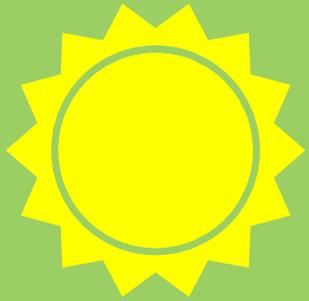


History of Bangladesh Clothing Industry & Competitiveness

Shape The Future Now

**MADE IN
BANGLADESH**





Hello!

I am Md. Masduzzaman Khan here because I love to connect with you to learn & share my challenges & success story of continuous quality & efficiency improvement projects.



Quality Analyst & Problem Solving Specialist
MSS | MBA |

Field of Expertise: Six Sigma | QMS | QE | Lean | TQM | ISO |

Founder, Quality Engineering Academy Bangladesh

(An innovative problem solving & learning toolkit)

You can find me at email: masudvfb@gmail.com

Mob: 01819136606



Forgotten History of Bangladesh Clothing Performance

Muslin's Story: 4th century BCE-18th century

Muslin story is rich, varied & unique. This tapestry depicts the main events that shaped its life, led to its recognition, persecution & extinction (from 4th century BCE to till 18th century). It was embroidered by highly skilled craftspeople on high count cotton



In 1462 BC most Mummies of Egypt were covered in muslin

Pandit Jawaharlal Nehru wrote about this fabric in his book "Glimpses of World History", "Four thousand years old mummies of Egypt were wrapped in fine Bengal muslin. The skill of Bengal artisan was famous in the East as well as the West"

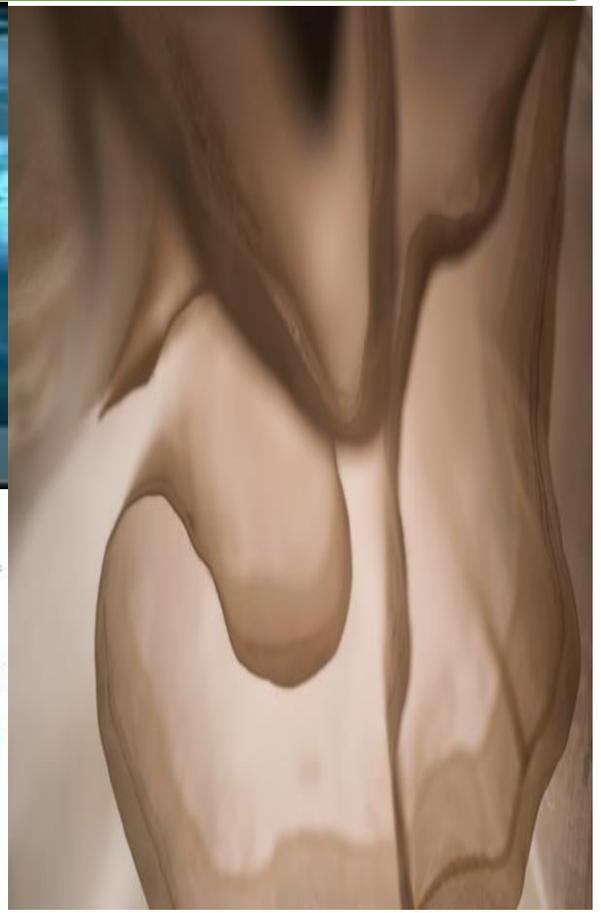
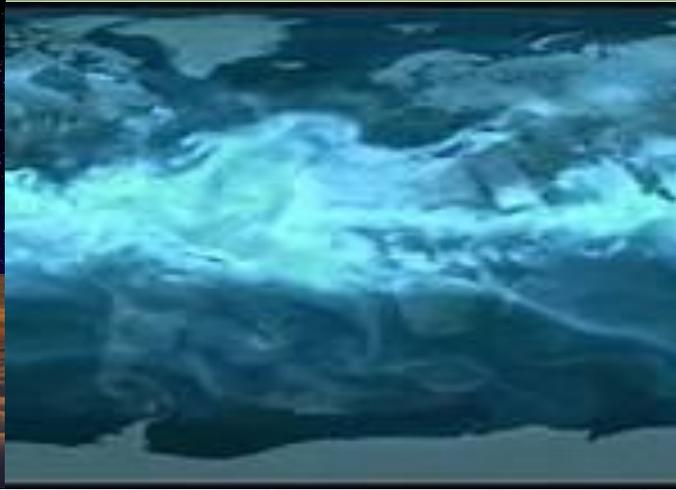




A people without the knowledge of their past, origin & culture is like a tree with no roots.



“The cloth is like the light vapors of dawn”





Woman's muslin dress, Europe, C. 1855.
Los Angeles Country Museum of Art



A first-aid packet of 5m of "hydrophilic muslin", given to Italian soldiers in World War



629-45 ce was woven of finest Bengal cotton and exported to Dresden, Germany, where it was embroidered in motifs to suit the European market.

"The cloth is like the light vapors of dawn"

YUAN CHWANG,
Chinese traveler to India,

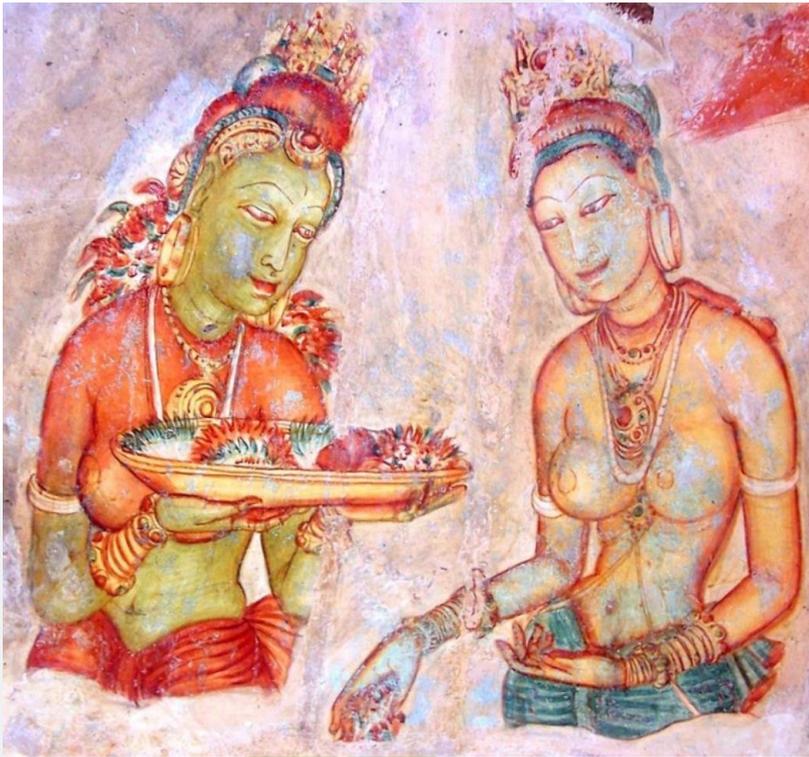
Romance-of-Bengal-muslin



- Court of Chandragupta Maurya(reign 321-297 BCE.) Flowered garments made of the finest muslin and trinkets of gold on their fingers and in their ears.
- Megasthenes, the Greek historian and ambassador.
- ❑ This transparent, clinging fabric, assumed to be muslin, is also depicted frequently in terracotta figurines of the 2nd century BCE found at Chandraketugarh, an archaeological site in modern day West Bengal.
- ❑ We don't know exactly when muslin began in Bengal but there are numerous textual references to textile that closely resemble what we refer to as muslin today



Nur Jahan, wife of emperor Jahangir of Mughal India wearing muslin dupatta and tunic, 1627 CE



Court ladies wearing tight tunic made of muslin, 5th century, Sigiriya, Sri Lanka. This site was selected by king Kashyapa (477-496 AD)





Marie Antonitte in her famous “muslin dress” portrait, 1783(By Louise Elisabeth Vigee Le Burn)

Queen consort of France

Father: Holy Roman Emperor Francis



Muslin changed the fashion tastes in the West- Empress Josephine, the first wife of Napoleon & first Empress of French. She was the great lover of arts

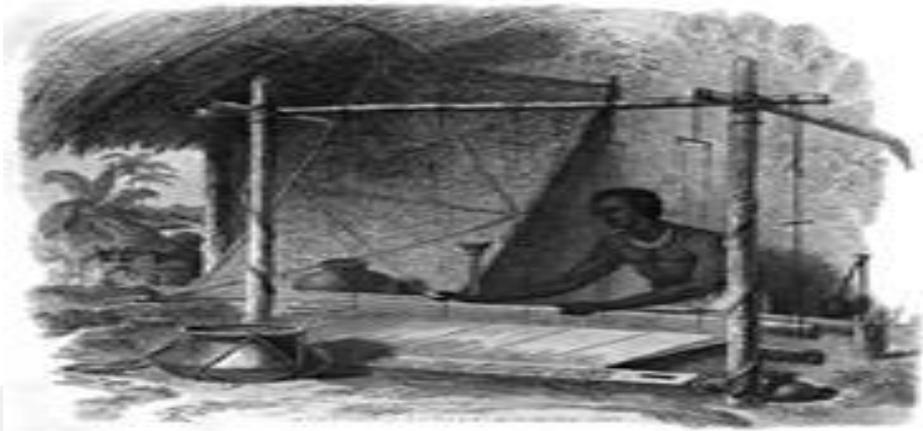
- ❑ • There is the story, written down in 1770 by William Bolt, in his book “Consideration on Indian Affairs”, that Arongojeb, an Emperor of Bengal, once teased his daughter for being naked. The princess however, protested, as she was in fact wearing 7 layers of fine Ab-e-Rown muslin cloth, with these simply being so fine and sheer that she appeared to be nude.
- ❑ • Another story concerns a farmer and his cow: during the time under Alibardi’s rule, a piece of muslin was placed on the grass to dry. However, with the cloth being so fine, and thus almost invisible, the farmer’s cow, grazing in the same field ate the cloth along with the grass, as it did not see it. The story goes, that as a punishment, the farmer and his cow were later thrown out of Dhaka.
- ❑ • As mentioned previously, a myth that accompanied the finest of muslins was that they were spun underwater, so sheer and silky was their quality. Whilst this of course was not the case, this particular myth stems also from the fact that the spinning of the fabric could only take place in a humid environment, with the spinners sometimes placing bowls of water in the room, to further humidify the air.

