Thus documentation and other aspects should be very clear cut and precise to achieve a fast clearance.

v. Inland transportation to DC's in UK/USA – Land transportation by using prime movers

vi. Sorting and segregation as per local hubs – although unloading can be done by using automated devices sorting and segregation is a complex activity which needs human labor. Due to the shortage of labor this activity is very time consuming and costly in UK and USA.

vii. AQL checking – done by QC staff of Matalan who charge very high rates than their Asian counterparts. 10% quantity of each PO is checked for quality issues.

viii. Other value addition activities – again done by QC staffs of Matalan who charge very high rates than their Asian counterparts.

ix. Shipment consolidation as per local hubs – LCL to FCL – this again involves a lot of random picking which requires human labor in large scale

x. Delivery to local hubs – done by LCL trucks

xi. Process at local hubs (inventory replenishments or direct dispatch)

3.5 Proposed process for the entire hub operation

- Transport from overseas supplier's premises to carrier – same as above
- Export formalities (Customs, other authorities etc.) - same as above
- Most efficient and effective voyage to Sri Lanka by sea (best rate and transit time they can bargain from a forwarder) - same as above
- Import clearance in Sri Lanka – this is carried out by the clearance teams of GTL
- Inland transportation to the Container Freight Station(CFS) in (Global Park) – moved

in prime movers

- ❖ Receiving and put away – done with comparatively very less rates than UK or USA
- ❖ QC provision and AQL test - done with comparatively very less rates than UK or USA
- ❖ Other value addition activities (sticker pasting, percentage counting, package replacing etc.) - done with comparatively very less rates than UK or USA
- ❖ Sorting, planning FCL's as per final local hubs - done with comparatively very less rates than UK or USA
- ❖ Loading and dispatch of FCL containers
- ❖ Transport of loaded export containers and dump in to port
- ❖ Export formalities (BOI, Customs)
- ❖ Most efficient and effective voyage from Sri Lanka to USA/UK by sea (best rate and transit time they can bargain from a forwarder)
- ❖ Import formalities at destination
- ❖ Direct transport from port to local hubs
- ❖ Process at local hubs (inventory replenishments or direct dispatch)

3.6 Proposed SOP for the floor operation inside GTL

Inbound Process.

Import Suppliers (Far East and South-East Asia)

- ❖ MAC (Freight Forwarder) should provide pre alerts (notifications of container arrival dates & times with inward quantities via vessel schedules) 7 days before initiating clearance process
- ❖ For all incoming containers MAC should provide shipment manifests 24hrs before container arrival to CFS.
- ❖ Before inbound containers gate in to CFS supervisors should be ready with below resources and documents.
    - Copies of shipment manifests
    - Unloading Tally Documents
    - Tag Sheets – to be pasted on put away PO's for proper identification
    - Resources (Tally Clarks, MHE and Labor)

- ❖ All the inbound containers should be registered at the main gate of GTL before getting registered in Data Entry unit (the customer service point of GTL where unloading and loading documents are processed).
- ❖
- ❖ After registration in data entry unit tally documents should be handed over to the drivers for unloading purposes.
- ❖ Supervisor must allocate a Bay and Tally Clark for each import container after receiving the Tally documents through the container driver.

- ❖ Unloading will be carried out as per below guidelines by the Tally Clark.
    - Checking door seal numbers before opening the containers
    - After opening it should be checked whether there are any fallen cargo (boxes or GOH) at the door end.

- ❖ 100% check of physical quantity against supplier shipment manifest using Supplier Name/ Purchase Order/ Pack ID/ Line Code while unloading.

- ❖ At the receiving each and every line code (Box/GOH) should be attached by two tag sheets before stock is moved to the storage location. (Please refer below template).

Mac Tag Sheet	
Container No-	
P.O No -	
Line code No -	
Pack ID No -	
Quantity -CTN / GOH -	
Number of pallet -	

Special Notes: -

- ▪ While unloading if a tally clerk notices any wet condition of goods, he should immediately stop the unloading and then the CFS supervisor must escalate this issue to a Matalan team member to carry out further investigations (need to get photos on wet cargo as an evidence)

- ▪ After the investigation Supervisor should quarantine and hold the wet cargo as per advice given by the investigation officer.

- ▪ Supervisor must segregate USA and UK portions of each unloaded PO and move them to relevant locations as per the instruction of Matalan team.

Shipments from Local Suppliers

- MAC will publish the next week receiving forecast on every Friday evening of the current week.

- All the local deliveries should be registered at the main gate before being done at Data Entry unit.

- Data entry unit must validate below documents before vehicle registration.
    - Allocated Slot with approved gold seal
    - Custom Entry
    - Packing list
    - CDN
    - Liner Authorized Captain Copy (Boat Note)

- If above documents are complete, then data entry team will prepare the unloading tally documents for unloading purpose

- CFS Tally Clark will collect the unloading documents from the data entry unit and arrange the unloading as below.
    - Check the seal number before opening the vehicle.
    - After opening it needs to be checked whether there are fallen boxes/GOH at the door end.

- 100% check of physical quantity against supplier shipment manifest using Supplier Name/ Purchase Order/ Pack ID/ Line Code while unloading.

- At the receiving each and every line code (Box/GOH) should be attached by two tag sheets before stock is moved to the storage location.

- At the receiving stage CFS tally Clark will segregate UK and USA portions of each PO according to the supplier CDNs

- While unloading if Tally Clark comes across qty mismatches or damages immediately he should update the issue to the supervisor/executive for further investigations (Re-count/ Re-check)

- While unloading if a tally clerk notices any wet condition of goods, he should immediately stop the unloading and then the CFS supervisor must escalate this issue to a Matalan team member to carry out further investigations (need to get photos on wet cargo as an evidence)

- After 100% re-check CFS executive will publish actual received quantities to Matalan team via email

- ❖ Supervisor must check that quantities in physical store locations are tallied with documents before the acknowledgement. Random checking is also necessary at requested occasions.

Audit Process

Approved Purchase Orders

- ❖ QC assistant should move 10% samples of all PO's (GOH/BOX) as per the QC intake reports forwarded by the Matalan Audit team as soon goods unloaded to the CFS.

Hold Purchase Orders

- ❖ If any stocks hold by the Matalan Audit team, stock will move to the hold location with the confirmation from the MAC team.

Special Note – Supervisor should cross check the hold stock report daily with the executive.

Outbound Process

Documentation Process

- ❖ Matalan team should publish final container stuffing plans (loading instruction) as soon their audit team release purchase orders after inspection.
- ❖ CFS documentation executive should prepare the final export invoices as per the final stuffing plan received from MAC team.
- ❖ MAC documentation team should send export custom declaration forms (passed cusdecs) after getting approval from BOI without any delay.
- ❖ CFS should carry out the BOI verification process on the goods prior to loading.

Dispatch Process

- ❖ Empty containers to be picked from yards as per MAC instructions.
- ❖ CFS transporter must check below points on the container 100% before pick from the yard.
    - In & out dents
    - Wet condition of the floor
    - Any corroded Areas
    - Any holes (Side walls / Roof / Floor)

- Empty container should gate in after being registered at the main gate before it get registered in Data Entry unit.
- CFS executive should provide the load plan to the floor supervisor with container numbers and supervisor must register the vehicle details at the data entry unit prior to loading.
- After placing the container to the correct bay (GOH-BOX), supervisor must check the condition of the container as per the seven point standard check list.
- Supervisor to allocate two tally clerks with tally documents to proceed with loading.
- Tally process will carry out, one at the container door end and the other tallyman will do the tally process in the goods located area.
- Tallyman must pick and load the correct PO, Pack ID, Line Code, Qty as per the load plan.
- Any quantity discrepancy must escalate to floor supervisor immediately.
- Supervisor must sort-out the issue immediately, if not escalate the issue to the executive.
- If the issue not sorted, CFS will inform MAC team and do a 100% re-check on the stocks (de stuff the container if necessary without carrying out the loading process).
- If there was no issue stuffing will be completed as per the load plan and finalize the tally document accordingly and take pictures as per MAC instruction.
- Supervisor must check the locations and acknowledge on the tally document that all planned stocks have been loaded correctly without any left overs as per the load plans.
- If the container over plan CFS will inform MAC team to further planning for the excess stock.
- After loading completed supervisor will insert the liner seal and hand over the completed loading tally documents to the data entry unit for the system update process.
- Following event will take place from the system point of view.
    - Goods Dispatch Note will be raised as per the loading instructions.
    - Updating & Preparing E-CDN for the export purpose
    - Updating SLPA & Navis systems for the container arrival in port.
    - Generating gate pass
- Container will move to the port with below documents.
    - Gate Pass
    - Seven Copies of E-CDN

- All custom entries related to the load plan (after custom officer approved).

