



The Future of Globalization

An Apparel and Footwear Perspective

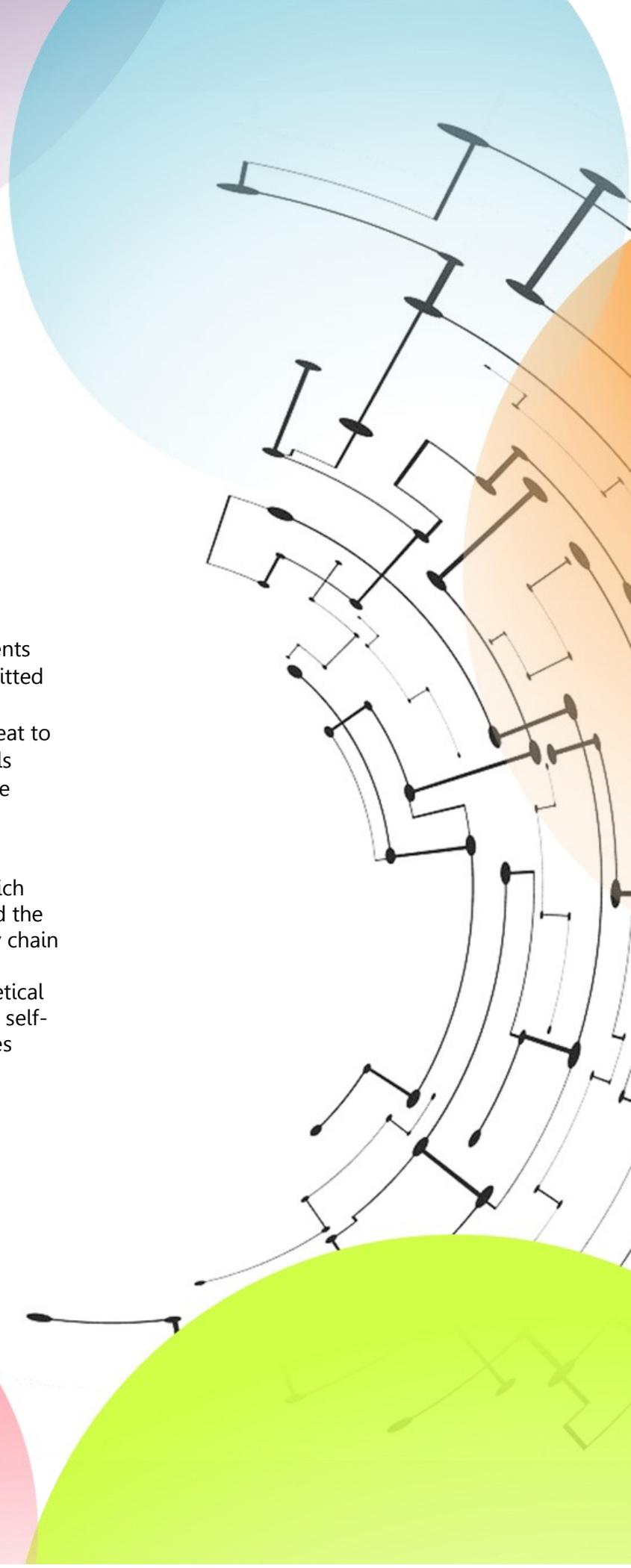
Insights by Weave



Foreword

The world has changed. Where once governments espoused the wonders of free trade and committed to breaking down trade barriers, leaders today denounce free trade agreements (FTA) as a threat to their growth and talk about building literal walls between countries. If trends are to continue, the world's economies will see a reversion to local insular economies of the pre-cold war era.

This paper aims to link the historical trends which have led us to today's globalized economy, and the prospects of a country-centric, localized supply chain model. It will also explore through the lens of apparel and footwear manufacturing a hypothetical scenario where the world recedes into multiple self-sustaining local economies, and how economies could move towards local arenas supported by circular economic models.



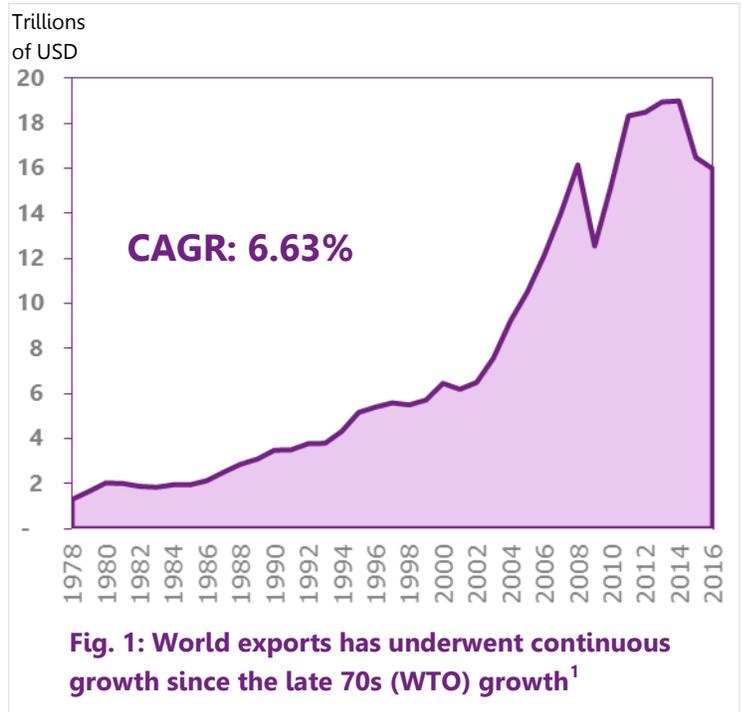
History of Globalization

Global trade has been in a state of near constant growth for the last 3 decades

Global trade, once the driving engine of global economic growth, has begun to slow down. While international trade flows have increased dramatically over the last three decades, trade flows have started to level off and decline.

