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**VIETNAM'S GARMENT MANUFACTURERS:  
CONDITIONS FOR UPGRADING IN  
GLOBAL VALUE CHAINS**

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Author

# VIETNAM'S GARMENT MANUFACTURERS: CONDITIONS FOR UPGRADING IN GLOBAL VALUE CHAINS

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# INTRODUCTION

Promoting international trade and international economic integration is becoming an indispensable trend. It has a substantial impact on many aspects of the world's socio-economic life and has reflected the most fundamental and profound contradictions between the rights of developed and developing countries in the global economic system today. While developed countries want underdeveloped countries to open markets for their goods and services to be freely circulated, in their domestic markets, they are creating barriers to protect and limit the goods and services from underdeveloped, mainly is low-value-added goods such as agriculture, fisheries, seafood, garment, and textile.

For Vietnam, it has been 12 years since joining the World Trade Organization (WTO), Vietnam's economy has reflected very different bright and dark sides in the picture of globalization. The lesson of international economic integration is very useful, especially in the current conditions when Vietnam is on the way to find the ways to move along global value chain, which is from a country that mainly depends on exports with low value-added and labor-intensive products move to higher value-added products and get rid of the dependence on big players such as China. In recent years, Vietnam's exports have always been imposed unreasonable trade barriers, reducing the production and export of these products to developed markets like the US., EU, Japan. Under such circumstances, Vietnam's participation in bilateral and regional trade agreements is indispensable, because this is a long-term, stable development trend, creating many opportunities and advantages for Vietnam's businesses, especially export enterprises like Textile and Garment. In order to make the most of the promising conditions from the shifts in the global economy, Garment enterprises should have more profound understanding into what is their strengths and weaknesses; what are the factors impact to the outsourcing decisions of leading buyers; what is the threats and opportunities comes out from the trade wars and political instability. All in all, the thesis aims to provide above information for Vietnam garment industry fully, facilities enterprises to have an accurate baseline in order to prepare for the better performances and gradually close the gap between Vietnam and leading global buyers. From there, given the development orientation, helping garment, Vietnam's vital export industry to develop better and better.



## **Chapter 1: The overview of the global garment industry and the Global Value Chain of this industry.**

The aim of this chapter is giving the overview of the garment industry in the world with a deep understanding about the current size of the apparel market and the shifts in the leading exporters, importers within the industry. With the impact of globalization and trade wars between leading players, this chapter also provides the newest updated trends and how these players participate in the Global Value Chain of this industry.

## 1.1 Overview of the global garment industry

Despite the adverse effects of a global economic, apparel industry continues to grow at a healthy rate. Coupled with the absence of switching costs for consumers and significant product differentiation, means that rivalry within the industry is no more than moderate. The apparel industry is of great importance to the economy in terms of trade, employment, investment, and revenue all over the world. The specific characteristics of this industry include short product life cycles, vast product differentiation, and the high pace of demand and fashion trends change coupled with rather long and inflexible supply processes. (Statista, 2016)

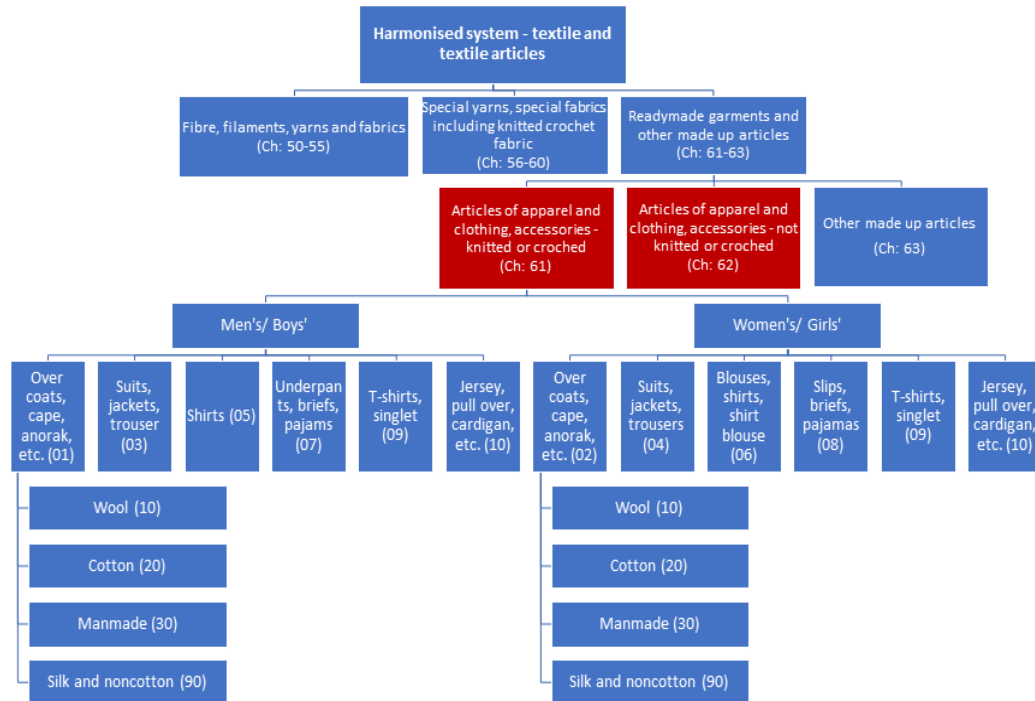
The textile industry nowadays becomes a core industry of so many countries in the world, especially in low-income countries. It includes a list of final and semi-final products. Garment, which is also called clothing and wearing apparel, accounts for the most significant part of textiles. The allocation of detailed branches of the textiles industry is as figure 1.1. Wider than garments, textiles involve other areas of applications, the most common of which are for clothing and another assortment of uses for home textiles such as bed sheets, quilt, curtains and towels, and handlooms (Farlex, 2012). However, the amount in terms of consumption and production of home textiles are far smaller than the garment. This thesis will mainly focus on the garment industry, and the following statistics along this research will be collected based on the HS code of wearing apparel only (HS9661+9662)<sup>12</sup>

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<sup>1</sup> The HS code stands for Harmonized Commodity Description and Coding System, which is an internationally standardized system of names and numbers to classify traded products.

<sup>2</sup> HS code 96 is used for Miscellaneous manufactured articles

Figure 1.1: Classification of garments under HS code



Source: (ClothingIndustry, 2017)

Garment manufacturer is not the same as twenty years ago. It has undergone significant changes in the past. Firstly, in 1974, the Multi Fibre Agreement (MFA) regulation took place and gone through 1994, set the quota (limitation amount) for garment export trading from developing to developed countries. Its successor is the Agreement on Textiles and Clothing (ATC), which expired on 1 January 2005 (Wikipedia). This phaseout of MFA has acted as an incentive for developing countries to allocate their export partners according to the market's freedom. Secondly, the post-MFA period, combined with the global crisis wave during 2007-2008, have affected negatively in most industries (Christoph Ernst, 2005). Garment manufacture was no exception. During this tough time, so many fashion brands in the world changed their mind, in which the highly developed countries are the best places to produce the right quality products. Nevertheless, this mindset is no longer suitable. They could not set themselves outside of the outsourcing gravity, which is shifting the manufacturing of apparel to low wage countries to enjoy the cost advantages. These changing activities lead to an increase in FDI flow from developed countries into emerging developing countries and even in China, whereby the enormous drivers of resources can support the global buyers benefit the competitive advantages. Recent trends in FDI in garment industry in Asian countries are international subcontracting: "the strategy whereby transnational corporations assign the most labour-intensive phases of production of a shirt, a car, or a semiconductor to countries where

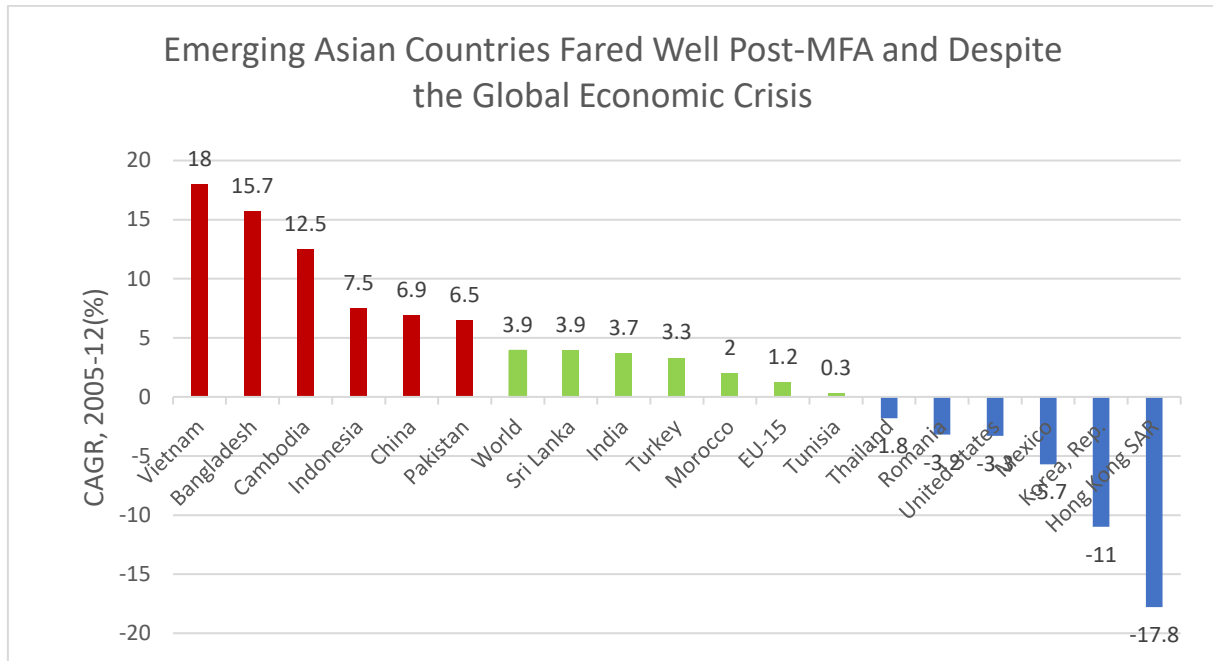
the labor costs are lowest” (Gereffi, 1993, p. 69) or “Buyer-driven global commodity chain” (Gereffi, 1994) in which local private firms (not transnational corporations) are the leading exporters of finished consumer goods. The Asian factories that make these products are involved in contract-manufacturing relationships with foreign buyers who place the orders. In this form of “specification contracting,” local firms carry out production according to complete instructions issued by the buyers and branded companies that design the goods; the output is then distributed and marketed abroad by trading companies, brand named merchandisers, large retailers, or their agents. (Domestic firms are in charge of the decentralized manufacturing stages; foreign capital tends to control the more profitable export and marketing networks) (Gary Gereffi and Mei-Lin Pan, 1994).

Due to the low cost of labor and materials, emerging Asian apparel exporters countries act like the attractive pool for this labor-intensive industry. According to the data from UNSD for top 15 apparel exporter countries, during post MFA and despite the global economic crisis (2005-2012), emerging Asian apparel exporters countries have shown the positive market share and increased export values. “In contrast, more developed Asian apparel exporter countries and regional suppliers to the United States and the EU-15<sup>3</sup> have collectively lost export share” (Gladys Lopez-Acevedo and Raymond Robertson, Editors). These performances are shown in figure 1.1 and generally categorized into three main groups of apparel suppliers as following (Frederick, S., & Gereffi, G., 2011).

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<sup>3</sup> The EU-15 consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. (Gladys Lopez-Acevedo and Raymond Robertson, Editors)

Figure 1.2: Top Apparel Exporting Countries, CAGR, 2005–12

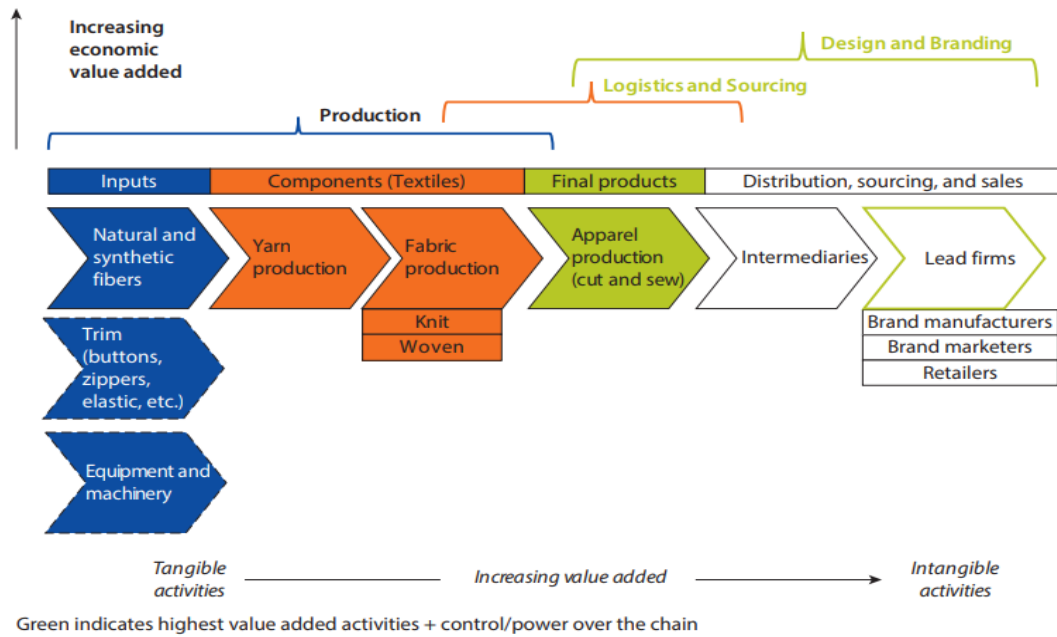


Sources: (Gladys Lopez-Acevedo and Raymond Robertson, Editors)

- Growth suppliers: China and the three Southeast Asian countries, Cambodia, Indonesia and Vietnam, Bangladesh, and Pakistan. These countries have increased their export value and global market share since the early 1990s as well as in the post-MFA and post-crisis period. Despite modest growth in global market share, at 41 percent in 2012, China still holds an exceptional share of the global market.
- Stable suppliers: These countries - like Sri Lanka and India - have increased export value; but their global market shares are stable or declining, and growth rates are lower than the world average.
- Declining suppliers: These economies - like SAR and the Republic of Korea - have experienced declines in value and global market share during the phaseout and post-MFA period, and in some cases since the early 1990s. (Gladys Lopez-Acevedo and Raymond Robertson, Editors)

From the very beginning, garment and textiles industry consists of 3 sub-sectors: upstream (fiber production), midstream (fabric production and dyeing) and downstream (garment manufacturing)” (Report on Vietnam Textile and Garment Industry ). One closed-end process begins with raw input, which is natural or artificial fibers. Then, from these fibers, workers will spin into yarn or thread. Depending on the characteristic of fabric, the threads or yarns will be woven or knit. Fabrics are cut and sew combined with other additions of accessories to form garment and other final products. (Textile)

Figure 1.3: Structure of the Global Value Chain for Apparel



Sources: (Gladys Lopez-Acevedo and Raymond Robertson, Editors)

It has been nearly ten years after the crisis, nowadays, go along with the explosion of globalization, the development of technology, the integration of information combined with the ever-evolving needs of the global market, the garment industry now joins in a more complicated process – which is called “global value chain.” It covers a full range of activities needed for a finished product, also from the raw material until the customers’ hands, but with more supportive and value-added activities. Figure 1.3 brings the visualization into each specific activity within the value chains (Setting the Stage, p. 23). In general, this chain also consists of 3 main steps as in traditional processes. However, this figure provides an in-depth insight into the chain of values allocation, which activities belong to which value-added steps and what is the core activities among the others.

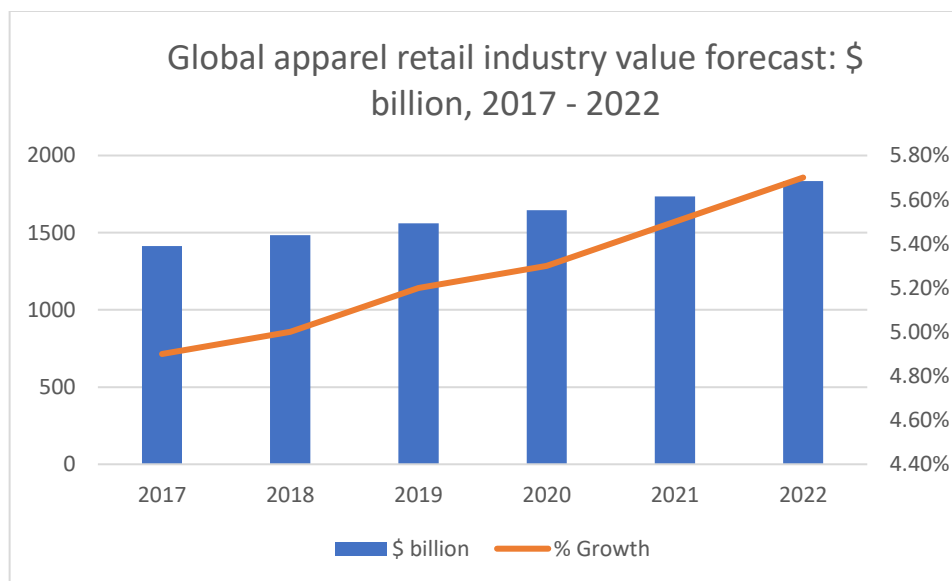
The following sessions will zero in into three main aspects in order to give a more precise look to the garment industry: the global apparel market size, who are the leading players and the latest trends in the world trade of apparel.

### 1.1.1 Global apparel market size.

Following tables and charts from Shenglu Fashion analyzed focus on two global market values: apparel manufacturing from 2016-2018 and forecast until 2021 and the retail market from 2017-2018 and forecast until 2022. The market size of global apparel manufacturing is estimated based on the value of domestic production plus imports minus exports, all valued at manufacturer prices. \$785.9 billion is the value in 2016, increase 3.3% compared to a year

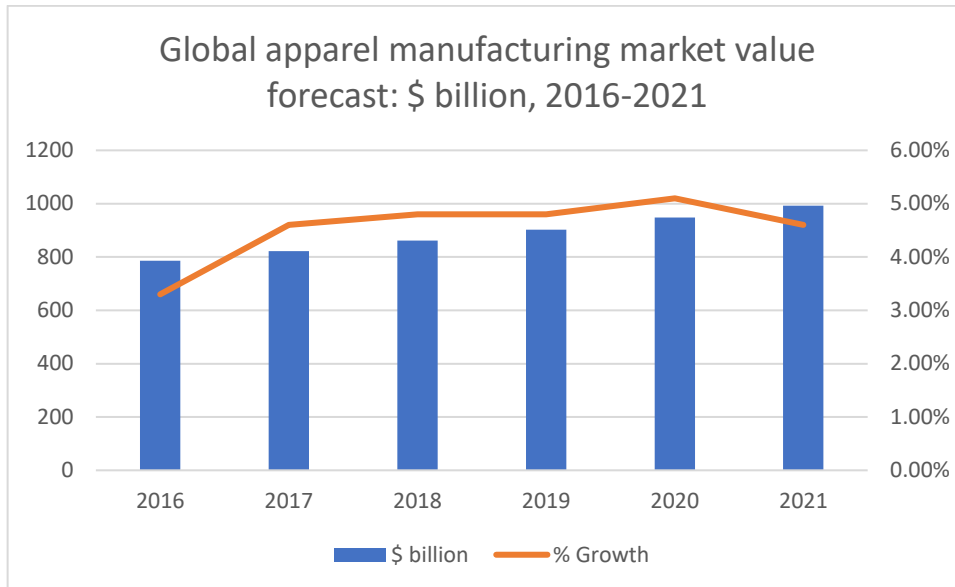
earlier, the Asia - Pacific region accounted for nearly 61%. The value is forecasted to reach \$992 in 2021. The same trend saw on the global apparel retail industry with the compound annual growth rate is 5.3% during the period from 2017 to 2022. The upward trends in both analyses prove the increase in garment demand globally and evince that garment companies around the world keep pushing themselves in order to adapt well with the strict requirements and quick change of fashion trends and global customer demand. When the customer's demand increase and change along with the fashion trends, it requires international retailers and global buyers to have an in-depth analysis of the global value chain. Understand the global value chain of garment industry helps these buyers allocate their production suitably and partly insert into developed countries' for exploiting their competitive resources. These accelerating trends in the apparel market give the big opportunity to the global apparel firms, especially for emerging countries in Asian are which heavily relied their economy income on this industry.

*Figure 1.4: Global apparel retail market from 2017-2018 and forecast until 2022*



*Sources: (Marketline, 2015)*

Figure 1.5: Apparel manufacturing from 2016-2018 and forecast until 2021



Sources: (Marketline, 2015)

### 1.1.2 Shifting in global apparel exporters and importers

As a particular response to the high investment of garment production toward low-cost factories from global buyers, China mainland and developed countries from South and Southeast Asia such as Bangladesh, India, Cambodia, Vietnam, Indonesia has risen powerfully in recent years. With the support of knowledge and technology spillovers from developed countries during globalization, sweatshops are not a suitable definition to describe these factories. They will die if just thanks to the low cost only to compete against other regions. A significant trend emerging in the industry is consolidation— that is, buyers prefer to source from larger, more capable vendors who offer a variety of products at competitive prices paired with consistent quality, reliable delivery, enough lead times, and broader non-manufacturing capabilities (Gladys Lopez-Acevedo and Raymond Robertson, Editors). These are all the motivations help these emerging countries push themselves on the way to improve their performances.

Indeed, there are several changes in the total value of garment import and export and the annual percentage changes for the top ten exporters and importers globally.



Table 1.1: Top 10 apparel exporters value and YOY growth rate from 2015 to 2018 (UN COMTRADE)

Countries	Value				Annual percentage change			
	2015	2016	2017	2018	2015	2016	2017	2018
<b>Exporters</b>								
China	162	146	145	129	-6%	-10%	-1%	-11%
Bangladesh	27	33	35	38	-9%	25%	5%	9%
Extra - European Union	25	25	28	31	-13%	1%	11%	11%
Viet Nam	21	22	24	29	5%	5%	9%	19%
India	17	17	17	16	4%	-1%	2%	-10%
Hong Kong, China	17	15	14	13	-10%	-15%	-8%	-4%
Turkey	15	15	15	15	-9%	0%	0%	4%
Indonesia	7	7	8	9	-1%	-2%	10%	9%
Cambodia	6	7	7	12	11%	12%	6%	76%
United States	5	5	5	5	0%	-7%	1%	6%
<b>Above 10</b>	<b>303.28</b>	<b>292.73</b>	<b>298.45</b>	<b>298.02</b>	-	-	-	-

Source: UN COMTRADE - based on the world (aggregate) apparel imports and exports (HS92 61+62).

China still holds a certain distance with the following top 9 garment exporters. Their total value of garment export is nearly fourfold compared to Bangladesh, who is in second place. Despite the shifting to more value-added products and the rising in its labor cost lead to the negative annual percentage changes, China's still account for more than 40 percent of global textile and apparel exports. Its unbeatable competitive advantages will remain to attract global buyers for outsourcing in the next foreseeable period. The top three apparel, including China, Bangladesh, and the European Union accounted for nearly 70 percent of world exports, slightly decrease compared to those in 2015 and 2016. Besides the overwhelming strength of China mainland, we still saw a surprising performance from other Asian countries in the South and Southeast regions are Bangladesh, India, and Vietnam. In 2018, Vietnam showed the fastest pace in growing the apparel's export value, until 19%.

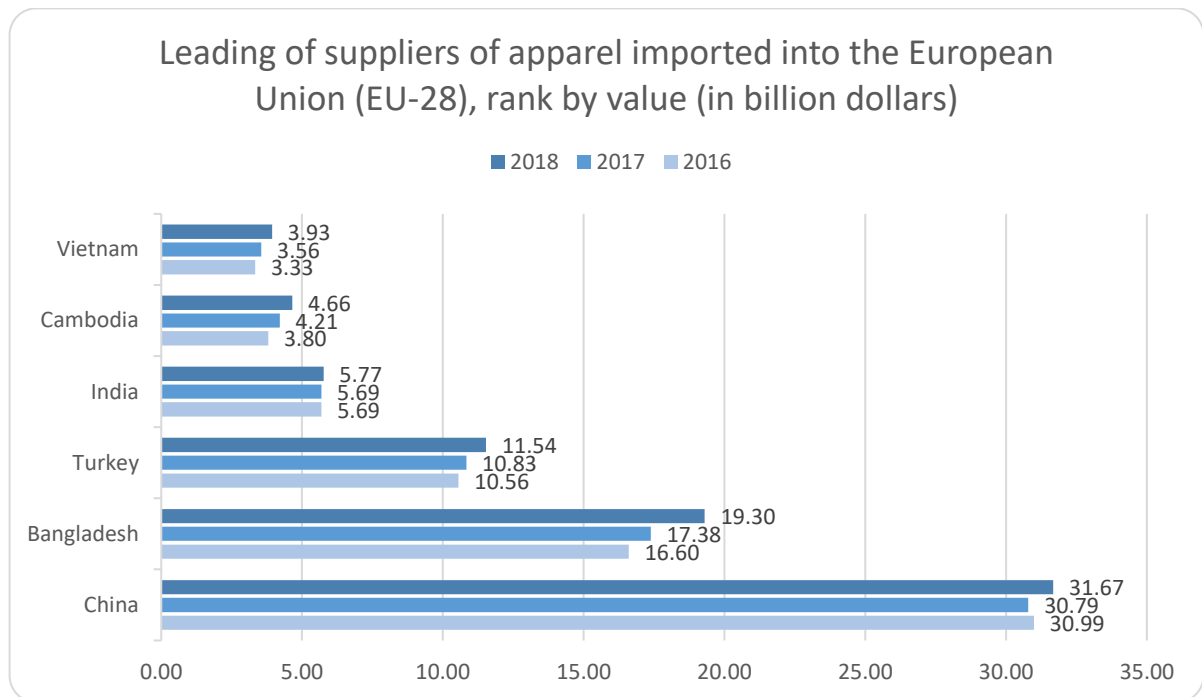
Table 1.2: Top 10 apparel importers value and YOY growth rate from 2015 to 2016. (UN COMTRADE)

Countries	Value				Annual percentage change			
	2015	2016	2017	2018	2015	2016	2017	2018
<b>Importers</b>								
Extra - European Union	90	90	93	99	-8%	0%	3%	7%
United States	89	84	84	87	4%	-6%	0%	4%
Japan	27	26	26	28	-9%	-2%	0%	8%
Hong Kong, China	14	12	12	12	-7%	-11%	-7%	2%
Canada	9	9	9	10	-2%	-3%	5%	5%
Korea, Republic of	9	8	9	10	0%	-4%	8%	16%
Australia	6	6	6	7	2%	-3%	8%	6%
China	6	6	7	7	7%	-1%	12%	1%
Switzerland	5	6	6	7	-8%	7%	13%	13%
Russian Federation	5	5	7	7	-34%	3%	25%	7%
<b>Above 10</b>	<b>260</b>	<b>252</b>	<b>258</b>	<b>274</b>	-	-		-

Source: UN COMTRADE - based on the world (aggregate) apparel imports and exports (HS92 61+62)

European Union, USA, and Japan are still the three leading garment importers all over the world during the last four years. The total value of apparel import of the top three countries in 2018 account for 68.5 percent of the world's value, slightly bigger than 2017. Other leading countries are Hongkong, China, Canada, and Korea show the small rose in their import value. There was an increase in apparel imported value into the European Union during the last four years (from 2016-2018). Although facing the negative year over year percentage in 2015 (-8%) right in the time of MFA/ATC phase-out, the European Union still the biggest imported market for apparel factories around the world. The total value of apparel imported was gradually rose from \$93 billion to nearly \$1000 billion in the next following years.

Figure 1.6: Leading apparel suppliers imported into the European market (UN COMTRADE)



Source: UN COMTRADE, author's aggregate apparel imported (HS9261+9262) into EU-28

Figure 1.5 shows the Top-5 leading apparel suppliers imported into the European market from 2016 to 2018. China ranked as the leading apparel suppliers, which imports to the EU valuing at approximately 31 billion dollars in 2018. China's closest competitor is Bangladesh, with imported valuing at 19.3 billion dollars. The next three positions in the top five are Turkey, India, and Cambodia. In 2018, the total imported value of the top 5 into the European market accounted for around 73%.

According to the calculations by World Bank in the book *Stitches to Riches? - Part III: South Asia's Potential Share of China's Apparel Trade*, the U.S. imported value has gone through five main periods. The first period (1990-1994), China was the biggest suppliers to the U.S. apparel market, following were India and Mexico, which the total value all above 800 million dollars. Cambodia and Vietnam exported the least. In the next period (1995-1999) saw an increase in both exported value and product variety in both Vietnam and Cambodia.

Meanwhile, China increased markedly in its exported value as well as product prices but a drop-in product variety. During this period, the cheapest apparel came from Vietnam, and the most expensive came from China. Period three (2000–2004) saw Vietnam top the \$1 billion mark—a dramatic increase from \$0.5 billion in the first period. China continued its steady growth and maintained a pace of nearly \$8 billion per year. In period four (2005–09), China

began producing \$21.8 billion of apparel per year, whereas Pakistani prices fell in period four, making it the cheapest source of apparel. The fact that buyers care about issues besides price is cast into sharp relief in the Pakistani case because, although Pakistan's prices were the lowest, it did not capture most of the apparel production. During 2010–14, China still the biggest importer of apparel into the U.S., and nearly every apparel product imported by the United States produced by China. India, Mexico, Pakistan, and Sri Lanka all saw a reduction in apparel importing to the U.S. market (Gladys Lopez-Acevedo and Raymond Robertson, 2016).

These fluctuate partly depend on the product category and diversity, which one country tend to focus on their product production portfolios.