❖ All containers must be weighed at a weigh bridge to calculate Verified Gross Mass (VGM) before gating in to the port.

Special protection for fragile cargo

Final netting must apply correctly for all door ends and especially for containers with fragile house hold items there should be two nettings (first netting in the middle of the container and second should be at the door end).

Provide weekly reports on following scheduled.

- ENS information
- Final dispatch plans
- VGM Information

Return to Manufacturing process

If any stock rejected by Matalan audit team due to any reasons as given below. Affected stocks will return to the manufacture (Local/Import) as per the MAC guidelines.

- Wet condition.
- Damage.
- Rejected by Customer
- In correct documents (especially on local deliveries)

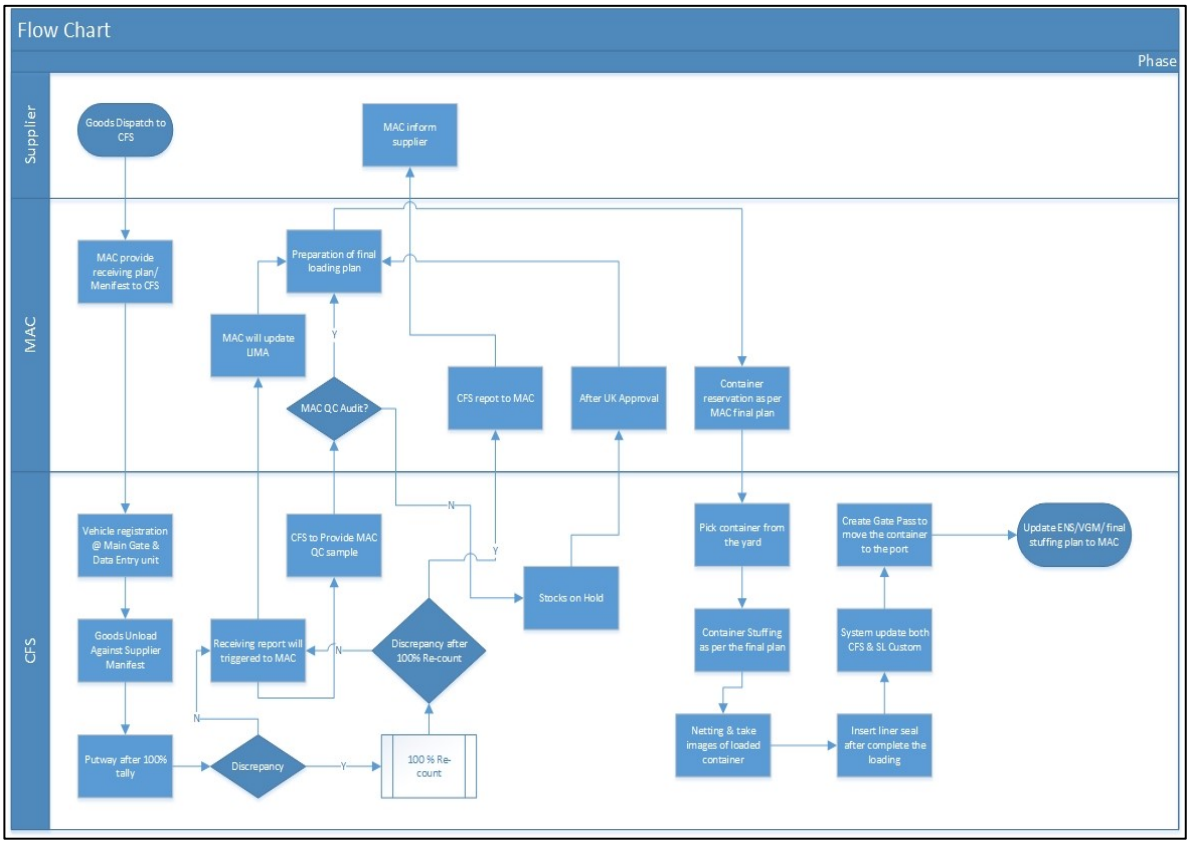
Re-work Process

Local / Import Suppliers

If supplier needs to do the re-work for any reason in the facility below are the guidelines.

- Supplier needs to request the facility along with the PO, Pack ID, Line Code, Qty & Pack Type.
- CFS will forward the rates based on the requirement.
- After confirming the rates CFS will allow the supplier to carry out the re process inside the facility.

Figure 13: Flowchart presentation of the Basic floor process inside consolidation warehouse



The validation of the proposed model

The main objective of this research is to prove the operational and financial feasibility of the proposed Sri Lankan MCC hub model for the Far East - USA/UK and South East Asia – USA/UK trade lanes of Matalan Retails (PVT) Ltd. I intent to study the operational feasibility and the financial feasibility of the entire process separately in order to clearly understand and analyze both aspects more efficiently and effectively.

3.8 Operational feasibility of the proposed model

As discussed in chapter 2 there are 3 main requirements that should be fulfilled in order to achieve a feasible and productive MCC operation.

- The capacity at the MCC hub by means of warehouse area, number of loading bays, transportation, vehicle maneuvering area should be sufficient to meet with the weekly demand of imports and exports

- The resources at the MCC hub by means of labor, MHE, staff should be sufficient to meet with the weekly demand of the operation
- The total lead time of the entire process from origin suppliers to destination retail stores should be acceptable by Matalan Retails (PVT) ltd

Here first 2 of above 3 requirements have already been fulfilled by GTL (PVT) ltd as follows:

Warehouse capacity requirement

- Approximate weekly demand of imports – 60 x 40HC containers
- Cbm per 1 x 40HC container – 65 cbm
- Approximate weekly cbm – (60 x 65) – 3900cbm
- Area per standard pallet (having considered MHE maneuvering isles) – (1.2m x 1.4m) – 1.68 sqm
- CBM per standard pallet (having considered average stacking height as 5 feet – (1.68 x 5 x 0.3) – 2.52
- Warehouse floor requirement - ((3900 / 2.52) x 1.68) – 2600sqm - **28888.88 sqft**

This sq. ft requirement is well available inside GTL along with 10 loading bays, prime mover fleet of 20 and 2.5 vehicle length of maneuvering area. Thus, the first requirement is well met.

Warehouse resource requirement

Here GTL (PVT) ltd maintains its labor, staff and MHE with a capacity cushion so as to meet and manage any fluctuations in service demand. Thus, resource requirement of the proposed operation will be well met without any obstructions.

3.9 Acceptable lead time of the entire process

This is the most important criteria to be studied and verified for the feasibility of the operation because if the total lead time is not acceptable by the customer all other efforts are in vain. Here the study intends to compare and contrast the total lead time of the existing process of the direct trade lanes with the proposed process of the Sri Lankan MCC hub model. When studying the processes it's important to break them down in to analyzable

segments along the timeline from origin to destination. So each segment can be separately explored to find out realistic and accurate information to get the right idea of the operational lead time.