Although the history of globalization can be tracked back to the days of the Silk Road linking the continents of Africa, Europe and Asia, the modern age of hyper-globalization began in the 1990s driven by 3 major waves of development that enabled freer flows of a) capital, b) information and c) goods pushed world trade to a new peaks

Wave 1 Capital Flows: Following the fall of the Soviet Union and the end of the Cold War, there was a wave of privatization by governments around the world, freeing up large quantities of capital for



Timeline of Global Trade

Throughout 1990s to the early 2000s, global trade boomed as major trade deals were signed around the world. However in recent years, the rate of deals has slowed as protectionist sentiments have started growing in the worlds major markets

The world wide web was invented and will eventually become the principle means of communication between businesses

The dissolution of the Soviet Union and end of the Cold War broke down political barriers between nations leading to a major growth in global trade

The World Trade Organization is signed by 125 nations as a way of managing and regulating international trade

The Asian Financial Crisis slows global trade growth

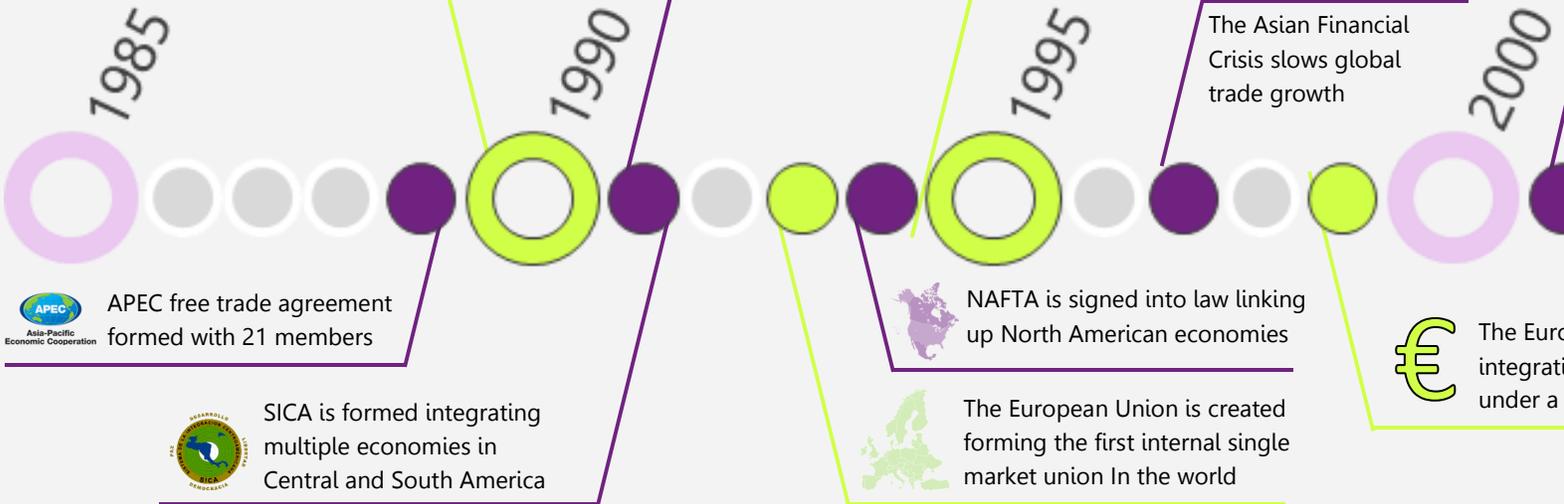
APEC free trade agreement formed with 21 members

NAFTA is signed into law linking up North American economies

The Euro integrati under a

SICA is formed integrating multiple economies in Central and South America

The European Union is created forming the first internal single market union In the world



investment. Freed from the constraints of political affiliations, money and capital could be sent around the world freely. The period also ushered in the era of the intergovernmental trading organization. Organizations like The WTO, ASEAN, the European Union and many other trade groups have reduced the cost of moving capital and making purchases internationally. Formalized trading agreements governed by international laws also enabled truly multinational companies to operate efficiently.