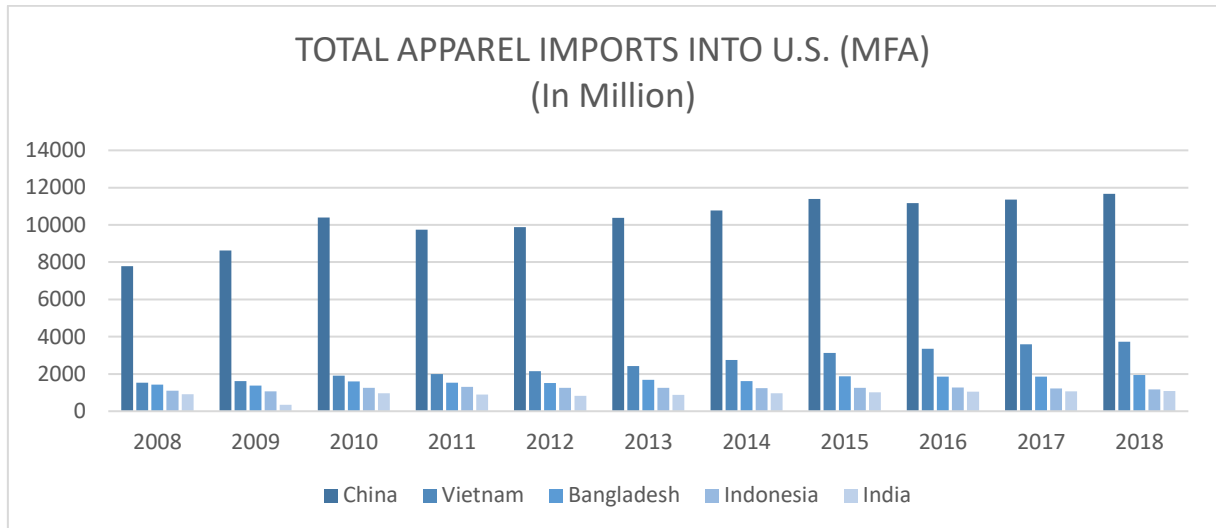
### **1.1.3 The latest trends in the world trade of apparel**

#### **a) The firm domination of China in apparel market share and its move toward the global value chain**

China's production capacity remains unparalleled in the world. From twenty years ago, China is gradually shifting its role in the world textiles and apparel supply chain. For twelve years, from 2002 to 2012, China's share of global apparel exports increased from 20 percent to more than 40. The newest trade statistics aggregated by the Office of Textiles and Apparel (OTEXA) proves that China still has no near competitors in the U.S. apparel import market. (Lu, 2018)

Figure 1.6 shows the share between China and its closest competitors of total apparel import value into the U.S. market. China accounts for nearly half of what apparel the United States imported all over the world during the past ten years. Indeed, China not only undoubtedly hold the lion's share in the major markets as the U.S. and Europe but also play an essential role as a textile supplier for apparel-exporting countries in Asia. Emerging export supplier as Vietnam, Bangladesh, Cambodia, Indonesia, and Pakistan still import a tremendous percent of textiles and apparel accessories from China. For example, Bangladesh's textile imports came from China in 2017 is 47 percent, Cambodia is 65 percent, and Vietnam is 50 percent.

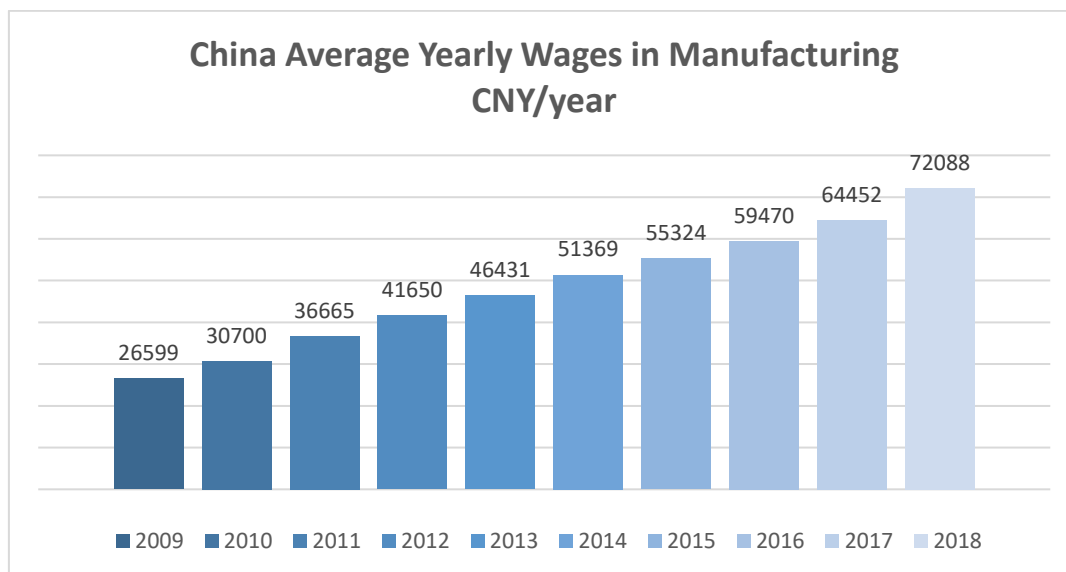
Figure 1.7: Top five apparel suppliers import into U.S. market (2008-2018)



Source: Author's aggregation from data of OTEXA

China's apparel export share reached a peak between 2000 and 2012, increased from 25 percent to 41 percent. However, no countries, including China, can forever keep this comparative advantage when its economy becomes more industrialized and advanced. Moreover, the mounting economic uncertainty synonymous with adding more challenges for the apparel market. Thus, the current domination from China is slightly changing in recent years when it faces the headwinds. While setting strategies to develop, China tends to either move up the value chain into higher-value goods (out of apparel and more focus on electronics) or be subject to production shifts in response to its higher wages. (Gladys Lopez-Acevedo and Raymond Robertson, Editors)

Figure 1.8: China Average Yearly Wages in Manufacturing (CNY/year)



Source: Aggregated from data of Trading Economics

#### **b) The movement of local apparel brands in China leads to the exit of foreign apparel brands in this market**

In order to shift from low value-added manufacturing to higher value-added products with their designs, brandings, and distribution, many Chinese apparel firms move from exporting to serving its large domestic market. There is a vast appearance of Chinese local apparel brands, which accelerate their expansions not only at home but also abroad market. They diversify product line to invigorate brand value as well as establish a flagship store to boost brand image. Not only serving the huge domestic demand, but they also increase and ram up the store network to jump into international markets. Specifically, thanks to the rapid rise of mobile and e-commerce as well as the better understanding of consumer habits of Chinese retailers, 2018 was the year which saw the rising of some local apparel brands in China. For example, JNBY launched new multi-brand store “LA SU MI SO LA” in December 2018, unveiled new fashion brands SAMO, REVERB, A PERSONAL NOTE 73 from April 2018. SEMIR launched its first fresh image, stylish concept store in Shanghai on October 2018. HLA opened its first physical store in January 2018 and put its first footprint internationally by opened its first store in Singapore on May 2018. In the same flow, Chinese apparel brand Lily opened its first store in Europe in Barcelona, Spain on January 2019 and Bosideng announced to re-launch its flagship store in London in September 2018. (Intelligence, 2019) This rise of local brands somehow put the foreign apparel brands into a struggle to make headway. The exits of some foreign apparel brands from Chinese market was the result of this

rising. In 2018, Nine West, a U.S. footwear brand, closed its last store in Beijing and finally withdrawn from the Chinese market in September. As in the same year, the Chinese market also saw the bankrupt filed and close of 120 stores from New Look, a British fashion brand, in October. Another fast fashion brand is Forever 21 also closed its online flagship store and confirmed to exit from China market entirely in April 2019. 10 Corso Como updated the latest close in June 2019. Also, an Italian fashion concept brand had to close its Shanghai brand after shooting down its Beijing store in February 2017. (Intelligence, 2019)

### **c) Leading global buyers are shifting outsource strategy**

Figure 1.8 depicts the downturn of the Chinese sale of apparel expected by Euromonitor, which will slow down to 3.5 percent and 3.2 percent in 2019 and 2020, respectively (from 7.8 percent growth in 2018). Go along with the resonance of rising of China's local brands in acquired foreign brands, and they are increasing their product range across the entire price and quality spectrum. Moreover, there will be certain for the backup plans from the leading global buyer for their apparel sourcing strategies over China. (Euromonitor)

According to the results from Fashion Industry Benchmarking study launched in 2017 in collaboration with the United States Fashion Industry Association, which revealed a shift in the trend of apparel sourcing, in which "China plus Vietnam plus many" will gradually replace for "China plus many." The allocation of apparel sourcing according to this study, was 30-50 percent from China, 11-30 percent from Vietnam, and the rest from other countries (Dr. Sheng Lu, United States Fashion Industry Association, 2017). In the long run, "Made in China" shall be gradually replaced by "Made in Asia" especially when upcoming trade agreements are coming to finalized within this year in Vietnam such as CPTPP, EVFTA, and other FTAs agreement including China (for example CEPA). (Trading Economics, 2018)

Figure 1.9: Sales of apparel in China, 2014-2020



Source: Euromonitor International, compiled by Fung Business Intelligence

#### d) US-China trade war

The United States has imposed tariffs on Chinese products during the US-China trade war. “The Trump administration has so far levied 25 percent tariffs on \$50bn of Chinese industrial goods and is considering putting similar tariffs on another \$200bn of Chinese exports, punishing Beijing for “unfair trade practices including forced technology transfers and intellectual property theft” (Who is winning the trade war?, 2019). Since the start of the trade war, the average retail price of clothing manufactured in China has more than doubled. The root of this rise in price comes from the increasing price of textiles. Undoubtedly, textiles and apparel were affected strongly by this war. From 2018, the global garment buyers have a tendency to change their sourcing portfolio from “China plus many”- which is China accounts for around 60 percent of sourcing value and the rest 40 percent is from other countries; to “China plus Vietnam plus many” - which is around 40-60 percent sourced from China and Vietnam combined, the rest sourced from other countries, each accounting for less than 10 percent of the sourcing portfolio. (Dr. Sheng Lu & United States Fashion Industry Association, 2019). As resulting from US-China tariff trade war, the sourcing price in China has increased rapidly, and the leading global buyers would diversify their list of trading partners to decrease the risk of cost increases. As mentioned above, Vietnam, with a similar framework as China, located in a beneficial location, has become an attractive spot for apparel sourcing companies around the world. Although among the importing allocation, China still accounting for the biggest part, it must share the cake with their neighbor, Vietnam. Other



than China and Vietnam, U.S. fashion companies also source from a few other countries and each additional country, including the United States, typically accounts for less than 10 percent of companies' total sourcing value or volume. This practice has stayed stable since 2016.

Moreover, the lingering tariff trade war between U.S and China, especially the Section 301<sup>4</sup> Action against China has affected to the escalation of sourcing price not only from China but also the primary alternative sources to China - Bangladesh, Vietnam, India (Wayne M. Morrison, 2019). With the light increase in sourcing costs, while the limitation of production capacity and production category remain unchanged in these alternative countries, this led to the reluctant of global buyers when they think about sourcing decisions in the long term. (Dr. Sheng Lu & United States Fashion Industry Association, 2019)

Although there was a decrease in China apparel sourcing from the U.S market, China will remain a dominant textile and apparel supplier globally in the foreseeable future. Indeed, China textile exports account for more than 53 percent all over the world and garment exporters such as Bangladesh, Vietnam, Indonesia still buy most of the textiles from China to achieve a more competitive price than domestically produced textiles, for example, Vietnam in 2018 imported 45 percent fabric from China. Thereby, these dependent exporting countries still bear a loss with the trade war between the two giants. As the response for this trade war tariff, there was a rapid move of production for low-end clothing such as basic T-shirts and underwear from China to Asian countries such as Vietnam and Cambodia. Even though those countries have proximity production chain and connection as China, but they cannot yet produce in the same quantity or with the same quality as China due to technological constraints. Thus, this shifting of production is just the strategy in short-run for global buyers as well as other exporting countries, if these lower-wage countries are not in a rush to improve their lack of technology equipment, weakness of social compliance and the uncertainty of political, so, they will become landfills for global leading buyers.

e) Offering the full package & consolidation:

What is the full package and consolidation in the apparel industry? That is supplier can offer to manufacture and supply chain management-related services in addition to assembly activities (such as textile and trim sourcing and financing and apparel product development services). When deciding where to source apparel, global apparel buyers prefer to work with more substantial and more capable suppliers that provide the “full package” with a variety of

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<sup>4</sup> <https://fas.org/sgp/crs/row/IF10708.pdf>

products at competitive prices paired with consistent quality, reliable delivery, short lead times, and broader non-manufacturing capabilities. “In other words, merely exporting at a low cost is no longer a sufficient advantage for exporting apparel” (Gladys Lopez-Acevedo and Raymond Robertson, Editors).

There are some examples for these “full package” apparel providers via direct manufacturers: Wenzhou Usun, Wuhan Jarmoo Flag in China; or via indirect vendors: Market Fit in Vietnam, Sourcing Theory (Sourcing Theory) and MFG Made in Los Angeles. These suppliers try to offer the product to limiting clients but with high value. Typically, one full package offering including necessary manufacturing steps and additional steps as following:

- Marking and Grading
- Cutting
- Sewing
- Finishing (inspect, trim, steam/press, labels, tags, bags, and prep for shipping such as logistics, shipping document preparation.)
- Production management. (Full Package Production)

## **1.2 The overview of Global Value Chain (GVC) in the apparel industry**

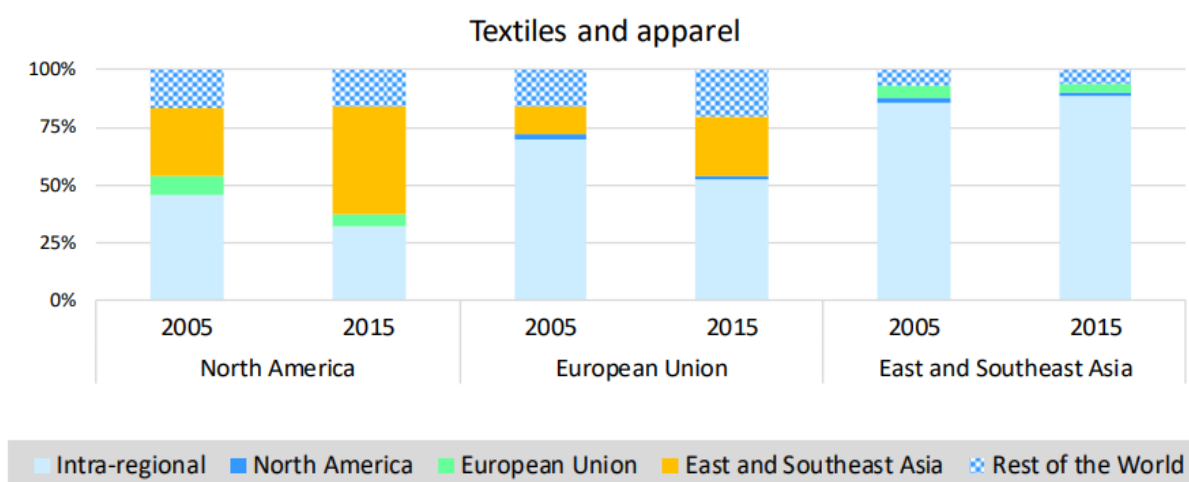
The natural of textile and garment industry is buyer-driven commodity chain, in which retailers and branded marketers rather than manufacturers play lead roles. Without owning any manufacturing factory, the retailers and branded marketers coordinate a global supply chain (Gereffi, Gary, and Miguel Korzeniewicz, 1994.) and capture substantial portions of the value (Craig, C. Samuel, and Susan P. Douglas, 1997). Each country in the apparel commodity chain has a different mix of resources and capabilities depending on its developmental stage, and that a particular country's export position in the apparel commodity chain is determined primarily by available resources and capabilities accumulated during industry development (Porter, 1980). Within the value chain, leading global firms do not own any manufacturing sites to produce garments. They take the advantages of closer approaching customer's demands and preference, capability in designing products, and fully convergence of global sourcing network. Manufacturing sites such as textile and garment suppliers mainly located in the upstream of the global value chain. Their competencies are low-wage and plentiful availability of labor forces. Following the instructions, manual and techniques which transfer from foreign lead firms to do the necessary low value-added steps such as dye, cut, trim, and sew. Lead firms of the apparel commodity chain with a better understanding of customer and fashion's trends, they often located near the consumption markets where have a

stable source of customers. Design, R&D, marketing, and distribution function are the core steps which cost most of the resources allocation from lead firms. These steps support the lead firms to develop innovative product and have a better tool to control the whole process of product development. Indeed, lead firms have awareness about investing capital and resource in those steps will be more profitable and sustainable competitive advantages rather than low-cost production.

“Companies used to make things primarily in one country. That has all changed. Today, a single finished product often results from manufacturing and assembly in multiple countries, with each step in the process of adding value to the end product” (Global Value Chains). The multiple-location production is the so-called global fragmentation of production when one product is not focused produced in only one country but multiple countries. This fragmentation of production has offered great opportunities for developing countries to integrate into the global economy. The newest updated database from OECD’s Trade in Value Added (TiVA) in 2018 has addressed the gradually fallen for many significant economies such as The United of States and China in the foreign value-added content of export (backward linkages) and the changing pattern of global production activities.

Textiles and apparel are one of the most globally integrated sectors. However, there is a slowdown in fragmentation within three regions in this industry, reveals that there is significant variation in the extent to which a slowdown in fragmentation of textile and apparel production (Indicators, 2018).

*Figure 1.10: Regional demand for textiles and apparel industry, 2005 and 2015. By region of value-added origin.*

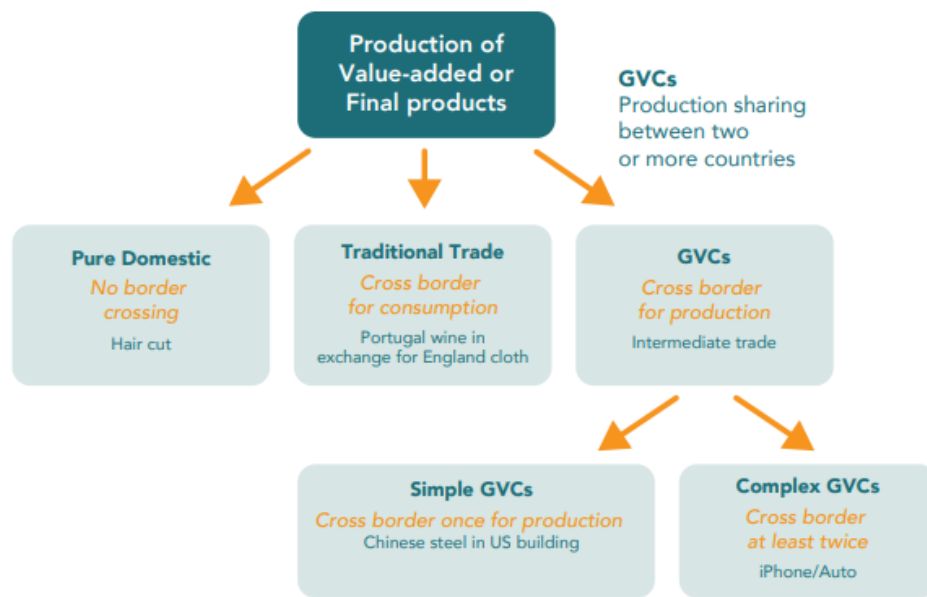


Sources: OECD 2018 (Indicators, 2018)

Specifically, East and Southeast Asia region showed the least change within ten years. In this region, Textiles and Apparel maintained high intra-regional value-added content in final demand (over 90%). Conversely, there has been a marked decrease in intra-regional sourcing and an increase in East and Southeast Asia in North America and the European Union sourcing in 2015 compared with the past ten years. The weight of intra-regional GVC activities in “Factory Asia” came to exceed that of “Factory North America.”

In contrast, in both Europe and North America, the share of intra-regional GVC activities declined relatively, and their share of inter-regional production sharing activities increased, especially their GVC linkages with “Factory Asia,” reflecting in large part increased interconnectedness with China. “China is increasingly playing an important role as both a supply and demand hub in traditional trade and simple GVC networks, although the U.S. and Germany are still the most important hubs in complex GVC networks.”(World Trade Organization, 2019)

Figure 1.11: Decomposition of production activities



Source: Global Value Chain Report 2019

According to the report, there is a big changer within ten years from the financial crisis. With the high degree of economic integration, it will lead to high intra-regional GVC activities. In the past ten years, “Factory Europe” had the highest degree of economic integration. Thus, its share of intra-regional GVC activities is the highest among the three regional production networks; North America ranks second and Asia third.

Nevertheless, ten years after the financial crisis, “Factory Asia” replace the top position of the share of intra-regional GVC activities from “Factory Europe.” In contrast, garment factories in both Europe and North America saw the decline in the share of intra-regional GVC activities and their share of inter-regional production sharing activities have increased, especially their GVC linkage with “Factory Asia.” In “Factory Asia,” the increase of cross-country production sharing activities in the last decade was led by intra-regional complex GVC activities. This share increased from 38.5%/39.6% of Asia’s total forward/backward complex GVC activities in 2000 to 43.9%/46.2% in 2017 (World Trade Organization, 2019).

## **Chapter 2: Determinants for the lead-firms to decide to outsource and choose the outsourced suppliers.**

With the exploitation of Industry 4.0, technology has been applied and became an indispensable part of every industry. This wave also impacts the textile and apparel industries. Moreover, go along with the high integration economies, leading buyers to show their most concern about developing countries where have full convergence of competitive advantages about location, competitive cost and labor force, capacity, lead time, quality and compliance. This chapter will provide the theoretical background to list out, which is the most critical factors which affect the outsourcing decisions of global leading buyers. This theoretical background acts as a fundamental data for the following analysis in the following sessions of this thesis.

As mentioned above in Chapter I, the exploitation of Industry 4.0, the unstable of global economic and politics between leading players within industry go along with the increase in globalization; all contribute to the quick change in the trends and the mindset of players within textile and garment industry. According to results from Global Buyer survey conducted in 2013 by McKinsey & Company, cost and trade agreements are not the only factors that Chief Purchasing Officers (CPOs) – especially among the big players – need to consider. Except for full package services, global buyers perceive exporting countries are more competitive based on the other factors such as quality, lead time, and compliance (McKinsey’s apparel CPO survey 2013). Also, results come out of the newest survey from McKinsey on 2017 prove that “speed to market” and “in-season reactivity” are now more critical than ever to an apparel player’s success. Indeed, nearly two-thirds of US apparel executives and about 80 percent of international chief procurement officers say that these two capabilities are top priorities” (McKinsey, 2017).

Besides, based on multiple surveys of global apparel buyers conducted over the last decade (Birnbaum 2013; Daher & Chmielewski 2013; KSA-AM 2007–13; Nathan Associates 2005) another survey, “Global Apparel Buyers 2014,” conducted by Gladys Lopez-Acevedo and Raymond Robertson published in the book “Stitches to Riches?” has also provided a deep understanding of what criteria buyers consider when making sourcing decisions. The result is “In addition to cost competitiveness, the key factors that emerge are (i) capacity, (ii) quality, (iii) lead time, reliability and productivity, and (iv) social compliance and sustainability” (Gladys Lopez-Acevedo and Raymond Robertson, 2016). Following this theoretical

framework, this chapter will provide a more in-depth understanding of each factor, including another extra factor is the technology and overview of the reflection of all of these factors from the technical and social audit reports.

Therefore, the author takes above critical theoretical background as a premise to have further analysis within this chapter and the following sessions of this thesis.

## **2.1 How technology impacts the outsourcing decision in the garment industry**

The agility of new technology developments and changing customer demand have led to a high degree of automation. With the standardized steps move steadily from human control into robotic control with a high degree of automation. This change goes along with the faster and higher output, more time and energy saving, increase the ability to create a more sophisticated range of products and reduce the rate of defects which are often created by human beings. However, in order to adapt to the quick penetration of technological developments into production processes, it requires more capital - intensive investments, changing skill levels with more specialized training courses in the workforce and faster reaction to the upgrade in technologies or market demands. Technologies nowadays become the supportive tools for any industry in the world, if any firm and factory decide to put more investments with modern equipment and technologies, they need to keep track with all the changes in order not to face more cost related to obsolescence. The obsolete technology not only reduces the productivity through defects, repair, and maintenance terms but also increase the cost for any enterprise. This investment also requires firms to issue suitable strategies, including all managerial functions (e.g., marketing, operations, human resource development) and applies it into their business model. In addition to a faster rate of technological change, the textile industry has fully embraced globalization, which results in even more and faster-changing variables, typically with many interdependencies. Traditional, production-oriented management tools are not sufficient to deal with rapidly changing supply chains and business models that are built more on networks and alliances than in-house developments (Shishoo, 2012).

“To meet customers’ needs, apparel companies need to focus on nearshoring, automation, and sustainability” (Johanna Andersson, 2018). This focus requires quick change as well in the upstream of the apparel value chain, which is the textile and garment industry. The trends of applying technologies into textiles and garment industry are not similar to other industries. Automation in the apparel industry is sophisticated. Automating a production process typically occurs because: (1) it is expensive to hire people to do the job; (2) the product has the potential to be contaminated if handled; or (3) the task is repetitive with minimal changes. Apparel, particularly the sewing segment, does not meet these requirements. There has historically been a pool of low-cost labor from a global perspective, contamination is not an issue, and whereas the task is repetitive, it changes often. For these reasons, there has been minimal demand to automate most parts of the apparel supply chain (Hollweg, C. H. , 2019)



However, with the exploitation of the fourth scientific and technological revolution (Industry 4.0), including the emergence of artificial intelligence (AI). Several fashion brands have used AI to improve their website's prediction and search functionality. It involves creating algorithms that predict shoppers' behavior with high accuracy based on their understanding of a consistent and periodic set of parameters or predictive analytics. As more and more websites focus on efficiency in proposing appropriate options and improving the overall shopping experience, customers are almost inclined to expect this to become the default setting. Probably because they are accustomed to using Amazon. According to Cheryl Joy, Content Strategist and Marketer: “One of AI's most important contributions to fashion is the development of visual search. Indeed, it reduces the number of clicks required to purchase the desired product and enhances the shopping experience.

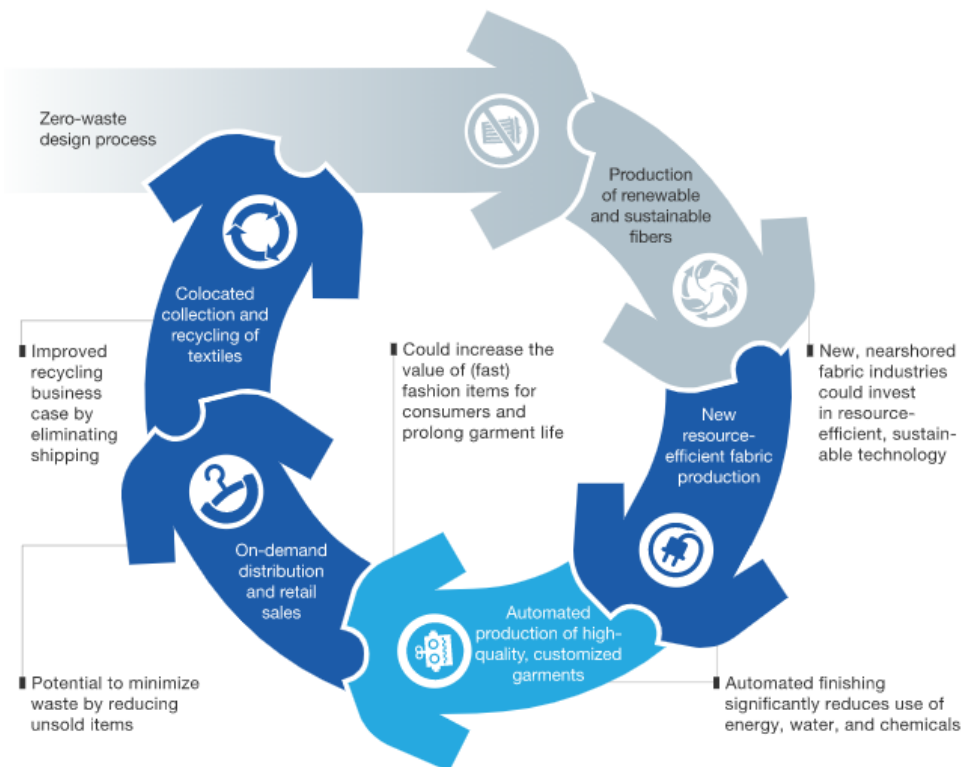
It is expected to continue to affect the industry in 2019 and beyond. Giant players in retailers such as Amazon, Alibaba, Myntra are on the progress of applying AT across various areas, and there will be close followers. The CEO from Myntra group, Ananth Narayanan, said that “for curation and assortment, Myntra is using a lot more data science to tell what will sell and it helps to extend a lot more into manufacturing and the back-end system”

(McKinsey&Company, 2019). Apparel global buyers are looking to invest in the most needed stage for adding value. For instance, with the rate of technological adapting, “India is increasingly a focal point for the fashion industry, reflecting a rapidly growing middle-class and increasingly powerful manufacturing sector. These, together with strong economic fundamentals and growing tech-savvy, make India too crucial for international brands to ignore” (McKinsey&Company, 2019).

Indeed, due to the change in customers' demand affects the change in fashion retailers, which also, in turn, affects the fashion suppliers, which are textile and garment factories. As mentioned above about the trends and shifts in the global market, mainly due to the unstable political and trade war between China and the United States, enterprises tend to apply nearshoring for their business. Nearshoring is when companies move their factories or investments to other places which are closer to local/ current markets because of rising fuel prices and labor costs. “European and US mass-market apparel brands and retailers were rushing to move as much production to Asia as possible to gain a cost advantage. Since then, the trend has been a unit-cost play, which focuses on adjusting the sourcing footprint and moving from China to even more cost-efficient frontier markets. Apparel players that have successfully done this—while still ensuring high quality, speed, and compliance—have been

able to deliver relevant products to consumers at the best prices.” (Johanna Andersson, 2018). According to the innovation of technology go along with high demand and awareness of consumers’ about high quality and environmental-friendly product, fashion retailers are gradually moving to achieve the Zero-waste circular fashion value chain as in Figure 2.1 below. In order to achieve this circular, fashion retailers go along with textile and garment suppliers need to practice nearshoring and automated distribution, marketing process go along with practice automated production closer to customers. (Johanna Andersson, 2018).

*Figure 2.1: The circular fashion value chain*



*Sources: Expert reviews (Johanna Andersson, 2018)*

At every stage of production, technology application becomes a mandatory requirement for most businesses. In the opinion of many experts in the industry, catching up with the trend of new materials and technologies will now be an essential factor to help emerging garment enterprises in Asia approach worldwide consumers, as well as increase the value of products, especially those who have already taken advantage of low-cost labor and on the way to exploit the other competencies, such as Vietnam, Bangladesh, Indonesia, India.

Along the whole value chain of apparel industry from material to production and packaging, technology and automation are applied and divided suitably according to each stage. For instance, at KITECH - VITAS Textile Technical Conference took place at the end of last June, Mr. Nam Seung Il - representative of E-Land Group (Korea), said that in the fashion

industry, the quality and speed are always given the top concerns to apparel producers and buyers, but the most important is still the material. Currently, the trend of choosing **fabric material** in the fashion industry is safe and suitable for consumers' health. Depending on the local weather conditions, consumers need to select their products. For example, in tropical countries, fabrics need to have more cool properties when worn in hot weather and must have UV protection from the sun. Besides, manufacturers also apply technology in fabric production to have more features such as quick-drying, anti-wrinkle. In order to meet the increasingly diverse needs, fabric manufacturers must develop fabric weaving technologies based on physical and scientific properties. For example, scientists have succeeded in integrating sunshine into fabric fibers to create heat, keeping the wearer warm. Recently, manufacturers have also put the fresh mint material into the cloth to cool the wearer or use chemicals to create insect repellent features for fabrics. According to Mr. Nam Seung Il, in the past, the market had a preference for cotton to make summer clothes but recently tended to switch to fabrics with nanofiber technology, helping to quickly dry sweat and create a relaxed feeling on the skin thanks to the threads produced by exclusive technology. In addition to adding features to the product, technology must also support businesses to shorten production time in apparel manufacturers because according to Mr. Le Quoc An - former President of Vitas, the life cycle of the costume is getting shorter, only from now 4 - 5 weeks, not every season like before (Xuan Thu, 2018).