3.10 Total lead time formula for the existing direct trade lane process

Total lead time of all segments = {*Transportation from supplier premises to carrier's hub + Export formalities (Customs, other authorities etc.) + Most efficient and effective voyage to destination by sea (UK or USA) + Destination (UK or USA) import formalities (Customs, other authorities etc.) + Inland transportation to DC's in UK/USA + Sorting and segregation as per local hubs + AQL checking + Other value addition activities + Shipment consolidation as per local hubs + Delivery to local hubs + Process at local hubs (inventory replenishments or direct dispatch)}*

3.11 Total lead time formula for the proposed hub operation process

Total lead time of all segments = {*Transportation from supplier premises to carrier's hub + Export formalities (Customs, other authorities etc.) + Most efficient and effective voyage to destination by sea (To Sri Lanka) + Destination (Sri Lanka) import formalities (Customs, other authorities etc.) + Inland transportation to Global Park in Sri Lanka + Receiving and put away + AQL provision and testing + Other Value Addition Activities + Sorting and planning of FCL's as per final local hubs + Loading and dispatch of containers from GTL+ Transportation to port + Export Formalities(BOI/Customs/SLPA etc.) + Most efficient and effective voyage to destination by sea (From Sri Lanka to UK/USA) + Import Formalities at the destination(UK/USA) +Inland transportation direct to local hubs + Process at local hubs(inventory replenishments or direct dispatch)}*

3.12 Financial feasibility of the proposed model

This is the most important aspect which should be studied for the practical implementation of the proposed model. Here the study intends to analyze the 2 processes of the existing direct trade lane model and the proposed MCC hub model and to compare the cost elements of both

to find out the most efficient and practical one. This is expected to be done by using a total cost formula which adds up the sum of all cost elements in both models which will then allow making comparisons very conveniently.

3.13 Total cost formula for the existing direct trade lane process

Total cost of all segments = {*Transportation from supplier premises to carrier's hub + Export formalities (Customs, other authorities etc.) + Most efficient and effective voyage to destination by sea (UK or USA) + Destination (UK or USA) import formalities (Customs, other authorities etc.) + Inland transportation to DC's in UK/USA + Sorting and segregation as per local hubs + AQL checking + Other value addition activities + Shipment consolidation as per local hubs + Delivery to local hubs + Process at local hubs (inventory replenishments or direct dispatch)*}

3.14 Total cost formula for the proposed MCC hub model

Total cost of all segments = {*Transportation from supplier premises to carrier's hub + Export formalities (Customs, other authorities etc.) + Most efficient and effective voyage to destination by sea (To Sri Lanka) + Destination (Sri Lanka) import formalities (Customs, other authorities etc.) + Inland transportation to Global Park in Sri Lanka + Receiving and put away + AQL provision and testing + Other Value Addition Activities + Sorting and planning of FCL's as per final local hubs + Loading and dispatch of containers from GTL+ Transportation to port + Export Formalities(BOI/Customs/SLPA etc.) + Most efficient and effective voyage to destination by sea (From Sri Lanka to UK/USA) + Import Formalities at the destination(UK/USA) +Inland transportation direct to local hubs + Process at local hubs(inventory replenishments or direct dispatch)*}

3.15 Survey design

The survey design for data collection in this research mainly consists of 2 methods which are interviews and email questionnaires. As the prime research objective when validating the proposed MCC model we have to compare and contrast the total average lead time and the total average cost of the existing process and the proposed process. So accurate data should be gathered for each segment of the formulas from relevant parties in the most convenient

and effective manner. Below table illustrates the data collection methods against the relevant stakeholders along the process.

Stakeholder/party	Data collection method	Expected data to be gathered
Suppliers of Matalan in far East and South-East Asia	Conference calls and Email	Lead time and cost data of segments in the existing and proposed models which are under the control of them (transportation to the origin port, export formalities at the origin port, export freight charges etc.)
Retail chain head office UK and USA	Conference calls and Email	Lead time and cost data of segments in the existing and proposed models which are under the control of them (Destination import formalities, Transportation from the port to DC's, activities inside the DC's, dispatch to local retail outlets etc.)
Freight forwarder in Sri Lanka (MAC SC)	Interviews	Lead time and cost data of segments in the existing and proposed models which are under the control of them (Import clearances, export freight, export forwarding etc.)
3PL service provider in Sri Lanka(GTL)	Interviews	Lead time and cost data of segments in the existing and proposed models which are under the control of them (inland transportation, cargo handling and value addition etc.)
Matalan in house agents (QC and operation)	Interviews	Lead time and cost data of segments in the existing and proposed models which are under the control of them (export planning, AQL test etc.)

3.16 The questionnaire Design

The questionnaire has been designed in a way that a respondent can provide information with regards to both existing and proposed models in a very clear and convenient manner in a single sheet. Here lead time and cost elements are separately mentioned without any confusion or mix up for the respondent (Annexures for the questionnaire).

3.17 Sampling plan

It's important to elaborate more about the stakeholders in Matalan Retails supply chain who contribute valuable information to the questionnaires as respondents in this research. Below they are mentioned in the order of goods flow in the supply chain from origin to destination.

Table 5: Suppliers of Matalan in far East and South-East Asia

Country	**Port of loading**	**Suppliers**					
China	Xiamen	Gooodman	Hondar Industries	GSEGE	Elegant	E-Teen	C&D Light
	Fuzhou	Walks Footwear					
	Xingang	Gooodman					
	Tianjin	Gooodman					
	Quanzhou	Gooodman					
	Dalian	Gooodman					
Thailand	Bangkok	Kennet					
Myanmar	Yangong	Theers					
Indonesia	Jakarta	Nahbe					
		Motives					
		UnitedTex					
		Hoplung					
		Mata Hari Santhosa Jaya					
		Pressseal					
Vietnam	Ho Chi Min	IT luggage					
		Motives China					
Malaysia	Port Klang	Sports Factory					

Respondents' profiles

Country	Supplier	Respondent	Profile
China	Goodman – Xiamen	Yan Qian	Team Lead - Documentation
	Walks Footwear – Fuzhou	Cheng Chen	Team Lead -Exports
	Goodman – Xingang	Bai Lihuang	Team Lead -Exports
	Goodman – Tianjing	Du Yuming	Team Lead -Exports
	Goodman – Guanshou	Lon Hongbin	Team Lead -Exports
	Goodman – Dalian	Sun Yuming	Team Member – Exports Marketing
Thailand	Kennet – Bangkok	Yingluck Ayitta	Manager International Marketing
Myanmar	Theers – Yangong	Maun Lwing	Manager trade lane
Indonesia	Nahbe – Jakarta	Hamza Malik	Export Coordinator
	Motives – Jakarta	Jusuf Sulthan	Export Coordinator
	UnitedTex – Jakarta	Sudharmono Sri	Export Coordinator
	Hoplung – Jakarta	Sukar Ras	Export Coordinator
	Mata Hari Santhosa Jaya – Jakarta	Adam Yusuf	Export Coordinator
	Pressseal – Jakarta	Jabeel Hatta	Team Lead - Exports
Vietnam	IT luggage – Ho Chi Min	Pham Ming	Team Lead – Export Marketing
	Motives China - Ho Chi Min	Turong Ngoc	Manager – Customer Service
Malaysia	Sports Factory – Port Klang	Ahmed Modh Najib	Team Lead - Marketing

The study is included 22 suppliers and obtained information for the section in the questionnaire relevant for them (supply chain segments at the origin). Each respondent provided unique details which are different from each other because they are located besides different ports and the geographies, networks, channels etc. are different. As an example, the supplier Goodman has been located in many regions of China, so the lead times and cost of process segments are different from each other.

The selection of respondents

The study about the existing trade lanes of global retailers from Far East to West involves a huge amount of diversified data which is quite confidential and hard to extract from relevant correspondents. Due to the same matter this research had to be narrowed down to a few trade lanes about which the author could carry out a practical survey to get relevant, accurate and up to date information by using the industrial contacts. As a result, the Far East to Europe/USA trade lane of Matalan Retails UK/USA was selected and 22 active suppliers from China, Thailand, Myanmar, Malaysia, Indonesia and Vietnam were contacted during the process to obtain information about segmental costs and lead times of the existing model and the potential values of the proposed model.

a) Retail chain head office UK and USA

The head office of Matalan Retails is located in Knowsly UK and acts as the main control tower of worldwide operations. They can be mentioned as the focal party who decouple the aggregate demand and supply of the entire supply chain. The staff at USA agent's office manage total operations there and directly report to Head of international Supply Chain in UK head office. Here I contacted below parties to obtain information for this research via the questionnaire.