Story of Muslin

There are a number of historical anecdotes related to the fineness of muslin fabrics

Legendary fabric Muslin

Modern technology defeated here



- A 50 miter fabric could be squeezed into a match box!!!!
- 250 count to 1200 count
- 1400 threads per inch to 1800 threads per inch.

100 Counts	10 gm
200 Counts	5 gm
500 Counts	2 gm
1000 Counts	1 gm

Dr Taylor, a British textile expert wrote,-

- ❑ "Even in the present day, notwithstanding the great perfection which the mills have attained, the Dhaka fabrics are unrivalled in transparency, beauty and delicacy of texture."
- ❑ 'A hundred yards of it can pass through the eye of the needle, so fine is its texture.'

Process and Techniques

Process and Techniques

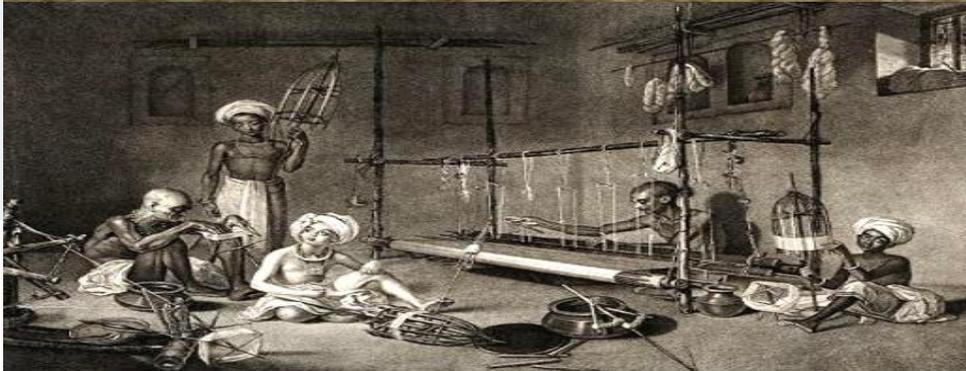
The process of manufacturing muslin is a complex, lengthy one, requiring great skill and craftsmanship and relying on the cycle of the seasons and the farming cycle. Typically, the spinning was done by women, whilst the men were responsible for the weaving. Finest thread was spun by young women, under the age of 30.

The spinning could only be done in the early morning or late afternoon, as it was at these times when the air was damp, allowing the cotton filaments to stretch, and occasionally water bowls were placed in the rooms where the spinning occurred, to further humidify the air.

Sometime goes to the middle of the rivers on boat to spun the finest thread in higher RH% & moisture presence.



The finest sort of Muslin was called Malmal, sometimes mentioned as Malmal Shahi or Malmal Khas by foreign travelers. It was costly, and the weavers spent a long time, sometimes six months, to make a piece of this sort. It was used by emperors, nawabs etc.





Lined with countless fine, razor-sharp teeth, the upper jaw of a boalee (catfish) was used for combing karpas (raw cotton) to clean it before ginning and spinning.



A few of the more than 50 tools used by specialists to make the muslin weaver's *shana* (ultrafine-toothed reed comb) from a dense bamboo called *mahal* that allows for the setting of more than 1,000 teeth per meter. On a loom, shanas keep separation among spiderweb-thin warp threads.



In the Bangla language, a place where muslin was made and sold was called *arong*, and the largest arong was at Panam Nagar, in Sonargaon, where the East India Company factory was located. It now stands as a reminder of how what was once the cloth of emperors was felled by an industrializing, colonial economy.

Muslin returned back once again

The Roman authors recorded that 'Generic Muslin' was the most coveted of luxury goods in the ancient civilized world

The British cut off the hands or thumbs and tongues of Bengal weavers in order to stop & destroy the production of Muslin, the famous textiles of Bengal

Torturing was designed to prevent weavers from undertaking weaving and the cutting of tongues said have been for the purpose of preventing the weavers from passing on the knowledge of weaving through word's of mouth



**** Bangladesh researchers produced exact genus of cotton used in producing the fabled muslin cloth.**

**** It was the very special and priority project of our honorable prime minister Sheikh Hasina to recover our ancient heritage of textile**

**** In an effort helps to revive the production of muslin by using source cotton and redeveloping spinning techniques.**





Transformation of Bangladesh Textile and Clothing Industry



Ancient Garment Factory, The lost city Panam Nagar, Sonargaon, The 1st Capital of Bengal, EST in 15th Century by Bengal ruler Isa Khan



1st Generation Garment Factory



M/s Reaz Garments Ltd 1960-73



Desh Garments 1977



2nd Generation Garment Factory (Opex)

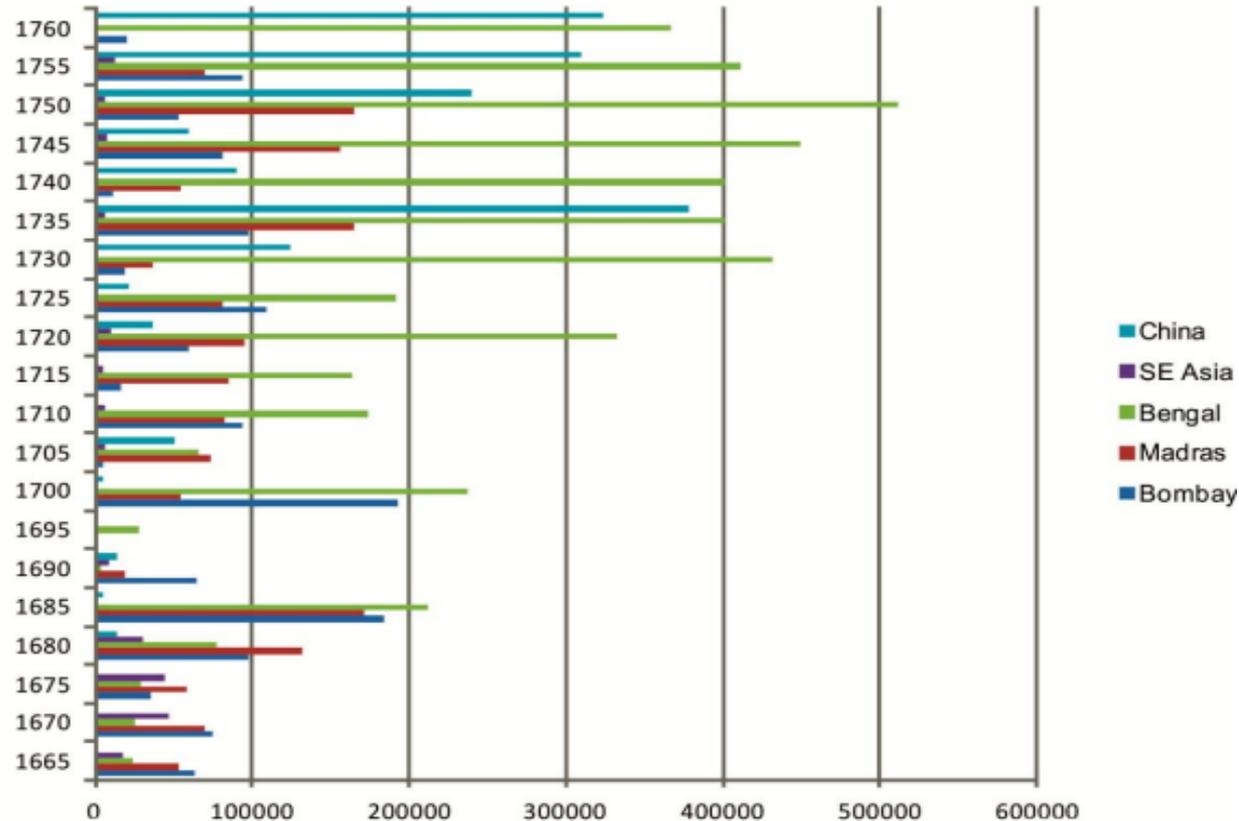


3rd Generation Green Garment Factory: AKH

Bengal was still a major exporter of cotton cloth to the Americas and the Indian Ocean. However, Bengali exports declined over the course of the early 19th century, as British imports to Bengal increased, from 25% in 1811 to 93% in 1840.