For design steps, global leading buyers currently in charge of the whole process of this step. With the developments in technology such as digital design, 3D scanning technologies, or Artificial Intelligence (AI) to integrate customers, buyers, and suppliers in doing this step together. Global leading buyers may expect suppliers to deliver more digital data and presentation material along with the product. This development helps suppliers to shift from being a contractor or sub-contractor to become a partner. (Technology trends in the apparel industry)

In order to shorten production time **during the production stage**, new technology is being paid attention by different fashion enterprises as 3D printing technology. This technology not only helps to shorten the time in drawing up a drawing board (it only takes a few hours instead of 2-3 weeks), but it also shortens the time from sketching to customers to review the sample (from 30 - 50 weeks down to only 5-9 weeks) thanks to the editing operations can be done immediately. 3D printing technology is currently supporting during the prototype stage of the apparel value chain, specifically in product development step.

Moreover, Amazon recently patented a system for robot-cutting fabrics into customized orders, and “it could potentially offer as a service to the multitude of apparel companies that operate on its platform” (McKinsey&Company, 2019). Also, for the basic apparel products such as basic T-shirts or essential outerwear, where one of the three conditions met for adapting the automation is repetitive of tasks with minimal changes during production. Another advanced technology for the cutting process is automatic cutting machine - Gerber Plotter. Gerber automatic cloth cutting machine supports automation in fabric cutting, along with other specialized auxiliary features such as being able to connect with wireless and access to computers, capable of reading cutting data from diagrams and compatible with all CAD systems. Besides, the machine is also set up with a black box to monitor the operation process & automatically check the machine when an error occurs.

During sewing process, Sewbot is one of the new accessible robotic technology in the United States, which is a clothes-making robot produced by Softwear Automation, with the expectation of producing “1.2 million t-shirts per year at a price that is competitive” (Peters, A., 2017) with manufacturing and shipping the same material in low wage locations. Large-volume buyers such as Walmart have expressed interest in the technology, partnering with Softwear on trial projects. In the case of the Sewbot for t-shirts, its developers claim that one operator overseeing a t-shirt line can carry out the tasks of 10 operators in approximately half the time (World Trade Organization, 2019). Another range of technology support for this stage is label applicator, round cutting machine for scallop designs.

**During packaging and storage stages,** safety tracking, checking, and controlling are integral parts. Automatic applying within these stages help any manufacturing firms to achieve better productivity and get higher investment and collaboration with global buyers. Nowadays, in order to keep pace with technological development, several garment factories around the world have applied the whole automatic process from packing to storage the products in order to integrate with further steps in the value chain, such as shipping, distributing and retailing in retailing stores. Lots of merchandise industries have the resolution for this integration, that is Identification technology using radio waves (radio) RFID. This technology is considered to be the future of the global value chain. For apparel manufacturing and retailing, every item of the product will be attached a small chip directly into its labels or into the plastic bag from the packaging stage to check-out stage in retailers’ stores. RFID can be information-integrated from production, packaging, quality control, warehousing, logistics, shipping, distribution and sale of products, providing users with real-time dynamic tracking; realizing useful and timely

monitoring and management in all information levels. It can also help businesses solve all problems, thereby reducing overall costs and improving competitiveness. This chip is using *Radio Frequency Identification* (RFID) technology, which is a technology that uses a radio connection to identify and track identification tags attached to items automatically. The factory will base on the computer platform to use RFID database to keep track and check the quantity for each purchase order. There are many fields has applied RFID, such as the library, retail, and transport. However, due to the high cost and the trend of technology development at that time, RFID did not develop as expected, even being considered a severe stage. In the current period, RFID is entering its second era, the era of enormous growth in the 4th industrial revolution, becoming an essential component of the IoT trend and promising hybrid future in today's highly interactive environment.

Other technologies which are popular during packaging are the metal detector or folding machines. Metal detectors are suitable for the final steps of labeling, folding, and packaging in order to detect leftover needles or other kinds of metals in case of negligent from workers. This case may cause severe accidents for the final users, and some of the leading buyers who are working on new-borns and kids' products have put this machine into their manual lists. During the packaging stage, folding is one of the most time-wasting steps. Similar to Sewbot, new technologies have been applied here to handle faster and more accurately. There is a range of automatic apparel folding machines such as Amscomatic's K-950 for shirt folding, and LS-350 for long-sleeve t-shirt folders. Factories may not qualify enough to work with them if they do not equip themselves for this kind of machine.

One of the ten trends within the Fashion industry from now on is finding the solution for the gap between discovering the items and purchasing them. This gap affects significantly to the fashion retailers in shortening lead time, "improved availability of advertised products and new technologies such as visual search" (Business of Fashion, 2019). To deal with this time pressure, new technologies such as robotics and 3D printing may enable manufacturing factories to shorten some steps within production processes. Generally, most garment and shoe manufacturing factories are not highly automated, and state-of-the-art equipped. Notably, in emerging countries in Asia, factories' strategy to attract more investment from customers based on their cost advantages using high-intensive labor rate, such that, they are not willing to trade off by putting more money investing in technologies instead of low-wage workers. "A final critical element that makes robotic automation more difficult in apparel is the fact that fabrics are flexible (drape, soft). Thus, the textile and garment industry find it is

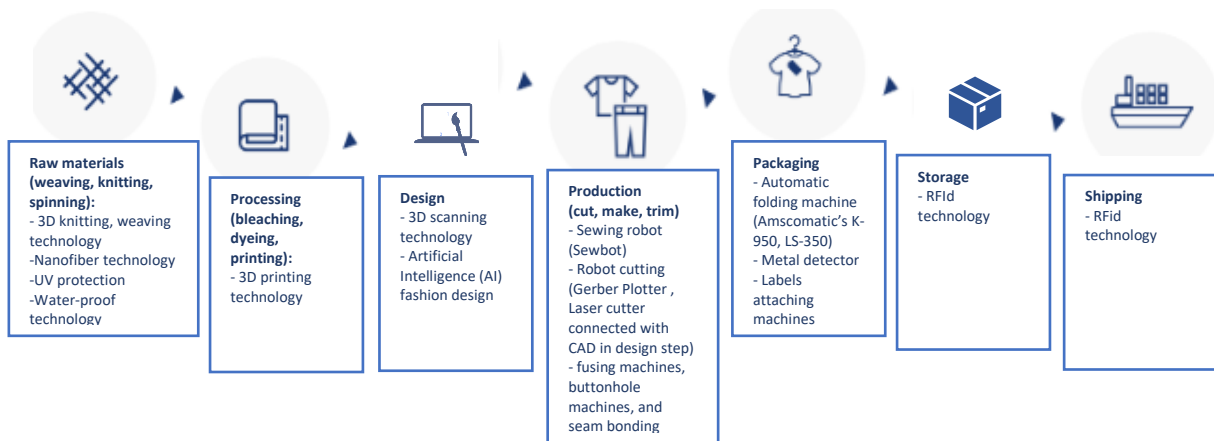
challenging to handle through automation because tension needs to be applied in various degrees depending on the desired aesthetics of the product. The look and feel are critical drivers of apparel purchasing, so if there is a compromise between these critical elements and automation, they are far less likely to be used (World Trade Organization, 2019).

Similarly, given the high cost of investment, apparel manufacturers will be hesitant to purchase machinery until it is proven to be a reliable replacement for human workers. There are nascent technologies that might enable firms to address some of the challenges associated with handling soft materials. Even with these developments, Crystal Group, the largest clothing manufacturer in the world, has expanded production in Bangladesh and Vietnam, with its CEO explicitly stating that robots could not compete with humans” (Frederick, S., 2018)

By taking advantage of the maturing and overcoming some of the early limitations of technologies, China remains a giant apparel maker even as its labor’s wage rise. Indeed, Chinese apparel makers are moving to automate quickly, and they aim to move up the value chain by adding more value to their products, not necessarily depend on labor but in pursuit of speed.

With technology, textiles and garment industry is in a very different form than the labor-intensive industry as before. “Big data, combined with production automation and product technology innovation, has the potential to make manufacturing more precise, as well as more local and sustainable. Potential benefits include higher speed, faster delivery times, and lower cost than currently, as a result of reduced shipping times and lower stocks” (Technology trends in the apparel industry). All of the steps from raw materials to customers’ hands will be integrated and linked together, which provide the best information for the next steps within the value chain to react in a fast and accurate way. The following figure is an example of aggregation of Technologies and Digital solutions designed for each step within the textile and garment value chain.

Figure 2.2: Textile and Garment Supply Chain with Technology integration



Sources: Author's compilation

In a nutshell, cost leadership is no longer the only important factor for apparel investors in finding sourcing places anymore. Technology crept in manufacturing and managerial procedures within the whole value chain of the textile and garment industry. By the quick speed, it gradually replaced human beings and increased a lot of capacity and productivity. The problem is that all these changes will reduce the number of jobs for many people. When factories face closure, communities will lose income, and the economy will struggle. The question now is what policymakers should do to deal with this challenge. Countries such as China surpassed their higher wage issue to remain the leader in any manufacturing industry (Heshika Deeghawathura, 2018); India day by day taking advantage by strong economic fundamentals and growing tech-savvy, make it becomes a formidable opponent for other Asian countries. Technology companies must need better cooperation with garment manufacturers to manage future platforms. As traditional factory work evolves, technological-related jobs will become more critical. Just like the sewing machines are broken, or how to operate garment and clothing printers will also need such workers.

Finally, to help ease the transition from manual labor to modern production, businesses and governments must begin to improve the technological capabilities of current employees. If today's workforce wants to be compatible with the economy of the future, employees will need new skills to contribute to the economy. However, to accomplish any of these, leaders in developing countries face a complicated truth: large-scale, low-cost labor is no longer a strategic advantage in the global economy. Reshaping industrial policy is essential. Governments should support any trade agreements that reduce the impact when

manufacturing industries are lost while laying the foundation for the transition to higher-tech industries (Heshika Deegahawathura, 2018).

## **2.2 Key factors for Global buyers affect global buyer in making outsourcing decisions**

Apparel buyers account for an array of factors when making sourcing decisions that are specific to the supplier country and firm; and, although variations exist, several common trends emerge.

### **2.2.1 Cost-related factors**

Cost and capacity competitiveness of the garment manufacturing firms are becoming the prerequisites for outsourcing decisions from global leading buyers. Base on the affection of stepped-up competition in the fourth industrial revolution, these two firm-specific criteria ranked the highest in importance in all buyer surveys reviewed.

Related to cost factors are the ability of one firm in sourcing the sufficient source of raw materials, labor's wage and rent and utilities (Gladys Lopez-Acevedo and Raymond Robertson, Editors). Among these components, raw material accounts for the most substantial part and play an essential role in the quality of one garment article. As such, in order to reduce the cost of the finished garment, raw material costs are one of the critical elements. Fabric, lace, accessories are what needed for a finished garment article, whereas fabrics account for nearly 80 percent of the garment's value and the critical element to determine the final product's quality. The raw materials can be sourced within the domestic market or imported from foreign countries. Unlike apparel, textile production is more capital, skill, and scale intensive, which can pose a challenge to establishing domestic backward linkages (S. Frederick, 2014). For example, although being the top countries in exporting garment, Bangladesh, Vietnam, India still imports a vast amount of raw materials from other countries such as China, India. Specifically, Vietnam garment industry is still relatively dependent on imported raw materials (textile and garment materials import accounts for 38% of total import and export value, according to the General Department of Customs) (Bui Thi Thuy Duong, 2018). Import of material fabrics accounted for the highest proportion (accounting for nearly 60% of import value). Vietnam's garment manufacturing industry participates in the global value chain of apparel mainly in the processing stage (CMT), accounting for 65% of the market share. This dependence on importing fabric and other raw materials is not only because of the quality and products' diversity but also competitive prices. Mainland China with the considerable market share in textiles industry thanks to the developed infrastructure,



a significant number of textiles firms help to push themselves in the tension of competition in product's categories with unbeatable low price.

Thereby, in order to achieve the expected price, range from global buyers, a lot of apparel exporting firms must look around for other cheaper resources of raw materials. Furthermore, buyers often nominate textile mills to ensure consistency and negotiate pricing. This situation leaves countries with only a few options: ensure import tariffs are low from the first supplying countries, encourage foreign investment from nominated mills within the country, or ask buyers to add domestic textile firms to their list of approved textile suppliers (Gladys Lopez-Acevedo and Raymond Robertson, Editors). Below chart from Trading Economic in 2017 gives a more transparent look into the market share of China's Exports of knitted or crocheted fabric. Asian continents account for nearly 71 percent of China fabric exporting, following is America with 14 percent, Africa and Europe are in third and fourth place with 7.2 and 7.1 percent respectively (Trading Economics, 2017).

Figure 2.3: Market share of China's Exports of knitted or crocheted fabric.



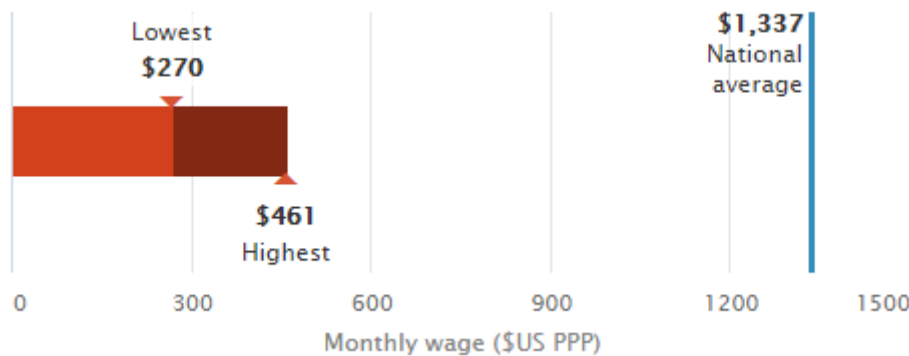
Source: Trading Economic 2017

Labour's wage accounts for another significant part of finished garment's price after fabrics' cost. Because apparel is one of the most labor-intensive industries, thus, based on the buyer survey ranks from Birnbaum, global leading buyers tend to source for countries which have intense labor's availability and cheap labor source. The availability of labor force also related partly to the capacity of one factory. According to the statistics of WTO, Asian countries is the home of cheap labor, suitable for the garment industry's investments. Once the factory has a good base of labor, they can have the ability to flexibly their order quantity.

Typically, China and most of the developing countries in the Asian region, where textiles and garments are one of the leading industries for their GDP, such as Cambodia, Vietnam, India,

their garment worker wages often lower than the national average wage. Correctly, we can see what the International Labor Organization (ILO) in 2017 estimates a garment worker is earning in comparison with the average national wage. China showed the highest distance in the axis of the garment wage compared with the national average wage as below (ILOSTAT - Leading source of labor statistics, 2017).

*Figure 2.4: China's garment wage compared with the national average wage.*



*Source: International Labor Organization (ILO) in 2017*

With the same result as China but in the shorter distance, Vietnam also has an unbalanced wage range between the garment industry with the others. A garment worker typically makes minimum wage or less, with the wage range is fluctuated between \$248 for the lowest wage and \$352 for the highest wage in comparison with the national average wage is until \$583. In a better situation, garment worker wage in Indonesia have a more comprehensive range than above-listed countries which go from the lowest is \$255 and the highest is \$642 whereas \$603 is the national average wage (ILOSTAT - Leading source of labor statistics, 2017).

However, lower wage is not proving with excellent productivity and high export value. China provides evidence that high wages translate into higher productivity for the labor force and with their highest garment worker wage among Asia countries, China still shows the highest garment and textiles export value with no close competitors (Wages and productivity in the garment sector in Asia and the Pacific and the Arab States).

### **2.2.2 Non-cost factors**

Whereas price is essential, buyers do not necessarily buy from the supplier that offers the lowest price. Non-cost factors are driving purchasing and sourcing decisions among European and United States apparel companies. These factors encompass capacity, consistent quality,

productivity, reliable delivery, acceptable lead times, and broader non-manufacturing services such as social compliance and sustainability.

**Capacity** is one of the most critical criteria in deciding on choosing a trading partner for sourcing. Estimating the production capacity of a garment factory is the first step taken by the buyer. If buyers know the production capacity of any garment factory, they allocate orders proportionally to the supplier. Thus, calculating the production capacity is a fundamental issue in the ready-to-wear garment (Prasanta Sarkar, 2018). Of course, each kind of buyers and garment categories requires different capacity level for their trading partners. In most of the emerging Asian countries, global leading buyers tend to place orders with large quantity and basic or straightforward design, it does not require dedicated labor skill but mainly focuses on placing in the factories which offer the flexibility. Notably, the apparel industry in the seasonal industry, factory which offer functional capacity will satisfy customers in receiving orders in both large and small quantity, during the on-peak and off-peak seasons. The capacity of one factory is related to the availability and productivity of the labor force, the state-of-art equipment, the readiness of transportation, and well-established industrial clusters.

**Quality** is one of the most important criteria after costing competitive affecting to the consideration of leading buyers. Meanwhile providing the affordable source of products, suppliers must also be able to offer quality products consistently. As mentioned above, the cost of raw material constitutes the most significant part of the product's cost. Similarly, the quality of raw materials determines the final product's quality. In order to maintain the right quality products, firms need to control the right sources of raw materials. Countries, which have substantial domestic resources of supply will have competitive advantage controlling the input's characteristics. For example, the leadership of China in garment industries all over the world partly depend on the tremendous supply of fabric and accessories resources. Furthermore, the skill level of the labor force, the dedication of controlling team also affecting the quality of the product.

**Lead time, reliability and productivity improvement through the support of technology:**

Lead time is “the time between the initiation and completion of a production process” (Derek Huether, 2017), specifically in the garment industry, measuring lead time is an initial step, it is when a buyer places an order until the finished garment shipment is received. Lead time somehow reflects the productivity of labor and the efficiency of the production process within the firm level. Lead time is also related to the organization of the supply chain, the availability

of textile and accessories input, and the logistics network of a company. Looking at the average lead time of one industry, we also need to evaluate the location, infrastructure, including transportation and customs procedures of those countries. That is the reason why, most of the garment manufacturers located intensely in the area where has not only the sufficient availability of labor force but also own the excellent connection within the supply chains such as good transportation, available customs network, and big harbors.

However, the lead time differs considerably by product, size of shipment, and distance to market. Based on survey and interview results related to lead time and reliability (Birnbaum 2013; Global Apparel Buyers 2014), it divides countries into the following groups, ranging from most reliable to weakest: (1) China, Vietnam, and Indonesia; (2) Sri Lanka and Cambodia; and (3) Bangladesh, India, and Pakistan (Gladys Lopez-Acevedo and Raymond Robertson, Editors). China consistently possesses the shortest lead times throughout the last decade (Muzzini, Elisa, and Gabriela Aparicio, 2013). Factories in China are cited as having the best productivity levels, technology, speed, and production capacity, which are all enabled by well-established industrial clusters and infrastructure systems (Frederick, S., & Gereffi, G., 2011). Moreover, with the steady value-added source of domestic textiles, China shows the best in competitive advantage compared to other countries within Asian areas. As mentioned before, other Southeast Asian, and South Asian countries such as Vietnam, Pakistan, and Bangladesh are still depending tremendously on importing raw materials from China. By improving domestic production of textile, those emerging countries will less dependent on mainland China and can improving their lead time of shipment at the same time.

Another non-cost factor is productivity, which directly connected to the decision of buyers to a manufacturer. Productivity is related to the number of garments produced by a line of sewing machine operators in a specific time frame. For instance, productivity is the ratio between output and inputs (The Apparel Industry's 18 Most Critical Metrics). Labor productivity also affects to the lead time of shipments. There is an intertwining between reliability, lead time, quality, and productivity in the country.

To some extent, those aspects stem from inefficiencies in the domestic textile supply. Local textile mills mostly provide only greige goods, so apparel factories must purchase these unfinished fabrics and send them to converters to be dyed and finished. However, after processing, it is not uncommon for factories to discover the fabrics are damaged, meaning that the factory must replace the fabric, take the loss on the initial purchase, and ship the product late, or use the damaged fabric and hope the buyer does not notice. In either case, the apparel

supplier will be viewed as unreliable (Birnbaum, D., 2013). Modern technologies are the solution to improve productivity and reliability. Today's productivity is competitive mainly by science and technology (S&T), not by the skills of ordinary workers as before. Because no one's skill can offset S&T progress, in other words, no one can increase ten times the productivity as much as technological productivity.

Industrial revolution 4.0 creates new opportunities for the textile and apparel industry worldwide. In the past, developing countries with a large workforce have considered labor-intensive industries like textiles and garments are low value and low-income industries. These industries are core industries to create jobs. However, with the quick and broad applied of the innovation of Industry 4.0, labor productivity per capita will improve very quickly. This change with Industry 4.0 is not similar to the usual productivity increase through a change in the machine's life and speed as has been going on for more than the past two decades. This time with the application of automation, robots, and the use of Big Data, the ability to increase productivity will become exponential rather than arithmetic as usual. Therefore, industries that are still considered to be low-income, such as textiles and footwear industries, will be able to rapidly improve their workers' incomes, which can approach equivalent to other industries. The development of technology is also an excellent opportunity for the industry to continue to attract a large number of employees, develop more sustainably, and avoid labor fluctuations.

**Social compliance and sustainability:** Nowadays, companies all over the world are increasing awareness of the whole stakeholders. Firms in every industry, including textiles and apparel, are pushing themselves to become the Corporate Sustainability Responsibility (CSR), which is compliant strictly to the joint stakeholders' requirements. More free trade agreement from developed countries flows into emerging developing countries, including environmental barriers, sustainable development, and green development. These agreements also require businesses to strive to improve not only the product quality but also the production process of the product. In case enterprises pollute the environment during the production process, do not apply measures to reduce waste, save energy, natural resources will be entirely at the risk of being stopped receiving or being rejected orders, especially for orders of large-brand apparel enterprises in the world. Every apparel enterprise needs to put their attention into social compliance and sustainable development as soon as possible due to the following two factors. One is nowadays, trading partners, major apparel brands in the world, are turning their priority orders for green businesses. Secondly, product consumers

around the world have started to consider the environmental and social responsibility factors of manufacturing enterprises and finally, some brands of garments have taken action to participate in the goal of reducing gas, greenhouse emissions.

One of the most severe issues related to the social compliance are fire safety, occupational health and safety, wages, labor contracts and fundamental labor standards issues such as discrimination, treatment, forced labor, child labor, and freedom of association and collective bargaining (in particular, with regard to the intervention of business management in trade unions). All of these compliance aspects are putting people, especially labor, in the central of protection. Labor-related directly to the quality, productivity, and capacity of any industry, thereby, by complying the social requirements, firms will create more value-added into their products.

All in all, with the higher awareness and passion for social and environmental causes from younger generations, who are the primary customer base for most of the fashion brands, resulting brands to become more responsible for social compliances. Consumers from some, but not all markets will reward players that take a firm stance on social and environmental issues beyond traditional CSR (Business of Fashion, 2019). The strict output requires for the bottom-end within the value chain causes the strict input standard from the top-end such as raw material sourcing and garment manufacturing. As such, this trend of high social awareness impact to the change within the whole chain of garment production.

### **2.3 The reflection of determinants factors into garment auditing sessions.**

Generally, many factors contribute to buyers' decisions. Nevertheless, for the fast fashion and medium price fashion retailers, **cost** and **capacity** are the two prerequisites for global apparel buyers looking for one firm to outsource. In the competitive market of ready-made apparel and fashion, comparative prices, fast and flexible order quantities in order to keep pace with the fast fashion trends, requires apparel outsourced factories to have good cost base and adequate capacity (the availability of workforce, the short lead time of material inputs, adequate production lines with suitable automatic technological equipment).

However, satisfy these two conditions are never enough for one factory to get the orders from buyers. If manufacturing companies want to have long term cooperation with global leading buyers, they need to follow their manual standards and achieve their social and technical requirements strictly. In-charged party will assess the performance of factories through the Audit Session, aim to raise the awareness of one firm in the action of complying with the sake of all the related stakeholders. The audit is a step of analyzing and assessing the ongoing

activities of the supplier in order to acknowledge the non-conformities in the process compared to the regulations, ISO standards, and commitments between suppliers and real companies. The purposes of audit are assure the quality of products/ services of suppliers in accordance with regulations, standards and requirements of the company, establish a total quality control system provider, evaluate and compare the capacity of suppliers objectively, minimize issues related to product / service quality during use, promote and strengthen long-term healthy business relationships of suppliers and companies.

The initial steps of a supplier audit are gathering information and requirements for suppliers such as contracts, capacity records, product specifications, complaints. Next, check the above records and determine which are the selected requirements and regulations during supplier inspection. The auditor can ask suppliers to submit additional process documents related to quality, production for the best preparation. The final step is to reach the agreement in both parties about the determined time, place, and team to perform the audit. The audit session can be done directly by buyers, indirectly via vendors or via the nominated third party such as Intertek, SGS, Bureau Veritas, or WRAP.

According to the content of an audit, Technical audit and Social audit are the two main parts when a global apparel buyer conducts their audit assessment with a chosen factory.

### **2.3.1 Technical Audit**

Technical Audit (TA) is a very crucial task of garments manufacturing. Apparel buyers usually will conduct a technical audit before placing an order to any garment's factory. This session will give an overview of what is a technical audit in the apparel industry and the purpose of technical audit fulfill. The audit must be done routine wise from time to time. Through Technical Audit, auditors an assurance of ability to make export quality garments of garments maker. Technical audit checklist can vary buyer to buyer (A.M. Amirul Islam, 2018).

Typically, technical audit in apparel industry related to the quality of products as well as the quality and standard of the whole process. One audit session will start by checking the factory warehouse for inputs incoming and storage, the trim and accessories storage areas until the packaging and finished goods places. Other audit sessions go along strictly with fabric inspection, cutting, sampling and pre-production (such as fabric relaxing, fabric wrinkle test, sample checking and approving,), fusing, sewing, finishing, final inspection, and quality control. Technical audit is conducted to ensure the quality control system of the chosen factory, generate the acknowledgment for factory about its effectiveness, efficiency,

improvement, and customer satisfaction, ensure the compliance of customer quality standards. Besides that, a technical audit also helps manufacturing sites to get excellence and sustainable results in the long run of customer product quality and as a supplier (A.M. Amirul Islam, 2018).

For instance, each buyer will have different requirements and standards in their auditing session with the outsourced factory. In general, most of the apparel buyers will zero in all of the above sections. During factory warehouse and trim/ accessories storage areas checking, the auditor will focus on the product identification, storage items tracking system, and inventory. Whether trims, accessories and fabrics storage using pallet or rack; factories need to classify all the raw material must in color, type with the approved trim card for every running style attached. Besides, the monitors will ask for the related documents in every step and have a direct interview with the in-charged people about the frequency of check and inspection of those fabric and materials. During fabric inspection and procedures, the auditor will check for the fabrics inspection system, procedure, and report (follow 4 point or 10-point system<sup>5</sup>), shrinkage test accuracy, lightbox for shade evaluation (A.M. Amirul Islam, 2018) and color evaluation, shade grading as per customer requirement. In case buyers conduct a technical audit before placing any orders, they will check the production process according to the current orders which factory is handling with other customers. Creating pre-production meeting for every style, checking keeping documents, sampling and pattern correction before starting the bulk production is typical for sampling and pre-production auditing. The auditing of sewing, fusing, cutting and finishing steps are the most detailed technical checking among others. Auditors will stripe and check for the matching indication (matching color shading between parts of the garment), pattern measurement for verification, process sequence of fabric cutting, fabric relaxation procedure, and report documentation. Even the smallest tools such as needles and thread count, such that, every factory must apply strictly the needle control as well as knife and scissors policy (Kate Spade&Company, 2014). During a working shift, there must be someone in charge for this procedure, checking the output of needles, knives, and scissors at the beginning of a shift, and the exact number of inputs at the end of a shift. This procedure helps to control the loss needles which may cause serious injuries or accidents. The factories need to always ready to show these documents which keep records of

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<sup>5</sup> The two most widely used fabric inspection systems in garment industry to determine the quality of fabric rolls. These inspections will just check the small percent per whole roll and base on the classification table to define the defect points.



this information to the auditors when needed. Besides, mock-ups<sup>6</sup> (with written instruction) or JQS<sup>7</sup> (Job quality standard) for every sewing operation also plays an important part. Auditors will check garments for construction, seam quality, and overall garments appearance. There are comparisons between garments measurement, construction checking with the approved samples, and customer provided specifications. Besides, the machine and equipment related to these processes are also involved, such as protective equipment, cutting safety materials, i.e., hand gloves, masks.

“End of an audit, auditing party make a report with their comments where requirement does not meet as per standard or customer requirement. Audit result by the scoring system by marks (Performance rate) or classify Good, Alert, and Risk. The supplier takes corrective action as per third party auditor or customer recommendation for their customer requirement” (A.M. Amirul Islam, 2018).

### **2.3.2 Social Audit**

Nowadays, leading global buyers put more of their concern into social compliance and sustainability of a factory. Social audit of the so-called compliance audit, which is very important for garment manufacturing factory. To get an order from the buyer, garment enterprises must pass the Social/ Compliance audit otherwise the buyers may be reluctant in transferring the high-value orders or even may cancel the order if the company fails the compliance audit. During this audit, the assessment will focus on evaluating the specifically designed factors, which are not directly but indirectly affect the high-quality products while achieving production goals and maximizing profits. There are variations in the standards and regulatory authorities which buyers choose to follow in the compliance evaluation. Social compliance mainly focuses on the stakeholders' sake and put the people and environment in the center of the assessments, and thereby it is quite costly. Especially, garment factories can find the social compliance is challenging “to achieve and are sadly not always being implemented in apparel factories around the world” (SGT group, n.d.). Additionally, apparel and garment factories are located predominantly in emerging countries, such as China, Bangladesh, Vietnam, and India were cheap, forced, or child labor often goes undetected. There are many garments, and apparel factories around the globe still do not realize the

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<sup>6</sup> A model or replica of a machine, structure or sample of a garment, used for instructional or experimental purposes

<sup>7</sup> Job quality standards are requirements that subsidized companies create jobs that meet certain criteria, including wage levels, availability of health insurance, and full-time hours.

benefits and higher revenue in the long run related to adhering to social compliance regulation, and there are many unfavorable consequences in case of not meeting the compliance standard or working with noncompliant factories.

With the poor working conditions and unbalance between the benefit to the business and benefit to the workers found in most of the garment factories in developing countries, the most significant challenges faced is a high staff turnover rate, particularly in China is 30 percent (Bonnic Chung, n.d.). This rate indirectly involved the costs of replacing staff such as cost of retirement, selections, training as well as a loss of productivity.