Manager customs compliance UK
Manager Logistics operations UK

b) Further, only one detailed reply was sufficient for the entire analysis because the supply chain segments at UK destination (import formalities, Transportation from the port to DC's, activities inside the DC's, dispatch to local retail outlets etc.) don't differ from supplier to supplier. The cost and relevant lead times are applicable for any import.

c) Local freight forwarder (Mac SC) and Local 3PL(GTL)

Mac SC and GTL are service partners where the authors is a management level employee in GTL so it was very convenient to conduct interviews and obtain data from floor staff, operation staff and customs compliance staff etc. Here also only one detailed reply was sufficient for the entire analysis because the supply chain segments in Sri Lanka (Import clearances, inland transportation, cargo handling and value addition, export freight, export forwarding etc.) don't differ from supplier to supplier. The cost and relevant lead times are applicable for any import and export.

d) Matalan in house agents

Again, the study included interviews to obtain information for the relevant areas. Here also only one detailed reply was sufficient for the entire analysis because the supply chain activities done by them (export planning, AQL test etc.) don't differ from supplier to supplier. The cost and relevant lead times are applicable for any import and export.

Chapter 4: Data Analysis and Results

4.1 Transfer of questionnaire inputs to the data analysis table

As mentioned earlier the questionnaire consists of the inputs given by the relevant stakeholders. But to make this data analyzable by using the main lead time and cost formulas were transferred in to a sequential process using format as follows. As an example, it illustrates the inputs obtained from supplier Goodman/Xiamen/China (Table 6).

Table 6: Sequential steps and relevant costs of the existing process of Goodman/Xiamen/China

Existing SC Model	**Cost in USD**
1. Transportation from supplier premises to carrier hub	350
2. Export formalities (Customs, other authorities etc.)	129
3. Most efficient and effective voyage to destination by sea (UK or USA) (best rate they can bargain from a forwarder)	1375
4. Destination (UK or USA) import formalities (Customs, other authorities etc.)	140
5. Inland transportation to DC	275
6. Sorting and segregation as per local hubs	40
7. AQL checking	75
8. Other value addition activities	150
9. Shipment consolidation as per local hubs – LCL to FCL	90
10. Delivery to local hubs	110
11. Process at local hubs (inventory replenishments or direct dispatch)	5
Total Cost	**2714**

Table 7: Sequential steps and relevant costs of the proposed process of Goodman/Xiamen/China

Proposed MCC model	**cost in USD**
1. Transport from supplier's premises to carrier	350
2. Export formalities (Customs, other authorities etc.)	129
3. Most efficient and effective voyage to Sri Lanka by sea best rate and transit time they can bargain from a forwarder)	750
4. Import clearance in Sri Lnka	90
5. Inland transportation to the Container Freight Station(CFS)	125
6. Receiving and put away	5
7. QC provision and AQL test	50
8. Other value addition activities(sticker pasting, percentage counting, package replacing etc)	40
9. Sorting, planning FCL's as per final local hubs	40
10. Loading and dispatch of FCL containers	20
11. Transport of loaded export containers and dump in to port	275
12. Export formalities (BOI, Customs)	115
13. Most efficient and effective voyage from Sri Lanka to USA/UK by sea (best rate and transit time they can bargain from a forwarder)	625
14. Import formalities at destination	140
15. Direct transport from port to local hubs	115
16. Process at local hubs(inventory replenishments or direct dispatch)	5
Total Cost	**2649**

Table 7: Sequential steps and relevant lead times of the existing process of Goodman/Xiamen/China

Existing SC model	**Lead time in hrs**
1. Transportation from supplier premises to carrier hub	4
2. Export formalities (Customs, other authorities etc.)	1
3. Most efficient and effective voyage to destination by sea (UK or USA)(best transit time they can bargain from a forwarder)	720
4. Destination (UK or USA) import formalities (Customs, other authorities etc.)	1
5. Inland transportation to DC	8
6. Sorting and segregation as per local hubs	12
7. AQL checking	6
8. Other value addition activities	20
9. Shipment consolidation as per local hubs – LCL to FCL	5
10. Delivery to local hubs	3
11. Process at local hubs (inventory replenishments or direct dispatch)	0.5
Total Lead Time	**780.5**

Table 8: Sequential steps and relevant lead times of the existing process of Goodman/Xiamen/China

Proposed MCC model	Lead time in hrs
1. Transport from supplier's premises to carrier	4
2. Export formalities (Customs, other authorities etc.)	1
3. Most efficient and effective voyage to Sri Lanka by sea best rate and transit time they can bargain from a forwarder)	288
4. Import clearance in Sri Lanka	18
5. Inland transportation to the Container Freight Station(CFS)	2
6. Receiving and put away	1
7. QC provision and AQL test	4
8. Other value addition activities (sticker pasting, percentage counting, package replacing etc)	8
9. Sorting, planning FCL's as per final local hubs	2
10. Loading and dispatch of FCL containers	3
11. Transport of loaded export containers and dump in to port	2
12. Export formalities (BOI, Customs)	2
13. Most efficient and effective voyage from Sri Lanka to USA/UK by sea (best rate and transit time they can bargain from a forwarder)	432
14. Import formalities at destination	1
15. Direct transport from port to local hubs	8
16. Process at local hubs(inventory replenishments or direct dispatch)	0.5
Total Lead Time	**776.5**

4.2 Data Analysis Table

In the original data analysis Table, a column is available for each of the 22 suppliers and we can derive total lead time and total cost values for the existing and proposed models for each of them very conveniently (**Annexure – Data Analysis Table)**

4.3 The comparison of existing model and proposed model

For this task the study derived the average value out of all the suppliers for the total lead time and the total cost using the following formula.

$$\text{Total Average Lead Time} = \frac{\sum_1^{22} \text{Total Lead Time of Supplier x}}{22}$$

$$\text{Total Average Cost} = \frac{\sum_1^{22} Total\ \text{Cost}\ of\ Supplier\ x}{22}$$

4.4 Lead time analysis for the existing and proposed models

Table 9: Lead time analysis, comparison

Country	Loading Port	Supplier name	Total lead time for existing process(Hrs.)	Total lead time for proposed process(Hrs.)	Lead time saving(Hrs.)
China	Xiamen	Gooodman	780.5	776.5	4.00
China	Xiamen	Hondar	782.5	778.5	4.00
China	Xiamen	GSEGE	781.5	776.5	5.00
China	Xiamen	Elegant	779.5	774.5	5.00
China	Xiamen	E-Teen	783.5	778.5	5.00
China	Xiamen	C&D Light	784.5	779.5	5.00
China	Fuzou	Gooodman	783.5	771	12.50
China	Xingang	Gooodman	782.5	773	9.50
China	Tianjing	Gooodman	784.5	773	11.50
China	Guanshou	Gooodman	782.5	747	35.50
China	Dalian	Gooodman	782.5	753	29.50
Thailand	Bangkok	Kennet	779	699	80.00
Myanmar	Yangong	Theers	666.5	627	39.50
Indonesia	Jakarta	Nahbe	780	675	105.00
Indonesia	Jakarta	Motives	781	675	106.00
Indonesia	Jakarta	UnitedTex	780	675	105.00
Indonesia	Jakarta	Hoplung	782	675	107.00
Indonesia	Jakarta	MataHari	783	675	108.00
Indonesia	Jakarta	Pressseal	782	675	107.00
Vietnam	Ho Chi Min	IT luggage	781.5	699	82.50
Vietnam	Ho Chi Min	Motives	780.5	699	81.50
Malaysia	Port Klang	Sports Factory	778.5	627	151.50