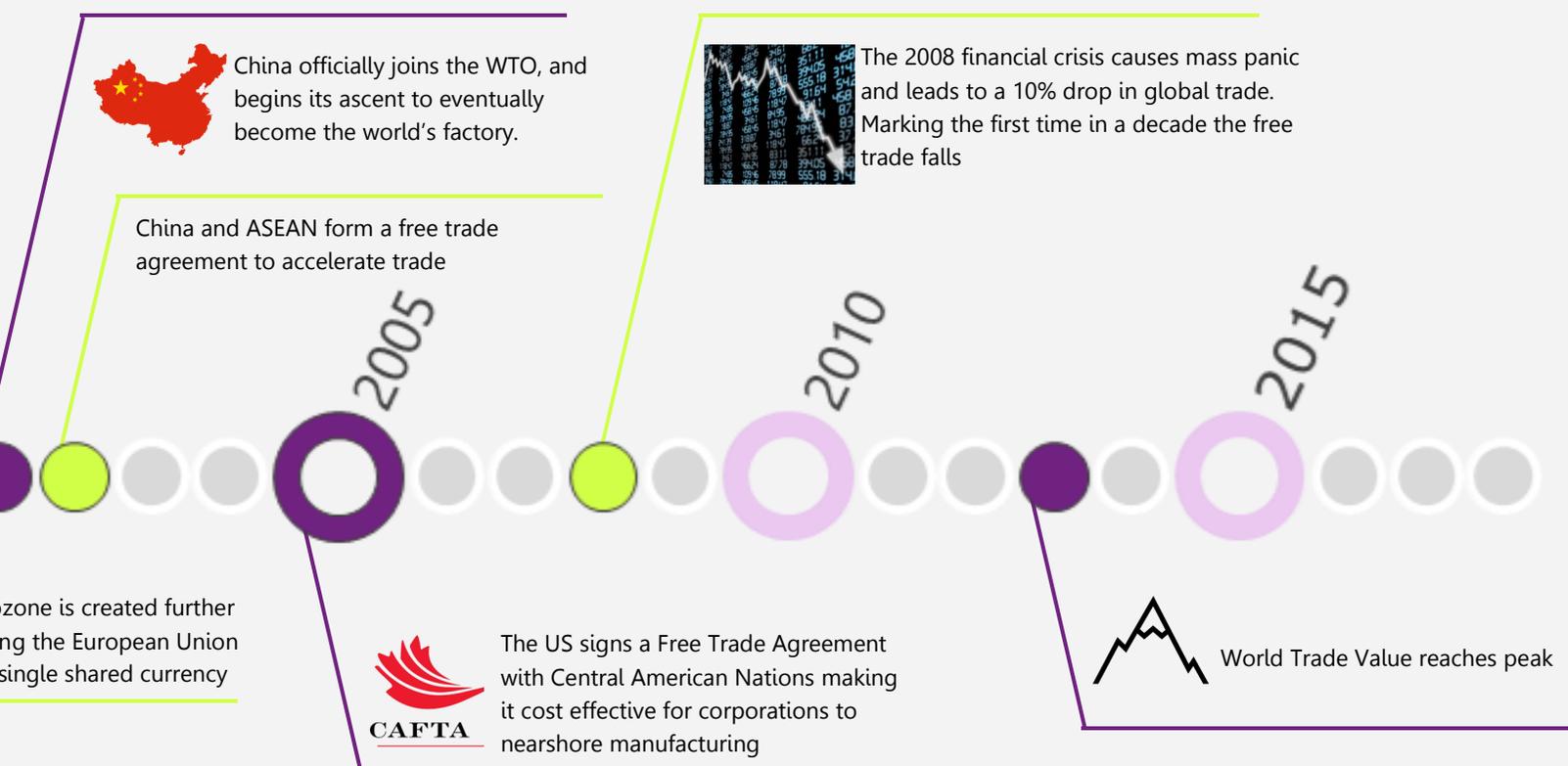
Ultimately, the decreases in costs to trade and higher availability of capital provided the means for companies in capital rich nations with factories in labor rich nations to do business. Emerging developments with bitcoin and the associated blockchain technologies, promises to further reduce costs and improve visibility in financial transactions, A currency capable of free instantaneous global transfers and unrestricted by regulations or agencies, bitcoins have potential to free global capital flows and promote international trade.

Wave 2 Good Flows: Improvements in transportation has been another key enabler allowing the efficient movement of people and goods. The standardization of shipping containers as the key unit in logistics has increased the efficiency of the entire supply chain. Improvements to ship building has also led to increased global connectivity. Where it would have taken upwards of 6 months to move goods from China to the US, standard transit times has fell almost 1 month.

In addition, improvements in aviation technologies



Fig. 2: The largest container ship is now able to move over 21,000 containers at up to 12.5 knots²



have shrunk the world. Companies are able to manage manufacturing thousands of miles across the globe without having to have a person on the ground. The faster, more efficient flows of goods and people mean that it is now possible to manufacture and sell product anywhere around the world, creating the means of enabling a globalized economy.

Wave 3 Information flows: The final enabler of globalization in the modern era was the rapid development of communications technology that allowed for information to be sent rapidly across the world. Pre-internet, design and graphical information had to be sent through regular postage and communications could be done via telegram. As communications technology developed, international business started to be conducted through telephones and fax machines.

The internet became a game changer in the late 1990s to early 2000s century as a key propellant of the manufacturing globalization explosion. With the ability to transfer detailed media files and graphics; designs, techpacks and orders can be sent across the world at the click of a mouse. With increasing advances in technology, even the design and sampling processes are becoming digitalized with advances shown by Li & Fung's digitalization suite of solutions.

Improvements to communications technologies have enabled people to collaborate from anywhere across the world. With the ability to instantly send information, companies no longer need to rely on "snail mail" to conduct international business. Information is the final wave that drove globalization to the heights it has achieved today.



Fig. 3: Virtual sampling software allows designers and manufacturers to collaborate together from anywhere in the world to develop products

Globalization Case Study: NIKE

Globalization has opened up opportunities for retailers and brands wanting to spend less on sourcing products to sell. One example is Nike, one of the leaders in building and finding new international sourcing location. Below we show how the sourcing strategy of a major brand has changed with globalization.

1964



Nike began as the Blue Ribbon Company, acting as an importer and distributor of the Japanese manufacturer Onitsuka Tiger track shoes. However following a legal dispute, they started manufacturing and sourcing under their own brand.

1970



Nike relocated their production base following the Nixon Shock and the unpegging of the Yen from the Dollar. Expanding to Taiwan and Korea in the early 1970s. By the 1980s, these countries accounted for 90% of Nike's production volume.

1977



In 1977, Nike opened 2 factories in New Hampshire and Maine. At its peak it made almost 15% of volume. However the factory did not remain open long, closing in 1984 due to a labor shortage.

1980



With rising costs, the Nike began looking towards lower cost locations to source from. Nike Sourcing company expanded production to the China and Thailand in a continuous search of the low cost labor.

1995



The 1990s represented a period of rapid expansion into multiple countries: In 1995 to Vietnam and Italy, 1996 to the Philippines. By 2005 Vietnam became the largest producing country in the world.