Two tables and graphs are provided below to show the scale of British imports of goods from Asia and India, and Bengal's share. The first is on the total value, based on five yearly intervals, between 1665 and 1760, developed from annual figures generated by KN Chaudhuri. Textiles were about 71-81% of the total value of goods

Total East India Company exports from Asian in value (£) (1665 - 1760)
71-81% are textiles in the case of Bengal



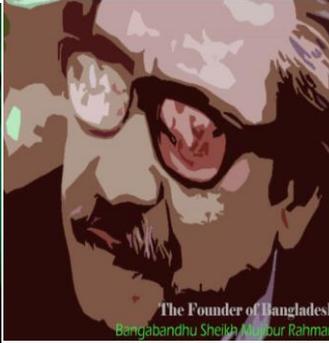


A people without the knowledge of their past, origin & culture is like a tree with no roots.



Bangladesh

"The Land of Many Possibilities and Opportunities"



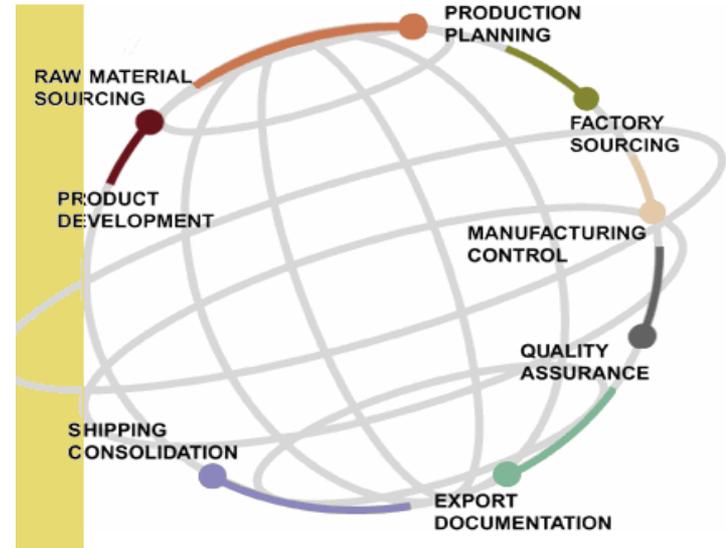
The Founder of Bangladesh
Bangabandhu Sheikh Mujibur Rahman



Global Supply Chain



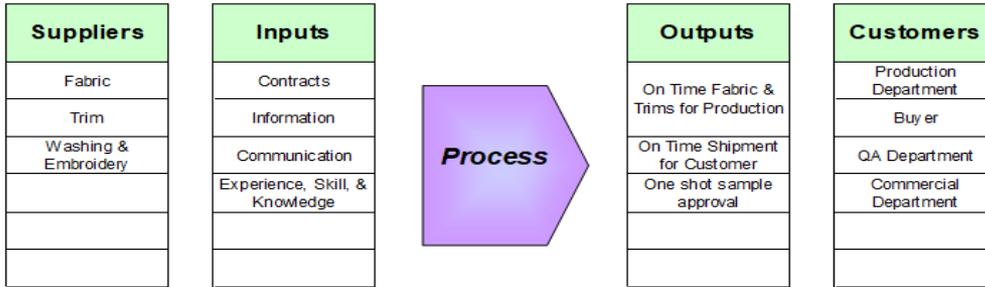
Bangladesh
clothing challenge
and opportunity



Critical Path



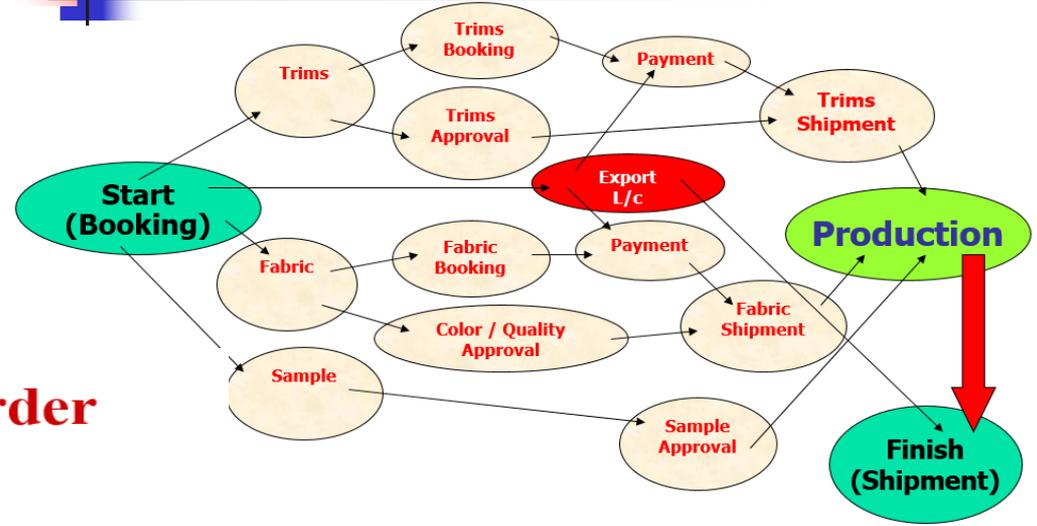
SIPOC – Clothing order



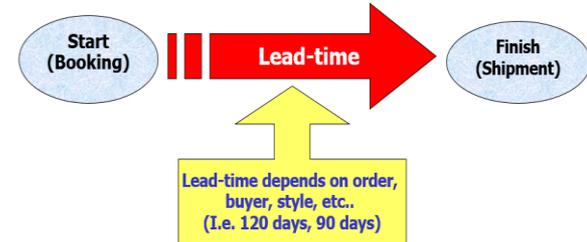
Start Boundary:



Work Breakdown



Lead-time



World Map of Clothing Exports

NORTH AMERICA
1.5%



EUROPE
32.7%



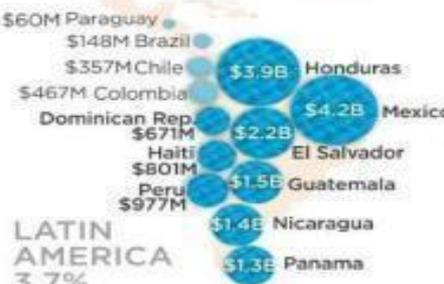
ASIA
59.8%



AFRICA
2.3%



LATIN AMERICA
3.7%



OCEANIA
0.1%

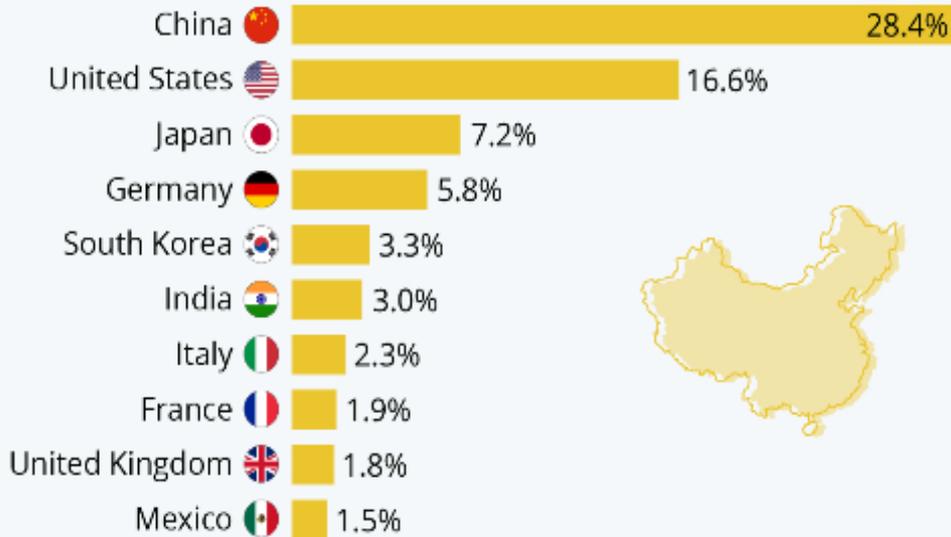


Note: Only countries with more than \$50M in clothing exports were considered.

Article & Sources:
<https://howmuch.net/articles/world-map-clothing-exports>
 World Trade Organization - <https://data.wto.org>

China Is the World's Manufacturing Superpower

Top 10 countries by share of global manufacturing output in 2018*



* output measured on a value-added basis in current U.S. dollars

Source: United Nations Statistics Division



- ❑ Global trade is changing at breakneck speed, with ongoing trade tensions between major players, the pressure to reform the global trading system, technological changes, shifting employment patterns and increasing environmental concerns all working to reshape supply chains and upend decades of business norms.
- ❑ As we enter the third decade of the 21st century, these pressures are also beginning to redefine demand patterns and production methods around the globe.
- ❑ Supply chains of the future may look almost nothing like those of the past, and enterprises will have to adapt to keep their competitive edge.