Human resource is still playing a hardcore part of any apparel industry, by following the social compliance standard, it means the labor force can have a safer environment and steady working conditions. It helps to push their productivity at the same time increase the loyal workers, who will stick to the firm in a long time with the higher commitment and performance so that somehow can reduce a factory's staff turnover. There is a payoff here for any garment factory to consider in handsomely invest in the safety standards, better working conditions and environmental-friendly treatments instead of spending money on training workers, who not even sure work for the company in the long run or not and on repairing defects and poorly made by an unmotivating worker. "Being known as a brand or organization that is socially compliant also has favorable effects on brand reputation and customer loyalty" (SGT group).

Different types of social/ compliance audits and assessments may be undertaken to evaluate a manufacturing site. "The use of these will vary depending on factors such as the outcome of risk assessments, a buying company's relationship with its suppliers, audit costs, and the history of a site's performance. A buying company may deploy several different methodologies across its supply chain" (SMETA, 2017). Some of the most popular and prestige social compliance standards applying for garment manufacturing are SA8000 standards, The Business Social Compliance Initiative Code of Conduct (BSCI), SEDEX Members Ethical Trade Audit Methodology (SMETA), WRAP 12 Principles, Primark Code of Conduct or Better Work. In general, the indifferent things of listed standards are a focus on the labor working condition and law; more extended principles are about Environment and Business Ethics.

For example, WRAP stands for Worldwide Responsible Accredited Production - the name of the organization that recognizes social responsibility in global production. The purpose of forming WRAP is from the desire to establish an independent and prestige agency to help

garment and footwear factories around the world ensure that they are operating under local laws and international standards accepted for ethical practices at work. In the mid-1990s, when a series of reports reflected that labor exploitation occurred in many garment factories around the world, including overtime hours, unsafe working conditions, and wordlessness. Reject some legitimate benefits as required by workers. Realizing that such a situation could be a threat to the entire apparel industry, the American Apparel Manufacturing Association (now the American Apparel and Footwear Association) has coordinated activities in response to this problem. A task force has been established and has received support from various parties, including brands, suppliers, NGOs, academics, and agencies government officials. Based on their findings, the task force proposed an initiative to create a third organization independent of government or company influences to identify and mitigate the conditions of exploiting workers at factories all over the world. The 12 Principles of WRAP encompass (WRAP's 12 Principles):

**Compliance with Laws and Workplace Regulations:** Facilities will comply with laws and regulations in all locations where they conduct business.

**Prohibition of Forced Labor:** Facilities will not use involuntary, forced, or trafficked labor.

**Prohibition of Child Labor:** Facilities will not hire any employee under the age of 14 or under the minimum age established by law for employment, whichever is greater, or any employee whose employment would interfere with compulsory schooling.

**Prohibition of Harassment or Abuse:** Facilities will provide a work environment free of supervisory or co-worker harassment or abuse, and free of corporal punishment in any form.

**Compensation and Benefits:** Facilities will pay at least the minimum total compensation required by local law, including all mandated wages, allowances & benefits.

**Hours of Work:** Hours worked each day, and days worked each week, shall not exceed the limitations of the country's law. Facilities will provide at least one day off in every seven days, except as required to meet urgent business needs.

**Prohibition of Discrimination:** Facilities will employ, pay, promote, and terminate workers based on their ability to do the job, rather than based on personal characteristics or beliefs.

**Health and Safety:** Facilities will provide a safe and healthy work environment. Where residential housing is provided for workers, facilities will provide safe and healthy housing.

**Freedom of Association and Collective Bargaining:** Facilities will recognize and respect the right of employees to exercise their lawful rights of free association and collective bargaining.

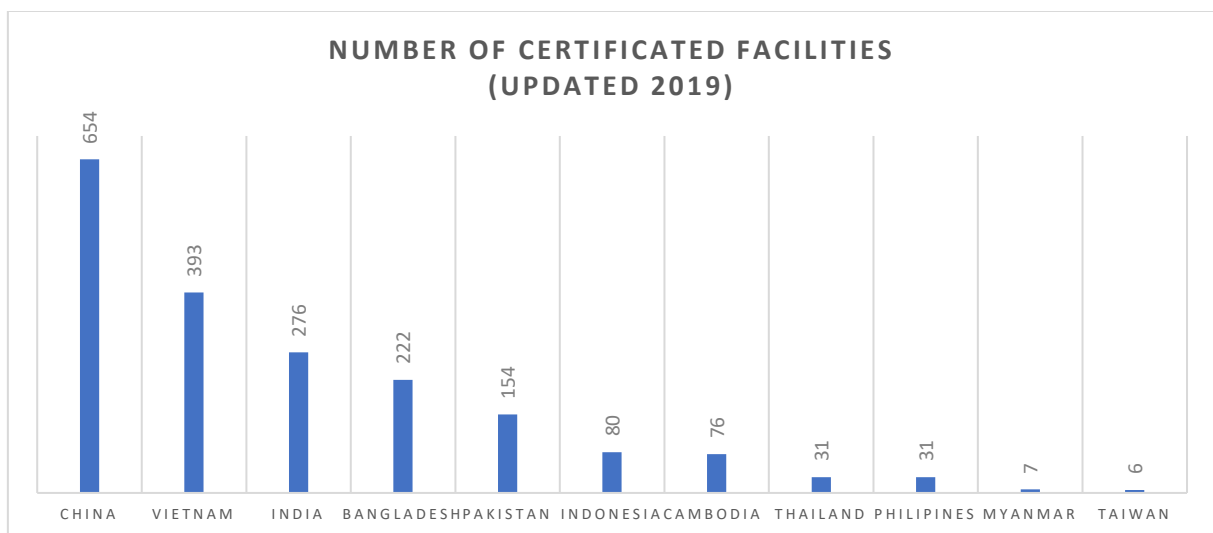
**Environment:** Facilities will comply with environmental rules, regulations, and standards applicable to their operations, and will observe environmentally conscious practices in all locations where they operate.

**Customs Compliance:** Facilities will comply with applicable customs laws, and in particular, will establish and maintain programs to comply with customs laws regarding illegal transshipment of finished products.

**Security:** Facilities will maintain facility security procedures to guard against the introduction of non-manifested cargo into outbound shipments (i.e., drugs, explosives biohazards and/or other contraband).

Above all, 12 principles of WRAP is the main framework of all other standards and principles. There are still some justifications which depend on the different buyers. Below is the newest Map box of WRAP in 2019 show the number of textiles and apparel certificated facilities:

*Figure 2.5: Number of textiles and apparel certificated facilities in Asian countries (2019)*



*Source: Compiled from WRAP map box (WRAP Compliance, 2019)*

China still predominates in the number of factories which is qualified for compliance according to the WRAP standards, nearly double fold with the closest countries, Vietnam with 393 facilities. India and Bangladesh, the two emerging countries in the textiles and apparel industry possessed a similar number of certificated facilities with 276 and 222 respectively.

As mentioned above, even though factories around the globe acknowledge the benefits and high rate of profit in the long turn once applying the social compliance code of conduct. Moreover, even though set compliance standards exist, garment factories still found in

violation of social compliance and are charged on counts of unfair wages, extended working hours, exceeding local overtime limits, health and safety violations and more. Global consumers are paying more attention to the workers behind the scenes of their products. In a 2015 global survey conducted by Nielsen, 66 percent of respondents indicated they were willing to pay more for products and services that come from socially responsible companies (Nielsen, 2015). Social compliance is challenging to achieve, but working with trading partners, who have sustainably and ethically - made garments are increasingly winning the favor of more socially - conscious customers, minimizing the consequences of not meeting social compliance standards and helping to establish an improvement plan going forward (SGT group).

## **Chapter 3: Vietnam's garment industry and its performance within the Global Value Chain**

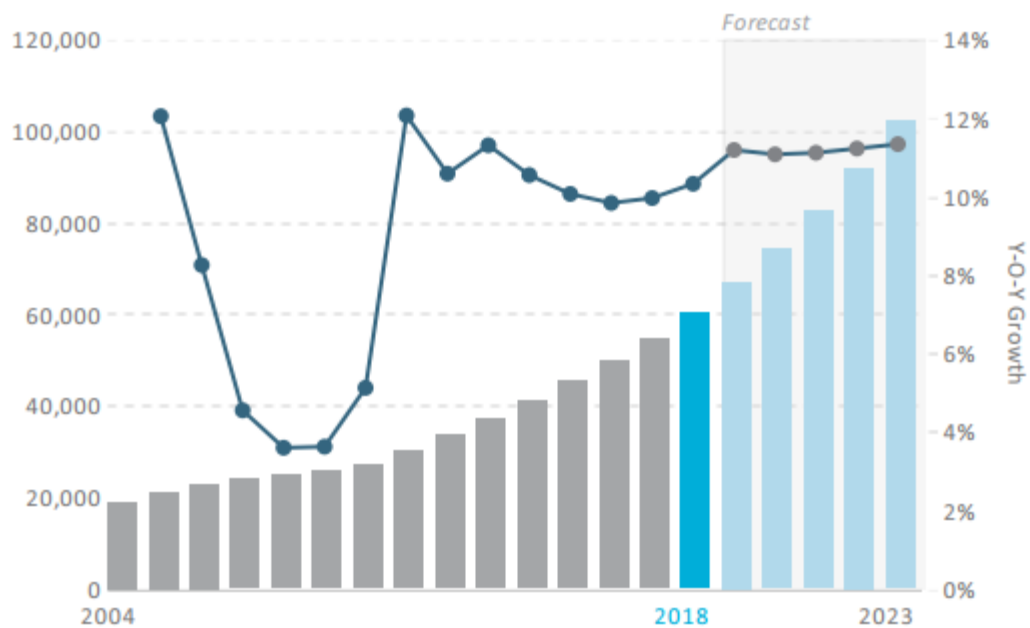
This chapter provides the present condition of Vietnam's garment manufacture, in which the overall information about the market size, primary market, main products, number of trading partners and the current position of Vietnam within the global value chain. Moreover, based on the factors, which affect the outsourcing decision of global leading buyers raised Chapter 2; the author will do the benchmarking between Vietnam with its other close competitors along with surveying global leading buyers. Besides, the author's original aggregation data from audit reports at the end of this Chapter will reveal some of the drawback of Vietnam's garment industry, which hinder manufacturing sites from moving along to the higher value-added of the global value chain and achieving higher valuable orders from trading partners.

### **3.1. The present condition of Vietnam's garment manufacture and how globalization has an impact on it**

Vietnam is a Southeast Asian country, with more than 97,6 million inhabitants (Vietnam's inhabitant, 2019), being the “world's 14th most populous country. Bordering the Gulf of Tonkin, Gulf of Thailand, and the South China Sea, as well as China, Laos, and Cambodia, Vietnam lies in a lucrative geographical location from trade perspectives” (Mausmi Ambastha, 2018). Country's 69.3% of the population belongs to the age group of 15–64 years, making the median age of the country 31 years. Also, with 35.92% urbanization, 94.52% literacy (age 15 and over can read and write), and a stable political system, Vietnam has become an attractive investment destination (Vietnam's inhabitant, 2019).

It is a densely populated developing country, transitioning from a rigid centrally planned economy to a more industrial and market-based economy. Country's GDP was \$244.95 billion in 2018, with 32.7% of it being an industrial contribution. Vietnam's 2018 GDP growth was 8.64%, reflecting its strong domestic demand and manufacturing exports (GENERAL STATISTICS OFFICE of VIET NAM, 2018). Vietnam is an emerging country in the global textile and apparel industry. The figure 3.1 below shows the sale of apparel from 2004 to 2018. There was a sharp downturn during the global economic crisis in 2008, yet it saw a recovery in the next ten years later. “Vietnam's garment sector has seen speedy and sustainable development over the last few years, which have played a crucial role in the country's socio-economic development” (Passport, Mar 2019).

Figure 3.1: Vietnam's Sales of Apparel from 2004 to 2018 and the next five-year forecast (2019-2023) (VND billion)

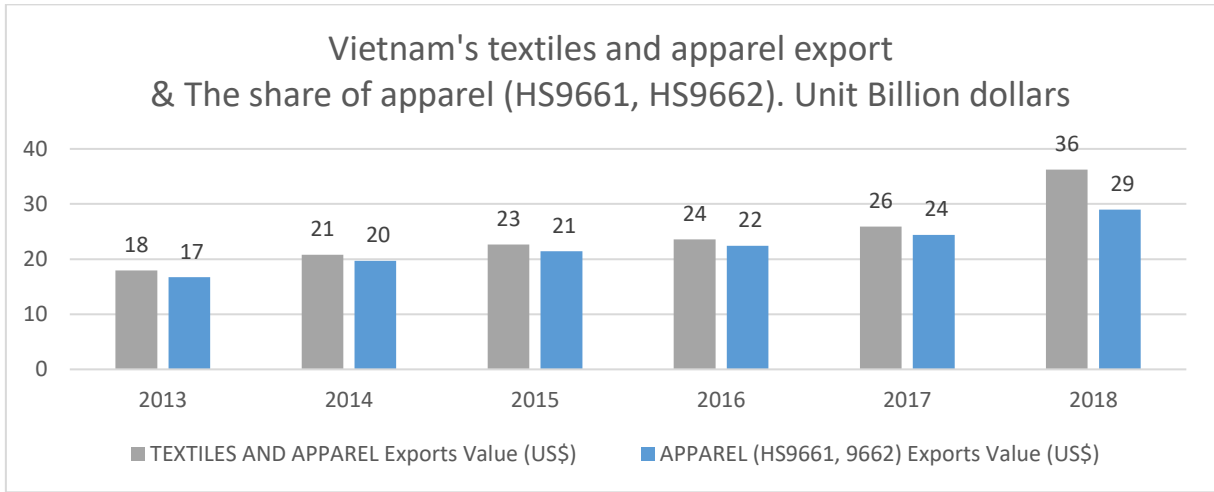


Source: Euromonitor, 2018

Around 6000 garment manufacturing firms are operating in Vietnam, the total export turnover in this industry in 2018 reached USD 30.4 billion, up 16.6% compared to 2017 (GENERAL STATISTICS OFFICE of VIET NAM, 2018). In which, the proportion of exports from foreign direct investment sector accounted for 59.9% of the total value. This industry employs around 2.03 million people in the country on an average wage of \$213 per month. Garment manufacturing accounts for 80% of the total businesses in this sector in Vietnam with CMT (Cut, Make, and Trim) being the primary method (85%) of exports. The textile and garment industry in 2018 recorded revenue of the whole industry of USD 30.4 billion (+ 16.6% YoY), of which mainly exports garments (accounting for 80%), followed by fabric exports (6%) and fiber and yarn exports (accounting for 11%).



Figure 3.2: Vietnam's textiles and apparel export & The share of apparel (HS9661, HS9662)



Source: Compiled from General Statistics Office of Vietnam

### 3.1.1 Vietnam's primary market and products:

With the compiled data collected from Un Comtrade for the last five years (2013-2017), there were small changes in Vietnam's top ten apparel trade partners. Nevertheless, the US and EU continue to lead regarding the primary export market until 2018 with export turnover in the year increased by 13.7% and 10.5% respectively. Meanwhile, in Japan and South Korea, Vietnamese textile and apparel products are heading to the leading position in these two markets with export turnover of 2018 increasing by 24.8% and 32.6% respectively.

Table 3.1: Vietnam's top ten apparel trade partners (2013-2017). Unit billion dollars

	2013	2014	2015	2016	2017
USA	8.570	9.771	10.909	11.403	12.227
EU-27	2.205	2.698	2.691	4.008	3.020
Japan	2.141	2.396	2.567	2.669	2.864
Rep. of Korea	1.539	1.984	2.014	2.176	2.525
United Kingdom	0.467	0.589	0.694	0.709	0.702
China	0.306	0.414	0.566	0.566	0.838
Canada	0.385	0.485	0.534	0.511	0.549
Other Asia, nes.	0.184	0.184	0.220	0.225	0.193
China, Hong Kong SAR	0.121	0.155	0.205	0.203	0.191
Russian Federation	0.132	0.135	0.084	0.110	0.168

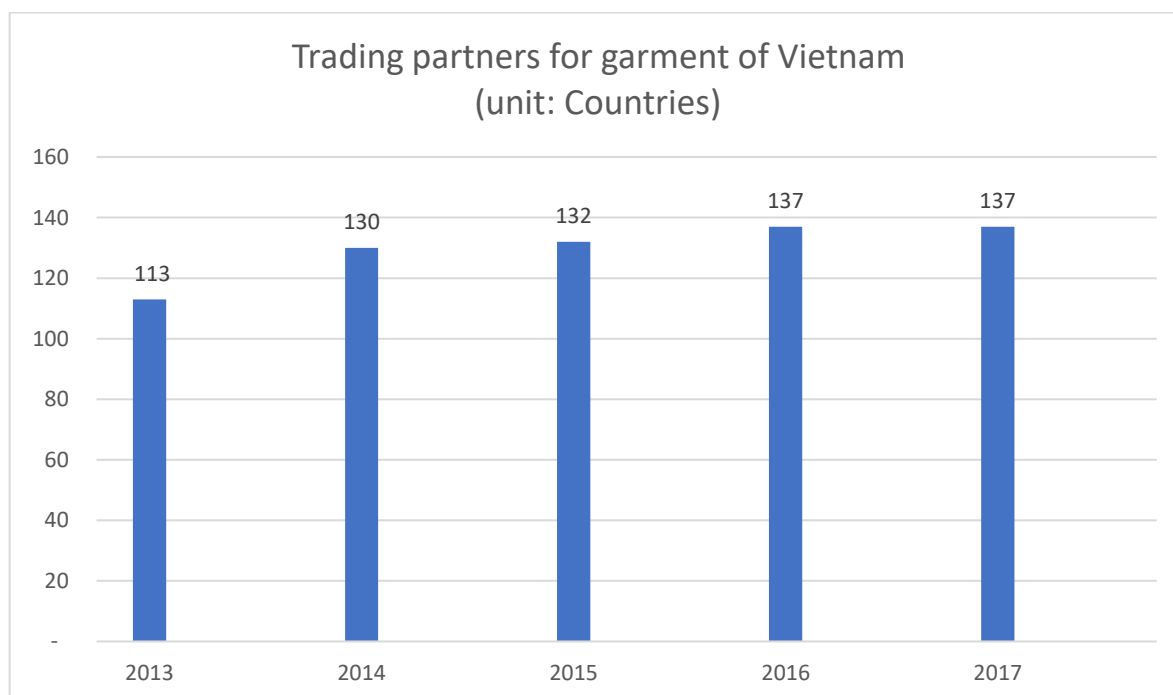
Source: Author's compilation from UN COMTRADE

The table above shows that for the past five years, the primary market for garment export from Vietnam is unchanged. The US market accounts for the most significant part of the total exporting value, approximately half during these five years. European Union (excluding the

United Kingdom) and Japan rank second and third position respectively. In recent years, Vietnam's textile and garment industry has expanded its exports to South Korea. Specifically, in 2012, the proportion of garment exports to the South Korean market was only 7.1%. By 2017, exporting value of this market reached until 10.35%. The next countries included in the top five partners is The United Kingdom, considered as the individual country excluding from EU-28 as before, UK contrast showed a slight downturn in importing garment from Vietnam, from 3.16% in 2016 by 2.88% in 2017. These markets are notorious for being extremely strict in terms of product quality, price, and appearance.

From the statistics above we can see the upward trend of export from Vietnam to the U.S market, the downward trend for the EU-27 market and fluctuating trends for the rest of remain top countries. Through this aggregating data, Vietnam is showing the diversify in trading partners around the world by increasing the garment exporting partners in recent five years; the most remarkable stage was from 2013 to 2014. Compiled data from Un Comtrade gives the specification in the increasing number of partners recently from Vietnam.

*Figure 3.3: Number of garment trading partners of Vietnam*

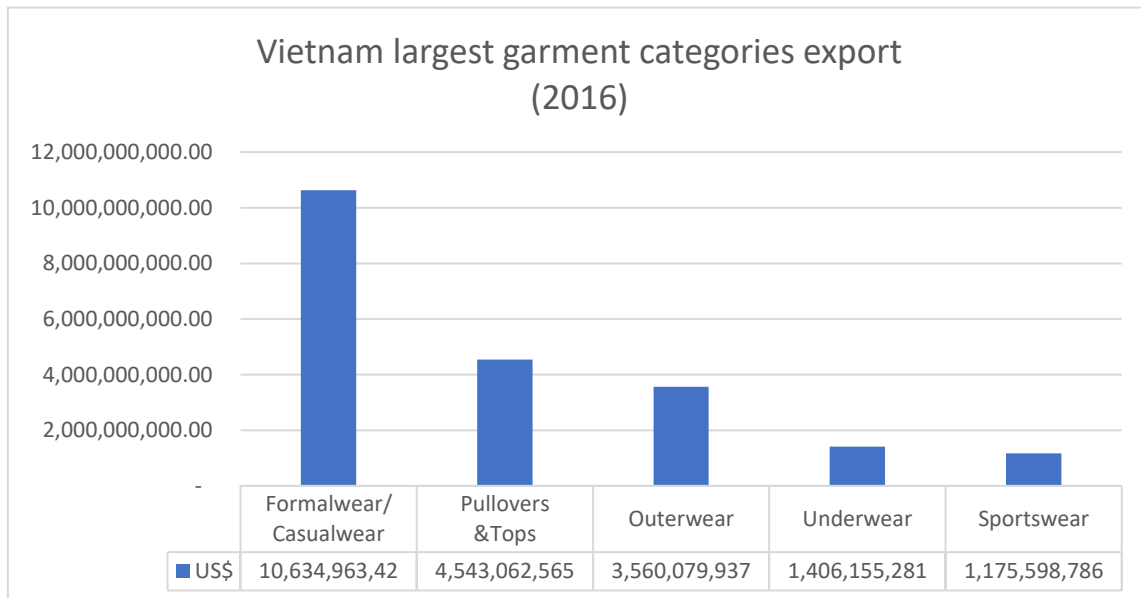


*Source: Author's compilation from UN COMTRADE*

According to the global buyer surveys from USFIA Fashion Industry Benchmarking Study 2019, however, although in this year, the garment export value from Vietnam is increasing to stand in the second place, just a small percent of global buyers intends to increase their

sourcing amount substantially in the future. The limitation of production capacity is the most problematic issue what makes them reluctant in expanding their investment value in Vietnam. In terms of product categories, according to the data from Re: search in Vietnam apparel profile in 2016, the below chart is the allocation of Vietnam’s largest garment categories exported (Vietnam Country Profile, 2018).

Figure 3.4: Vietnam’s largest garment categories export (2016)



Source: Re: search

### 3.1.2 Vietnam working condition and labor policies

Apparel production is labor-intensive; that is the reason why the labor resources and labor costs are very crucial for firms within this industry. As mentioned before, Vietnam has become an attractive investment destination, thanks to the high rate of the working-age population. On the other hand, Vietnam is also one of many Asian countries which saw a rise in labor wage recently because of workers’ protests and the labor flows moved to other more attractive sectors. The most updated data from the Vietnam Textile and Apparel Association (VITAS) announced Vietnam Textile and Garment has around two million workers, whereas while directly workers account for 1.1 million and the rest are indirect workers. Among two million workers, from 80 to 85 percent are female, with the average garment worker wage is around \$213 (VITAS, 2016). Generally, worker rights and working conditions in Vietnam are better than other countries in the same region, i.e., Bangladesh, Cambodia, India, China. All the workers belong to only one Trade Union, thereby enabling the coordination in control and regulations.

According to statistics of the International Labour Organization (ILO), Vietnam is a country that has the lowest rate of violation of the regulations on minimum wage among seven garment exporting countries in Asia. With 100 employees in the garment industry, only 6.6 people are paid below the minimum wage. In contrast, the Philippines is the leading country with the highest percentage of workers receiving wages lower than the minimum level (53.3%). Serious violations rate (less than 80% of the minimum wage) in the Philippines is also very high, up to 38.8% (ILOSTAT - Leading source of labor statistics, 2017). Cambodia and Indonesia are also on the list of countries that have a high percentage of employers violating the minimum wage when about a quarter of workers receive below this level (PhD. NGUYEN TIEN HOANG, 2017).

The developments and the problematic social implications of low wages show that in order to achieve more investment from global leading buyers, Vietnam's competitiveness no longer depends only on the low wages of the labor force. It is not an effective or desirable long-term strategy. Wage increases often must be compensated with increased productivity because buyers are generally not prepared to accept proportional increases in prices despite corporate social responsibility (CSR) efforts (C. Staritz., 2014).

Regarding labor's working environment, we will generally analyze the labor's rights and working conditions in Vietnam. In the flow of participating in the global value chain all over the world, many textile enterprises (including apparel firms) are trying to improve the quality of human resources to join the global supply chain; meet the fourth industrial revolution requirements (Industry 4.0). However, human resources in many Vietnam textile enterprises do not meet both quantity and quality. The number of newly trained workers accounts for only 25%, and 75% have not received training or only under three months of training. "The proportion of garment workers who do not meet the requirements of the Industry 4.0 standard is very high" - Ms. Phung Thi Hanh, Head of Training Department, Hanoi Textile University, shared (Thanh Tam, 2018). According to experts, under the impact of The Industry 4.0, with a focus on the application of digital technologies, in the future, many stages in the value chain of the textile industry will be used machinery and equipment, modern technology, high automation and robots instead of human labor. For example, in yarn production, ten years ago, enterprises need to use 110 employees to operate a factory with a scale of 10 thousand spindles, but when applying technology 4.0 to produce, the number of employees reduced force to 25 - 35 employees to operate a factory of similar scale.

More worrisome, in many enterprises, managers and technicians are selected, taken from advanced skilled workers, but not yet trained in management skills, especially the ability to apply and operate technologies in production. The lack of skilled operators and managers lead to the weak and lack of skilled labor resources. Therefore, capital is not a difficult problem for textile and garment enterprises in applying high technology to production, but the lack of skilled and trained human resources are enormous obstacles.

In order to maintain the development and participation in the global value chain, the textile garment industry of Vietnam has no other way than investing in improving the quality of human resources to capture advanced technologies. With the application of the Industry 4.0, the human resources of textile and apparel industry need to have skills to design products using 3D technology, capable of operating high automated production lines with industrial robots and advanced machines. In addition to the initiative of enterprises, the State's management agencies need to promote their role as a bridge, connecting businesses with experts and training centers to have the human resources that meet the Industry 4.0's requirements.

### **3.1.3 Foreign Investment and Trade Agreement in Vietnam**

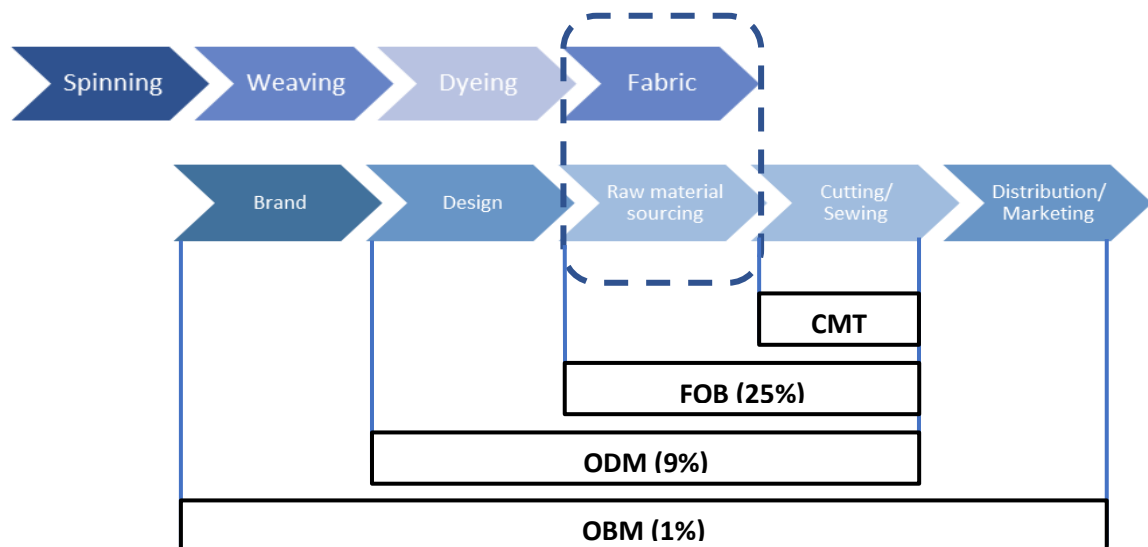
According to statistics of Vitas, FDI in the textile and garment industry by the end of 2017 is 2,091 projects, with a total registered and added capital of 15.89 billion USD. In the first six months of 2018, textile and garment attracted 2.8 billion USD of FDI, bringing the accumulated foreign investment into the industry to reach 18.69 billion USD.

“Vietnam has six regional FTAs signed as a member of ASEAN, including ASEAN Free Trade Area (AFTA), five FTAs with China, Japan, South Korea, India, Australia and New Zealand, and 4 bilateral FTAs with Chile, Japan, South Korea and the Eurasia Economic Union (EAEU)” (Mausmi Ambastha, 2018). 2019 will be the year that Vietnam is ready for being on the agreement with the other two critical important FTAs: the EU-Vietnam Free Trade Agreement (EVFTA) which signed on June 30th, 2019 and will have to go through the internal approval process in the EU and Vietnam in order to officially take effect; and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which includes 11 member states: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam, which is already activated since January 14th 2019 (European External Action Service, March 2019).

In order to take the tariff advantages thanks to this agreement, Vietnam needs to put much effort to improve the political and social compliance matters. Besides, the origin of the

product also the hinder for EVFTA to officially activate with Vietnam. The two agreements CPTPP and EVFTA set strict requirements for rules of origin, in which CPTPP rules of yarn origin and EVFTA rules of fabric origin must be imported from countries under CPTPP to enjoy tariff preferences. Enterprises exporting textiles and garments have to self-control input materials or import raw materials from member countries in the Agreement, while the primary import market of Vietnam's textile materials is China and South Korea. This may put considerable pressure on Vietnam's textile and apparel industry, but it will be an advantage for businesses that can self-control input materials such as Thanh Cong Textile and Garment (TCM), and other companies belonging to Vietnam Textile and Garment Group (VGT) such as Phong Phu Textile and Garment, Hue Textile and Garment, Nam Dinh Textile and Garment. However, there will be an unfavorable competitive for enterprises importing textile and garment materials from different regions.

*Figure 3.5: Upgrading trajectory of Garment industry in Vietnam*



*Sources:* (Bui Van Tot, 2014)

In order to exploit the benefits from Free Trade agreements about the strict requirement of the Origin of products, Vietnam has to set an ambitious goal to move up to the industrial value chain. The more upgrading along the global value chain, the higher in value of products that Vietnam can produce.

Expanding domestic textile manufacturing capacity will have a massive impact on Vietnam's apparel industry as well. It helps manufacture firms reduce the demand for imported textile inputs, also improve another aspect of compliance, such as offering more liable lead time, increase price competitiveness, and achieve more tariff advantages from FTAs.