Today



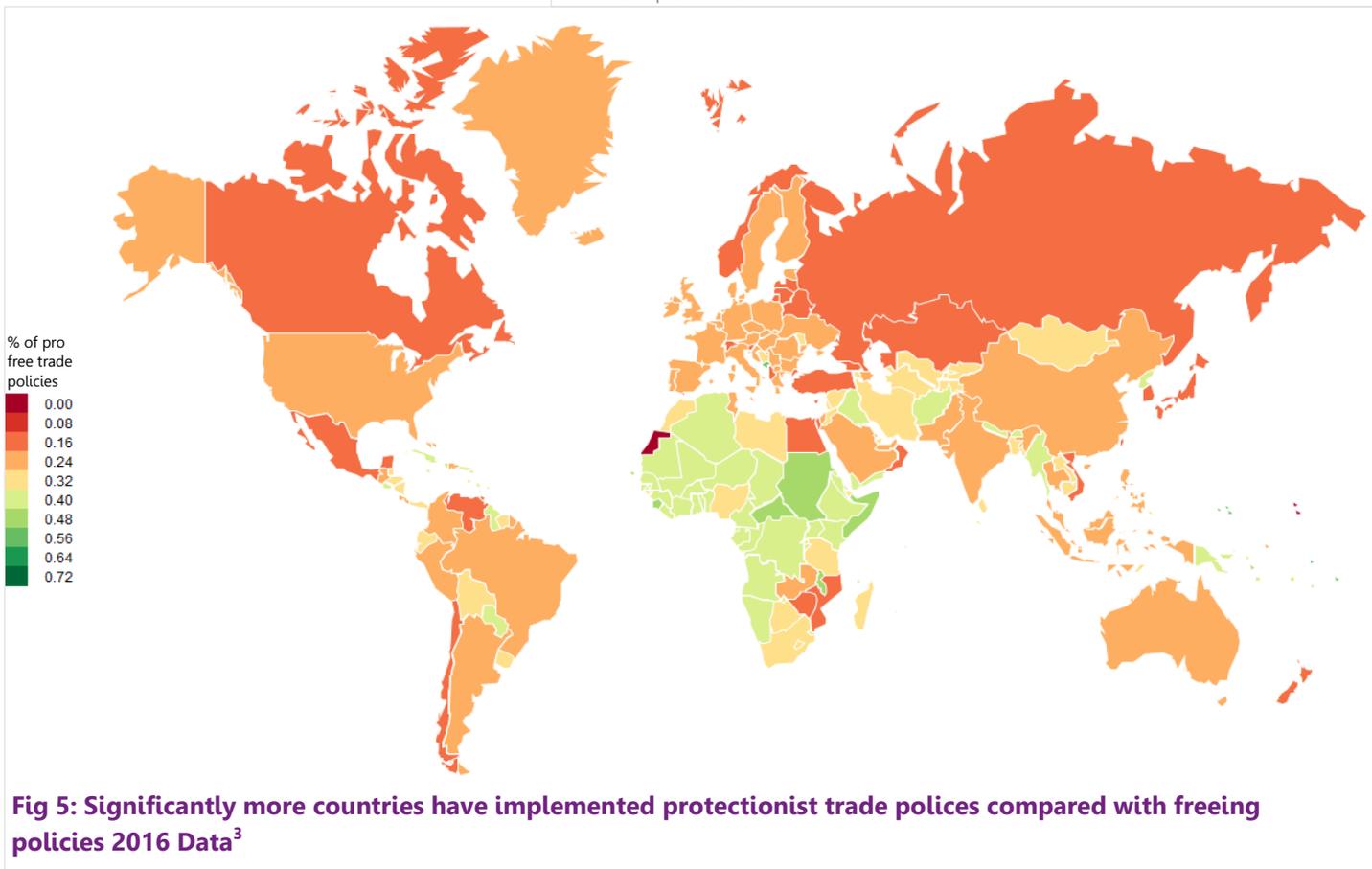
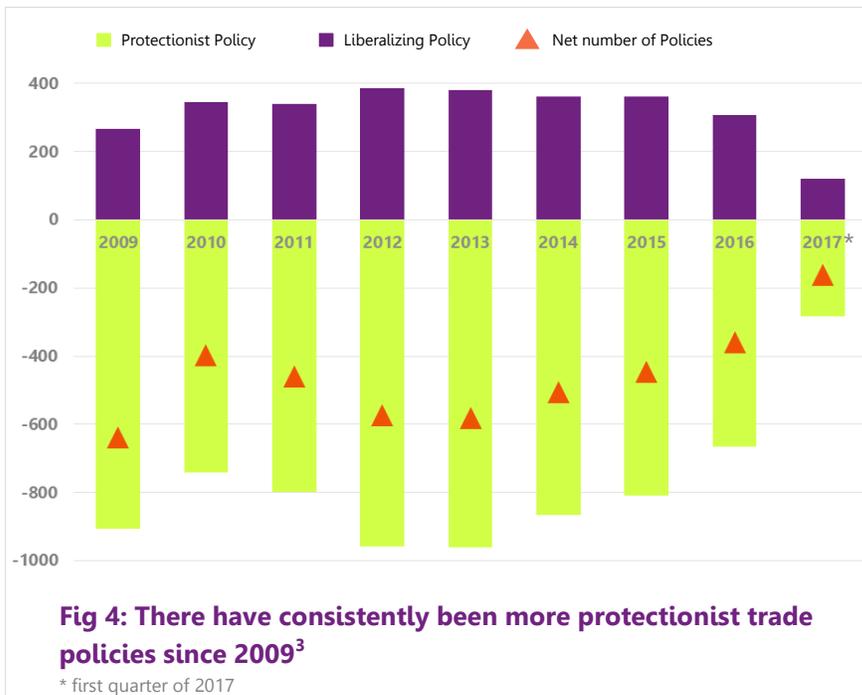
Today, Nike sources from over 42 different countries with 591 factories. Nike's recent strategy is to look to reduce its vendor count to better manage relationships and improve control of the supply chain.

End of Globalization?

In January 2017, a new administration was sworn into the Oval Office, on the platform of an “America First” Trade Policy. Within days, it was dismantling the TPP, a game changer for international free trade deal that would have had deep implications up and down the supply chain.

This was not an isolated phenomenon. In recent times, free trade has become a punching bag for politicians around the world. Many politicians are blaming free trade programs for issues ranging from unemployment to increased crime rates, and have pushed for policies that protect local businesses. Since 2009, we have seen more discriminatory tariffs and trade measures enacted by governments around the world.