2013

- ❑ Rana Plaza incident
- ❑ Tajreen Fire Incident
- ❑ Political unrest
- ❑ Worker unrest

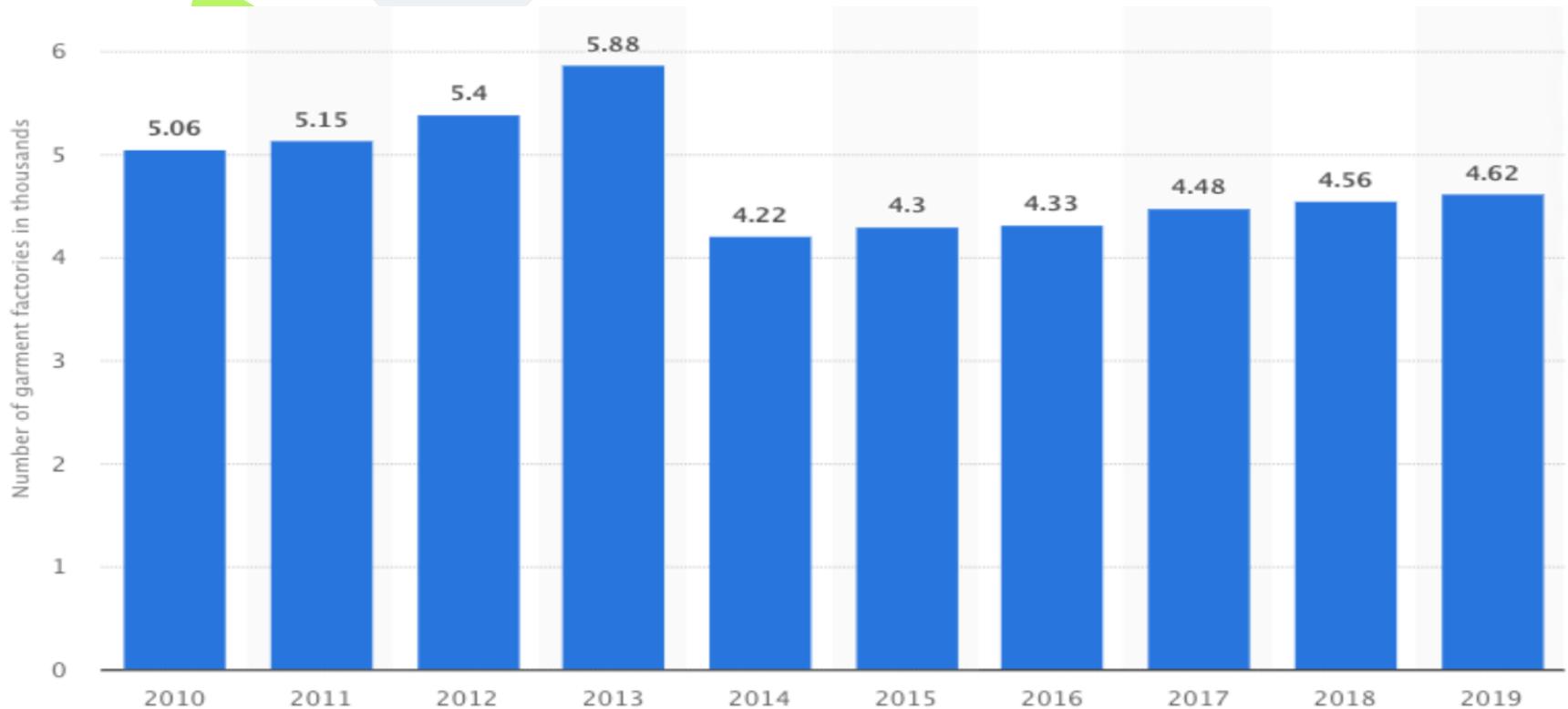
Miracle:

- ❑ RMG growth about 16%



“দ্য ইয়ার ইন পিকচার্স” শিরোনামে বিদ্যায়ী ২০১৩ সালের বিশ্বজুড়ে আলোকচিত্র কয়েকটি ছবি ছেপেছে টাইম সাময়িকী। চলতি সংখ্যায় প্রকাশ করা এসব ছবির মধ্যে প্রথমেই রয়েছে রানা প্লাজা ধসের পর উদ্ধার অভিযানের সময় আলোকচিত্রী তাসলিমা আক্তারের তোলা এই ছবিটি। টাইম ছবিটির শিরোনাম দিয়েছে “শেষ আলিঙ্গন”

Bangladesh number of garments factory decreased in 2014 significantly



Number of garment factories in Bangladesh from 2010 to 2019 (Source: [Statista](#))

- Government policy
- Social Compliance
- Interest Rate
- Infrastructure
- Training program

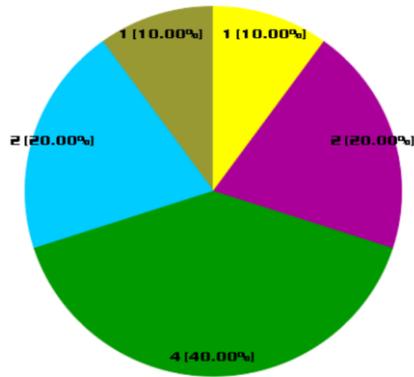


Figure 19 Factors that influence the growth of Bangladesh RMG

Number	Industrial infrastructure Ranking		
	Country	Ranking	Point
1	Bangladesh	130	2.7
2	India	91	3.6
3	China	72	4.1
4	Pakistan	100	3.5
5	Sri Lanka	61	4.4
6	Thailand	46	4.9
7	Cambodia	83	3.8

Figure 16 Bangladesh industrial infrastructure ranking along with other countries

(Source: World economic Forum 2011.)

Bangladesh RMG Industry Competitiveness

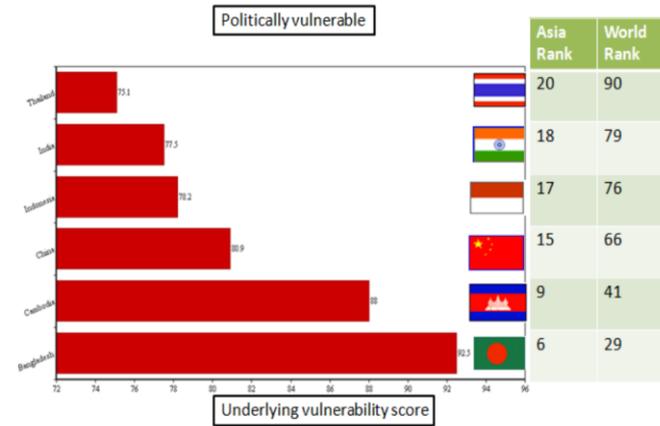
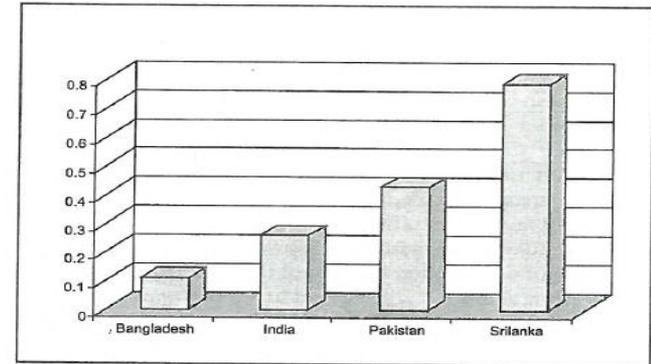


Figure 18 Ranking of politically vulnerable countries

(source: The Asian Studies Center)

Analysing Competitiveness of the Bangladesh RMG Industry



Source: World Bank (2000).

Figure 5.2: Unit Labour Cost (US\$/shirt)

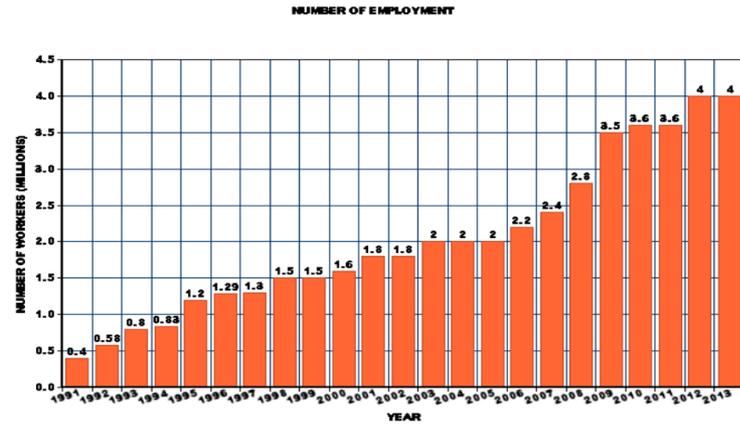


Figure 9 Increase in total number of employees in Garments industry over the years

(Source: BEMEA official site, 2014)

Minimum Salary trend

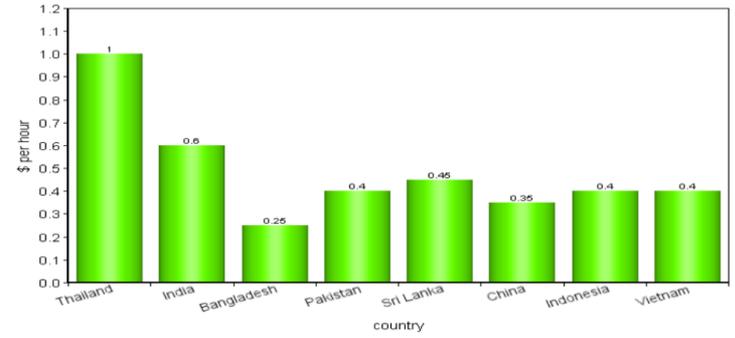
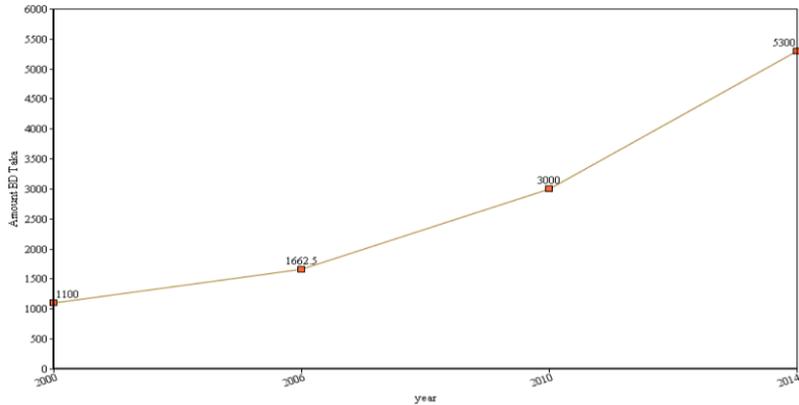