Thereby, in the short term, CPTPP creates challenges for garment enterprises as they are dependent on imported fabric from outside CPTPP. At present, CPTPP only supplies about 7.6%, equivalent to 1.3 billion USD of yarn and fabric in the total demand of 18 billion USD in Vietnam. In the long term, CPTPP or EVFTA is expected to create a market size large enough to stimulate domestic and foreign enterprises to enter the fields of textile, dyeing, forming a chain of links in the textile industry from the fiber industry to fabric and garment industry.

### **3.1.4 The role of Vietnam's economics within Global Value Chains (GVCs)**

In 2015, both developed and developing economies had the same rate of GVC participation, estimated to be 41.4 percent of their total exports. This similar participation in the global value chain reflects the global nature of production networks which rely on the universal joint of economies.

Asian economies have the highest growth rates in terms of contribution to GVCs, meaning that they are trading increasingly with international industrial partners. Viet Nam, the Philippines, China, and India easily exceed the 6.5 percent average, with Viet Nam recording the highest yearly growth of 16.5 percent between 2005 and 2015. TiVA data outline that Vietnamese industries are playing an increasing role in textiles, clothing, and agro-industry supply chains. For example, 25.7 percent of the foreign value-added content in Viet Nam's exports stems from the textiles and clothing sector.

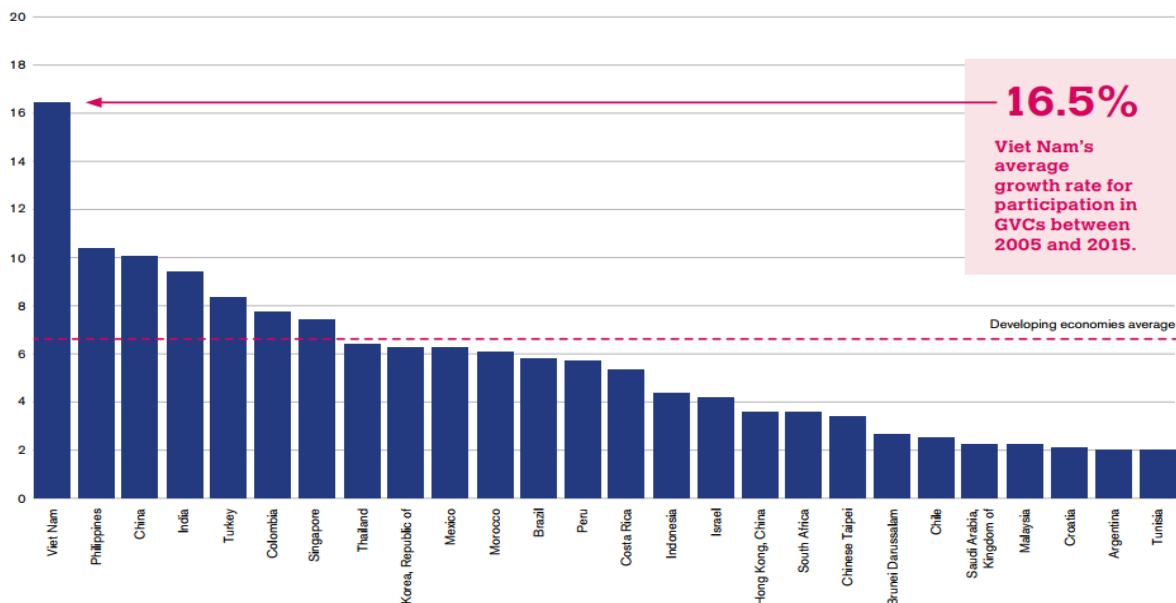
At the same time, Vietnam has pronounced the faster moved up in backward participation within middle-income economies along with Mexico and Romania whereas, other Asian developing economies experienced a decline in both forward and backward GVC participation have not yet seen a return to pre-crisis levels. For instance, India's forward and backward participation rate dropped from 0.1006 and 0.1382 in 2007 to 0.0655 and 0.0991 in 2017, respectively. China, Indonesia, and the Philippines also were subjected to similar declines.

According to the calculations from OECD data, Vietnam's global value chain (GVC) participation rate in 2015 was 56%, a massive leap from 34% in 1995. However, this increase only comes from the following link, accounting for 45% while the previous link is only 11%. Indeed, despite being a significant garment producer, Vietnam's domestic fabric consumption depends mainly on imports (World Trade Statistical Review, 2019). According to the Embassy of Denmark's forecast, by 2020, if properly invested, Vietnam can only meet about 40% of the demand for the fabric of the domestic garment industry. Vietnam's textile and

apparel industry needs about 10 billion m<sup>2</sup> of fabric as input for the production of garments. However, as mentioned above, 65-70% of the fabric must be imported. In 2016, the value of imported fabric reached the US \$ 10.5 billion while the value of exported garments reached the US \$ 27.9 billion. Thus, excluding the amount of domestic fabric used as input material, the value of imported fabrics accounted for a significant proportion of the total value of exported garments (nearly 30%). Fabric is mainly imported from China, Korea, and Taiwan (accounting for 85% of imported fabric value), with a market share of 52%, 19%, and 14% respectively. Because the characteristics of Vietnam's garment industry are mainly export processing, the selection of raw materials must be at the discretion of customers, and businesses cannot be proactive in ordering domestic fiber and fabric sources.

Similarly, with trim and accessories, China, South Korea, and Taiwan continue to be the leading suppliers of raw materials of Vietnam's garment industry. In which, Vietnam imports about 40% of raw materials from China. Vietnam sewing machines mainly originated from China, Japan, and Taiwan, in which the proportion of sewing machines imported from China accounted for the highest proportion (58%). Garment machinery and equipment tend to be automated at simple stages, such as cutting sewing, selecting only sewing threads, buttonholes. In order to invest in machinery and equipment, it requires a significant capital resource, but currently, the majority of garment manufacturing units in Vietnam are small and medium-sized, do not have enough capital to import high automatic machines.

*Figure 3.6: Participation in GVCs for selected developing economies, 2005-2015  
(annual percentage change)*





*Source: OECD TiVA database*

In general, Vietnam has the skillful labor force and able to produce a wide range of items from shirts, coats, pants, and sportswear to underwear, t-shirts, skirts, suits. However, the garment industry of Vietnam still depends on the orders and designs from global buyers. Talking about turnover, Vietnam's textile and garment industry in a short time has developed very fast, because under the "path" of development, mainly focus on doing the more straightforward and simple steps first, so there are no high requirements on technology, human resources. According to FPTIS, on average, a finished garment has a market price of 100 USD, 9,35 USD is the production cost (in which, gross profit and net profit by CMT method undertake to be 2.61 and 0.4 USD respectively with 20% and 3% of the price delivered to the firm of leading buyers). Meanwhile, the company's net profit is approximately USD 5.7, and retailers are approximately USD 1.7. As such, the most labor-intensive stage that Vietnam is undertaking is bringing only the lowest net profit (only 1/15 of the company's profit and 1 / 4.5 times the profit of the retailer).

In addition to the lack of advanced technology, the design stage of Vietnam's garment industry is still weak. Many domestic brands are well-known in the domestic market, but that brands cannot be exported to the foreign market, so the added value is not high. Vietnam's garment manufacturing industry participates in the global value chain at the production stage, mainly in the form of CMT (65%) and FOB (30%, of which FOB level 1<sup>8</sup>: 20%, FOB level 2<sup>9</sup>: 10%). At present, only about 10-15 Vietnamese enterprises can make FOB qualified to meet the requirements of global leading buyers (FOB level 2), typically Viet Tien, Nha Be, and Phong Phu garment companies. The biggest constraint that Vietnamese enterprises have not been able to move further in the Global Value Chain is because factories in Vietnam are not able to take the initiative in domestic raw materials and have insufficient financial capacity to prevent and deal with risky cases such as breach of contract performance in response to timely deliveries due to material delays.

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<sup>8</sup> FOB designation: Enterprises purchase input materials from a group of suppliers appointed by buyers. This mode of export requires textile enterprises to be financially responsible for purchasing and transporting raw materials.

<sup>9</sup> FOB self-search: Enterprises receive product designs from foreign buyers and be responsible for self-sourcing input materials. The risk from this method is higher but the added value for the manufacturing company is also higher.

In order to move faster and acquire more investment from leading buyers, Vietnam needs to put more and more effort into acquiring technology and R&D sectors to overcome the drawbacks of fast growth. The design stage is a critical stage requiring higher qualifications and higher wages but yield the highest profit margin. Unfortunately, this remains the weakest stage of the Vietnamese garment industry. Only about 30% of the industry's export value in the form of FOB, which is exported in the form of outsourcing. Design steps are mainly done and nominated by fashion centers in Paris, London, New York. China and India are the main markets for fabric and other inputs. In marketing, distribution, and after-sales service, the value of this stage is up to 70% in the global value chain. However, Vietnam's textile and garment industry are only robust in terms of domestic commercialization, commercialization in export markets is still weak. Although initially exporting as FOB, the share is meager among garment enterprises, mainly is CIF export. In the domestic market, many garment businesses have had successful marketing decisions; Viet Tien Garment Corporation with Marketing strategy dominates the Northern market, May 10 Joint Stock Company also has a reputation in the Northern market. However, there are still many businesses that are weak in a marketing capacity. The stage of distribution does not involve the participation of large and professional distributors, mainly enterprises that conduct their distribution through a system of product introduction shops and small private dealers. In the value chain, distributors are usually the designers, because more than anyone else, the most thorough needs and conditions to satisfy customer needs. Therefore, after Vietnam finishes processing, the products are brought back to the market by reputable trading companies. Textile industry experts estimate that up to 70% of the profits (calculated on one garment from the first to the last stage of the value chain). Moreover, to increase the added value for the whole industry, the focus on commercialization to increase the perceived value of the product, increase the volume of consumption, stimulate consumption needs specialization and professionalization.

### **3.2. Benchmarking Vietnam in the Global Apparel Industry**

According to above cost-related factors and non-cost factors analysis, we have deeper acknowledged about which drive the global buyers' attention to choose the best suit suppliers in outsourcing strategies. The reason why choosing China, Bangladesh, Vietnam, and India to conduct the benchmark is that they are currently top four of the largest garment exporters in the world (base on author's aggregated data from Un Comtrade mentioned in Chapter 2). Moreover, from 348 garment importers survey conducted by Intouch's website from October 2016 to 2018, 61 percent of respondents said that they source the garment from at least one of

these countries. “While all four countries have a well-developed garment industry, each has a unique business climate that may be more or less suitable for global leading buyers’ outsourcing needs. Low-cost labor is undoubtedly a critical factor in choosing a supplier for manufacturing garments” (Oliver Knack).

Following section is the benchmarking related to these factors between Vietnam and other countries among the top four world’s largest manufacturer, exporter, and consumer of textiles and clothing: China, Bangladesh, and India. This benchmarking providing the comparisons between Vietnam and the other three according to the non-cost and cost-related factors. It also enables us to evaluate the performance in the top four countries within critical areas that matter to the global buyers who want to find or expand their deals or apparel partners. All of the numeric data is collected from reliable sources.

### 3.2.1 Cost-related factors

Table 3.2 shows a comparison between four countries about cost-related factors. There are differences between countries regarding the number of employment and factories. Although offering the most significant pool for employment and factories in this industry, India is still in fourth place after China, Bangladesh, and Vietnam in the value of export (as mentioned in Chapter 2). Vietnam shows the least in the number of employments with just nearly 55 million, approximately 10 million workers less than the closest competitor, Bangladesh (CIA - Central Intelligence Agency, 2017).

*Table 3.2: Cost-related benchmarking between Top 4 world’s largest manufacturer, exporter, and consumer of textiles and clothing (Updated December 2018 - February 2019)*

	<b>China</b>	<b>Bangladesh</b>	<b>Vietnam</b>	<b>India</b>
Labor availability (million)	806,7	66,5	54,8	521,9
Number of garment factories	20,000	4,560	6000	30,000
Cut-and-make cost (for a basic cotton t-shirt)	\$1.79	\$1.21	\$1.19	\$1.26
Cost of monthly utilities (US\$) (for basic 85m2 apartment)	\$52.26	\$36.07	\$62.66	\$35.79
Minimum monthly wage for garment worker (\$US PPP <sup>10</sup> )	\$270	\$197	\$248	\$255

*Source: Author compiled from many sources*

As mentioned above, high labor wage is not always related to high labor cost. Labor wage also acts as a motivation for worker’s productivity and reduce the cost at the same time. With

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<sup>10</sup> PPP is an economic measure used to compare currencies across countries. All wages are monthly and in 2014 dollars.

\$213 per month, Vietnam is still proving the right wage level for employees in the textiles and clothing industry. In “cut-and-make cost” aspect, Vietnam is offering the best competitive price among countries, with just \$1.19 for a basic cotton t-shirt. Bangladesh and India are the following countries with \$1.21 and \$1.26 respectively. Therefore, even possess the enormous pool of labor availability to offer for the manufacturing industry with above 800 million workers, China is still slightly losing its competitiveness in the global outsourcing market due to the increase in labor’s minimum garment wage (PRI, 2017). China has the most significant labor wage, nearly \$270, six percent higher than the closest competitor, India with \$255. Whereas Vietnam shows the modest amount of wage at just \$248, higher than Bangladesh at \$197. If in the future, the labor cost in China continues to increase, it may lose somehow the percent of outsourcing orders from global buyers. As according to the results of two surveys from Lu 2014; McKinsey & Company 2011& 2013 about benchmarking countries from South Asia and Southeast Asia, there are some exciting outcomes relating to the shift of outsourcing buyers affected by increased labor cost from China. Global buyers would increase sourcing beyond China, and the next hot spots are Vietnam, Indonesia, and India. In this survey, global buyers also confirmed a ten percent price increase in China would increase the U.S. import from Southeast Asia by 37-51 percent, compared to 13-25 percent by South Asia. The national and local government set out the official, mandated rates of the regulated economy. However, many manufacturers may illegally operate at lower rates, particularly in India, where an estimated 80% of employed workers in the unregulated, informal economy. The workers’ wage in these countries could be lower and based on piece production (Oliver Knack).

Another index which also has a big concern for foreign investors once decide to invest in one country is the cost of rent and utilities. According to the data from Numbeo (Mladen Adamovic, 2019), Vietnam has the most expensive in the cost of essential utilities (water, electricity, heating, cooling, garbage) with \$62.66 per month; measure applied for 85m<sup>2</sup> apartment. The following country is China, with \$52.26 per month. Bangladesh and India are the countries with cheap cost for utilities, with \$36.07 and \$35.79 respectively.

### **3.2.2. Non-cost factors:**

Nowadays, leading buyers avoid the temptation to choose a manufacturing destination based on cost alone; otherwise, garment manufacturing in one country with lower labor costs can end up with more cost related to some non-cost factors include worker productivity and skill level, factory efficiency, lead time, reliability or Social compliance violation.

China benefits mainly from the readiness of technology resources, which facilitate China to diversify its product categories, lower product's price, and lead-time. Vietnam is in the position of lacking raw material; limitation of resources leads to a higher price compared with those imported from China. Around “70% of Vietnam’s textiles and clothing production is dependent on CMPT (cut, make, pack, trim) operations, using imported textiles and other inputs predominantly from China” (Sheng Lu, 2017). The dependence of raw material leads to the limitation in production categories and longer production lead-time. Following the updated data from Shenglung Fashion, China was the top suppliers for three categories of Yarn (27,3%), twenty-six categories of fabric (76.5%), and 11 categories of made-up textiles (68.8%). In the categories of apparel, China was the top suppliers for 87 categories (82.1%); meanwhile, Vietnam was the top supplier for only five categories of apparel (less than 5% of the total) (Sheng Lu, 2017).

*Table 3.3: Non-factors benchmarking between Top 4 world’s largest manufacturer, exporter, and consumer of textiles and clothing (Updated December 2018 - February 2019)*

<b>Key metrics</b>	<b>China</b>	<b>Bangladesh</b>	<b>Vietnam</b>	<b>India</b>
Global worker rights (Rate ting from 5 worst to 0 best)	5 - no guarantee of rights	5 - no guarantee of rights	4 - systematic violations of rights	5 - no guarantee of rights
Human Capital Index (Knowledge and Skilled labor)	67.81	57.84	68.39	57.73
Corruption perceptions (ranked among 180 countries)	87/180	149/180	117/180	78/180
Network readiness (ranked among 139 countries)	59/139	112/139	79/139	91/139
Productivity (GDP - Per Capita (PPP))	\$16,700	\$4,200	\$6,900	\$7,200
Lead time (days)	40-90	80-120	60-90	40-90

*Source: Author’s compilation from multiple resources*

Above is the aggregated report related to the 5-key metrics: Global worker rights (ITUC CSI IGB, 2018), Knowledge and Skilled labor level reflected by Human Capital Index (World Economic Forum, 2016), Corruption perceptions Index reflect the transparency level and political stability of a specific countries (Transparency International, 2018) and Network readiness reflects the role of information and communication technologies in driving

innovations (World Economic Forum, 2016). Thanks to this information, the general picture of several non-cost aspects of the benchmarked countries is offered.

First of all, the first measured aspect is the level of workers' rights. In general, workers in all listed countries facing bad condition and working condition for practicing their rights and doing their jobs. The ITUC Global Rights Index reveals the world's worst countries for workers by rating 142 countries on a range from 1-5 based on the degree of respect for workers' rights. These conditions based on the exposure to murders, physical violence, death threats, repression, discrimination, and intimidation in working condition for workers (ITUC CSI IGB, 2018). Among the four benchmarking countries, Bangladesh took one place in top ten worst countries for working people. Indian workers still struggle to assert their fundamental rights to associate freely and faced the violent opposition of employers. China's government has passed laws that denied workers freedom of association, restricted free speech, and used the military to suppress labor disputes. Whereas, Vietnam shows the most promising condition for workers among the other. The Global Right Index does not only assess the cleanliness level of working conditions of one country but also indirectly reveal the compliance violation level as well as the productivity of that country.

Secondly, the following index is Network Readiness. Network Readiness "refers to as Technology Readiness, measures the propensity for countries to exploit the opportunities offered by information and communications technology (ICT)" (Wikipedia). In another hand, the networked readiness index is a crucial indicator of how countries are doing in the digital world, how well an economy is using the information and communications technologies to boost competitiveness and well-being. With the rising of Fourth Industrial Revolution, which represents a transition to a new set of systems, bringing together digital, biological and physical technologies in new and compelling combinations, the Networked readiness shows how ready each country is to reap the benefits of that transition (World Economic Forum, 2016). Vietnam showed reasonably good performance compared with Bangladesh and India with its rank at 79th per 139 countries with a 3.9/6 point. However, China's Network readiness level is still at the top of four selected countries, with a score of 4.5 at 59<sup>th</sup> per 139 countries.

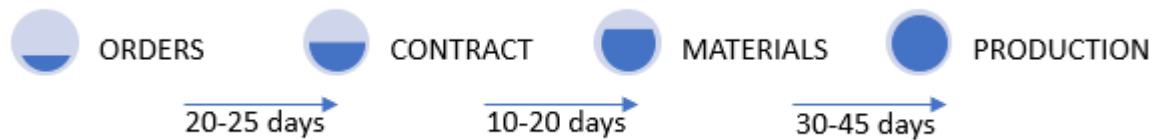
Next, the Corruption Perception Index, which ranks 180 countries and territories by their perceived levels of public sector corruption according to experts and businesspeople, uses a scale of 0 to 100, where 0 is highly corrupt, and 100 is very clear. More than two-thirds of countries score below 50 on 2018's CPI (Transparency International, 2018), with an average

score of just 43. Vietnam is considered a high rate of corruption country, with just 33 of 100 points. The high rate of corruption shows the weakness in controlling the crisis within the countries, which could create a significant barrier, which hinders the inflow FDI and foreign investment into Vietnam.

The next two key aspects are the Human Capital Index and the level of GDP per Capita (PPP) of selected countries. The reason to choose these factors for benchmarking is they are all can reveal the skill, education as well as productivity level of the selected country's labor force. Garment manufacturing industry traditionally is low-skilled labor. However, with the revolution of the Fourth Industrialization combines with the growth of globalization, textile and garment industry is upgrading in skill and education level of not only workers but also managerial positions. Skilled labor force helps to increase the efficiency and productivity of a factory, which can shorten the lead time (World Economic Forum, 2016). The Human Capital Index assesses the performance of 130 countries about their development, human capital, and tracks progress over time. Through this life-course approach, there is an insight into the human capital, education level, skills, and the availability of employment in five distinct age groups of the selected countries. The aim is to assess the outcome of past and present investments in human capital and offer insight into what a country's talent base will look like in the future (World Economic Forum, 2016). For this index, Vietnam's human capital eclipses China's, while India lags behind, even Bangladesh. Another data which shows the productivity of the labor force in one country is Per-Capita GDP, adjusted for purchasing power parity (PPP). "Typically, a higher per-capita GDP reflects a greater degree of productivity, as it measures the value each individual provides to the economy" (Oliver Knack). In this aspect, China shows the best performance with \$16,700, while India is just a haft of this amount. Vietnam and Bangladesh take the third and fourth positions with \$6,900 and \$4,200 respectively.

For a lead time, total production time is a significant factor influencing international buyers' order decisions. Manufacturing time here includes the time when retailers/ firms place orders with garment factories until the goods are ready for delivery. The average production time of Vietnamese garments is 60 - 90 days, shorter than Bangladesh and Cambodia (80 - 120 days) but longer than China, India, Thailand (40 - 90 days) (Le Hong Thuan, Dec 2017).

Figure 3.7: Average production time of garment orders in Vietnam



Source: *FPTS-Textiles and Clothing Industry Report - Dec. 2017*

In general, the difference in production time is mainly due to the difference in the time of importing and transporting materials to Vietnam and how factories process the orders. Because Vietnam imports most raw materials from China, South Korea, and Taiwan, production time is prolonged compared to China and India where materials can be actively operated inputs, accordingly, the time to import materials is 10 - 20 days.

In a nutshell, the above benchmark between Vietnam and its close three competitors regarding related aspects which directly affect to textile and garment industry and the decision of buyers who are still considerate in choosing trading partners for outsourcing. In general, Vietnam shows favorable performance related to either cost-related and non-cost related aspects such as worker's right, human capital index, and lead time. Otherwise, there is still much room for improvement, such as Corruption perceptions, Productivity, Networked Readiness, as well as the existence of a systematic violation of rights. These aspects impact directly to the political stability as well as productivity and social compliance level for Vietnam. Therefore, preparing suitable improvement policies and strategies is necessary for Vietnam's garment industry during this time.

### 3.3 Methodology

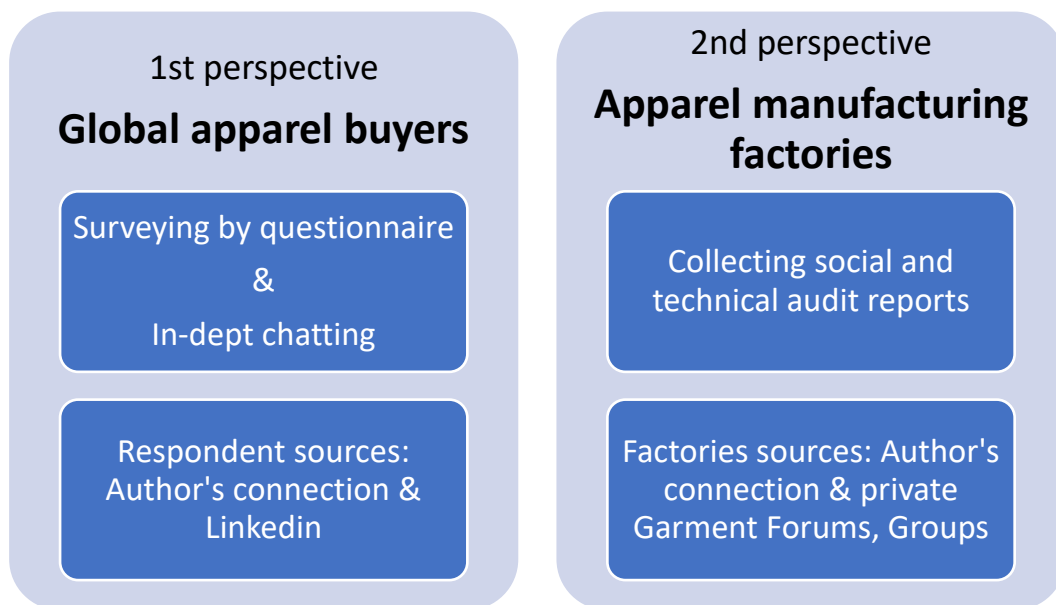
In the previous sections, the general overview of Vietnam's garment industry is revealed along with the benchmarking with the other three competitors. In order to have a deeper understanding of what factors affect the global apparel buyers in choosing the outsourced factories within Vietnam as well as which pitfalls that the Vietnamese apparel manufacturing sites often face, the author chooses to approach in two levels, from leading buyers to Vietnamese manufacturing sites and have an in-depth analysis in the following sections.

To perform this analysis, the author collects data as the scheme depicted in Figure 3.8, which used in-depth interview methods by surveying plus discussing with ten selected apparel global leading buyers. Apparel global leading buyers are defined as individuals or companies that either has trading cooperations direct or indirect with Vietnamese manufacturing sites.



Besides, other sources of data are collected from Technical and Social audit reports of eight selected Vietnam's apparel factories.

*Figure 3.8: Scheme for collecting analysis data*



*Sources: Author*

From apparel leading buyers, the author creates an original short questionnaire survey as the first step to approach the target respondents (see Appendix 1 for the content of the survey). The selected respondents are partly from the author's previous working connections (merchandise for an apparel vendor). The collection of the rest part of respondents is via LinkedIn website. Initially, the author starts the survey through a questionnaire to collect respondent's ideas. Based on what they answered, the author continues to ask more related questions to have a more in-depth understanding of what they answered. By collecting data in this way, the author can freely zoom in the right persons compared, where the indeed motives and expectations from author were shared before receiving back new ideas and opinions wholeheartedly related to research's purpose. The ten apparel buyers who responded to the survey are all working as apparel sourcing managers, production managers, or country manager, who are already worked or have been working directly with Vietnamese apparel factories. They all have comprehensive and managerial visions go along with apparel outsourcing experience in the long term in order to give out explicit opinions about the pros and cons of Vietnamese manufacturing sites. Connecting with the respondents via discussion in LinkedIn is the most suitable way than an oral interview. The reason is that the respondents can freely arrange their time to complete the survey without having a feeling of any annoying and disruption. Following the fulfilled questionnaire, the author moves to have more in-depth

questions and get further ideas related to their responses. The in-depth discussion between author and respondents is considered similar to the close conversations between colleagues in the same industry to sharing ideas and solutions for a better contribution to Vietnam's garment industry rather than conducting formal interviews.

The demographic and geographic sampling was diverse, yet the responses weighed heavily from buyers who come from big brands which are top apparel trading partners of Vietnam. Based on the list of top retailers and fashion brands imported from Vietnam recently retrieved from YouGov Brand Index for Top Vietnam Fashion retailer 2018 (YouGovBrandIndex, 2018), the top garment Vietnam's importing retailers and fashion brands are Uniqlo, GAP, H&M, Decathlon, Triumph, Inditex's brands, Carrefour, Lacoste, and other brands which is increasing its investment in Vietnam such as Eddie Bauer, Crystal Martin, Kiabi and Polyconcept. These global companies are all come from America, France, Germany, Sweden, the United Kingdom, and Japan - the top four most prominent trading partners of Vietnam in the apparel industry (US, EU-27, United Kingdom and Japan).

Another source of data collection is from auditing reports, which are collected from eight apparel and garment factories. These selected factories are mainly in small and medium-size with the average workers is around 1300-1500, concentrated in three large industrial zones of Vietnam (North, Central, and South) where the garment industry is the most developed. Within the eight factories, two factories located in the Northern area of Vietnam are Hai Duong and Thai Nguyen province, next to the Capital of Vietnam, Hanoi and one of the significant seaports of Vietnam, Haiphong. Another two factories are in Hue and Danang city, central area. Danang the third biggest city in Vietnam which have large ports which can support for international shipments, and Hue city is just 100 kilometers away from Danang. The other four factories' location is in the Southern industrial cluster, which are An Giang, Dong Thap, and Ho Chi Minh cities. The audit reports are confidential regarding the name of factories and their customers. The purpose of this approach is to have a closer look at all of the aspects which mainly face the bad as well as good performances of Vietnamese manufacturing sites.

Moreover, the author also uses secondary data from several truthful websites from Vietnam such as General Department of Vietnam Customs, General Statistics Office of Vietnam, Ministry of Industry and Trade and other reliable international sources such as UN COMTRADE, Euromonitor, Trading Economics, McKinsey&Company and Business Telegraph.

This thesis aims to assist Vietnam's garment manufacturing sites as well as Global leading buyers, who are looking for garment outsourcing opportunities in Vietnam, in better understanding the target market, how to recognize buyers' expectations and which direction to take garment manufacturing business to meet the corporate buyer needs. Some other areas author delve into are current industry trends, shifts, challenges, and opportunities. Some of the open and downright contributions from global buyers and practical information aggregated from audit reports even highlighted and discussed in order to give Vietnam's garment factories the insights about their weaknesses and strengths as well as transfer them the inspiration and encouragement for the future development.

### **3.4 Analyzing data aggregated from global buyers' surveys and auditing report of Vietnam apparel factories.**

#### **3.4.1. First perspective: Surveying global apparel buyers and vendors.**

The survey structure is divided into three main parts, part one focus on the Nature of the audit, part two regarding the Measurement of Vietnamese factories' performance and the final part related to the follow-up audit solution and buyer's recommendation.

- The nature of audits

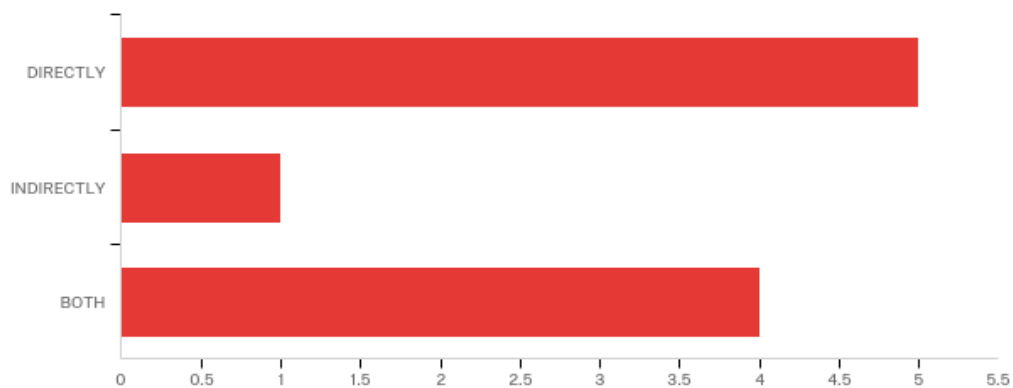
The nature of audit is clarified by defining how and in which form the audit is conducted, and who in charge of the audit between buyers (or third parties) with the Vietnamese garment factories.