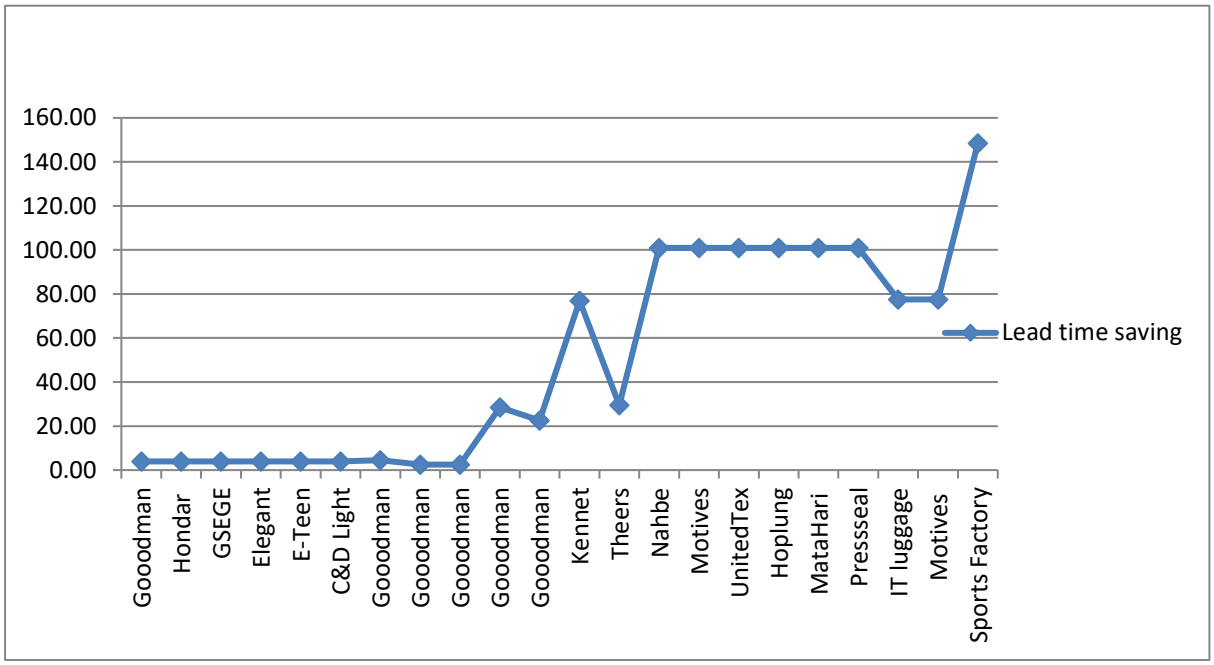
Total Average lead time of existing process in handling 1 x 40HC container - 776.43 Hrs.

Total Average lead time of proposed process in handling 1 x 40HC container - 726.41 Hrs.

Average Lead time saving in handling 1 x 40HC container by proposed process – 50.02hrs

4.5 Fluctuations in lead time saving for suppliers

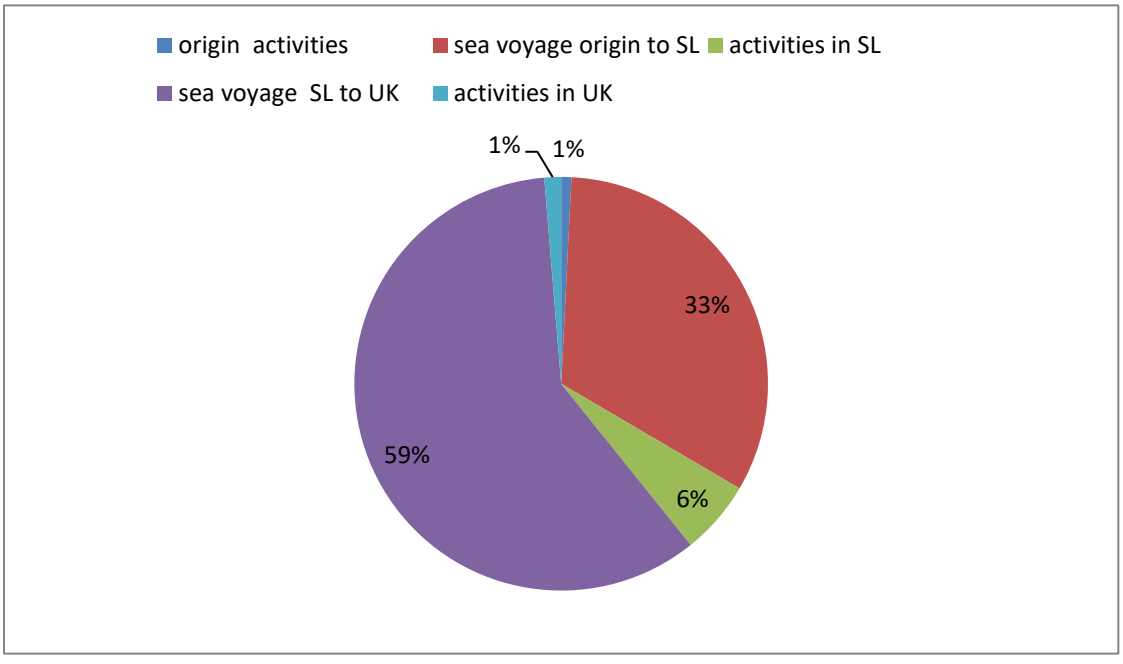
Figure 14: Variations in lead time saving among different suppliers



As illustrated in Figure 14, South East Asian suppliers have enjoyed more saving of lead time than Chinese suppliers. This has been caused by the quick and short sea voyage from the origins to Sri Lanka when compared to same from China to Sri Lanka. In addition, Indonesian and Malaysian Suppliers are the most benefited.

5.3 Lead time contributions of segments in the proposed model

Figure 15: Lead time (average) contributions for SC segments



As illustrated above Figure 15, 92% of total lead time has been contributed by sea voyages and the time consumptions of other segments have been kept at minimum. Thus, if possible steps are taken to improve the efficiency of sea voyages this model can be further improved.

5.4 Supply chain cost analysis for the existing and proposed models

Table 10: SC cost analysis and comparison of the existing and proposed models

Country	Loading Port	Supplier name	Total SC cost for existing process(USD)	Total SC cost for proposed process(USD)	Cost saving(USD)
China	Xiamen	Gooodman	2739	2649	90.00
China	Xiamen	Hondar	2939	2849	90.00
China	Xiamen	GSEGE	2814	2724	90.00
China	Xiamen	Elegant	2664	2574	90.00
China	Xiamen	E-Teen	2999	2909	90.00
China	Xiamen	C&D Light	3059	2969	90.00
China	Fuzou	Gooodman	3014	2924	90.00
China	Xingang	Gooodman	3064	2934	130.00
China	Tianjing	Gooodman	2839	2709	130.00
China	Guanshou	Gooodman	2939	2809	130.00
China	Dalian	Gooodman	2999	2899	100.00
Thailand	Bangkok	Kennet	3124	2600	524.00
Myanmar	Yangong	Theers	3170	2665	505.00
Indonesia	Jakarta	Nahbe	3104	2545	559.00
Indonesia	Jakarta	Motives	3179	2620	559.00
Indonesia	Jakarta	UnitedTex	3299	2740	559.00

Indonesia	Jakarta	Hoplung	3199	2640	559.00
Indonesia	Jakarta	MataHari	3549	2990	559.00
Indonesia	Jakarta	Pressseal	3229	2670	559.00
Vietnam	Ho Chi Min	IT luggage	3610	2790	820.00
Vietnam	Ho Chi Min	Motives	3680	2860	820.00
Malaysia	Port Klang	Sports Factory	3003	2590	413.00