Figure 10 Comparison in Labor cost by countries

(Source: BKMEA official site, 2014)

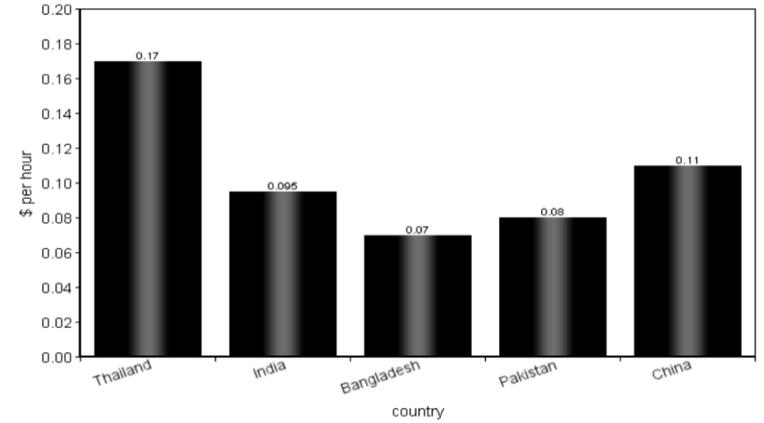


Figure 11 Comparison in Energy cost by countries

(Source: BKMEA official site, 2014)

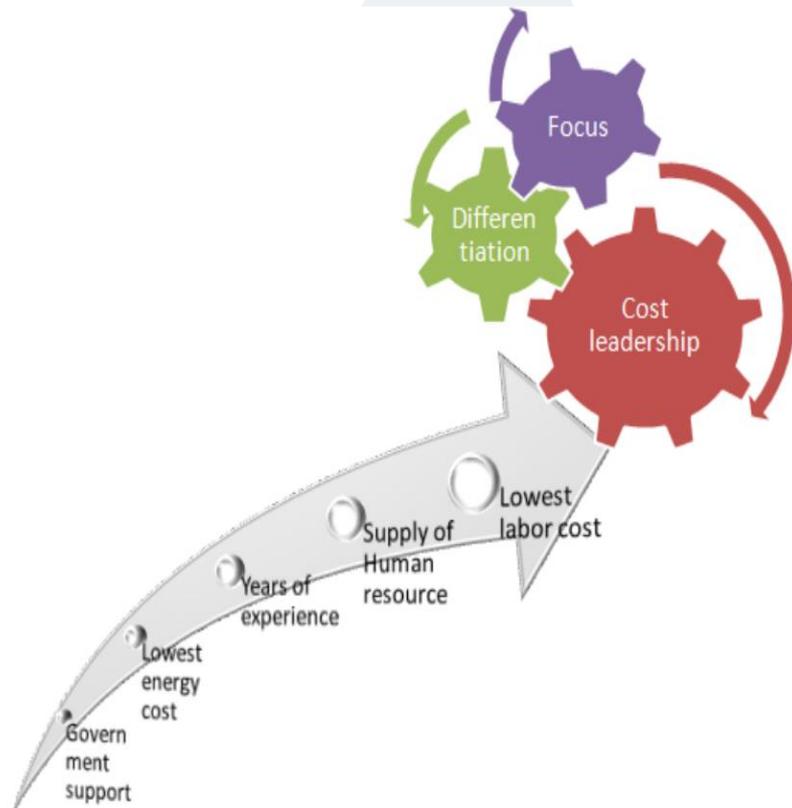


Figure 20 Model for Bangladesh RMG

(Source: Porter's generic strategies)

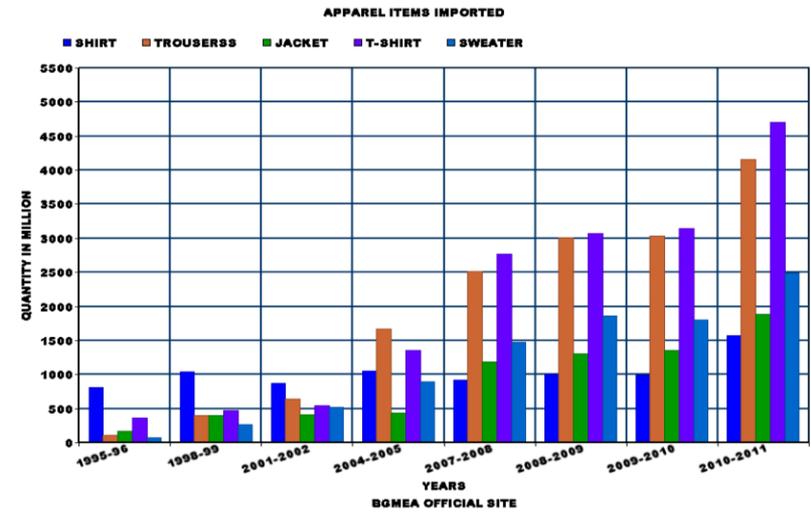
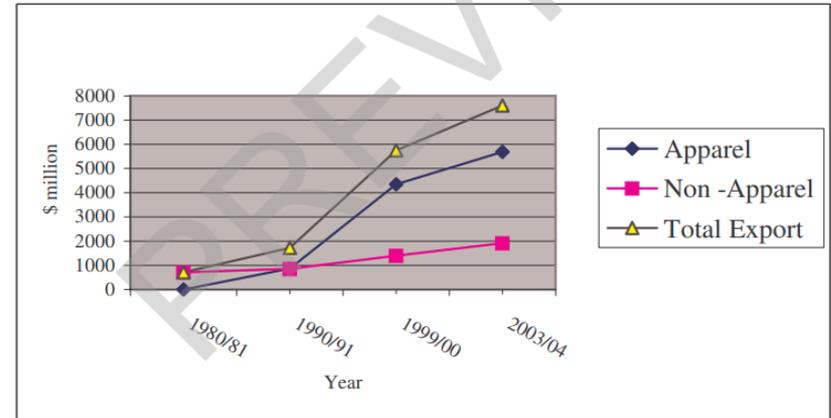
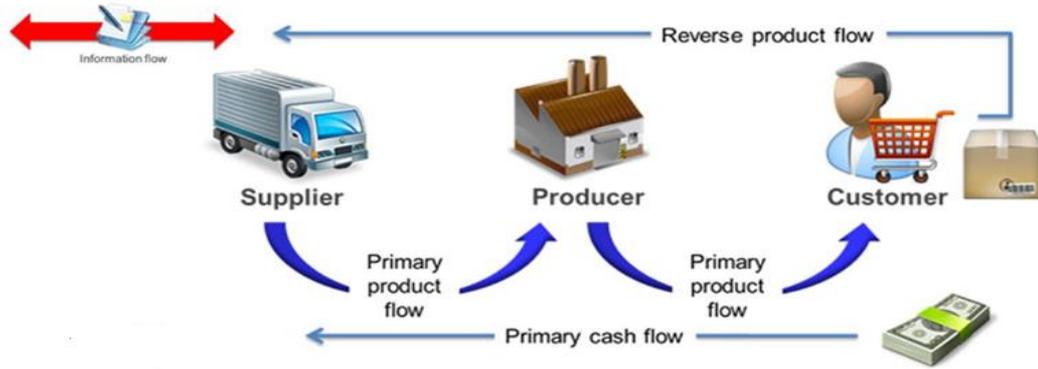


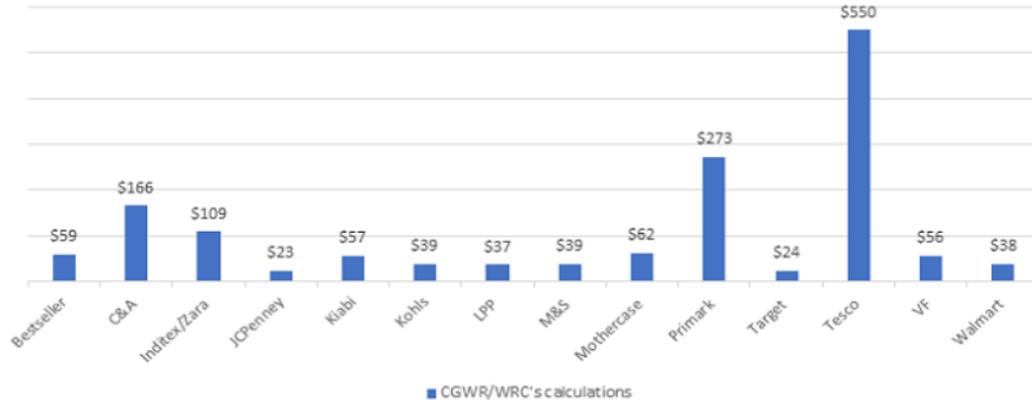
Figure 2.2: Apparel and non-apparel export trend



WHAT IS SUPPLY CHAIN MANAGEMENT?