In apparel sourcing, buyers can work directly with the garment manufacturing sites. In this case, leading global buyers already have accumulated insights about that country such as policies, government's regulations and have a strong relationship with the raw material sources, shipping companies as well as reliable connection and working history with manufacturing sites in order to smooth the future working plan without any hinders. In this case, leading buyers often open their main offices in those countries and hire local people to be in charge of the main steps. Whereas in other cases, they worked indirectly via vendor offices. The vendor is the party that locates in the outsourced country, which has plenty connections and local knowledge such as regulation, law, and policies in which the leading buyers find them time-wasting and costly to understand and establish well with the local connection. Nowadays, most of the apparel leading buyers are doing their outsourcing strategy by through apparel vendors or apparel sourcing manufacturing companies. In this intermediate company, there is a so-called job is merchandiser, who is in charge to process and control the orders from buyers. All in all, in the mindset of manufacturing sites, apparel

vendors are acting on behalf of buyers to instruct, guide and enact all the manuals and standards from buyers down to the in-charged people within factories.

According to the answers of all the interviewees, their form of working in apparel outsourcing within Vietnam is mainly directly, which accounts for 50 percent of the answers. Indirectly working with apparel manufacturing sites and working with apparel vendors in both ways is account for 10 percent and 40 percent, respectively. This result means that there are only a few buyers investing in Vietnam apparel industry only through working with vendors. Maybe this is the preferred form in the initial stage, but in the longer term, they will move to use both forms to adapt to the industrial environment and acquire the advantage as much as they can then move to work directly later on, in order not to share a part of the profit to the middle-level partners.

*Figure 3.9: The the investing form of apparel buyers in Vietnam 's market*



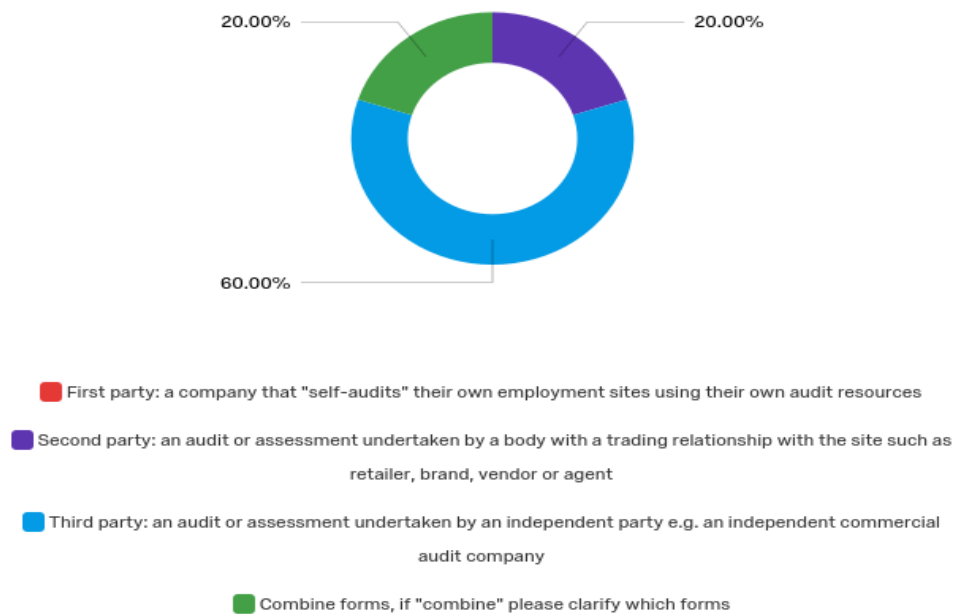
*Sources: Author's survey*

Regarding the audit party, the one who is in charged to conduct the audit, there are three ways. The sites can “self-audits” their employment by using their audit resources such as audit or compliance department. Alternatively, the other way is “third-party” audits which are conducted by a professional organization, act on behalf of the buyers or sites to conduct the audits. The last form of the audit is “second-party” audits, which are undertaken by a body with a trading relationship with the sites such as brands, vendor, or agent.

Figure 3.10 reveals that 100 percent of respondents audit their suppliers with no respondent chooses the “first party audit,” which is a site that “self-audits” their employment. Instead, the vast majority, 60 percent or six out of ten respondents, answered that they are using third-party certification programs to audit. Third-party certification is an audit or assessment undertaken by an independent party, e.g., an independent commercial audit company. Only

two respondents chose combined both third-party certification programs and their compliance teams, and another two chose to conduct their audit via “Second-party,” which mean apparel vendors.

Figure 3.10: Who conducts the audit?



Sources: Author’s survey

Although the number of direct investing companies accounted for significant parts (50 percent of respondents are in the company which has local team, working directly with Vietnamese manufacturing sites) yet they are mainly choosing the third party to conduct the audit assessments and no buyers trust enough on the self-audit from manufacturing sites. This result reveals the high requirements of compliance level from global buyers to their trading partners. Every factory needs to prepare well enough to meet the high standards of audit from professional third parties, which have specialized experience in audit and assessment of factories.

The last aspect related to the nature of audits is the form which the buyers often choose to conduct the audit, whether there is an advanced inform audit to the factories or not. When the announced audit is the audit in which the auditor will inform the exact time and day in advance for the audit date whereas when factories have unannounced audits, they have no idea about the audit, or they are just informed in advanced for the window period.

The result through the survey reveals that seventy percent of respondents state that have conducted both announced and unannounced audits with the factories. It is unpopular for

global leading buyers to purely conduct either announced (30 percent) or unannounced audits (0 percent) with their trading partners.

In a nutshell, auditing is the step that can not be ignored by any leading global buyers if they want to place an order with any garment factories. Also, the role of auditing in the garment industry is gradually increasing when more and more customers pay attention to quality and social compliance level of enterprises. Especially, factories in Asian countries such as Vietnam, do not show the positive image in complying the regulation as well as instructed process to give out the qualified products. That is the reason why one hundred percent of buyers apply the auditing on their trading partner to ensure the whole production and output's quality. Although there is a vast number of buyers is working directly with Vietnamese garment manufacturers, they prefer to conduct the audit through third-party programs than "self-audit" by the sites or "second-party" audits by vendors. Also, the audits are mostly conducted by combining two forms, announced and unannounced audits. Such that, it is clear that the requirements of global buyers for the outsourced garment factories are stringent. If Vietnam's garment factories underestimate the role of the audit, they will not move far in achieving higher value orders from global buyers.

- The measurement of Vietnamese factories' performance from global buyers

In the question about "What aspect of compliance audit in which Vietnamese factories often failed to meet the standards of the third-party audit program and buyers' standard," author list out 17 points for the respondent to check. These 17 points are taken from a typical audit requirement from SMETA's Objective of a Site Tour (SMETA, 2017).

In general ideas from global buyers, Vietnamese apparel manufacturing sites are mostly facing non-compliance aspects, as indicated in table 3.4 below. In the specification, the group of top five aspects was selected from surveyed buyers are "*Offering adequate required document lists for auditors,*" "*Working environment such as layout, temperature and tidiness*", "*Building construction, maintenance and certificate,*" "*Machine safety, guarding and maintenance,*" "*Locate document and records (Quality records, production records, display of codes of conduct or labor law, legally required posting)*". These aspects received five choices out of ten and accounted for the most significant percentage among seventeen key aspects, 8.33 percent. The other next four non-compliance points with 6.67 percentage belong to "*Fire equipment and emergency equipment,*" "*Emergency procedures,*" "*Personal protective equipment*" and "*Labour's related points (child children, collective bargaining, freedom of association, overtime hours, wage, and training).*"

*Table 3.4: Non-compliance findings regarding selected buyers' opinions*

No.	Non-compliance points	Percent	Choice
1	Offering adequate required document lists for auditors	8.33%	5
2	Working environment, e.g., layout, temperature, tidiness	8.33%	5
3	Building construction, maintenance, and certificate	8.33%	5
4	Machine safety, guarding and maintenance	8.33%	5
5	Locate document and records (Quality records, production records, display of codes of conduct or labor law, legally required posting)	8.33%	5
6	Fire equipment and emergency equipment	6.67%	4
7	Emergency procedures	6.67%	4
8	Personal protective equipment	6.67%	4
9	Labour's related points (child children, collective bargaining, freedom of association, overtime hours, wage, and training)	6.67%	4
10	Evacuation plans and evacuation routes	5.00%	3
11	Any locked or barred exists or emergency exits	5.00%	3
12	Potable water	5.00%	3
13	Signs in local language as appropriate	3.33%	2
14	Warning and labels	3.33%	2
15	First aid equipment and qualified staffs	3.33%	2
16	Toilet and sanitation	3.33%	2
17	Lack of technological equipment, e.g., metal detect machines, laser cutting machines.	3.33%	2

*Source: Author's survey aggregation*

As we can see these main failed points is concentrated on documents recorded and safe working environment for employees, which are all generally belong to principal Health and Safety of audit checklist. Apparel manufacturing sites in Vietnam often take these things for granted. They ignore the importance of this process, but it connects directly with the quality of products and the productivity of the workers. Moreover, quality and production documents are the recorded documents show all the standardized steps and processes which is already approved and detailed instructed by leading buyers. The factories do not locate these documents accordingly often face the wrong actions, which are all resulted in defect products, a loose connection between each stage and slow down the pace of production lines.

The next group of non-compliance points, which account for five percent, is related to other safety matters such as evacuation plans and routes, emergency exits. Vietnamese manufacturing sites face least fail in signs, warnings and labels, as well as potable water, first aid equipment, and toilet and sanitation. For "Lack of technological equipment," this point typically rarely put into the manual for audit assessment. Only strict audit certificates and

specialized brands such as high-end brands, kid's brands will apply to their requirements. Most of the global buyers do not consider technology, advanced machinery as a prerequisite point for compliance assessment. However, with the explosion of the fourth industrial revolution, technology is gradually increasing its role in the customers' minds. This is the reason why, for this question, only one respondent marked to this option as a "fail point" in the audit basis, but in the following section, nearly 40 percent of the buyers' recommendation mention about technology's necessity when they are considering to collaborate with any trading partner for higher value of orders or in the long run.

Moving to the extent measurement of Vietnamese's manufacturing sites, the general picture of the performance of Vietnam's garment factories will be revealed base on the fifteen-key metrics. The author gives the respondents a list of fifteen key metrics relating to the characteristics of an apparel factory and ask the buyers to rate the corresponding value range from zero to five, corresponds from poor to excellent performance. These key metrics are picked from "Just-style survey" and applied small adjustments base on author's merchandising experience in working with Vietnamese factory and the average background of Vietnamese manufacturing sites to make it more suitable for my research. The fifteen key metrics are: Ability to provide FOB, Competitive price, Social compliance and Sustainability, Production efficiency and consistency of supply, Product quality, Lead time, Reliability of delivery, Ability to create primary products, Tariff advantages, Vertical integration (ability to source raw materials), Political stability, Innovation & ability to develop products with buyers, Capacity (ability to meet a minimum orders, Ability to create value-added products, and Financial Stability.

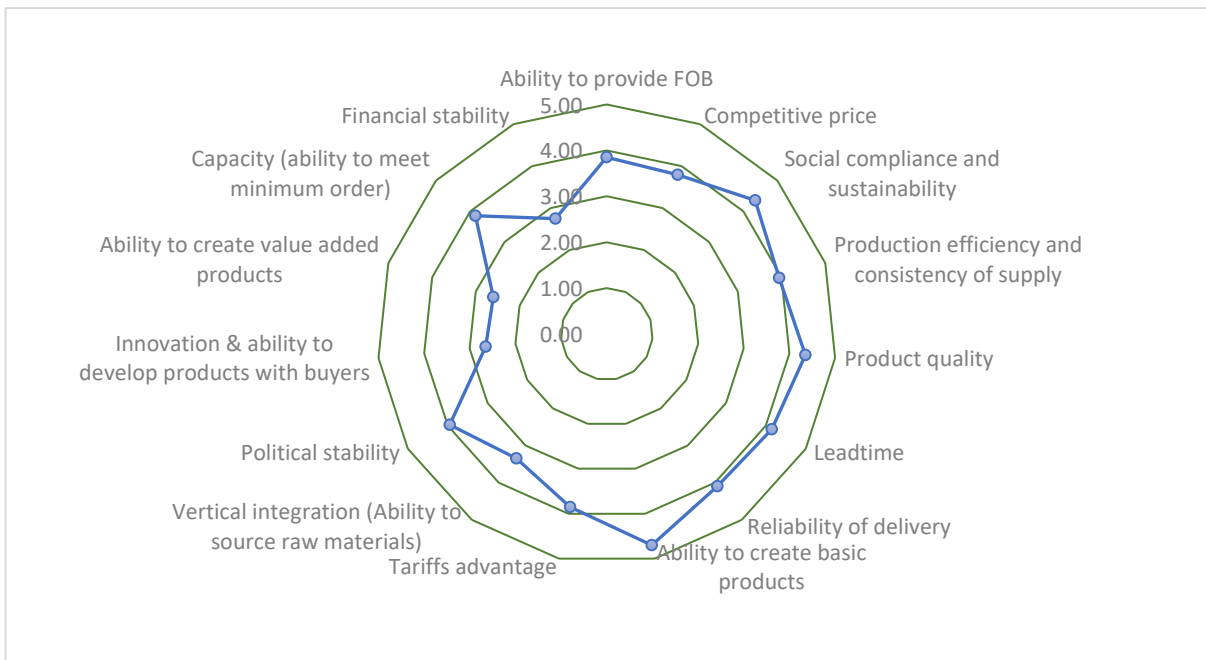
The average answers have aggregated as the metric below, and this visualized picture partly depicts how the current performances of Vietnamese apparel factories in the global leading buyers' mind. "The ability to create a basic product" shows the highest score, with 4.7, whereas "Ability to create value-added products" and "Innovation & ability to develop products with buyers" are not the strength of Vietnamese apparel manufacturers, with the score is only 2.6 and 2.65, respectively. These are not surprising results for the garment industry in Vietnam, where there is still a large number of garment factories work base on the cheap labor force within the low level of the global value chain. Although Vietnam apparel manufacturing is somehow upgrading themselves into FOB which including "Buying raw materials, selling products," there is still a big part of factories, undertake cut-make-trim (CMT) tasks. These tasks belong to the easiest export method of the garment and textile



industry, constitutes the labor-intensive cutting and tailoring processes as well as packing and (usually) delivery. Firms are operating on CMT supply thread while buyers supply fabrics. In practical terms, CMT is the most basic form of garment manufacture, and CMT payments cover labor costs, managerial costs, electricity, trading expenses, and the firm's profit margin. If Vietnam's apparel manufacturing sites do not improve the ability to have their authentic design and commercial trading, there still is a long way for them to upgrade into ODM and OBM to have a substantial impact with customers' mind.

Many Vietnamese garment enterprises have identified that in order to enhance their position in the global value chain and bring high added value, they have no other choice but to change production methods. Accordingly, the apparel industry has gradually shifted from outsourcing (CMT) to proactively sourcing raw materials, auxiliary materials (FOB) or higher stages that are ODM and even OBM are on the rise (Le Hong Thuan, Dec 2017). However, these numbers are not the majority. In fact, according to incomplete statistics of the Textile and Apparel Association (Vitas), the number of Vietnamese enterprises using CMT method still accounts for 65 percent, FOB-based enterprises account for 25 percent, and enterprises following the form of ODM and OBM are still very modest, only at 9 percent and 1 percent respectively (VITAS, 2016).

*Figure 3.12: 15 critical metrics regarding the current performance of Vietnamese apparel suppliers*



*Source: Author's survey aggregation*

In order to have a systematically look into all key metrics, I divide all of the fifteen aspects into three groups, in which from score zero to three is “Poor and Fair performance” aspects which need to be strictly improved otherwise factories will lose orders from customers; from more than 3 to 4 is “Good performance” group which need to be maintained and improved to have the best performance and from higher than 4 to 5 is “Very good and Excellent” aspects which need to be consistently maintaining to have competitive advantage in the buyers’ mind compared with other outsourced options. For instances, table 3.5 shows the list of fifteen critical aspects from high score to the low score.

Table 3.5: Categorized key metric into the score range

KEY METRICS	Average score
Ability to create basic products	4.7
Social compliance and sustainability	4.35
Product quality	4.35
Lead time	4.15
Reliability of delivery	4.1
Production efficiency and consistency of supply	3.95
Political stability	3.95
Ability to provide FOB	3.85
Tariffs advantage	3.85
Capacity (ability to meet minimum order)	3.85
Competitive price	3.8
Vertical integration (Ability to source raw materials)	3.35
Financial stability	2.75
Innovation & ability to develop products with buyers	2.65
Ability to create value-added products	2.6

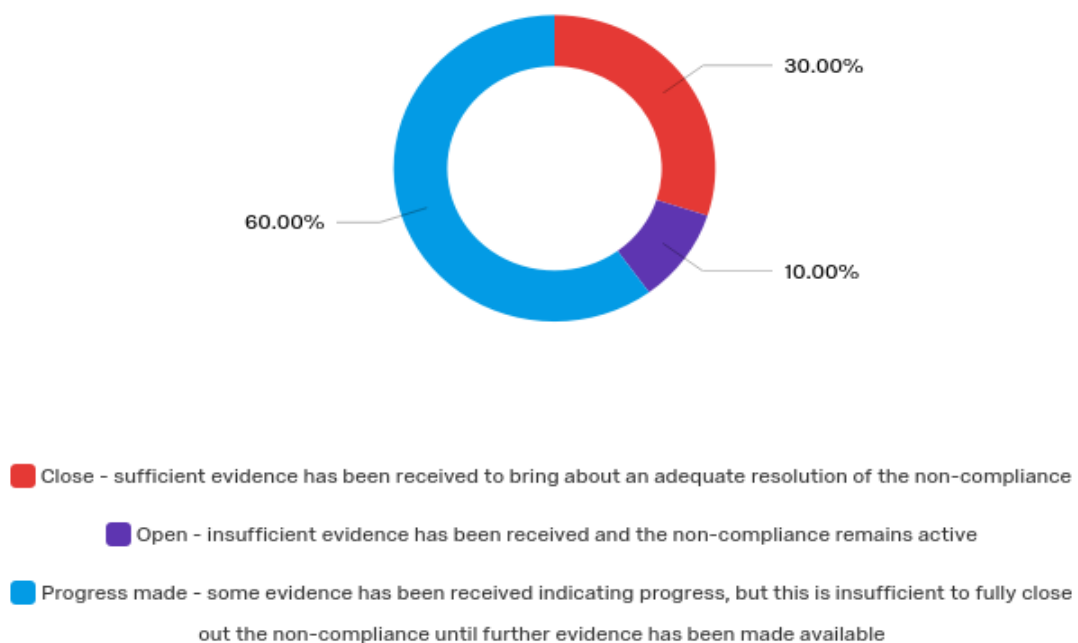
Sources: Author's compilation

According to the above categories, the Good performance group accounts for the highest number of aspects, which is showing the good perspective of Vietnam manufacturing sites in the customers' opinion. Most of the aspects belong to "Poor and Fair" group, which still needs to be improved. For instance, the aspect "Vertical integration" is just scored 3.35, very low compared to the average score of the Good Performance Group, reveal the weakness of Vietnam's manufacturing sites about the ability to have independent sources of raw materials. Nevertheless, if Vietnamese apparel factory only exploits their advantages belonging to Good Performance group such as "Ability to create basic products," "Reliability of delivery" or "Lead time" whereas underestimating the vital role of other aspects, it will lose the advantage in the international market in the long run. Most of the aspects belong to Fair Performance Group, which needs to be improved more, is the key aspects that will help the Vietnam apparel industry to move up into the global value chain during the current global economy's trends. "Innovation & ability to develop products with buyers," "Vertical integration," "Ability to create value-added products and develop products with buyers", "Innovation, ability to develop products with buyer" and "Production efficiency and consistency of supply" are all the value-added performances that global buyers put their expectations on it. The performance metric of manufacturing sites of Vietnam will be more balanced if and only if these aspects are sufficiently put into consideration.

- The follow-up audit solution and buyer's recommendation

This part of the survey collects the opinions from the respondent about how the factories show their resolution in the follow-up audits. With 60 percent of buyers agreed that Vietnamese factories have “*Progress made,*” which means “*some evidence has been received indicating progress, but this is insufficient to fully close out the non-compliance until further evidence has been made available*” (SMETA, 2017). Other 30 percent of buyers said that there are “*Close-sufficient evidence has been received to bring about an adequate resolution of the non-compliance*” and the rest of buyers still have a negative mindset for their Vietnamese manufacturing sites with marked into “*Open - insufficient evidence has been received, and the non-compliance remains active*” option.

Figure 3.11: How Vietnam’s manufacturing sites perform in the follow-up audits



Sources: Author’s survey

According to the results, most of the respondents need more improvement from their trading partners during the follow-up audit. Some evidence shows the progress, but they are insufficient to close out the non-compliance fully. Which mean, Vietnam’s garment factories do not have the strategies to solve the root-cause problem. Most of the solution is just applied for the short term, which leads to the repetitive of the problems as well as wasting of costs and time.

In addition to the above drawbacks and problem, global buyers give out some recommendation for further improvement of Vietnam’s manufacturing sites. All of the responses raise out five main backlogs of Vietnamese apparel factories. They are Technology,

Capacity, Quality of products and Personnel-related skills, and Social compliance concerns. (Appendix 2 is the full content of responses)

Firstly, **Technology** is the most mentioned keywords among ten responses. Six out of ten buyers mentioned about “*Designed machines,*” “*State-of-the-art equipment,*” and “*technological machines.*” Mr. V, who is working as a compliance auditor for Carrefour, mentioned that “*Vietnamese apparel factories need to equip more technological machines into production sites such as metal detective machine, robotic cutting machine to reduce the accidents for workers and customers. Our company had to cancel the order with two factories in Vietnam due to this lack of technological equipment.*” In addition to this, another answer from a merchandiser of KIABI’s vendor pointed out that “*State-of-the-art equipment will help factories in Vietnam get higher valuable orders.*” Mr. P.A., Vietnam Sourcing Director for Lacoste and Pentland brands, emphasized that “*More investment in advanced technological machines is a wise step for apparel factories in Vietnam to achieve more reliability and long-term collaboration with a global trading partner.*” Other responses related to technological equipment are from a merchandiser at Vietnam local team for Gap Inc. and Decathlon, respectively, which is “*Need to set up inspect fabric machine, metal detector machine,*” and “*Invest more on technology (auto facilities or equipment) to improve productivity and quality consistent.*”

The second highlighted keywords are **Capacity** and **Minimum Order Quantity (MOQ)**. Not a surprise that most of the buyers care about this matter initially in order to choose one factory to become their trading partners. The chosen factories must content with buyers’ cost and capacity strategies. For instance, in order to look for an outsider outsourced partner, that partner must have an ability to offer the best competitive price in which it offset to the cost related to another trading partners or in-house producing. Approximately 50 percent of the respondents mentioned that Vietnamese manufacturing sites should improve more about Capacity and MOQ matters which are directly affected by the availability of material and transparent method in calculating capacity. For instance, Mr. Nguyen L., Sewing Manager at Triumph International Vietnam, also worked as Factory and Production Manager for Esprina and Sintex Vietnam said that “*before satisfying buyers in social compliances, Vietnamese apparel factories must have a clear method in calculating capacity.*” Other ideas related to capacity and price are from Mr. E. G., who is working as Manager apparel in Africa, Cambodia, and Vietnam for Polyconcept, previous Merchandiser for H&M, and from Mr. C. Nguyen, who is Production Controller for Uniqlo in Vietnam. They are all mentioned about

Vietnamese factories need to focus more on the capacity matter, Mr. E. G. emphasized about one solution to improve MOQ (Minimum order quantity)<sup>11</sup>, and prices matter is “*Fabric and trims availability locally.*”

The least stand-out keywords, which most of the buyers mentioned in the opening question, are the **quality of the product**, **personal-related skills**, and **social compliance**. The quality of products is also affected directly by the investment in technology as above. Moreover, buyers also expect more from Vietnamese trading partners in improving vertical integration. Factories in Vietnam still show the limitation on higher value-added products and somehow ignore the value which brings back from downstream processes and other stakeholders. Customer service and friendly-environmental solutions are other concerns. One answer from Mr. Vincent V., Country Manager of PSEB LLC in Vietnam, pointed out that “*Vietnamese factories need to improve about Customer service mindset, and product development capability, the design stage still depends a lot on the customer's side.*” The same mindset with him are the opinions from Mr. C. Nguyen: “*Improving management skills, mindset and designed machines for added-value products*” and from Ms. K. V., Production Leader at Decathlon Group, “*Think more about a green product or green solution; Cooperative & continuous improvement mindset.*”

In conclusion, Vietnam’s manufacturing sites have not shown a positive image about solving all the problem raised in the audit. Most of the solution is just applied for the short term, which leads to the repetitive of the problems as well as wasting of costs and time. Moreover, from the buyers’ recommendation, their expectations are mostly regarding the lack of advanced technology application and managerial skill aspects. With the greatest number of garment factories is in small and medium-size, Vietnam’s garment industry still show their main weakness in managerial vision in the long term. For instance, in general, Vietnam’s factories do not put their investment in vertical integration ability. Vietnam garment manufacturers still lack innovative, design, and develop products ability; the majority amount of raw materials significantly depend on external resources. Also, go along with the instability of finance, Vietnam’s garment factories are not willing to invest in building strong and independent internal resources of raw materials as well as trained and skilled labor forces.

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<sup>11</sup> The minimum quantity level in which factory accept to produce. Factories won’t produce your garments unless you agree to produce a minimum number of pieces per design. This number varies from factory to factory, and also depends on the technical characteristics of the design.

Such that, investment in innovative and technologies is still far away from many of Vietnam's garment factories' strategies.

### **3.4.2. Second perspective: Collecting audit reports from Vietnamese manufacturing sites.**

The allocation of garment factories in Vietnam is mainly in the South with 62 percent. In the North of Vietnam is 30 percent and in the Central area is six percent, where the rest account for only two percent. Thereby, the major garment hubs of Vietnam are Hanoi, Da Nang, Ho Chi Minh City, and nearby areas. These three regions have a considerable number of products being exported to many countries in the world, becoming one of the leading export items of our country. Besides, garment factories within these areas also enjoy the advantage of location when located near major ports, shortening the time and cost of delivery to European and American markets.

Furthermore, these are three areas that attract a large labor force to join the textile industry and contribute a high proportion in the structure of industrial goods of the country. According to the 2017 Statistical Yearbook, the total number of textile and garment enterprises in Vietnam are 8,770, accounting for about 2% of the whole country, whereas the number of garment manufacturing is about 6000 factories, of which about 30 enterprises are considered big scale with the number of employees is more than 5,000 people (0.5 percent). Such that, most of the Vietnamese garment factories which are operating now is considered Small and Medium-size enterprises with a scale of fewer than 500 employees (General Statistics Office of Vietnam, 2018). All of the selected samples are garment factories belong to the majority group, with the average number of employees is more than 1000 employees.

- Social Audit reports analysis:

Through the selected garment factories, a total of fifteen audit reports (five technical reports and ten social/ compliance reports) are collected. All the social/ compliance audit reports is conducted based on principles and standards of qualified organisation such as WRAP, SMETA Corrective Action Plan Report,, Omega Compliance Limited, NEXT Code of Practice (member of Ethical Trading Initiative (ETI) Base Code) and TUV Rheinland whereas all Technical audit reports are based on the Code of conduct related to the requirements of each specific customers, such as KIABI Code of Conduct and Sainsbury Technical Audit. Appendix 3 will show the detailed of non-compliance findings regarding each type of Audit. Firstly, in Social/ Compliance audits, business customers are increasingly differentiating their brands and making their purchasing decisions based on “ethical” factors. These cover an

organization’s approach to corporate social responsibility (CSR), compliance and code of conduct; ethical trading; human rights; labor regulations, including health and safety; and responsible production practices. There are a variety of social audit certifications, such as BSCI, WRAP, SA8000, ICTI, and SMETA. “It lies with the individual member to decide what audit is acceptable to them” (SMETA, 2017).

WRAP certificate has 12 main principles focus on Labour, Law and Regulations, Health and Safety, Custom compliance, and basically cover all the framework of the other standards. Therefore, WRAP’s principles are suitable to be the framework to categorize all of the non-compliance findings of the selected garment manufacturing sites in Vietnam. The final result is depicted in Table 3.6 below:

*Table 3.6: The list of non-compliance findings in Social audits*

<b>WRAP 12 compliance principles</b>	<b>Count of non-compliance findings</b>
Health and Safety	32
Security	12
Environment	7
Compliance with Laws and Workplace Regulations	6
Hours of Work	5
Compensation and Benefits	1
Freedom of Association and Collective Bargaining	0
Prohibition of Forced Labor	0
Prohibition of Child Labor	0
Prohibition of Harassment or Abuse	0
Prohibition of Discrimination	0
Customs Compliance	0

*Source: Author’s aggregation from collecting social audit reports*

There are 63 non-compliance findings through 12 social/ compliance audit reports from five garment factories. Among 12 WRAP principles, Health and Safety account for the majority with 32 among total 63 non-compliance findings, approximately 50 percent. In this Health and Safety principles, the details of non-compliance points mostly faced in “*missing identical warning signals,*” “*Improper machine safeguarding,*” “*Insufficient of fire extinguishers*” and “*The first aid kit does not meet the standard quality or is not fully supplied.*”

Moreover, the problems related to exit doors, exit route, and insufficient light in several areas was also pointed out in several reports. Selected garment factories showed their underestimation regarding the chemical protective and controlled policies as well.

Security-related problems are the second most non-compliance findings within twelve audit reports, which account for approximately 18 percent. Among 12 findings of Security, the



loose management systems such as risk assessments, no updated or missing documents and records, insufficient periodic checks and internal inspections, lack of professional training or valid licenses account for the highest number of the non-compliance findings. Through the statistics, Vietnam garment factories are showing their weakness in loose management systems regarding mostly in training, availability of documents, and records.

The next most non-compliance findings come from Environment. Environmental-related problems have received the most concern from society, especially the investors in recent years. In selected audit reports, until seven non-compliance points have found. All of them relating to environmentally conscious practices and inspections.

There are six non-compliance findings related to Compliance with Laws and Workplace Regulations. For instance, the selected facilities did not comply with laws and regulations in all locations where they conduct business in several audit reports. The findings in which showing the non-compliance with Client's requirements is more than with local law and regulations.