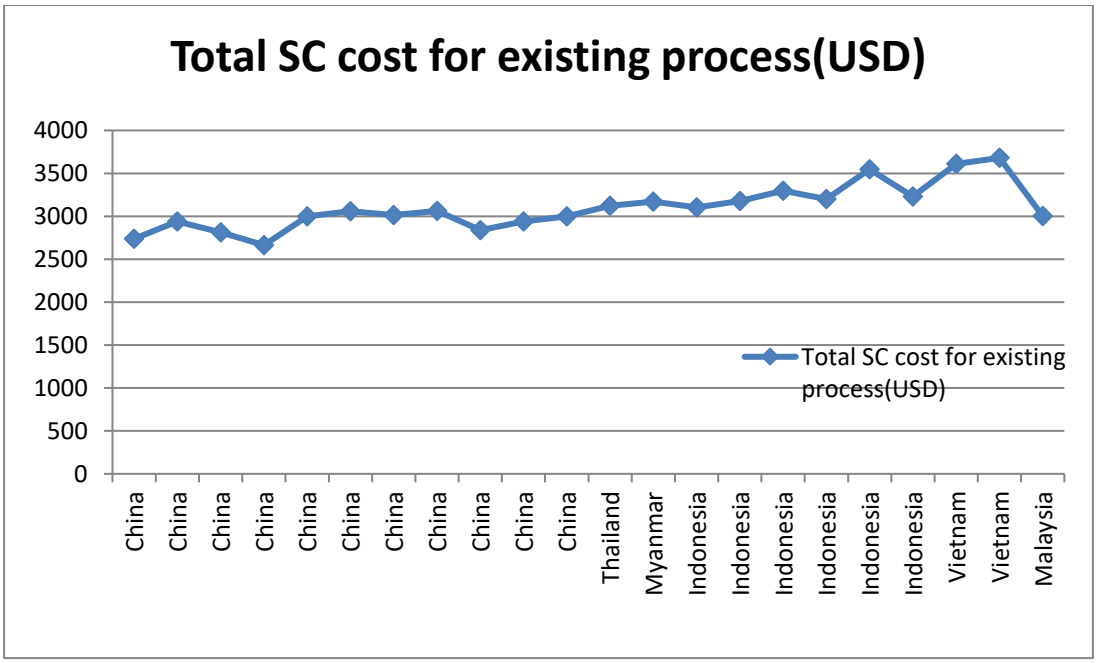
Total Average SC cost of existing process in handling 1 x 40HC container - 3100.68 USD

Total Average SC cost of proposed process in handling 1 x 40HC container - 2757.22 USD

Average SC cost saving in handling 1 x 40HC container by proposed process - 343.45 USD

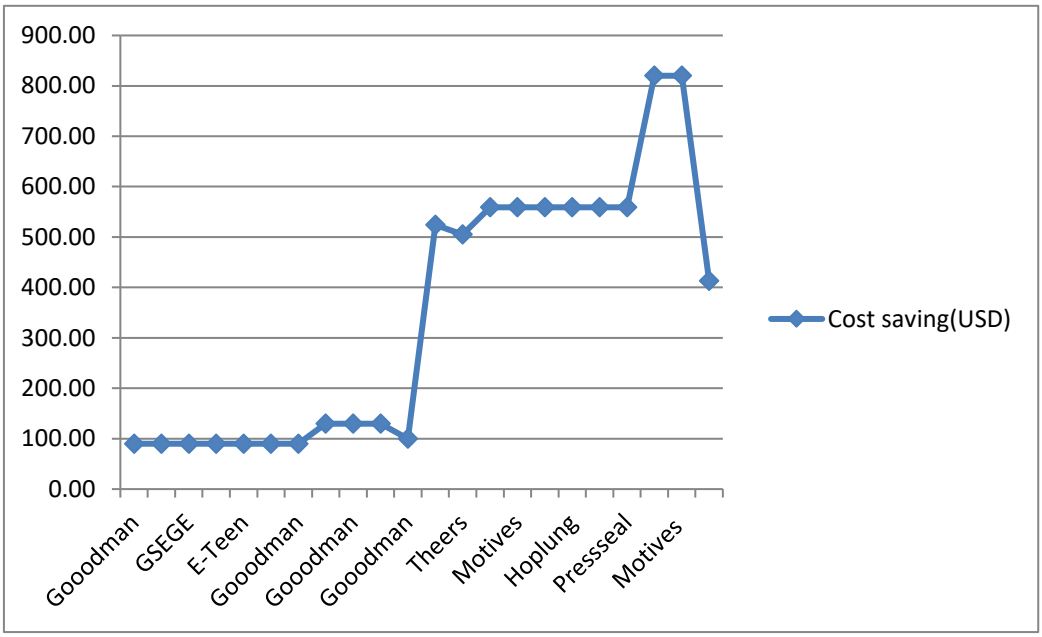
5.5 Fluctuations in SC cost saving for suppliers

Figure 16: Fluctuation of SC cost between country wise different suppliers



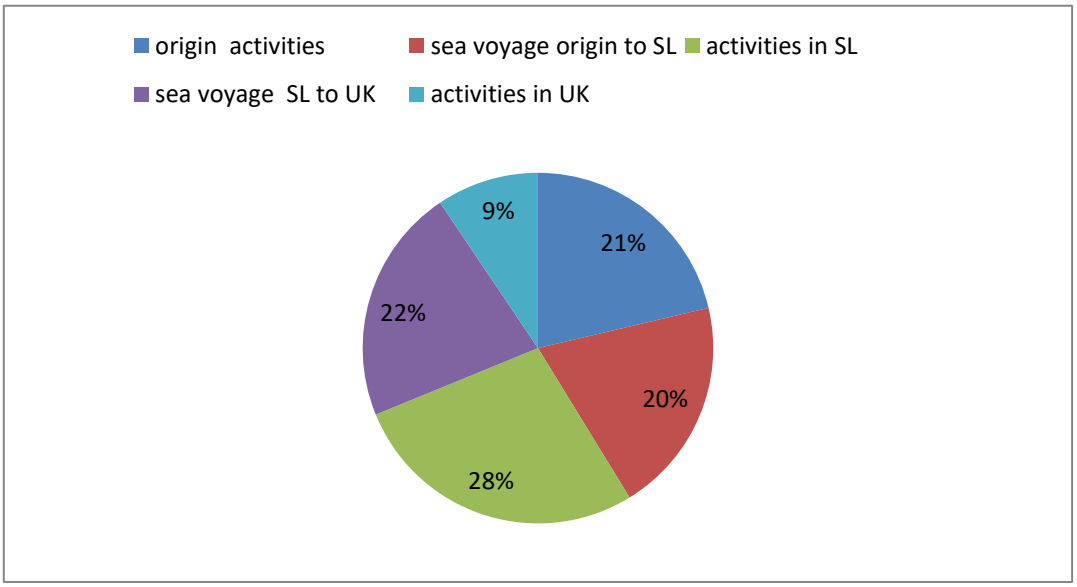
According to Figure 15 the existing total costs are almost the same between country wise suppliers. But this differs when it comes to the new model. The cost savings are varied between suppliers.

Figure 17: Supply chain segment cost saving - comparison between suppliers



Similar to the lead time saving graph here also South East Asian supplier seem to enjoy more saving in total cost.

Figure 18: Average cost savings (USD)



Again more cost has been incurred for sea voyages when compared with other segments. Thus, overall efficiency can be improved if this element is further analyzed and streamlined.

T test for the existing and proposed models

- Lead time - 0.0000788
- Cost – 0.000156

Chapter 5 – Conclusions and Future Research Directions

5.1 Introduction

Global retail chains that are having their major consumer markets in Europe and Americas source massive volumes of merchandize from Far East, South East Asian and South Asian countries. In these trade lanes as the current ongoing Supply chain model, they generate a large number of direct Imports from the origin suppliers to the retail destinations. At the destinations they carry out a lengthy and expensive quality checking (QC) and value addition process which add up to the entire supply chain cost and finished product lead time lowering down the total economies of scale. The study tried to introduce a Multi Country Consolidation (MCC) hub model in which imports from Far East and South East Asian countries are brought to Sri Lanka and consolidated after relevant QC and value addition with local exports destined to same retail stores in UK/USA. This model needed to be validated by studying and comparing its process lead times and supply chain costs with the parallel processes of the existing model. The analysis has been carried out in detail in chapter 4 research findings.