Cancelled and delayed orders, in US\$ millions (Source: Centre for Global Workers' Rights)
CGWR/WRC's calculations based on BGMEA data as of March 29, 2020

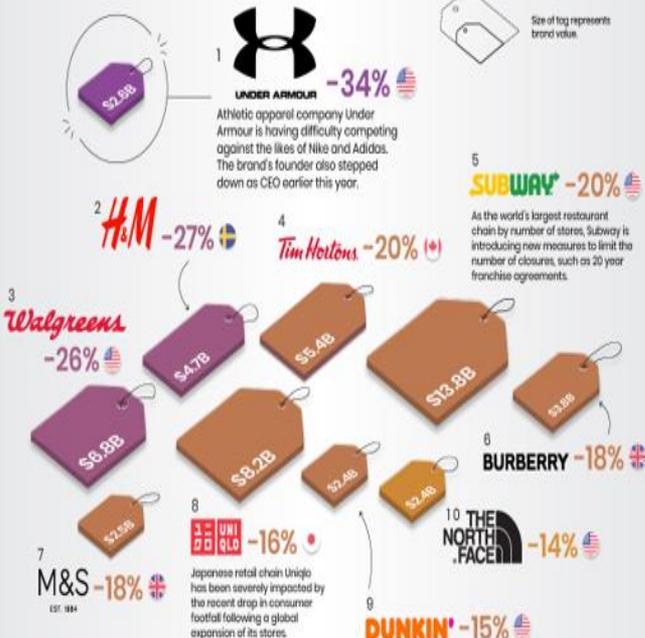


BIGGEST LOSSES

10 FASTEST DECLINING BRANDS

Sorted 2020 for illustrative purposes.

BRAND VALUE % CHANGE 2020 VS 2019

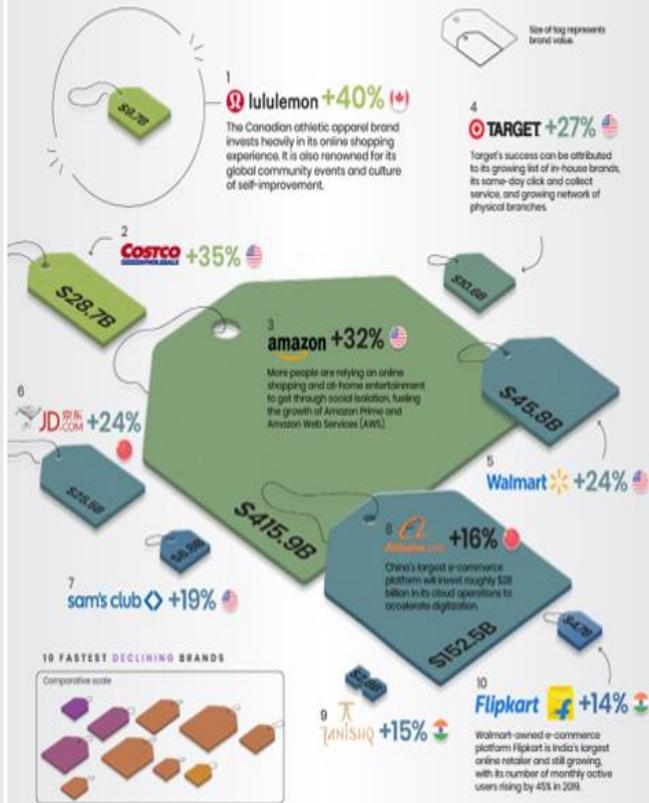


Even as the economy begins to open up again post-COVID-19, the future of retail is very uncertain. How these brands react in the coming months will determine their value in the next edition of these rankings.

BIGGEST WINS

10 FASTEST GROWING BRANDS

BRAND VALUE % CHANGE 2020 VS 2019



10 FASTEST DECLINING BRANDS



CORONAVIRUS AND ECONOMY



THE FASTEST GROWING AND DECLINING RETAIL BRANDS

The global retail industry has experienced a catastrophic start to 2020 due to the ongoing pandemic, and no retailer has been immune to its effects.

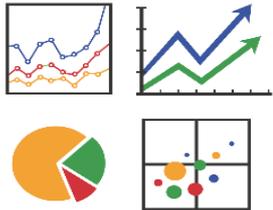
However, several brands have experienced an increase in brand value when compared to 2019.

The following data comes from Kantar's BrandZ 2020 report, and incorporates financial data up until mid-April 2020.

KANTAR calculates the value of a brand by using global data from



The U.S. Government Office of Textiles & Apparel (OTEXA)



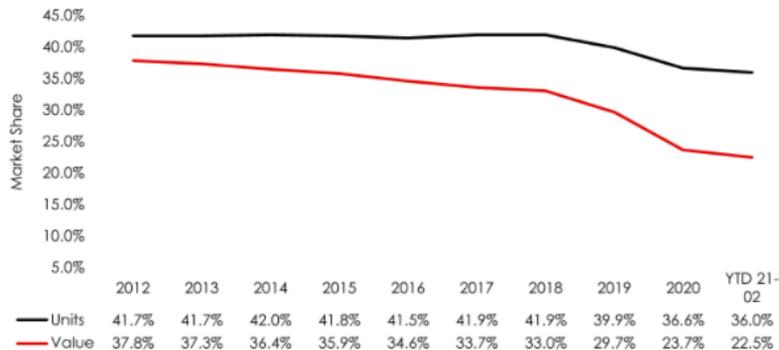
Challenge & Opportunity

TREND ANALYSIS

MARKET SHARE

Total Garments YTD

U.S. Garment Imports: CHINA



South Asia

U.S. Garment Import Growth: SOUTH ASIA

Period	Units						Value					
	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022
Jan	5.5%	4.6%	5.7%	6.3%	-5.7%	31.9%	2.1%	3.9%	8.1%	5.9%	-16.7%	44.6%
Feb	0.0%	1.5%	5.8%	7.8%	-2.9%		-4.2%	1.8%	8.9%	5.0%	-14.4%	
Mar	-0.9%	-2.5%	10.6%	4.7%	3.5%		-3.7%	-2.0%	13.0%	2.3%	-8.1%	
Apr	-2.5%	2.2%	7.1%	-1.3%	11.3%		-4.5%	2.3%	10.3%	-5.2%	0.6%	
May	-1.7%	2.9%	-6.4%	-15.2%	33.9%		-4.0%	2.6%	2.5%	-18.8%	21.7%	
Jun	-1.8%	2.3%	6.6%	-20.3%	43.1%		-3.8%	2.4%	10.9%	-24.1%	31.5%	
Jul	-0.5%	1.5%	5.5%	-19.4%	42.0%		-3.1%	2.7%	9.6%	-24.3%	32.3%	
Aug	-0.4%	1.4%	5.1%	-16.2%	38.2%		-2.4%	2.1%	9.1%	-21.5%	30.2%	
Sep	-0.5%	1.7%	4.3%	-14.0%	37.2%		-2.6%	2.7%	8.2%	-19.5%	30.8%	
Oct	0.4%	1.9%	4.2%	-11.7%	34.8%		-1.5%	3.1%	7.5%	-17.3%	30.3%	
Nov	0.8%	0.4%	4.7%	-9.4%	35.5%		-1.0%	1.9%	7.8%	-16.3%	33.4%	
Dec	-0.1%	1.2%	4.4%	-8.1%	37.6%		-1.6%	2.7%	7.7%	-16.2%	37.6%	

South Asia YTD 22-01

	Units (1,000 Dozens)		
	2021	2022	%+/-
Total	402	530	31.9%
338/339	5,668	7,617	34.4%
347/348	5,460	6,787	24.3%
340	718	821	14.4%
352/652	6,144	7,172	16.7%

South Asia YTD 22-01

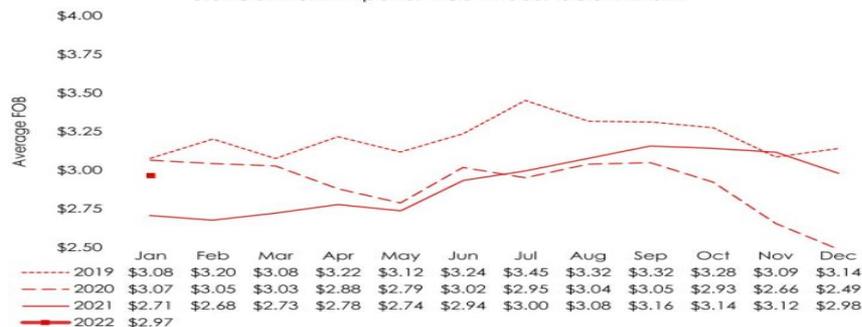
	Value (\$ Millions)		
	2021	2022	%+/-
Total	1,088	1,573	44.6%
338/339	165	258	56.1%
347/348	314	423	34.8%
340	45	58	28.6%
352/652	92	106	15.1%