Among other six non-compliance points have found related to Labour principles; there are five points regard Hours of work and only one problem related to Compensation and Benefits. According to the review thesis, time record, interview workers and managers, most of the non-compliance cases revealed the exceed of average working hours per month, short rest day as requirements. For example, during the interview of the employee in one garment factories in 2016, there were 07 out of 12 selected samples worked overtime 31 to 38 hours per month in March and 01 out of 15 selected samples worked overtime 32.5 hours per month in June. In another factory inspection in 2019, at least 03 workers worked exceed 30 hours per month as a requirement (workers worked from 34 to 36 hours). In general, compliance rates are relatively high among key labor standards issues, except for hours of work. Factory leaders support union activities. Most workers interviewed through the reports have a common understanding (though often simple or limited) about their rights and obligations when joining a union and most of them are under no pressure from employers on joining or not joining unions. Usually, after the probationary period and the preparation for the term of a fixed-term labor contract, the HR staff will automatically register the employee to become a union member. In such cases, workers are rarely explained about their rights and responsibilities as union members. Besides, most of the selected factories have not followed the law about the process of negotiating and ensuring business management does not participate in union activities. In the report, only one factory is in breach of the law on Compensation and

Benefits, which is several cases of resigned employees were not paid for New Year Holiday and regular overtime hours. There are no non-compliance findings related to strike settlement, forced labor, child labor, discrimination, harassment, or abuse. The majority of violations are on issues assessed under national law, such as occupational safety and health, working hours and contracts, which focuses primarily on labor protection, overtime hours and occupational safety management system (the three most common violations recorded in this report).

- Technical Audit reports analysis:

Most of the Technical audits are conducted either directly or indirectly by the buyers or the vendors who are on behalf of buyers or fashion brands or by third parties. However, depending on each buyer, they will release their manual audit which is showing their requirements and priorities in the technical, production process and product quality, which is followed by nominal third parties or in-charged vendors. There are five Technical audit reports has collected, and they are all conducted based on buyers' manual such as Sainsbury, Walmart's Global Sourcing, or Kiabi Code of Conduct. Similarly, with Social/ Compliance audits, the Author choose Sainsbury's Technical Audit standards as the baseline framework to aggregate all non-compliance findings within five reports. The Sainsbury's Technical Audit assessments cover all necessary steps in any garment manufacturing sites. The assessment focuses on eight main points, which are: Goods Inspection / Chemical Storage, Pre-Assembly Operations, Assembly, Post-Assembly Operations, Finishing & Packing, Final QC, Finished Goods Warehouse, and Organisation. For instance, Goods Inspection/ Chemical Storage related to all qualifying conditions for inspection in every step and the controlled requirements for Chemical storage as well as needles and metals control. Pre-Assembly, Assembly and Post-Assembly Operations apply regulations for all steps and operations from material to semi-products and finished products. Finishing and Packing related to all processes and problems occur during finishing and packaging steps. Final QC set the rules for end-line inspection (such as measurements AQL<sup>12</sup>, availability of approved technical measurements and approved samples) whereas Finished Goods Warehouse ensures facility strictly follow the rule for storage of the finished goods. All requirements related to TQM (Total Quality management), management systems, documentation and records which support for the whole production lines belong to Organisation.

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<sup>12</sup> Acceptance Quality Limit: is defined as the "quality level that is the worst tolerable" in ISO 2859-1, beyond which a batch is rejected.

Following the clear baseline standards as above, the result of non-compliance findings from five Technical Audits of eight selected garment factories is aggregated as the table below:

*Table 3.7: The list of non-compliance findings in Technical audits*

<b>Principles (based on Sainsbury Manual)</b>	<b>Count of Non-compliance findings</b>
Goods Inspection / Chemical Storage	9
Pre-Assembly Operations	10
Assembly	3
Post-Assembly Operations	1
Finishing & Packing	1
Final QC	1
Finished Goods Warehouse	0
Organization	12

*Source: Author's aggregation from collecting Technical audit reports*

Regarding the result, there is no breach of the law on Finished Goods Warehouse, whereas most of the other principles have found the non-compliance points. The majority of violations are on issues assessed under Organisation, Pre-assembly Operations, and Goods Inspection/ Chemical Storage. With 12 violations in Technical assessments, Organisation within these five selected factories has found the most room for improvement. There are five breaches related to production documents and records, i.e., “*The facility did not have documented a testing plan for each product or group of similar products.*”, “*Factory have the record documents, but there is no kept sufficiently.*”, “*Fabric and garment test reports from approved labs are submitted and approved with the record were not kept correctly.*”, “*There were no reports available during the visit.*” or “*Document has not completed yet. The factory is in progress to complete.*”

Again, similar in Social Audit, documents, and records regarding production requirements need more improvement and systematic arrangement from selected factories. The lack of these documents such as testing plan documents, recorded documents, testing reports, approved technical documents directly affect the production process. For example, workers are the one who has the least information regarding the inline garment compared with developers, merchandisers, end-line QC, and head of the factories. Workers work systematically upon the instructions from the leader of production lines, and the most important things are records, instruction documents, and approved samples. Factories will leave a chance for mistakes if they do not consider the importance of these steps before running production. Another problem related to the Organisation process, which raised the next concern in the table below is the application of Total Quality Control (TQM). Four

violations found in the selected technical audit reports have connected with TQM problems such as a lack of systematic methods to conduct a root-cause investigation for customer complaints and non-conformity. Garment leading buyers expect these factories to apply more systematic methods such as Five-why process, Pareto chart, or Fishbone chart to have a more in-depth investigation into the root cause of any problems. It helps factories to keep making mistakes which may lead to bad quality as well as unreliable lead time. Total Quality Management must be carried out in all stages of the production and business process. Unlike quality control, the checking process only occurs at the end of the production process. The TQM of the quality management system aims to minimize defective products, leading to cost reduction by checking quality at all stages of the production process so that mistakes do not occur. The implementation begins with pre-assembly operations such as product design, materials purchase, storage process as well as the supply of raw materials, manufacturing process to assembly and post-assembly operations.

The organization is followed closely by Pre-Assembly Operations and Goods Inspection/ Chemical Storage with ten and nine non-compliance findings, respectively. Most of the violations in Pre-Assembly Operations involve the preparation for semi-finished products before passing them to the production lines. Fabric relaxation, availability of approved trim card for checking, the readiness of pattern marking, fabric roll, and accessories storage are all the violations have been found within five technical audit reports. Violations in Goods Inspection/ Chemical Storage section are related to raw material, accessories and product inspections, condition for inspections such as measuring method and standards, guidelines, and all supportive tools such as qualified light in inspection areas, digital balance for fabric weight and needle red boxes or metal detectors. There are three violations found in Assembly steps, i.e., *“It was found that some semi-finished products in black color from the previous production remain in current sewing line”* or *“quality issues in production inline regarding uneven bottom hem, puckering and uncut thread.”* The rest steps from Post-Assembly Operations to Final QC have the least breaches. They are related to finishing and packing or final inspection for finished products such as no explicit instruction or chart for cleaning and stain removal areas; or lack of end-line QC to apply final inspection for each production line. In a nutshell, through the analysis of Social and Technical audit reports, the significant weaknesses of Vietnam’s garment manufacturing sites are related to lack of assurance for a health and safety working environment for the workers; and the loose management system in adapting an effective and smooth organization. Vietnam’s garment factories seem like

underestimate the crucial roles of these aspects, but indeed, they are impacting directly to the productivity of the workers as well as the quality of the products.

## **Chapter 4: Upgrading solutions for Vietnam garment manufacturers and Market Responses to Higher Apparel and Textile Exports**

From the above analysis and results, this chapter will aggregate all the information in order to do a SWOT analysis for Vietnam's garment industry. Base on the weakness of the industry itself and threats from outer environment, the author, will give out upgrading trajectory and solutions in which, Vietnam garment industry can recognize where and when to have improvement to take advantage of market opportunities.

#### 4.1. SWOT analysis for Vietnam’s garment industry

Regarding the benchmarking and analysis as the above chapters, some of the pros and cons in Vietnam’s garment industry has been raised, compared to other countries in the same region. All of the aspects will be put into a SWOT analysis structure in order to have a more precise picture.

Figure 4.1: Summary of Vietnam’s garment industry SWOT

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>- Competitive advantages in production lead time and labor costs</li> <li>- Good performance in workers’ fundamental rights</li> <li>- Highly appreciated for its political stability and social security</li> <li>- Benefit from critical FTAs under the shifts of the global market and close competitors</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>- Uncompleted value chain</li> <li>- Not yet built separate brands and strong downstream capacities</li> <li>- Insufficient awareness about compliance and sustainability</li> <li>- Lack of the application in automation and advanced technologies</li> </ul>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>- The trends of moving orders from China</li> <li>- Supportive policies and orientation from the Government</li> <li>- Opportunities for Vietnam’s garment industry from Free Trade Agreements (FTA)</li> </ul>	<p><b>Challenges:</b></p> <ul style="list-style-type: none"> <li>- Undeveloped supporting industry hinder the independent in raw materials.</li> <li>- FDI enterprises create significant competition with domestic enterprises</li> <li>- Strict barriers from major importing markets and Free Trade Agreements (FTAs)</li> </ul>

Sources: Author

##### 4.1.1 Strengths

**Firstly, production lead time and labor costs are relatively low compared to other benchmarking countries**

As analyzed above, the average production time in Vietnam from 60 to 90 days is only lower than China and India (40 - 70 days), equivalent to Indonesia, Malaysia and higher than Bangladesh and Cambodia (80 - 120 days). However, the wage costs in textile and apparel workers in Vietnam is slightly higher than India, and Bangladesh only two-thirds of that in Indonesia and Malaysia and especially in China. The number of people of working age in Vietnam is high, while textiles and garments are labor-intensive. Therefore, this is one of the competitive advantages of Vietnam textile and apparel. Although Vietnam's textile and apparel products have been accepted by demanding markets such as the United States, the

EU, and Japan. Vietnam is a prominent export manufacturer in two major markets, the United States and the EU. Building close relationships with many importers and big consuming corporations in the world. Therefore, Vietnam is the first choice for the production of apparel by fashion brands and retailers around the world.

**Secondly, Vietnam's garment firms have good performance in workers' fundamental rights such as child labor, forced labor, discrimination, harassment, or abuse compare to other close competitors.**

Enterprises generally comply with the fundamental labor standards rights and requirements, including child labor, forced labor, and discrimination, except for association freedom and collective bargaining, in which, a significant number of factories still do not guarantee union activities without enterprise management involvement. Moreover, compared with the top four exporting countries, China, India, and Bangladesh, Vietnam has relatively not bad performances within cost-related and non-cost related factors generated from benchmarking results.

**Thirdly, Vietnam is highly appreciated for its political stability and social security, which is attractive to foreign traders and investors.**

Vietnam is on the rise the becomes one of the top garments exporting suppliers with the growth rate export's value reached nearly 20 percent in 2018, partly thanks to the support of the Vietnamese government. Due to Textiles and Garment are core industries of Vietnam, the Government has given priority measures and encouraged investment in these industries such as preferential import tax on raw materials. In term of China losing its market share in apparel exporting, Vietnam becomes a promising market as it has proximity production chain, location, and connection as in China, which help investors quickly adapt and move to invest in the new countries out of China.

#### **4.1.2 Weaknesses**

**Uncompleted value chain – Vietnam's garment industry still faces the lack of availability of domestic raw materials and accessories and the weak cooperation between enterprises within the industry.**

Textile and dyeing are the breaking points of the whole value chain of Vietnam's textile and garment industry. The yarn industry must export two-thirds of its output while the garment industry must import 70% of its input materials. Thus, the weaving and dyeing stage has not yet completed a proper role in the whole industry value chain without fully exploiting the domestic production of input materials (fibers) and causing a severe shortage of output



(fabric). When the free trade agreements officially came into effect, especially EVFTA and CPTPP with the rules of origin "from fabric onwards" and "from yarn onwards", weaknesses in Vietnam's textile and apparel industry's value chain will be an obstacle for businesses to expand orders and enjoy 0% tariff preferences in these core markets.

Vietnam is on the way to upgrade from CMT, FOB into ODM and OBM stages, this upgrading needs a lot of efforts and investments from the government as well as the internal forces of each enterprise. One of the inadequacies of the Vietnamese textile and garment industry is the significant dependence on importing raw materials and accessories from abroad, especially China (accounting for nearly 50%). The dependence on raw materials will significantly affect the domestic industry if there are adverse changes from the input. Meanwhile, Vietnam - Europe Free Trade Agreement (EVFTA) is assessed to have a positive impact in the medium - long term. The EU is the second-largest export market for Vietnam's textiles and garments, with 42.5% of tariff lines imposed on textile products will be reduced to 0% as soon as the Agreement comes into effect. The rest will be reduced to 0% according to the 3-7-year roadmap will help Vietnamese goods become more competitive than Cambodia or Bangladesh (enjoy a preferential GSP tax rate of 0%). The rules of origin "from yarn onwards" of EVFTA as well as the aggregation of raw materials originating from a third country that share FTAs with both Vietnam and the EU (Korea) are also more favourable for Vietnamese businesses compared to CPTPP if and only if Vietnam improve its independence from China's raw materials and accessories.

**Vietnam's garment enterprises had not yet built separate brands and strong downstream capacities, such as design, R&D, innovation, and marketing to have high value-added products.**

Vietnam's garment companies do not have coordination in marketing to compete internally in the domestic market as well as internationally in attracting foreign buyers. The ability to self-design and distribution is weak, mainly by following the designs of foreign orders for export. Very few garment enterprises have their design and R&D departments, which means many garment enterprises are still relying on representative offices in Vietnam of famous brands to provide products. The research and development product process still not yet put into consideration so that Vietnam's manufacturing sites cannot obtain huge profits.

Moreover, Vietnamese firms have not focused on researching and investing in market demand. Many segments of the market were left vacant, creating favorable conditions for many foreign products to penetrate deeply into the domestic market such as blankets, sheets,

pillows. All products are from China, Korea, Thailand, and Singapore. Moreover, some high-quality products can meet demanding customers in the US and Japan but are not present under any of Vietnam's brands, causing unrecognized for international as well as domestic customers.

**The insufficient awareness of social and technical compliance is what hinders many Vietnamese garment firms from taking higher valuable orders from global buyers.**

Textile and garment workers are mainly unskilled workers, without long-term career development orientation, firms have to face high rate in job transition in this industry if they do not launch the suitable labor promoted policies. In China, workers know that if they do well, they can get promoted and make much money in the future. In Vietnam, workers do not see that they will gradually be promoted and earn much money, so they work at a more moderate pace and are willing to quit to change to a similar job in a new company with an indifferent salary rate. For example, in China, a skilled tailor, usually around the age of 22 with four or five years of experience, can earn about nearly 600 USD per month, two or three times the salary in Vietnam.

The remaining weakness is related to Health, Safety, and Security matters. They are three standout points that have been most repeated in every non-compliance reports. As analyzed above, the most common violation in this point as well as the entire Health and Safety section is the failure to establish a full safety department. Vietnamese factories still lack a safety department specialized to address health and safety issues. Many garment businesses previously assigned an office worker, who did not have any relevant degree, held an administrative or compliance officer position, and were in charge of Safe and Healthy jobs. The reason is that the factory does not pay adequate attention and often associates the work related to labor safety and hygiene and compliance with the customers' codes of conduct. As required by the new Vietnam Occupational Safety and Health Law, safety officers must meet specific criteria for qualifications and experience. Therefore, the aggregate information from the selected reports shows that half of the factories have not assigned qualified and experienced people in charge of this work. Similarly, Vietnamese law also requires factories to establish a safe and healthy department, but more than a quarter of factories have not yet done so. In the absence or inefficiency of this department, it is evident that other issues such as unsafe use of machinery and workers who do not use adequate labor protection equipment may occur (both of which are the responsibility of the occupational safety and health net).

**Finally, the weakness of technology partly holds Vietnam's garment industry back compared with other leading countries such as China and India.**

Vietnam sewing machines mainly originated from China, Japan, and Taiwan, in which the proportion of sewing machines imported from China accounted for the highest proportion (58%). Automatic garment machinery and equipment tend to be applied at simple stages, such as cutting sewing, selecting only sewing threads, buttonholes. In order to invest in machinery and equipment, it required a large capital resource. However, currently, the majority of garment manufacturing units in Vietnam are small and medium-sized, do not have enough capital to import high automatic machines. Such that, although the textile and garment industry have a large but not synchronized investment. There are types of machinery and equipment that are obsolete but still take advantage of, so their productivity is not high in order to compare with the overall synchronized process. Even though several high-end factories in Vietnam are already in the first steps to apply the synchronized process, but this change is still weak and small, easily lead to the imbalance between factories within garment industry in Vietnam.

#### **4.1.3 Opportunities**

- **The trend of moving orders from China:** Vietnam's apparel industry will have growth in export sales thanks to the shift in apparel manufacturing from China. According to the 12th five-year plan, the Chinese government aims to develop the textile and garment industry in two directions: increasing the proportion in yarn weaving and participating in higher value-added stages such as design, development products, and distribution. There was an announcement about "Made in China 2025" strategy in May 2015 with the roadmap to replace low-cost industries that consume much energy and cause environmental pollution such as textiles, fiber or footwear (Bridges, 2018). These low-cost industries are encouraged to investment out of China. Therefore, garment production will shift partly to the neighboring countries such as Vietnam, Cambodia, and Bangladesh. In which Vietnam is an attractive destination thanks to the advantage of the cheap and young labor force and relatively good production lead time for textiles and garments, leading to the ability to deliver goods quickly and promptly for the request of ordering units.

- **The Vietnamese government's development orientation and policies** create favorable conditions for the textile and garment industry to continue growing. The Government is aiming to develop the textile and apparel industry by 2030 through the development of ancillary industry and improvement of bad links such as planting cotton to reduce dependence

on imported cotton from the world. In the meantime, government focus on increasing investment in undeveloped sectors, which are textile and dyeing. According to this orientation, textile and garment are one of six fields in the list of industrial products which receive the priority support from the government for developing. Thus, textile and will have a relatively favorable business condition to develop in the coming time when the Government has detailed and specific policies.

#### **- Opportunities for Vietnam's garment industry from Free Trade Agreements (FTA).**

Vietnam - EU signed EVFTA, the garment is one of the most benefited industries. This agreement is in effect to help Vietnam's GDP growth increase by 0.48% points. Industries like textiles and footwear are the most benefited when the roadmap of commitments on tax reduction is completed (popular in 3-7 years). Removing most of the tariff barriers will boost trade between the two sides. Specifically, according to the European Trade Policy and Investment Project (MUTRAP), it is predicted that in the implementation period up to 2025, Vietnam's economic growth will be about 7% to 8% higher than before signing EVFTA. Exports from Vietnam to the EU are forecast to increase by more than 50% by 2020, as well as imports from the EU will have significant growth (European External Action Service, March 2019). Meanwhile, real wages for unskilled workers are estimated to increase by 3%, and household income will rise even faster (Vintamin, 2017). Besides, participating in EVFTA helps strengthen bilateral relations between Vietnam and the EU, contributing to diversifying markets and exports, in line with Vietnam's multilateral diplomacy policy in the market international. Also, this agreement partly helps to ease the pressure from the complicated developments of the US-China trade war - the two leading major trading partners of Vietnam in the past year.

#### **4.1.4 Challenges**

- **The starting point of Vietnam's textile and garment industry is fairly low** compared to other leading countries; supporting industries are not developed. Vietnam's legal documents are still in the process of being finalized, while the capacity of policy formulation and enforcement officials, as well as those involved in trade promotion, is still weak. Although government policies encourage investment in supporting industries, localities tend not to attract investment in textile and dyeing industries due to environmental concerns. Therefore, raw materials and materials are mainly imported, and the processing ratio is high, which is a big challenge in global economic integration.

**- Strict barriers from major importing markets and Free Trade Agreements (FTAs).**

The major importing markets have applied quite a lot of technical barriers, hygiene, safety, environment, social responsibility, anti-price subsidies to protect domestic production. Many Vietnamese enterprises are small and medium-sized, do not have enough capacity and capital resource to invest in advanced technology, resulting in losses in high-value orders.

EVFTA is less strict than CPTPP but still presents many challenges. In the first few years, the textile and garment industry may face certain disadvantages because, while waiting for the reduction of tax to 0%, according to the schedule of EVFTA, Vietnam's exports to the EU will no longer be available in enjoying the 9% tax rate of the Universal Preferential Tariff System (GSP). This cancellation reflects the single level that the EU unilaterally offers for the low level of competitive products from developing/underdeveloped countries according to criteria determined by the EU. Instead, the industry will be subject to higher tariffs from the preferential import duty (MFN) applied by the EU - currently at around 12%, according to VCCI's recent report on the textile industry in Vietnam (VCCI, 2019). Moreover, for garment industry, in order to be eligible for a tax reduction under the agreement, products must strictly follow the rules of origin, satisfying the two conditions that the fabric used to create the product must come from Vietnam or EU and cutting and sewing must be done in Vietnam or EU. However, EVFTA also has a flexible commitment to rules of origin. Typically, for cases where the fabric used by the enterprise originates from a country with FTA with the EU and Vietnam (such as Korea), the product of the enterprise is also considered a valid origin to benefit tax incentives under the provisions of EVFTA. Although the rules of origin in EVFTA are looser than that of CPTPP, there are still many challenges for Vietnamese textile enterprises (Customsnews, 2019). The reason is that the majority of Vietnamese enterprises are still in the stage of sewing and cutting, not manufacturing fabrics and yarns to have an independent source of materials. Therefore, in order to maximize the benefits gained from EVFTA, it is necessary to focus on developing the textile industry and auxiliary industry of textile industry to provide raw materials for garment manufacturing enterprises.

**- FDI enterprises create significant competition with domestic enterprises** in orders, input materials, and labor. This intensive competition leads to the domestic market is at risk of foreign firm's control. Vietnam's textiles industry is lack of connection within the whole value chain. Regarding garment production, the domestic market is being left open. Regarding fabrics, Vietnam has to import 65-70% of the demand, so this will be a significant market opportunity for textile and dyeing enterprises. Regarding yarn, although two-thirds of the

production capacity is used for export, however, if domestic fabric output increases with strong growth in domestic fiber demand, the domestic fiber industry, out of the exported amount, still has room to meet its own needs from national demand.

However, currently, this development space has been captured by FDI enterprises when there is continuous approvals in recent times for textile and apparel FDI projects. Also, free trade agreements will be a driving force for foreign goods to enter the domestic market without the need for a quota. With the changing of an international trend of fashion due to the introduction of culture from Korea, Japan and models and designs more diversified, the domestic market may be in the hands of FDI businesses if domestic enterprises do not change to diversify products and increase its design, innovation capability.

## **4.2. Upgrading solutions**

### **4.2.1 Establishing industrial clusters and linkages within the industry to improve lead-time, working quality, governance model, and independence in the domestic raw material.**

Although Vietnamese textile and garment enterprises do have awareness about the benefits of the creation of industrial clusters, those enterprises do not have any motivation to become the link of the whole value chain. The reasons are they do not own each other's share; there is no trust, no loyalty, or there have been no agreements on price reduction, quality, quantity, competitive prices, delivery time. In general speaking, there are no official policies about the agreements from the government about this matter. Thus, apparel enterprises and domestic raw materials manufacturers have not yet linked effectively.

Besides, there is remain a significant lack of information, and there is no electric trading platform to help businesses capture information and trade opportunities within the industry. Enterprises within the industry do not know how many stages of raw materials and accessories that Vietnamese domestic firms produce and how much capacity which those firms have. In the other side, some exporting textile and apparel enterprises, although import raw and auxiliary materials from foreign enterprises (mainly from China and India), do not have the full information about who and where they are. The reason is the steps of trading and purchasing goods are mainly carried out through intermediaries such as vendors or local team of leading firms. As a result, both vertical and horizontal linkages have not been well implemented, so it has not formed an effective supply chain for the whole of Vietnam's textile and garment industry.

It can be seen that businesses are not establishing linkages because of lacking motivation, real information, and changes within the industry. Such that, Vietnam's government should launch more policies in which prioritize investment in creating an intuitive electronic trading platform for this industry. In this platform, all of the information about participants, from raw materials firms to design and garment manufacturing firms, should be disclosed with name, capacity, and specialized product. The head of each enterprise should be updated and announced sufficient about the benefits and purpose of this platform and be encouraged to register and join as a chain within this linkage. By building a close linkage between enterprises, which are in the same field, from production of raw materials such as finished fiber, textile dyeing, to design, production of machinery and equipment, distribution and marketing, Vietnam's textiles industry can gain the vertical integration power as well as solve many problems about import tax, uncontrollable quality of importing products, unreliable lead-time and the most important is solving origin problem to gain the benefits from Free Trade Agreements. Each enterprise within the industry should proactively join the platform based on considering the total profit for the whole chain to be more critical than a business's own profits. The clusters should be reviewed and rearranged in the direction of not only achieve the target of free trade agreements but also increase the level of connectivity to reduce costs, strengthen relationships, strengthen supply chains and minimize environmental problems. In general speaking, the creation of clusters and linkages within the industry urgently need the support from the Government, the consensus of all the enterprises as well as the investment in advanced technology.

#### **4.2.2. Policies to improve compliance in social and technical requirements**

Following several fires and deaths in textile and apparel facilities in Bangladesh, global leading buyers are increasingly paying more attention to labor working conditions and firms' compliance levels (ILO, 2018). Vietnamese garment enterprises generally comply with the basic labor standards requirements, including child labor, forced labor, and discrimination. Regarding freedom of association and collective bargaining, a significant number of factories still do not guarantee union activities without enterprise management. Most of the documented violations of Vietnamese labor laws is the exceptionally high non-compliance rates related to labor protection, overtime, and the Labour Safety and Hygiene management system. Besides, although it has improved during this period, the transparency and integrity of the payment system and recognition of working hours still pose risks to partnerships in the supply chain. Addressing these persistent challenges requires the efforts of all stakeholders in

the supply chain. Indeed, the improvements in the Labour Safety and Hygiene management system may serve as catalysts for other related improvements in the long term.

According to the compliance analyzed results, the non-compliance points mainly belong to the management system. Vietnamese factories mostly showed their weakness in management accountability and responsibility, documentation and records, communication, legal, and customers' requirement sections. In order to improve these problems, each factory should proactively establish self-assessment department, which in charge of analyzing all the mistakes in the past, share and review ideas and opinions with workers to get the most objective-nature recommendations from workers, one of the most important stakeholders within the industry. Improving these drawbacks is not only a formal-nature job in order to satisfy customer's requirements, but it is also a foundation that directly affects the process and product quality of the factory.

However, it is never enough with the only effort from manufacturing sites itself because most of the factories in Vietnam now is in the small and medium size. If there is any event of improvement, these small and medium-size factories will base on the requirement of specific clients; and this leads to the improvement on a small scale, far from having a tremendous impact on the overall industry. Therefore, Vietnam's garment businesses need external assistances from governmental or non-governmental organizations to train and raise awareness about compliance. These external organizations will have sufficient experience and skills to invest considerable time and resources in training and advising factories on the advantages of a systematic approach to ensuring health and safety workplaces, including training of safety officers and empowering safety at workplaces, strengthening risk assessment practices and improving monitoring and supervision of occupational accidents and diseases. Garment factories in Vietnam should invest more into connecting with specialized organizations, which have qualification and experiences in training, supporting enterprises to apply compliance process into every division and department. For instance, Better Work is one of the ideal programs for manufacturing sites, including apparel and garment factories. Better Work Vietnam, established in 2009, is an exclusive partnership program between the International Labor Organization (ILO) and the International Finance Corporation (IFC), a member of the World Bank Group (WBG) (Better Work). The program connects workers, businesses and Governmental units to improve working conditions and promote competitiveness in the garment industry. Regarding core services for garment factories, Better Work Vietnam (BWV) has also strengthened its capacity-building activities, such as



specialized training and workshops, to support sustainable improvements. The training program on industrial relations includes three modules that have been developed and applied, helping to identify the root cause of non-compliance related to social dialogue, complaint handling, and collective bargaining. Better Work launch skill training course for the Leader of production lines, which has yielded concrete results both in terms of improving relationships at work (reducing conflicts over keeping workers and supervisors), and improving skills, labor productivity of workers. One of the remarkable achievements, acknowledging BWV's efforts to promote decent work and sustainable improvement through its activities, is the first factory to achieve the highest results of the four critical aspects of sustainable business: compliance, social dialogue, management systems and ability to learn, and was recognized as a level II factory in November 2018. With increasing demand and interest from supply chain partners for the factory to be recognized as "Level II," it is expected to have more introduction about these activities to more and more Garment manufacturing sites in Vietnam. The increase in the number of factories which register into these programs, the more improving performance in social and technical compliance Vietnam's garment industry will get. It helps to push factories upward global value chain and get higher value orders from global leading buyers.

#### **4.2.3. Upgrading and trajectory for applying Technology into the value chain.**

The achievement of the Industry 4.0 in textiles and garment industry is an essential premise in improving labor productivity and product quality. For instance, the fiber factory under the 4.0 model allows to reduce up to 70 percent of labor and reduce the energy used up to 25 percent. Dyeing and weaving factories which apply technology 4.0 reduce 30 percent of labor, 50 percent of water used for dyeing, and 50 percent of energy consumption (Thiên, 2019). Especially in the garment industry, some businesses have concerned about the trend of using robots or automation equipment for complicated technical or repetitive work. Using robots in fabric spreading and cutting stages can save up to 80 percent of labor and save 3 percent of raw materials. In difficult stages such as adding a pocket, putting a hand on the neck, using the equipment, automatic robots will significantly reduce the number of employees, increase product quality, reduce dependence on skilled labor.

The Industrial Revolution 4.0 opens a digital era in which the primary trend is the combination of real and virtual systems, Internet of Things (IoT), and Internet-connected systems (IOS). The foundation of this revolution is the breakthrough of digital technology in smart manufacturing based on achievements in information technology, biotechnology, and

nanotechnology. The underlying technologies of the Internet of things (IoT) are radio identification (RFID), wired and wireless sensors, 3D printing, cloud computing, connected robots, software capable of connecting and interacting via the network, analyzing Big Data and Blockchain. The above solutions will create many innovations in the textile and garment production and trading process covering all stages from product design, raw material supply, production, export, and marketing (Nguyen Thi Lan Huong, Nguyen Huu Xuyen, 2018).

As a result, these leading buyers will expect quick technological changes and adaption from their trading suppliers. Vietnam's manufacturing sites need to have in mind the technological trajectory otherwise will be left behind.

Following is the typical technical-development trajectory for Vietnamese textile and garment factories to apply shortly:

**Firstly, Big Data and Blockchain technology solutions for the transparency of information for the creation of industrial clusters.**

Vietnam's textile and industrial garment cluster can operate under applying Big Data. "Big data refers to large data sets which are too difficult to manage in case of using traditional data processing applications. These Big Data sets can generate business intelligence beyond unlocking hidden savings and fine-tuning production processes. By collecting the right data, businesses can improve not only their economic development but also their environmental and social performance" (Technology trends in the apparel industry, 2019).

Big data helps to solve one of the main problems of the apparel industry is unsold inventory. With 6000 factories for one function of the whole textiles industry is Garment, we can imagine that there are multiple supply chains and vendors within a non-standardised industry. This massive number of participants may create a large inventory and logistical problems that cost money and lead to an unnecessary waste of resources. When there is the application of Big Data, the complex of massive data will be solved. Factories can predict what products are needed to prevent overproduction and can ship them when needed, reducing emissions from transportation. This solution helps to make the supply chain more efficient and socially responsible. Also, with the application of this informative transparency, firms can reduce the cost regarding lower stock level and shorter lead time. For the manufacturing sites, Big Data can provide full information about up-to-date and predictive capacity planning of garment manufacturing and fabric manufacturing, which helps enterprises have more control base oversupply and demand so that help to decrease the inventory rate as well as lead time and

improve Corporate Social Responsibility performance. (Technology trends in the apparel industry, 2019).