The most dramatic of the recent moves towards protectionism was with Brexit in 2016. This represented the first instance of a leading economy actively pulling out of



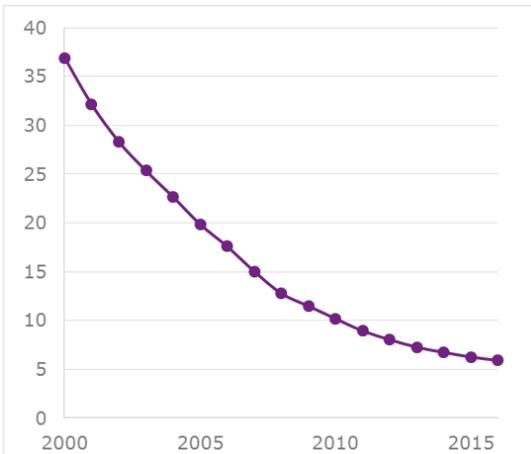


Fig 6: US / China Wage Ratio has been on a continuous downtrend since 2000⁴

a major trade bloc in recent history. This action is without precedent. Negotiations continue today to determine correct procedures that facilitate this exit as any wrong moves could have potentially devastating effects on both the British economy and the Eurozone economy.

The cost benefits of manufacturing are also no longer as prominent as they used to be. The fall of communism left behind many impoverished nations across the world. This presented an opportunity for companies in the more developed Western world to source from countries with low cost labor, good infrastructure and governments willing to relax regulations to improve their economies. Many nations, such as China and Vietnam, have developed and grown their economies based on this demand.

However, as these less economically developed countries have grown, the convergence effect has reduced the cost disparity. The incremental improvements to the FOB costs created by lower cost labor are no longer worth the additional time, customs and travel costs that international sourcing creates. Many companies are now choosing to move production closer to home to reduce Total Cost of Ownership (TCO).



Total Cost Ownership

Many of the costs associated with purchasing and ownerships are not reflected in the FOB cost. These costs include inventory, duties, quality and shipping cost.

Changes to consumer demand patterns in developed nations has also made it relatively less cost effective to source internationally. Increasingly customers require lower lead times and individualized products, and manufacturing in a foreign nation does not allow for the flexibility required. Companies like Adidas and Amazon have taken steps to move manufacture the products back on-shore. Amazon have put a patent for a on-demand manufacturing facility in the US, and Adidas is experimenting with in-store manufacturing using automated knitting machines after a body scan.

Countries are also putting restrictions on capital flows further smothering international trade, The greatest culprit of this habits is China. For a period in early 2017, banks had a hard cap on the amount of capital that can be transferred out of the country. This move to restrict capital outflows has had impacts on both foreign and domestic companies. Many foreign companies were left unable to bring money out of the country thereby reducing willingness to invest in China. The inability of domestic companies to transfer capital overseas has also made it difficult to execute transaction further reining in international trade.

In light of diminishing relative advantages of globalization and increasing protectionism from governments, one wonders what would happen is these trends continue.

A world with no trade?

As the world continues to close off and trade volumes fall, organizations need to consider what would happen should these trends continue, and how to best prepare for these changes. The following section will discuss a hypothetical scenario where the world rapidly declines into insular, self-sustaining economies and what steps companies would have to take to succeed in these self-contained arenas.

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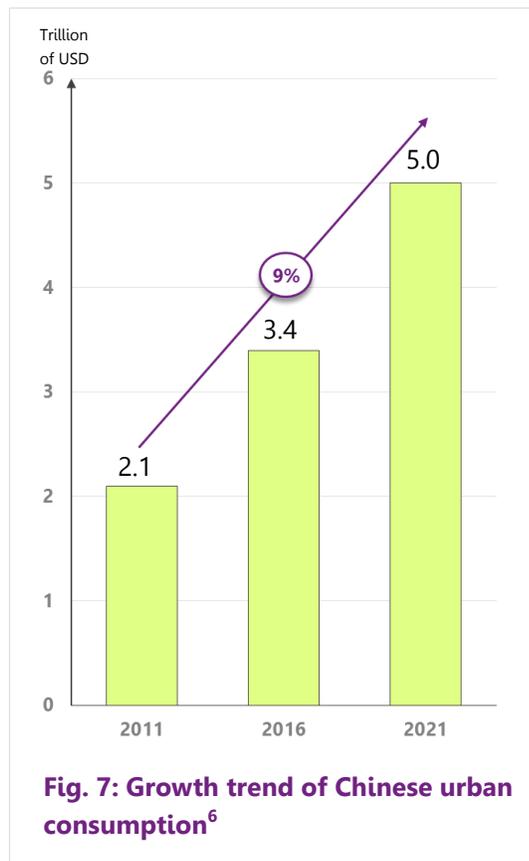
A Potential Future

This paper will primarily focus on the 2 largest economies in the world, the US and China, and propose a hypothetical scenario to examine:

As world trade begins to slow, major markets must look inwards to continue to sustain and develop their economies. This does not necessarily mean that the multinational companies are going to wither and die, rather it means that operations in individual countries will likely be focused on leveraging domestic production facilities to fulfill the local demand.

The US has long held the distinction of being the largest market in the world currently representing over 29% of the global consumer market.⁵ In recent years, the Chinese market has also quickly grown to become one of the largest consumer markets in the world; currently in second place making up approximately 10% of the global consumption⁵ and conservative estimates project the market to reach USD 6.1 trillion and urban consumption to reach USD 5 trillion by 2021.⁶

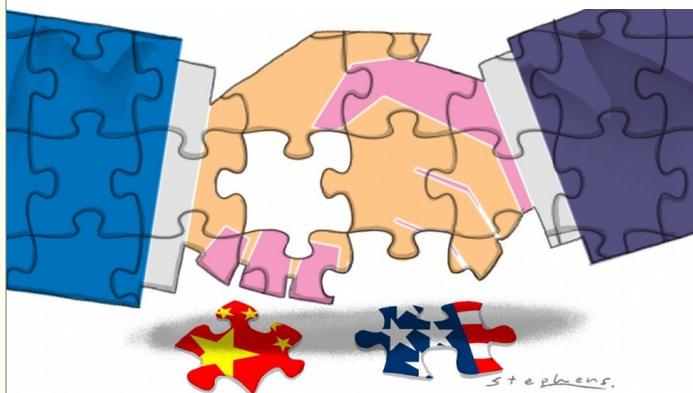
However as China and the US increasingly look inwards to spur their economies, they will increasingly need to rely on cost effective internal manufacturing ecosystems. Years of free-trade have left deficiencies in the internal ecosystems of both countries. As the world becomes increasingly insular, these deficiencies will be more pronounced, creating opportunities for the organizations able to proactively respond to these market deficiencies and threatens those that cannot.