5.2 Summary of Research Findings and conclusions

a) Feasibility of the MCC model to save lead time

When the process segments of both the existing and the proposed models were studied for each one of the 22 suppliers, it was clearly depicted that total average lead time can be drastically reduced by the implementation of the MCC hub model. Even for each supplier separately taken or for the entire trade lane lead time reductions could be recorded by adhering to the new system. Average Lead time saved in handling 1 x 40 HC container by proposed process is 50.02hrs. This saving is more than 2 days which is a huge competitive advantage for the retail chain. We can argue that via the MCC hub model finalized products ready to be delivered to retail out posts arrive at the destination 2 days earlier than the current process. And also another advantage gained is that the risk of outdating merchandize is further reduced due to these early receipts.

As per the lead time saving comparison chart in last chapter we can monitor that South East Asian Suppliers (Thailand, Indonesian and Malaysian) have enjoyed more lead time saving via the MCC model than the Far East suppliers. The reason behind is that South East Asian

suppliers have been able to negotiate better freight rates than the far east suppliers within the MCC hub model.

Lead time contributions of segments in the proposed model

From the pie chart we can clearly identify that 92% of total lead time is incurred for import and Export Sea voyages to and from Sri Lanka. If better transit time can be achieved in these sea voyages from more efficient carriers the entire lead time can be further reduced.

b) Feasibility of the MCC model to reduce supply chain cost

From the analysis in last chapter we can clearly identify that the total average cost of the existing model can be reduced by adhering to the proposed MCC hub model. Even for each supplier separately taken or for the entire trade lane as a whole lead time reductions could be recorded by adhering to the new system. The average SC cost saved in handling 1 x 40HC container by proposed process is 343.45 USD. This is a potential saving recorded for the current volume of 60 import containers per week of Matalan Retails (PVT) ltd. The proposed MCC hub model can be successfully utilized even for a larger volume than this and gain more cost savings by enjoying larger economies of scale. Again similar to the lead time scenario here also South East Asian suppliers have obtained more cost savings via the proposed model than the Far East suppliers. So they have been able to negotiate better freight rates for the proposed transshipment freight than the existing east to west direct freight.
Further, as per the cost contribution pie chart we can identify that activities in Sri Lanka has contributed to more portion (28%) of total trade lane cost. If we can reduce this portion further overall competitiveness of the retail chain will increase.

As per the analysis, it can be observed that by using the proposed MCC hub model the overall efficiency can be improved by reducing the total average lead time and supply chain cost. Rather than the existing direct freight model the proposed model can provide many advantages by improving the economies of scale.

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Questionnaire

Supply Chain Segment (process segment)	Associated Average Lead time	Associated Average cost in USD($)
Questionnaire – About existing model given to suppliers in far east		
1. Transport from supplier's premises to carrier		
2. Export formalities (Customs, other authorities etc.)		
3. Most efficient and effective voyage to destination by sea (UK or USA)(best rate and transit time they can bargain from a forwarder)		
4. Most efficient and effective voyage to destination by Air (UK or USA))(best rate and transit time they can bargain from a forwarder)		
Given to Retail chain office in UK/USA		
1. Destination (UK or USA) import formalities (Customs, other authorities etc.)		
2. Inland transportation to DC		
3. Sorting and segregation as per local hubs		
4. AQL checking		
5. Other value addition activities		
6. Shipment consolidation as per local hubs – LCL to FCL		
7. Delivery to local hubs		

8. Process at local hubs(inventory replenishments or direct dispatch)		
About proposed MCC model - given to suppliers in Far East		
1. Transport from supplier's premises to carrier		
2. Export formalities (Customs, other authorities etc.)		
3. Most efficient and effective voyage to Sri Lanka by sea best rate and transit time they can bargain from a forwarder)		
4. Most efficient and effective voyage to Sri Lanka by Air (best rate and transit time they can bargain from a forwarder)		
Given to freight forwarder and 3PL service provider in Sri Lanka		
1. Import clearance		
2. Inland transportation to the Container Freight Station(CFS)		
3. Receiving and put away		
4. QC provision and AQL test		

5. Other value addition activities(sticker pasting, percentage counting, package replacing etc)		
6. Sorting, planning FCL's as per final local hubs		
7. Loading and dispatch of FCL containers		
8. Transport of loaded export containers and dump in to port		
9. Export formalities (BOI, Customs)		
Given to Retail chain office in UK/USA		
1. Most efficient and effective voyage from Sri Lanka to USA/UK by sea (best rate and transit time they can bargain from a forwarder)		
2. Most efficient and effective voyage from Sri Lanka to UK/USA by Air (best rate and transit time they can bargain from a forwarder)		
3. Import formalities		
4. Direct transport from port to local hubs		
5. Process at local hubs(inventory replenishments or direct dispatch)		

External annexure – excel output of data analysis report

Process Lead Time in hrs per TEU

Supplier Details	China										
	Xiamen						Fuzou	Xingang	Tianjing	Guanshou	Dalian
	Gooodman	Hondar Industries	GSEGE	Elegant	E-Teen	C&D Light	Gooodman	Gooodman	Gooodman	Gooodman	Gooodman
Supply Chain Segment(process segment)											
Existing SC Model	Gooodman	Hondar Industries	GSEGE	Elegant	E-Teen	C&D Light	Gooodman	Gooodman	Gooodman	Gooodman	Gooodman
1. Transportation from supplier premises to carrier hub	4	6	5	3	7	8	7	6	8	6	6
2. Export formalities (Customs, other authorities etc.)	1	1	1	1	1	1	1	1	1	1	1
3. Most efficient and effective voyage to destination by sea (UK or USA)(best transit time they can bargain from a forwarder)	720	720	720	720	720	720	720	720	720	720	720
4. Destination (UK or USA) import formalities (Customs, other authorities	1	1	1	1	1	1	1	1	1	1	1
5. Inland transportation to DC	8	8	8	8	8	8	8	8	8	8	8
6. Sorting and segregation as per local hubs	12	12	12	12	12	12	12	12	12	12	12
7. AQL checking	6	6	6	6	6	6	6	6	6	6	6
8. Other value addition activities	20	20	20	20	20	20	20	20	20	20	20
9. Shipment consolidation as per local hubs – LCL to FCL	5	5	5	5	5	5	5	5	5	5	5
10. Delivery to local hubs	3	3	3	3	3	3	3	3	3	3	3
11. Process at local hubs(inventory replenishments or direct dispatch)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lead Time	**780.5**	**782.5**	**781.5**	**779.5**	**783.5**	**784.5**	**783.5**	**782.5**	**784.5**	**782.5**	**782.5**
Proposed MCC model											
1. Transport from supplier's premises to carrier	4	6	5	3	7	8	7	6	8	6	6
2. Export formalities (Customs, other authorities etc.)	1	1	1	1	1	1	1	1	1	1	1
3. Most efficient and effective voyage to Sri Lanka by sea best rate and transit	288	288	288	288	288	288	288	290	290	264	270
4. Import clearance in Sri Lnka	18	18	18	18	18	18	18	18	18	18	18
5. Inland transportation to the Container Freight Station(CFS)	2	2	2	2	2	2	2	2	2	2	2
6. Receiving and put away	1	1	1	1	1	1	1	1	1	1	1
7. QC provision and AQL test	4	4	4	4	4	4	4	4	4	4	4
8. Other value addition activities(sticker pasting, percentage counting, package	8	8	8	8	8	8	8	8	8	8	8
9. Sorting, planning FCL's as per final local hubs	2	2	2	2	2	2	2	2	2	2	2
10. Loading and dispatch of FCL containers	3	3	3	3	3	3	3	3	3	3	3
11. Transport of loaded export containers and dump in to port	2	2	2	2	2	2	2	2	2	2	2
12. Export formalities (BOI, Customs)	2	2	2	2	2	2	2	2	2	2	2
13. Most efficient and effective voyage from Sri Lanka to USA/UK by sea	432	432	432	432	432	432	432	432	432	432	432
14. Import formalities at destination	1	1	1	1	1	1	1	1	1	1	1
15. Direct transport from port to local hubs	8	8	8	8	8	8	8	8	8	8	8
16. Process at local hubs(inventory replenishments or direct dispatch)	0.5	0.5	0.5	0.5	0.5	0.5					
Total Lead Time	**776.5**	**778.5**	**777.5**	**775.5**	**779.5**	**780.5**	**779**	**780**	**782**	**754**	**760**