Similar to Big Data, Blockchain also offers the transparency of information within the value chain. The use of blockchain technology is already changing the apparel industry, offering new ways of implementing transparency in a supply chain. With the application of blockchain, a chip, or a tag added to a product can be used to store all the relevant data about that product, including which farm supplied the cotton; who made the yarn; what was used to dye it; product's manufacturer; the mode of shipment; and the cost of each step (Technology trends in the apparel industry, 2019). RFID or QR code is the Blockchain Technology which has applied in several manufacturing sites in Vietnam to have better control from packaging, storing to shipping distributing and retailing in the downstream end.

Blockchain helps to create a digital history of information for each product of the total value chain. Product's tags or attached chips will store all of the integrated data, then the participants within the chain with the use of computers can access and verify the database according to the purpose of using.

**In the design stage:** different from the traditional method, human body measurements are collected using a 3D scanner. The principle of this technology is to use optical techniques in combination with light sensors to collect measurements of a person's body at any location without having to move to that location. The advantage of this method is that it is possible to measure the human body from all different markets around the world without direct contact, then can divide the human body into 25 different sizes with only about 1000 observations to personalize measurements for each body. With this technology, combining the measurements obtained with product design software will create a design process using virtual measurements, virtual software, virtual people but ultimately will create real products and personalized to each user.

**In the production of the fiber:** automation, the use of robots is widely applied in all stages from cotton preparation to product packaging.

**In weaving:** Industry 4.0 has helped create 3D knitting machines to weave products directly by entering product parameters into computers and using software to control 3D textile machines to create products that No need of sewing process. Besides, in weaving technology, the Internet system connects IoT things with the use of RFID radio frequency identification technology to enable the accurate transfer of automatic fiber tubes to textile machines in order

to save the time for fabric production, increase labor productivity and reduce production costs. Technology 4.0 has created an active link between looms and has made a significant change in the management of the textile factory. In addition to textile technology, the achievements of Industry 4.0 have created many new materials with unique features to produce garment products such as materials that control health status and self-change color. Color according to the wearer's preference or the material can connect to the Internet.

**In dyeing and finishing:** besides the application of robots and high automation in the manufacturing process, the dyeing industry also has a fundamental change in the process of making color formulas and controlling the dyeing process by using Big Data. With this method, the dyeing factories can organize the storage of past dyeing formulas successfully, thereby creating new dyeing formulas with high precision and good quality, helping the dyeing factory to improve the accurate dyeing rate for the first time up to 95-99%.

**In sewing:** for basic products such as T-shirts, basic shirts, casual pants, jeans, the production process has been replaced by robots to improve quality, labor productivity, and reduce product's price. For fashion products but made with adhesive materials such as plastic or polyester, the production process uses 3D printers, both for high productivity and reduced product price.

Nevertheless, the application of 4.0 technology to the garment industry has many limitations. Accurately, in order to produce products with unique properties such as fashion products, which are designed in many intricate layers, and textures, it requires the quick changing according to the market. If the data is not cohesive, the application of 4.0 technology is complicated, or the investment cost is enormous, so it is not competent to deploy immediately in the next 10-15 years.

In all stages of production from yarn, weaving, dyeing, and sewing, besides applying 4.0 technologies in production, enterprises also innovate the process of managing enterprises under 4.0 technology by using specialized software such as enterprise resource management software (ERP) allows managing all significant resources of the enterprise from input to delivery. In addition to ERP software, many businesses also use product lifecycle management (PLM) software to access and manage product information securely; maintain information integrity throughout the product lifecycle; build, manage and share business processes based on product data. Product lifecycle management software is considered as a

means to connect parts and allows us to create clear, effective communication between many parties in production and business.

**In logistics:** when applying 4.0 technology, logistics department can coordinate closely with other units in the whole product manufacturing process such as: connecting the stages of the production process, warehouse management raw materials and finished products, manage the distribution, sales process, manage the payment process ... from there, businesses can optimize the cost of supply chain operations while still having can meet customer requirements.

**In the marketing stage:** technology 4.0 allows the healthy development of e-commerce in the textile and garment sector. Currently, the 10 Garment Corporation has put products on promotion and sales at Amazon's web portal, and a statistic also shows that up to 55% of customers go straight to Amazon to search for products, instead because visit the manufacturer's own sales pages; if e-commerce is carried out via mobile devices, textile enterprises can fully promote products via 3D images, collect customer data to analyze market needs.

The raising problem regarding above upgrading is the **capital** and **labor forces** investment. Due to the lack of capital, factories, especially small and medium sizes within the industry, still, hesitate and do not willing to invest in technology, which is capital-intensive investments. The Vietnamese government should have policies to support capital for small and medium enterprises. Besides, the creation of industrial clusters will offer the technological and knowledge spillovers within enterprises in the industry. Thanks to these spillovers, small and medium factories have chances to learn and acquire the expertise and experience from big factories in applying an automatic production process.

No matter how advanced technological equipment is or where the source of capital investments come from, people are still a key factor. In parallel with the application of science and technology into production and manufacturing lines, Vietnam's textile and garment industry needs to focus their resources on human resource training. Businesses and corporations need to regularly coordinate with training organizations to conduct short updates and training programs for employees. The purpose is to gradually change the habit of working of the workers and training how to use and apply the technology into working process effectively. Participation in Industry 4.0 is an absolute path for any manufacturing sites, and for sure, there will be a redundant workforce.

All in all, out of the initiative from enterprises themselves, Government and Ministries also play essential roles in having supportive capital policies and create the bridges to connect businesses with organizations and training agencies in order to create the better labor forces who can adapt quickly with the change and the strict requirements from the economy.

#### **4.2.4 Solution of training textile and garment human resources for the industrial revolution 4.0**

The aforementioned analysis shows that the application of industry 4.0 in the textile industry is indispensable, especially in the current context when the cycle of technological change in the field of textiles and apparel is declining, only about 15 years for the technology of yarn manufacturing, weaving, dyeing and 3-5 years for the production technology of garments. Facing this situation, in order to meet the needs of textile and garment workers for Industry 4.0, the training of human resources needs to be systematically implemented in all universities with college and university training. The primary solutions that should be applied include:

- Modify the training program to be updated with technology 4.0 in both technical and management fields. Train lecturers in the direction of research and update with 4.0 technology, especially in the field of management in the textile and garment industry. Opening more interdisciplinary training majors to access 4.0 technology such as mechatronics techniques in textile equipment, applied informatics, e-commerce, and 3d fashion design in textile and garment fields.
- Invest in training equipment in the direction of updating with 4.0 technology such as automatic equipment and industrial robots.
- Organize students to practice abroad to access a working environment with automation technology, high virtual-reality connection under 4.0 technology.
- Improve the scale of training human resources at the university and college level for the textile and garment industry to ensure a sufficient workforce to serve the application strategy of industry 4.0 into the textile and garment industry.

In addition to solutions for training textile and garment's human resources for the application of the Industry 4.0, training institutions, as well as textile enterprises, need to focus on implementing human resource training solutions for ODM production methods and OBM. These are the two main modes of manufacturing fashion goods, which are the path of the upgrading trajectory of Vietnam's garment industry shortly.

## Conclusion

In addition to the advantages of plentiful human resources, low-cost manufacturing is no longer suitable in the current market, Vietnam's garment industry has to confront the harmful effects from the instability of world politics and increased competitive pressure. These instabilities reduce the advantage of Vietnam's garment industry. As mentioned in the previous chapters, low cost is no longer the only factor that foreign investors seek from manufacturing factories. The customers' demand is changing dramatically leads to greater concerns from global leading buyers toward compliance and sustainable sources of supply. In the intense globalization of economic, garment enterprises who want to improve their competitive advantage must priority invest in product quality, lead time, and serious concerns about social and technical compliance. In order to achieve all of that, the garment manufacturers need to reflect themselves in order to realize which aspect they need to improve. According to the analysis of this dissertation, putting aside all of the external factors such as political instability, corruption perceptions or increasing wage of labors; Vietnamese garment factories, internally, are showing the most severe weaknesses for the managerial positions. People are the critical factor of any organization. Managerial level of garment factories in Vietnam does not have a long-term vision for adapting the suitable growth strategy. Most of the problem raised out from the above analytic is related to the organization system, working condition, and production processes; all of these points are dominated and controlled by the managers or leaders of each factory. If people in manager level have a good strategy and vision to direct the factory on the right path of development; take care more about the sake of the whole stakeholders; drop the short-term to gain the long-term profits, the garment factories of Vietnam will gradually improve themselves and compete against its close competitors.

Moreover, the Vietnamese government should increase their role in improving the garment industry by launching the support policies to encourage and motivate all of the textile and garment factories in joining to complete the value chain and create a unified industrial cluster. Instead of focusing only on the manufacturing stage as the current time, Vietnam's garment manufacturing sites need to develop and link with the other stages to achieve the highest added value within the industry.

In order to help garment enterprises to boost exports to potential markets, the government should coordinate with the Vietnam Textile and Apparel Association to continue

implementing trade promotion, professional training programs, sharing experience to improve productivity and apply smart production models. In particular, in order to take advantage of opportunities when the Vietnam – EU and CPTPP Free Trade Agreement comes into effect, the Association needs to coordinate with the Ministry of Industry and Trade to organize training for garment enterprises to adapt to the industrial revolution 4.0, helping businesses move towards sustainable development. At the same time, improve the level of technical, technology, branding managers, apply 3D printing technology in fashion design to meet the individual consumer needs of customers. Garment enterprises also should focus on training human resources to meet the requirements of digitizing some stages in the production line. Especially, small and medium-sized enterprises need to quickly shift and adapt to modern processing methods to meet the quality requirements of export orders, and at the same time focused on design and distribution systems to further value-added develop. In addition to the main export markets of textiles and garments such as the US, EU, Japan, Vietnamese textile and garment enterprises need to exploit other markets with potential growth such as China and Korea.

Shortly, in order to effectively implement and achieve the above objective, the textile and garment industry must continuously innovate and apply advanced technologies into the whole production process. Strengthen cooperation and a joint venture between domestic and foreign enterprises to promote the exploitation of new markets is also a right way for Vietnam's garment factories to have a deeper penetration into the global value chain.

In addition to the efforts of businesses, the Vietnamese government also needs to offer their support by quick creating policies and capital resources to promote fast and sustainable development of the textile and garment industry, increasing its competitiveness in the period of the high level of international integration.



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## Appendix 1

### HOW VIETNAM APPAREL MANUFACTURE'S PERFORMANCES AFFECT GLOBAL LEADING BUYERS ON TAKING OUTSOURCING DECISIONS

**Question 1: Do you work directly with Vietnamese apparel manufactures or via intermediates (vendors)?**

Multiple choices

#	Answer
1	Directly
2	Indirectly
3	Both

**Question 2: How does your company audit your suppliers?**

Multiple choices

#	Answer
1	First party: a company that "self-audits" their employment sites using their audit resources
2	Second party: an audit or assessment undertaken by a body with a trading relationship with the site such as retailer, brand, vendor or agent
3	Third party: an audit or assessment undertaken by an independent party e.g. an independent commercial audit company
4	Combine forms, if "combine" please clarify which forms

**Question 3: How are the audits set up between your company and your suppliers?**

Multiple choices

#	Answer
1	Only Announced audits (agreed audit date between both sides)
2	Only Unannounced audits (audits may occur at any time on an unannounced basis)
3	Combined both forms

Announced audits (agreed audit date between both side

**Question 4: What is the most popular audit's assessment aspects in which your Vietnamese suppliers "fail"?**

Multiple choices

#	Answer
1	Offering adequate required document lists for auditors
2	Working environment, e.g. layout, temperature, tidiness
3	Evacuation plans and evacuation routes
4	Any locked or barred exits or emergency exits
5	Fire equipment and emergency equipment
6	Building construction, maintenance, and certificate
7	Machine safety, guarding and maintenance
8	Emergency procedures
9	Signs in local language as appropriate
10	Warning and labels
11	Personal protective equipment
12	First aid equipment and qualified staffs
13	Toilet and sanitation
14	Potable water
15	Locate document and records (Quality records, production records, display of codes of conduct or labor law, legally required posting)
16	Labour's related points (child labor, collective bargaining, freedom of association, overtime hours, wage, training)
17	Lack of technological equipment, e.g., metal detect machines, laser cutting machines
18	Others, please specifically list out

**Question 5:** How your Vietnamese apparel suppliers provide the resolutions in the follow-up audits?

Multiple choices

#	Answer
1	Close - sufficient evidence has been received to bring about an adequate resolution of the non-compliance
2	Open - insufficient evidence has been received, and the non-compliance remains active
3	Progress made - some evidence has been received indicating progress, but this is insufficient to fully close out the non-compliance until further evidence has been made available



**Question 6:** Measure the extent of below 15 key metrics regarding the current performance of your Vietnamese apparel suppliers

Measure the extent from 0 (bad) to 5 (good)

#	Field
1	Ability to provide FOB
2	Competitive price
3	Social compliance and sustainability
4	Production efficiency and consistency of supply
5	Product quality
6	Leadtime
7	Reliability of delivery
8	Ability to create basic products
9	Political stability
10	Vertical integration (Ability to source raw materials)
11	Tariffs advantage
12	Innovation & ability to develop products with buyers
13	Ability to create value-added products
14	Capacity (ability to meet a minimum order)
15	Financial stability

**Question 7:** In what aspects Vietnamese apparel suppliers should equip more to improve your satisfaction? r evidence ha

Opening question

**Question 8:** Which products are you currently working with Vietnam's suppliers?s

Multiple choices

#	Answer
1	Formalwear/ Casualwear
2	Pullovers & Tops
3	Outerwear
4	Underwear
5	Sportswear

**Question 9:** Your company name:

## Appendix 2

Answers	Buyers' name
Invest more in technology (auto facilities or equipment) to improve productivity and quality consistently. Think more about a green product or a green solution. Cooperative & continuous improvement mindset	DECATHLON
Inspect fabric machine, metal detector machine	GAP INC./ Alsion Hayes
Need more improve in management skills, mindset, and designed machines for added-value products, capacity.	UNIQLO
Fabric and trims availability locally would help to improve MOQ and price issues.	Polyconcept
Speed-to-market (short Lead time) and quality	Crystal Martin
Need more advanced skill in the Design step to improve more capacity to develop the product with the buyer. Advanced technological machines are a limitation, which hinders the productivity and quality of some factories	LACOSTE/ INDITEX
Need precise method in calculate capacity	Triumph International
Need to improve about Customer service mindset, and product development capability, the design stage still depends a lot on the customer's side.	PSEB LLC/ Eddie Bauer
The state-of-art equipment such as metal detective device, fabric scroll measurement device, for better value orders	KIABI
Need to equip more technological machines into production sites such as metal detective machine, robotic cutting machine to reduce the accidence for workers and customers. Our company canceled the order with two factories in Vietnam due to this lacking of technological equipment.	CARREFOUR

## Appendix 3

### 1. Social non-compliance findings

Non-compliance finding	Standard	Categories
Site tour observation disclosed missing identical warning signals for the hangers at the packing area in prevention of possible risks of head impact	WRAP	Health and Safety
Site tour observation disclosed missing identical warning signals posted at the wastewater treatment pond	WRAP	Health and Safety
Site tour observation disclosed missing secured handrails for the stairs up to the office	WRAP	Health and Safety
Site tour observation disclosed missing proper and adequate secondary containment for chemicals at the chemical warehouse	WRAP	Health and Safety
Site tour observation disclosed missing proper labels for diesel at the generator area	WRAP	Health and Safety
Needle guards of almost all sewing machines were put too high, which cannot protect the worker's fingers during operation.	Primark Code of Conduct	Health and Safety
One boiler operator did not have a vocational license/certificate as law requirements.	Primark Code of Conduct	Compliance with Laws and Workplace Regulations
Drinking water was not tested at least once every three months. The latest tests were May and Dec 2018	Primark Code of Conduct	Health and Safety
The factory did not ensure that workers have on average, four rest days per month as required by law.	Primark Code of Conduct	Hours of Work
Fire equipment is obstructed/ ineffective/ not sufficient	NEXT code of practice	Health and Safety
A medical examination is not provided where/if required	NEXT code of practice	Health and Safety
Dangerous parts of machinery are not adequately guarded	NEXT code of practice	Health and Safety
Overtime hours exceed stipulated requirements	NEXT code of practice	Hours of Work
Weekly rest day is not provided	NEXT code of practice	Hours of Work
During the factory tour, it was noted that needle guard of 10 out of 255 sewing machines was tampered to improper positions by workers	SMETA Corrective Action Plan Report	Health and Safety
It was noted during site tour that approx. 20% of workers in the sewing section and a cutting section of production workshops did not wear provided dusk mask while working.	WRAP	Health and Safety
During the factory tour, it was noted that 5 out of 5 cutting machines in the cutting section were not connected to earth continuity conductor system.	WRAP	Health and Safety
Based on review visitor/receiving/loading logbook, it was noted that some information was not recorded (missing) such as ID driving number, visitor signatures or timeout.	WRAP	Security

It was noted that the CCTV record was not maintained for 30 days in the facility. At the audit date, the factory management stated that the CCTV was errored and could not record only monitoring.	WRAP	Security
Insufficient of Types A of fire extinguishers (Applicable for fires content: thesis, fabrics, wood, plastic)	Omega Compliance Limited	Health and Safety
Machines without protective devices: No upper and lower pulley guard was installed on overlock machine at the sewing line 5; around 10% of sewing workers did not use eye shield installed overlock machines to protect employees' eyes.	Omega Compliance Limited	Health and Safety
No blade control policy (sharp tools need to be controlled by the factory so that they do not inadvertently end up in the product. A blade control policy covers all blades and sharp tools used in the factory, including pins, needles, knives, scissors, clippers, trimmers, tagging guns or any other sharp instruments)	Omega Compliance Limited	Health and Safety
Insufficient fire safety and firefighting mean to fire forces. The factory did not provide firefighters' helmets, clothing, gloves, boots, gas filter masks, rakes, ceiling hooks, beltlines, ladder and flashlight for its intramural fire prevention and firefighting forces	Omega Compliance Limited	Health and Safety
No anti-explosive light for the chemical warehouse. The factory-installed a standard light bulb instead of anti-explosive light for chemical warehouse	Omega Compliance Limited	Health and Safety
The exit doors that were installed on an exit route from the material warehouse to the cutting room, from finishing area to sewing lines, and from embroidery room to outside were sliding doors. They should be open outward doors	SGS	Health and Safety
Randomly check at 8 out of 17 sewing lines, 10 percent of needle guards and eye shields on sewing machines were not installed in a safe position	SGS	Health and Safety
Randomly check at the cutting area, 02 out of 05 selected metal gloves of cutting operators were tore	SGS	Health and Safety
The first aid kit was not available in the finishing area. As confirmed from the factory representative, they had just removed the first aid kit into the cleaning room several days ago	SGS	Health and Safety
There was no MSDS (Material Safety Data Sheet) for chemicals of "Acetone" and "Spot lifter" at cleaning areas. The Liquid chemical bottles in a chemical warehouse were not stored in the secondary container adequately	SGS	Health and Safety
The forced bearing construction certificate was not available for review. As factory representative confirmed, they got it (because they reached owned building certificate), but they could not find it in audit day	SGS	Security

It was noted that 07 out of 12 selected samples worked overtime 31 to 38 hours per month in Mar 2016; 01 out of 15 selected samples worked overtime 32.5 hours per month in June 2016.	SGS	Hours of Work
It was noted that the client Code of Conduct by native language was not posted in workshops	SGS	Compliance with Laws and Workplace Regulations
It was noted that the aisle at cutting section has been obstructed and not easy access to emergency exits.	WRAP	Health and Safety
It was noted that there was no “authorized access” sign to container location.	WRAP	Health and Safety
Based on the facility tour, it was noted that floor marking for exit route at the canteen was faded. Exit light, emergency light for 2 out of 2 exits at canteen did not work during the onsite check. There were insufficient first aid supplies for 06 out of 08 first aid kits throughout the facility. The facility had only provided 11-21 items instead of 27 items for these first aid kits. 60% of employees in the sewing section did not wear provided face mask while working. Based on document review, management interview, there was insufficient fire extinguishers as required by law and a local police officer. In particular, the facility did not ensure to provide at least one fire extinguisher/150m <sup>2</sup> for low-risk areas, one fire extinguisher/75m <sup>2</sup> for medium risk areas, one fire extinguisher/50m <sup>2</sup> for the high-risk area. Currently, the facility has only provided 80 fire extinguishers to cover 7368 square meters of operation surface. Besides, the facility did not have back-up fire extinguishers (at least 10% of total fire extinguishers).	SMETA Corrective Action Plan Report	Health and Safety
Based on the payment of resigned employees in January 2019 review, it was noted that all three selected samples which were resigned from 2 January 219 to 19 January 2019 were not paid for New Year Holiday (1 January 2019). Based on the payment of resigned employees in January 2019 review, it was noted that 2 out of 3 selected samples who had resigned on 12 January 2019 and 19 January 2019 were not paid for regular overtime hours (from 7.5 to 17 hours) in January 2019.	SMETA Corrective Action Plan Report	Compensation and Benefits
Based on document review, management interview, the facility had only conducted surrounding environment inspection once a year instead of twice a year. Remark: The latest surrounding environment inspection was conducted on 30 November 2018 with satisfying results.	SMETA Corrective Action Plan Report	Environment
The facility is not responsible for product design. However, the facility could not provide a validated copy of the product risk assessment	Intertek	Security

The facility has conducted a Process Risk Assessment of hazards potentially introduced during the production, packaging or storage processes. However, it does not cover all necessary element (did not record of monitoring of reviews; Corrective action to be taken where a CCP is out of control was not included in process risk assessment)	Intertek	Security
Corrective action to be taken where a CCP is out of control was not included in process risk assessment.	Intertek	Security
The facility's Process Risk Assessment did not include records of monitoring of reviews	Intertek	Security
The facility has conducted a Process Risk Assessment of hazards potentially introduced during the production, packaging or storage processes. However, it does not cover all necessary element (did not record of monitoring of reviews; Corrective action to be taken where a CCP is out of control was not included in process risk assessment)	Intertek	Security
There was no system to ensure obsolete documents are identified and removed from use.	Intertek	Compliance with Laws and Workplace Regulations
It was noted that one (01) document was found without authorization	Intertek	Compliance with Laws and Workplace Regulations
There was no specific workwear required for garment manufacturing	Intertek	Compliance with Laws and Workplace Regulations
The facility did not outsource for cleaning services.	Intertek	Health and Safety
It was noted that the fire-fighting and prevention plan was not updated with the new building started operation in June 2019	WRAP	Health and Safety
During the factory tour, it was noted that the first aid kit was not sufficiently supplied with 27 items as the law requires.	WRAP	Health and Safety
During the document review, it was noted that the evacuation map was not posted at the finished goods warehouse.	WRAP	Health and Safety
During the document review, it was noted that the boiler, air compressor, and elevator operators were not provided with re-fresh training on the safe operation of these machines and equipment.	WRAP	Security
During the document review, it was noted that the license of the hazardous waste collector of the factory was invalid since March 2019	WRAP	Security
During the document review, it was noted that the factory had not performed periodic checks and re-investigations of workers insensitive sections in 2019	WRAP	Security

Based on review thesis and time record, interview workers and managers, it was noted that at least 03 workers worked exceed 30 hours per month in Dec 2018, Apr 2019 and Jul 2019. (Workers worked from 34 to 36 hours)	TUV Rheinland	Hours of Work
The factory has established risk assessment on 02.01.2018. However, it was not included all areas and all jobs as a legal requirement. For instance, the risk at loading and unloading areas and office were unidentified.	TUV Rheinland	Security
The factory had not established internal inspection audits for health and safety as Clients requirements	TUV Rheinland	Compliance with Laws and Workplace Regulations
Site observation, it was noted that 01 out of 04 exit doors at production areas at floor one was opened the inward door instead of opened outward door as Legal and Client's requirement.	TUV Rheinland	Health and Safety
Site observation, it was noted that there were no covers installed for at least 02 switches and plugs at production areas	TUV Rheinland	Health and Safety
The facility has not achieved environmental permit as a legal requirement	TUV Rheinland	Environment
The facility has not measured or calculated the Greenhouse Gases emissions on an annual basis as Client requirement	TUV Rheinland	Environment
The facility has not taken action to reduce the Greenhouse Gases emissions as Client requirement	TUV Rheinland	Environment
The facility has not established an ODS (ozone-depleting substance) inventory as a legal requirement	TUV Rheinland	Environment
The facility has not set any target for energy reducing as Client requirement.	TUV Rheinland	Environment
The factory has not implemented energy conservation measures, or adopt new technologies designed to save energy as Client's requirement.	TUV Rheinland	Environment
The company had only trained firefighting for 22 employees instead of 25 employees as required by Circular 66/2014/TT-BCA, article 15	KIABI Code of Conduct	Compliance with Laws and Workplace Regulations
5 out of 10 selected production employees did not have one day off after 6 consecutive working days, they worked from 14-26 May 2018; 6 out of 10 selected production employees did not have one day off after 6 consecutive working days, they worked from 16-27 July 2018; 7 out of 10 selected production employees did not have one day off after 6 consecutive working days, they worked from 3-15 September 2018. The root cause is that the worker's skill is not to meet the production plan	KIABI Code of Conduct	Hours of Work
The company did not conduct environmental emergency drill regularly	KIABI Code of Conduct	Environment
The company had not conducted the internal assessments of its social compliance system. The	KIABI Code of Conduct	Management Systems

written records of a regular management review of the social compliance system were not available. The root cause is that the factory does not have awareness about this.		
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## 2. Technical non-compliance findings

<b>Non-compliance finding</b>	<b>Standard</b>	<b>Principles (based on Sainsbury Manual)</b>
Lighting was insufficient (446 lux) at the inspection desk (600 to 800 lux as required).	Sainsbury Technical Audit	Goods Inspection / Chemical Storage
The factory had a line clearance procedure for any style change. However, per observation, it was found that some semi-finished products of style 11256 in black color from the previous production remain in sewing line no.5, which is producing style 0952A00 in yellow color.	Sainsbury Technical Audit	Assembly
The factory had conducted fabric inspection, trims inspection; per an interview with the worker, and they could demonstrate their inspection process for packaging materials. However, the factory could not provide any record of packing materials inspection.	Sainsbury Technical Audit	Goods Inspection / Chemical Storage
It was found that digital balance (no identification), used for fabric weight checking, was not calibrated	Sainsbury Technical Audit	Goods Inspection / Chemical Storage
The factory had SOP (Standard operating procedure ) for trims inspection, it indicated that trims inspection was conducted following AQL 2.5 for countable and 10% for uncountable trims, however, per interviewing with IQC (Inline Quality Control), she applied 10% inspection and reject any deviation instead of following acceptance criteria defined.	Sainsbury Technical Audit	Goods Inspection / Chemical Storage
The factory had written procedure BM.01-QT.HT 24/4/17-rev 01 for identification and traceability, however, the factory had not yet conducted an internal audit to verify the effectiveness of traceability system	Sainsbury Technical Audit	Organization
The factory had a segregated area work instruction for stain removal. However, there was no instruction or cleaning agent chart posted at a cleaning station.	Sainsbury Technical Audit	Finishing & Packing
The factory did not separate the folders into categories.	KIABI Code of Conduct	Organization
Fabric relaxation no mention the time only the date	KIABI Code of Conduct	Pre-Assembly Operations
Cutter does not follow the pattern marking during cutting	KIABI Code of Conduct	Pre-Assembly Operations



Keep accessories boxes on the floor without pallet	KIABI Code of Conduct	Pre-Assembly Operations
The fabric rolls have stored to close to the roof. Should well arranging it	KIABI Code of Conduct	Pre-Assembly Operations
Fabric and garment test reports from approved labs are submitted and approved with the record were not kept correctly.	KIABI Code of Conduct	Organization
Improper measuring method was applied on the Endline table. Should have key-measurement and QC must 100% control it	KIABI Code of Conduct	Goods Inspection / Chemical Storage
Need to have some guideline how to check garment, vital defect photo being displayed at their section	KIABI Code of Conduct	Goods Inspection / Chemical Storage
There was no report available during the visit.	KIABI Code of Conduct	Organization
The document has not completed yet. The factory is in progress to complete.	KIABI Code of Conduct	Organization
Not enough light. The factory is installing more light in the sewing room	KIABI Code of Conduct	Assembly
Broken & damaged needles are not adequately controlled & with a record for follow up the reference. The factory did not check all finishing products through the metal detector with records.	KIABI Code of Conduct	Goods Inspection / Chemical Storage
No internal approved trim card was displayed in the section for worker checking reference.	KIABI Code of Conduct	Pre-Assembly Operations
There is no any defect photos reference and Trim card no sign off at the Endline QC tables.	KIABI Code of Conduct	Goods Inspection / Chemical Storage
The facility did not use systematic methods (Pareto chart, fish bond chart, five whys) to conduct a root- cause investigation for non-conformity.	KIABI Code of Conduct	Organization
The factory has the record documents, but there is no kept sufficiently	KIABI Code of Conduct	Organization
The factory did not set up any "needle-detected garment box" for needle controlling within the production area	KIABI Code of Conduct	Organization
Fabric relaxation no mention the time only the date	KIABI Code of Conduct	Pre-Assembly Operations
Cutter does not follow the pattern marking during cutting	KIABI Code of Conduct	Pre-Assembly Operations
Found quality issues in production inline (uneven bottom hem, puckering and un-cut thread at neckline)	KIABI Code of Conduct	Assembly

Garments poor pressing	KIABI Code of Conduct	Post-Assembly Operations
Improper fabric relaxation, should not tie as a bundle, but let it fully relaxing freely	KIABI Code of Conduct	Pre-Assembly Operations
There was no any Supplier testing condition displayed with each machine; the only internal condition was arranged by the factory had displayed. Please attached all	KIABI Code of Conduct	Pre-Assembly Operations
The facility did not have documented a testing plan for each product or group of similar products.	Intertek	Organization
The lightbox was available in the facility. However, the company did not conduct shade matching and color matching for trim	Intertek	Goods Inspection / Chemical Storage
Inaccurate fabric relaxing process: It was noted that instruction for main fabric height is 20 cm (7.3 inches) instead of 10 cm (4 inches)	Intertek	Pre-Assembly Operations
The facility established the procedure for the management of a complaint. However, it was only applied for the client; not applied for supplier and employee.	Intertek	Organization
The facility did not use systematic methods (Pareto chart, fish bond chart, five whys) to conduct a root-cause investigation for customer complaints.	Intertek	Organization
The facility did not use systematic methods (Pareto chart, fish bond chart, Five-whys) to conduct a root-cause investigation for non-conformity	Intertek	Organization
There are loose inspection processes has applied at the end of production lines	Walmart Global Sourcing	Final QC