Country profiles

China

- Largest manufacturer in the world (~35%)
- Fast growing consumer market (9% CAGR)
- Rising labor costs but low labor productivity
- Largest producer of raw materials and sub-components
- Domestic brands are still emerging



United States

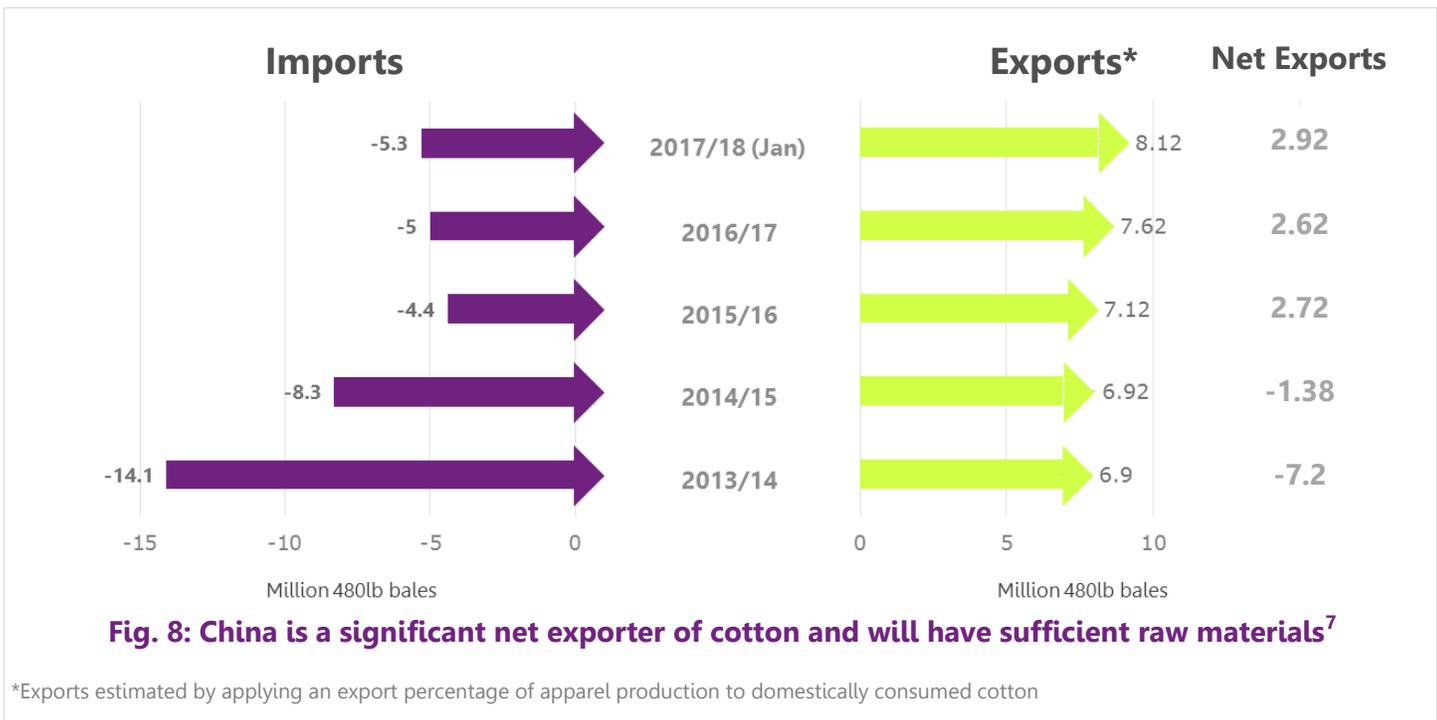
- World's largest consumer market (29%)
- Largest importer in the world (\$2T+) with weaker manufacturing
- High labor cost and advanced production technologies
- Manufacturing capacity limited and unable to support local demand

Raw Materials

The age of globalization has heralded an end to vertically integrated domestic supply chain. A product today may have raw materials that have been sourced from dozens of different countries before finally being assembled and shipped. Manufacturers rely upon a global supply chain producers and converters in order to meet manufacturing needs. As the global trade network begins to fall apart, the once dependable flows of cross border trade flows begin to evaporate, and companies will need to look to domestic sources for their raw materials.

Raw material exposure for China is minimal

For Chinese apparel manufacturers, the impact is minimal. While China currently relies on a large amount of imported cotton, it is still the largest producer of cotton in the world. Many of the imported cotton is actually processed and exported in the form of textiles and finished goods. With the rise of trade barriers and protectionism, it is likely that both the imports of raw cotton and the export of raw materials will diminish, leaving China able to support its domestic markets with its own cotton.



US must improve conversion capability

On the other side of the world, the US remains one of the top producers of raw cotton in the world, however much of the cotton is pack and exported directly overseas for processing. In 2016, over 85% of all cotton produced was sent overseas. As markets move towards localized arenas, domestic mills will need to increase significantly to support the conversion of raw material.