- Lead Time analysis

Thailand	**Myanmar**	**Indonesia**						**vietnam**		**Malaysia**
Bankok	Yangong	Jakartha						Ho Chi Min		Port Klang
Kennet	Theers	Nahbe	Motives	UnitedTex	Hoplung	Mata Hari Santhosa Jaya	Pressseal	IT luggage	Motives China	Sports Factory
Kennet	Theers	Nahbe	Motives	UnitedTex	Hoplung	Mata Hari Santhosa Jaya	Pressseal	IT luggage	Motives China	Sports Factory
2	9	3	4	3	5	6	5	4	3	2
1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	2	2	1
720	600	720	720	720	720	720	720	720	720	720
1	1	1	1	1	1	1	1	1	1	1
8	8	8	8	8	8	8	8	8	8	8
12	12	12	12	12	12	12	12	12	12	12
6	6	6	6	6	6	6	6	6	6	6
20	20	20	20	20	20	20	20	20	20	20
5	5	5	5	5	5	5	5	5	5	5
3	3	3	3	3	3	3	3	3	3	3
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
779	**666.5**	**780**	**781**	**780**	**782**	**783**	**782**	**781.5**	**780.5**	**778.5**
2	9	3	4	3	5	6	5	4	3	2
1	1	1	1	1	1	1	1	1	1	1
216	144	192	192	192	192	192	192	216	216	144
18	18	18	18	18	18	18	18	18	18	18
2	2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1	1	1
4	4	4	4	4	4	4	4	4	4	4
8	8	8	8	8	8	8	8	8	8	8
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
432	432	432	432	432	432	432	432	432	432	432
1	1	1	1	1	1	1	1	1	1	1
8	8	8	8	8	8	8	8	8	8	8
702	**637**	**679**	**680**	**679**	**681**	**682**	**681**	**704**	**703**	**630**

- Process cost analysis

Process segment cost in USD per TEU											
Supplier Details	China										
	xiamen						Fuzou	Xingang	Tianjing	Guanshou	Dalian
	Gooodman	Hondar Industries	GSEGE	Elegant	E-Teen	C&D Light	Gooodman	Gooodman	Gooodman	Gooodman	Gooodman
Supply Chain Segment(process segment)											
Existing SC Model	Gooodman	Hondar Industries	GSEGE	Elegant	E-Teen	C&D Light	Gooodman	Gooodman	Gooodman	Gooodman	Gooodman
1. Transportation from supplier preemises to carrier hub	350	550	425	275	610	670	625	675	450	525	610
2. Export formalities (Customs, other authorities etc.)	129	129	129	129	129	129	129	129	129	129	129
3. Most efficient and effective voyage to destination by sea (UK or USA)(best rate they can bargain from a forwarder)	1375	1375	1375	1375	1375	1375	1375	1375	1375	1400	1375
4. Destination (UK or USA) import formalities (Customs, other authorities	140	140	140	140	140	140	140	140	140	140	140
5. Inland transportation to DC	275	275	275	275	275	275	275	275	275	275	275
6. Sorting and segregation as per local hubs	40	40	40	40	40	40	40	40	40	40	40
7. AQL checking	75	75	75	75	75	75	75	75	75	75	75
8. Other value addition activities	150	150	150	150	150	150	150	150	150	150	150
9. Shipment consolidation as per local hubs – LCL to FCL	90	90	90	90	90	90	90	90	90	90	90
10. Delivery to local hubs	110	110	110	110	110	110	110	110	110	110	110
11. Process at local hubs(inventory replenishments or direct dispatch)	5	5	5	5	5	5	5	5	5	5	5
Total Cost	**2739**	**2939**	**2814**	**2664**	**2999**	**3059**	**3014**	**3064**	**2839**	**2939**	**2999**
Proposed MCC model											
1. Transport from supplier's premises to carrier	350	550	425	275	610	670	625	675	450	525	610
2. Export formalities (Customs, other authorities etc.)	129	129	129	129	129	129	129	129	129	129	129
3. Most efficient and effective voyage to Sri Lanka by sea best rate and transit	750	750	750	750	750	750	750	750	750	800	750
4. Import clearance in Sri Lnka	90	90	90	90	90	90	90	90	90	90	90
5. Inland transportation to the Container Freight Station(CFS)	100	100	100	100	100	100	100	100	100	100	100
6. Receiving and put away	5	5	5	5	5	5	5	5	5	5	5
7. QC provision and AQL test	50	50	50	50	50	50	50	50	50	50	50
8. Other value addition activities(sticker pasting, percentage counting, package	40	40	40	40	40	40	40	40	40	40	40
9. Sorting, planning FCL's as per final local hubs	40	40	40	40	40	40	40	40	40	40	40
10. Loading and dispatch of FCL containers	20	20	20	20	20	20	20	20	20	20	20
11. Transport of loaded export containers and dump in to port	100	100	100	100	100	100	100	100	100	100	100
12. Export formalities (BOI, Customs)	115	115	115	115	115	115	115	115	115	115	115
13. Most efficient and effective voyage from Sri Lanka to USA/UK by sea	675	675	675	675	675	675	675	675	675	675	675
14. Import formalities at destination	140	140	140	140	140	140	140	140	140	140	140
15. Direct transport from port to local hubs	115	115	115	115	115	115	115	115	115	115	115
16. Process at local hubs(inventory replenishments or direct dispatch)	5	5	5	5	5	5	5	5	5	5	5
Total Cost	**2724**	**2924**	**2799**	**2649**	**2984**	**3044**	**2999**	**3049**	**2824**	**2949**	**2984**

Thailand	**Myanmar**	**Indonesia**						**vietnam**		**Malaysia**
Bankok	Yangong	Jakartha						Ho Chi Min		Port Klang
Kennet	Theers	Nahbe	Motives	UnitedTex	Hoplung	Mata Hari Santhosa Jaya	Pressseal	IT luggage	Motives China	Sports Factory
Kennet	Theers	Nahbe	Motives	UnitedTex	Hoplung	Mata Hari Santhosa Jaya	Pressseal	IT luggage	Motives China	Sports Factory
310	345	225	300	420	320	670	350	450	520	430
135	140	125	125	125	125	125	125	130	130	120
1794	1800	1869	1869	1869	1869	1869	1869	2145	2145	1568
140	140	140	140	140	140	140	140	140	140	140
275	275	275	275	275	275	275	275	275	275	275
40	40	40	40	40	40	40	40	40	40	40
75	75	75	75	75	75	75	75	75	75	75
150	150	150	150	150	150	150	150	150	150	150
90	90	90	90	90	90	90	90	90	90	90
110	110	110	110	110	110	110	110	110	110	110
5	5	5	5	5	5	5	5	5	5	5
3124	**3170**	**3104**	**3179**	**3299**	**3199**	**3549**	**3229**	**3610**	**3680**	**3003**
310	345	225	300	420	320	670	350	450	520	430
135	140	125	125	125	125	125	125	130	130	120
900	950	975	975	975	975	975	975	1100	1100	420
90	90	90	90	90	90	90	90	90	90	90
100	100	100	100	100	100	100	100	100	100	100
5	5	5	5	5	5	5	5	5	5	5
50	50	50	50	50	50	50	50	50	50	50
40	40	40	40	40	40	40	40	40	40	40
40	40	40	40	40	40	40	40	40	40	40
20	20	20	20	20	20	20	20	20	20	20
100	100	100	100	100	100	100	100	100	100	100
115	115	115	115	115	115	115	115	115	115	115
675	675	675	675	675	675	675	675	675	675	675
140	140	140	140	140	140	140	140	140	140	140
115	115	115	115	115	115	115	115	115	115	115
5	5	5	5	5	5	5	5	5	5	5
2840	**2930**	**2820**	**2895**	**3015**	**2915**	**3265**	**2945**	**3175**	**3245**	**2465**