South Asia YTD 22-01

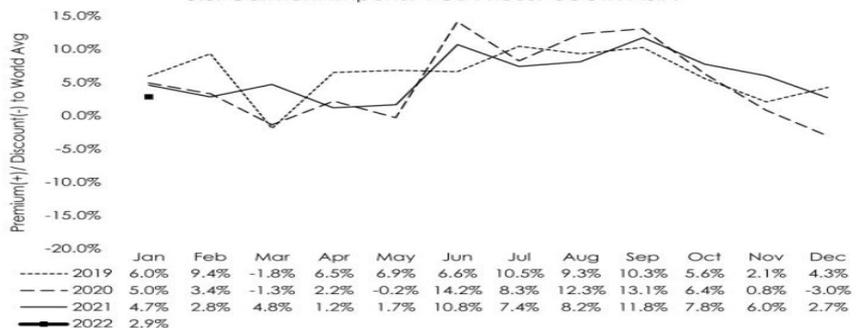
	FOB		
	2021	2022	%+/-
Total	\$2.71	\$2.97	9.6%
338/339	\$2.43	\$2.82	16.2%
347/348	\$4.79	\$5.19	8.5%
340	\$5.26	\$5.91	12.4%
352/652	\$1.25	\$1.24	-1.4%

Challenge & Opportunity

U.S. Garment Imports: FOB Prices: SOUTH ASIA



U.S. Garment Imports: FOB Prices: SOUTH ASIA



All Garment Products

Market Share in Units - YTD 22-01

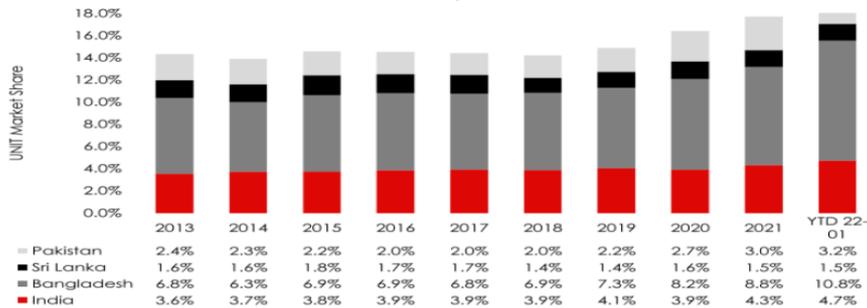
Units	2021	2022	% +/-
G.China	37.4%	38.2%	2.2%
S. Asia	18.8%	20.3%	7.7%
ASEAN	26.4%	24.9%	-5.7%
MX/DR-CAFTA	10.2%	9.7%	-5.4%
SSA	1.6%	1.7%	2.0%
Indonesia	3.6%	4.1%	13.9%
India	4.4%	4.7%	6.6%
Philippines	0.5%	0.6%	6.7%
Bangladesh	9.3%	10.8%	16.1%
Pakistan	3.2%	3.2%	0.5%
Cambodia	4.3%	4.0%	-5.6%
Guatemala	1.4%	1.4%	2.6%
Nicaragua	1.7%	1.8%	2.7%
Mexico	2.5%	2.5%	-1.5%
Egypt	1.6%	1.5%	-7.7%
Haiti	0.9%	0.8%	-7.5%
Sri Lanka	1.9%	1.5%	-19.1%
Thailand	1.0%	1.0%	2.9%
Vietnam	16.3%	14.5%	-11.0%
Jordan	1.2%	1.0%	-15.6%
El Salvador	1.9%	1.6%	-11.8%
Honduras	2.2%	1.9%	-15.0%
Dom Rep	0.6%	0.5%	-8.3%

All Garment Products

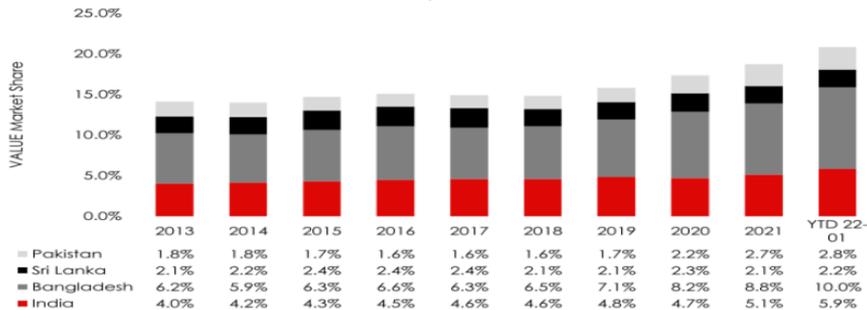
Market Share by Value - YTD 22-01

Value	2021	2022	% +/-
G.China	23.7%	25.6%	7.8%
S. Asia	19.7%	20.9%	5.9%
ASEAN	31.1%	29.5%	-5.3%
MX/DR-CAFTA	12.5%	11.4%	-8.8%
SSA	2.2%	2.0%	-8.9%
Indonesia	5.0%	5.8%	15.6%
India	5.2%	5.9%	12.2%
Philippines	0.7%	0.8%	8.4%
Bangladesh	9.4%	10.0%	6.5%
Pakistan	2.7%	2.8%	5.7%
Cambodia	4.2%	4.3%	4.1%
Guatemala	2.1%	2.1%	-1.2%
Nicaragua	2.2%	2.1%	-2.0%
Mexico	3.2%	3.0%	-7.0%
Egypt	1.7%	1.6%	-7.4%
Haiti	0.8%	0.7%	-8.7%
Sri Lanka	2.4%	2.2%	-10.2%
Thailand	1.1%	1.0%	-12.0%
Vietnam	19.4%	16.9%	-12.8%
Jordan	2.1%	1.8%	-14.9%
El Salvador	2.0%	1.7%	-15.1%
Honduras	2.5%	2.1%	-17.1%
Dom Rep	0.5%	0.4%	-19.0%

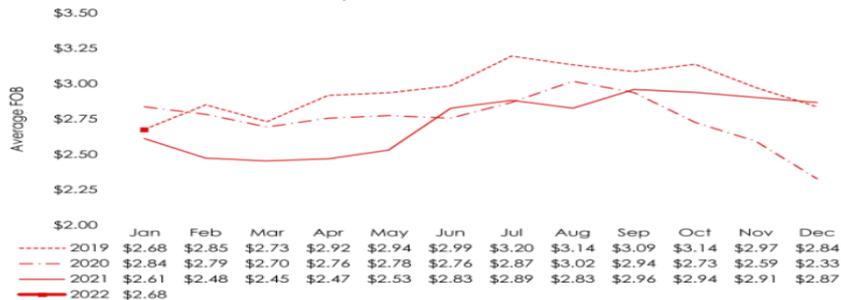
U.S. Total Garment Imports: SOUTH ASIA



U.S. Garment Imports: SOUTH ASIA



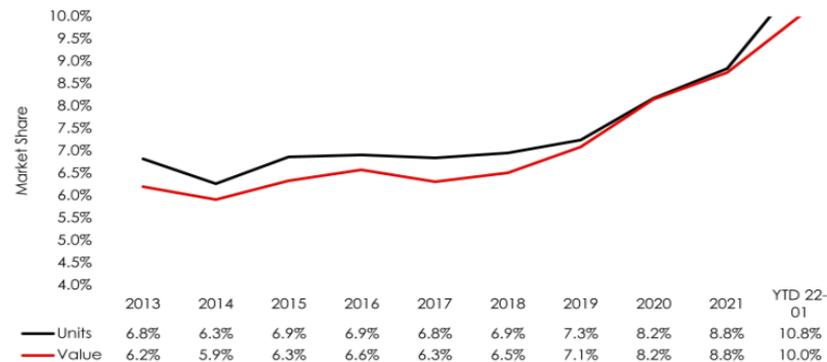
U.S. Garment Imports: FOB Prices: BANGLADESH