In recent years however, a combination of rising wages, higher energy bills, mounting logistical costs and government quotas have made textile manufacturing increasingly unprofitable in China. Yarn production costs are now 30% higher in China than the US, according to the International Textile Manufacturers Federation.⁸ As costs have risen, manufacturers have started to relocate textile mills to the US. In 2015, the

Chinese Keer Group, one of the world's largest textile manufacturers, opened its first mill in the US. And they are not alone, the Carolina's are now home to at least 20 Chinese manufacturers.⁹ If the US was to become a self-sufficient localized arena, demand for locally produced raw materials will skyrocket and open opportunities for those able to process and produce raw materials.

Servicing Local markets

Globalization has opened up markets around the world. Multinational corporations have capitalized on these opportunities and today rely heavily on foreign markets to support their operations.

Large Chinese manufacturers must begin to look inwards for new growth opportunities

China, dubbed "the factory of the world", is known for possessing immense manufacturing capacity. At its peak over 50% of apparel and footwear was made in China. As a result, many of the largest Chinese manufacturers have been built to supply retailers and brand on a global scale, requiring large orders to support long production runs.

In our hypothetical scenario, as international trade flow diminishes, the traditional markets that large manufacturers used to rely on will start to dry up. Fortunately, China is in the midst of a consumer explosion. BCG estimates the Chinese consumer market will have grown by 2.3 Trillion USD from 2017 to 2020.⁸ However, any manufacturer looking to shift into the local market will be faced with challenges. Domestic Chinese brands, long used to working with smaller factories, require significantly smaller MoQ, longer payment cycles and lower lead times than their international counterparts. In order to compete in local markets, manufacturers will need to adjust their business model to service these local markets.

One strategy manufacturers can utilize to ease the transition by launching their own brands and retail outlets. This strategy allows manufacturers to learn more about the market, capture more of the value chain and better manage demand to help level out production. It is a strategy currently being implemented by many successful brands in China including Inman, Heilan Home, Romon, and Youngor.

In our hypothetical scenario, the opportunity is expanded by the fact that increased protectionism will make it harder for foreign brands to compete, reducing their important and market share. Currently, about half of the 10 largest brands in each sector are international brands. The forced exit of these brands would leave a void for enterprising brands to fill.

The US will need to upscale its manufacturing capacity

A 2015 segment by ABC News challenged US commuters to take off every item of clothing they were wearing that was not made in the US. Unsurprisingly this left quite a few people standing in their underwear. It was estimated that over 98% of clothing sold in the US was made overseas.¹⁰ This dependence on international sourcing is not simply because of pricing. In many cases, the US simply does not have the manufacturing capacity to support the large volume required by domestic brands. In 2016, the Bureau of



Fig. 9: From manufacturing beginnings, Heilan Home has become China's largest men's retailer

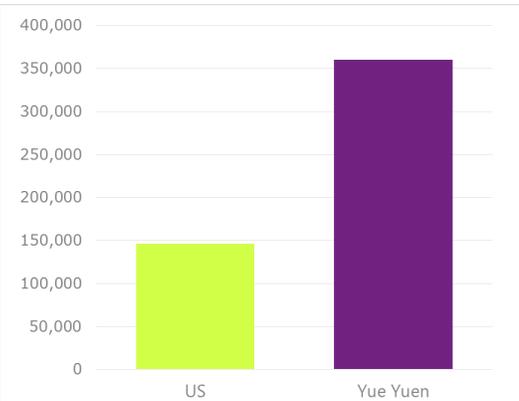


Fig. 10: The entire US footwear manufacturing industry employs less than Yue Yuen (one manufacturer)

Labor Statistics in the US estimated that the total number of people employed in the entire apparel and footwear manufacturing is 146,510 people;¹¹ in contrast Yue Yuen (a single major footwear manufacturer) employs approximately 360,000 people.¹²

In our hypothetical situation, with the decline of international trade flows, the US will find that domestic capacity is not sufficient to meet demand. It will also be very difficult to quickly upscale capacity due to the lack of facilities and time to develop skill labor. This will cause apparel prices to sky-rocket as demand significantly exceeds supplies and lead to new opportunities for corporations with the foresight to open manufacturing. Indeed, organizations

have already started to open factories in the US. For example, Brooks Brothers in cooperation with TAL has opened a factory in the US and many other corporations are starting to follow suit.

Manufacturing abilities

As countries start closing off from each other, domestic manufacturing will become an increasing phenomenon. Each arena will find that there are internal weaknesses to their manufacturing models that they will need to address support and grow their economy.

Chinese manufactures lag behind in digitalization, mechanization and automation

In 2015, Chinese Premier Li Keqiang announced the Made in China 2025 initiative to modernize and digitalize Chinese manufacturing. Today, 3 years later, Chinese manufacturing still lags significantly behind that of their counterparts. McKinsey estimates that manufacturing productivity in China is less than 20% of production than that in more developed economies.¹³ This is not from lack of governmental support. Billions have been invested to create and support manufacturing ecosystems like new development zones, industrial parks and research centers.

The lack of preparedness and change comes more from domestic manufacturers, and will have severe impacts in a period of localization. In our hypothetical scenario, faced with the specter of rising wages and unable to shift production overseas, Chinese manufacturers will be forced to improve their labor productivity. However, many Chinese manufacturers are not prepared to embrace these changes. A McKinsey survey of 130 manufacturers showed that only 57% of manufacturers say they're ready for Industry 4.0, and only 9% of companies have even assign responsibilities for Industry 4.0 initiatives.¹³

A leader in the digitalization of apparel manufacturing is Qingdao Red Collar Group. Through the integration of digitalization and strategic implementation of automation in processes such as cutting, product movement and embroidery, Red Collar has managed to improve the



Fig. 11: Red Collar improves productivity via automation and digitalization

productivity of a Make-to-Measure business close to that of a bulk production factory. Manufacturers able to establish a first mover advantage in developing digitalization and automation capabilities will obtain a significant advantage.

US lacks the skilled labor to manufacture

As discussed in the previous section, the US manufacturing capacity is significantly below its demand. The most significant barrier to attaining this demand is labor. Many decades of relying on lower cost labor overseas has meant that many of the population do not possess the capabilities to sew, stitch and otherwise operate many of the tools involved in apparel and footwear manufacturing. Training new sewers and allowing them to reach a 'master' level can take up to 2 years.

In order to address these production issues, manufacturers can leverage recent technological developments . In 2015, SoftWear Automation introduced LOWRY, a sewing robot (sewbot). While still unable to be as flexible as human sewer, especially when dealing with different types of fabrics, a sewbot line is capable of producing the equivalent of 17 workers over an 8 hour period.¹⁴ While still not as cost effective as a fully staffed human production line in a low cost manufacturing country, in the insular economy scenario, the US would be able to utilize these new machines as a way of addressing the shortage in labor.

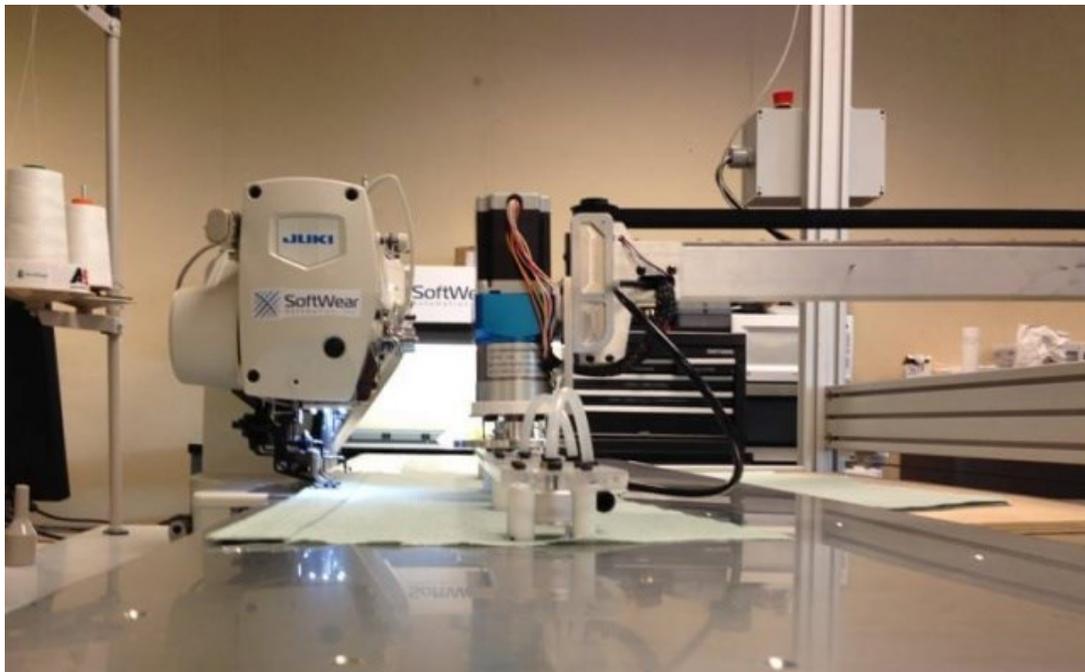


Fig. 12: SoftWear Automations LOWRY Sewbot line is able to fully automate an apparel production line, addressing the US skilled labor problem

A new equilibrium?

Globalization and cost savings generated have led to a more disposable attitude to apparel and footwear which now results in significant environmental issues. Globalization separates people from the products they produce. Populations are no longer able to feel the tangible impacts of their labors or understand the impacts of their production. This causes unrest as people in developing countries see only pollution and misery caused by sweatshops, and people in developed nations see only the jobs lost.

The recent sentiment towards localization is a symptom of this problem. Governments enacting protectionist policies are only addressing the symptoms and not attempting to fix the underlying issues of globalization. This is a wake-up call to corporations with global agendas and need to rein in their impact on the environment and populations. This school of thought, known as circular economies, have been pioneered by the Ellen MacArthur Foundation. A circular economy is an alternative to traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life. Major corporations, including Nike and H&M, have pledged to develop along these initiatives.

While the world appears to be on the edge of toppling into a world of localized arenas, the recent election of more moderate politicians in France and Canada offers hope that free trade and globalization will continue to persist. However, regardless of whether governments are capable of reversing the localization trend, the age of rampant, uncaring globalization must come to an end. Corporations, governments and populations must work together to usher in a new era of sustainable responsible globalization balanced with well engineered localized supply chains.

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About the Company

Weave Service Limited is a supply chain consulting firm that specializes in demand and production planning optimization.

Our clients ask for our services when faced with long lead times, high variability in demand forecasting and unbalanced inventory levels.

Planning should be at the cornerstone of all good supply chain strategy.

Tangible impact is driven through improved planning practices. With our help, our clients have identified 20% incremental lost sales due to inability to respond to changes in demand. Others could reduce their lead time by 15-20%, significantly impacting their cash-flow. Many believe that their factories run lean programs despite having 20-30% reduction opportunities in buffer inventory.

We differentiate ourselves on 3 levels:

- ☒ Deep expertise in supply chain management supported by strong analytics
- ☒ Advanced process re-engineering and change management supported by expertise in lean transformation
- ☒ Impact driven implementation model with focus on capability building and sustainable impact

Weave is a wholly owned subsidiary of the TAL Group – one of the world's largest apparel manufacturer. Weave leverages TAL's deep manufacturing and advanced planning expertise. Our clients can learn-by-doing as they have access to 11 world-class factories operated by the TAL Group to observe real-life case studies.

- ☒ We have effective toolkits and frameworks that enable us to identify opportunities at stake i.e. flash diagnostic.
- ☒ Our greatest asset is our ability to present tailored solutions that have practical applications to your organization.
- ☒ We make it our mission to build expertise and knowledge along the transformation journey so that your team members can sustain the change management process once the project ends.

We have strong beliefs in delivering impactful, value-adding services to your business. If this cannot be achieved we will happily direct you to other partners who may be more suited to help you.

We expect our clients to demand measurable improvements and we plan our projects accordingly.

Call us today and start planning your transformation journey with Weave!

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