MARKET SHARE

Total Garments YTD

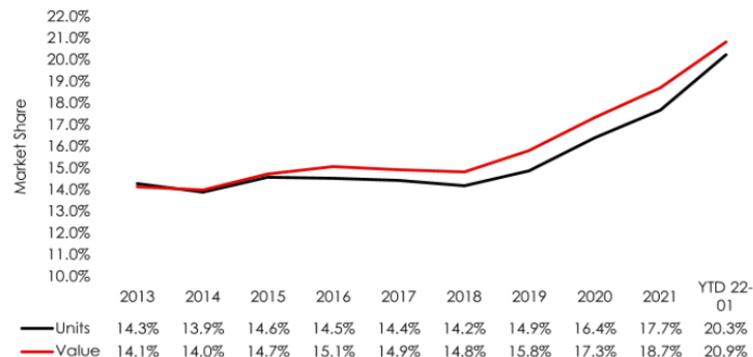
U.S. Garment Imports: BANGLADESH



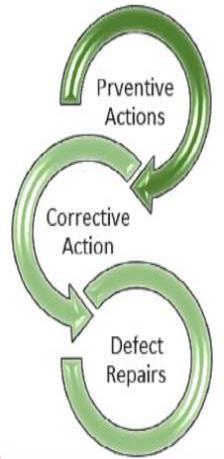
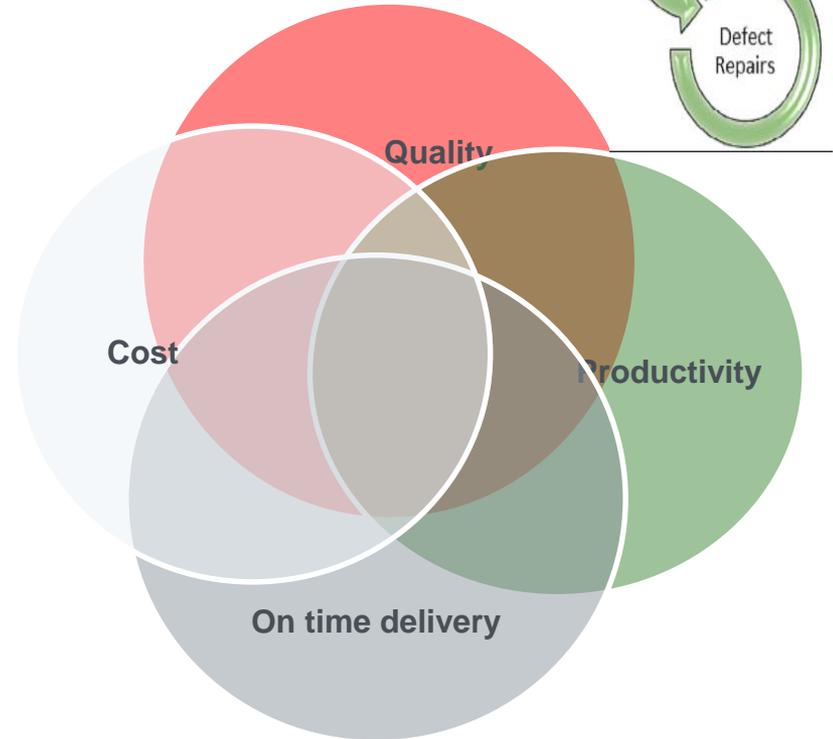
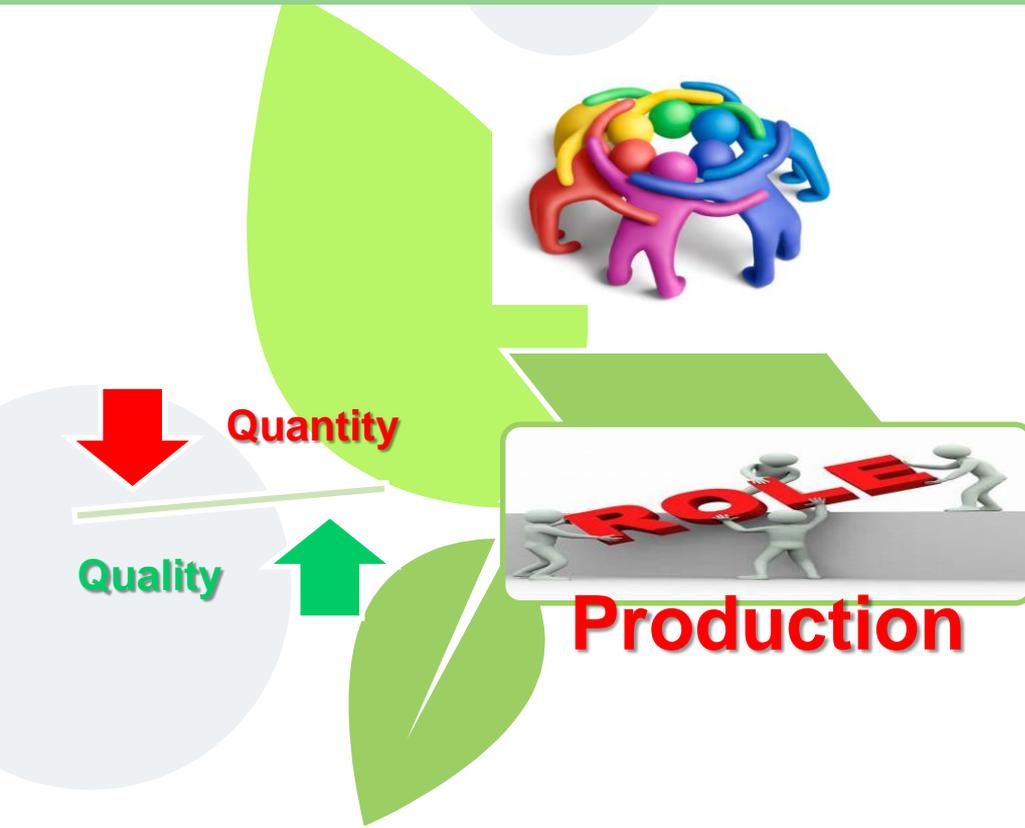
MARKET SHARE

Total Garments YTD

U.S. Garment Imports: SOUTH ASIA



Responsible quality & productivity





SPACE SHUTTLE CHALLENGER EXPLODES 73 SECONDS AFTER TAKEOFF

- 7 DEATHS
- FINANCIAL LOSS OF MORE THAN USD 1 BILLION



Mind Set





Mind Set

RMG Operations: Where we are?



Failure rates

SUPPLY CHAIN
% of Loss

20%-30%
Loss in
Lead time

QUALITY
% of Loss

10%-25% Loss
in Repairing
1%-5% in
Rejection

WASTAGE
% of Loss

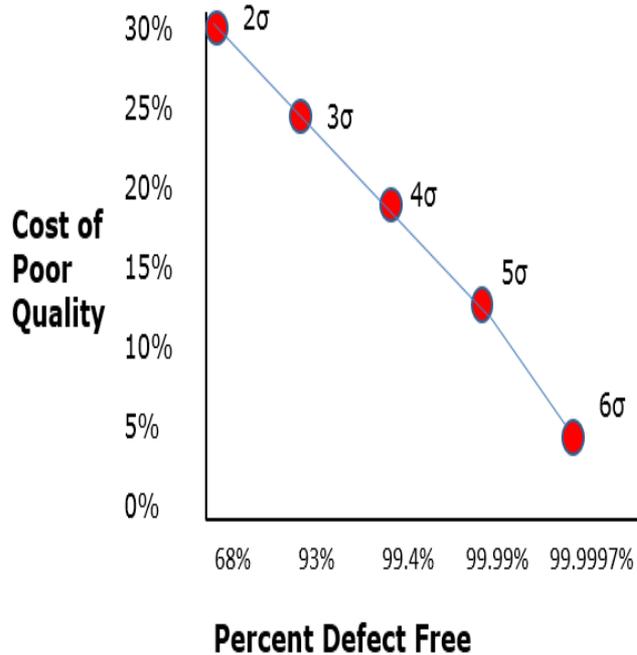
5%-50% Loss
in materials
30%-40% in
time

Efficiency
(% of Loss)

52%-60% Loss in
terms of GSD
guided SMV and
Calculation



6 Sigma vs Cost of Poor Quality



Six sigma metrics

<u>Sigma Level</u>	<u>Defects Per Million Opportunities</u>
2	308,770
3	66,810
4	6,210
5	233
6	3.4

Most companies operate internally at 3 Sigma and externally at 4 Sigma

Cost of poor quality



Mind Set

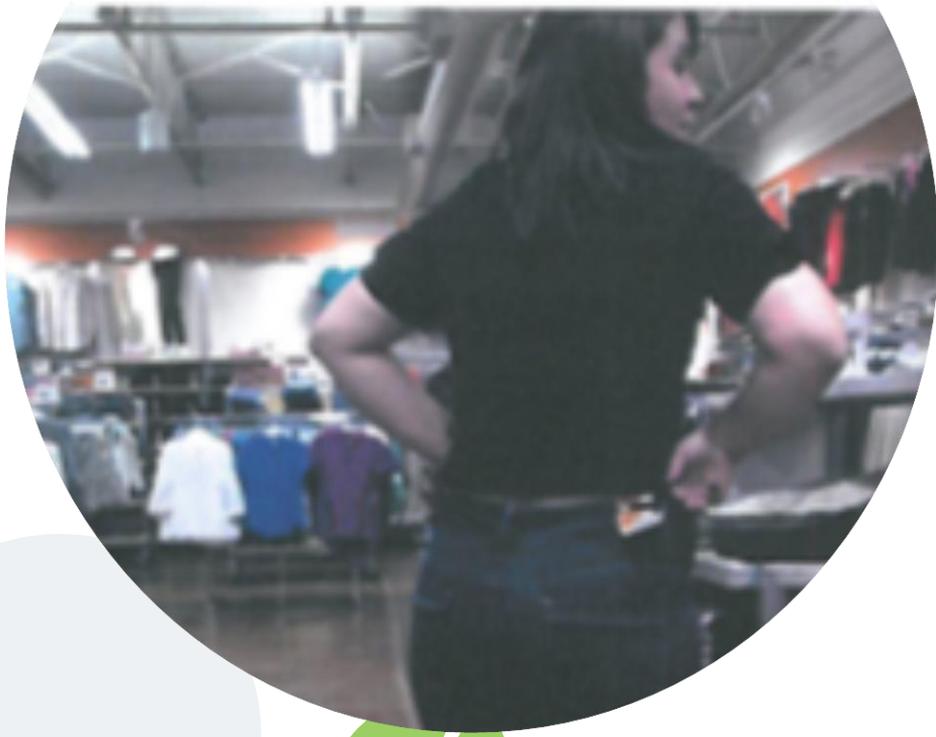
Cost of Thread breakage's & Skip stitch

MC	WH	WD
60	10	270

Categories	Freq./Hr	Time to re- Work (Min)	Loss Min/Day	Loss Min/ Month	Loss Min/ Year
Rethread after Breakage	1	0.5	300	7650	91800
Resew after breakage	1	0.75	450	11475	137700
Repair after Skip Stitch	1	0.75	450	11475	137700
Total Loss minutes			1200	30600	367200
Add system loss(20%)			1440	36720	440640
Loss of potential Garments			72	1836	22032
Loss in Hours			24	612	7344
Loss in Efficiency			4.00%	4.00%	4.45%

Does it matters if only one breakage, one skip stitch per Hour !!!





Quality Failure for Fullness at Contour
WB at reputed factory of Bangladesh
Cost of Poor Quality: \$5M



Problem set



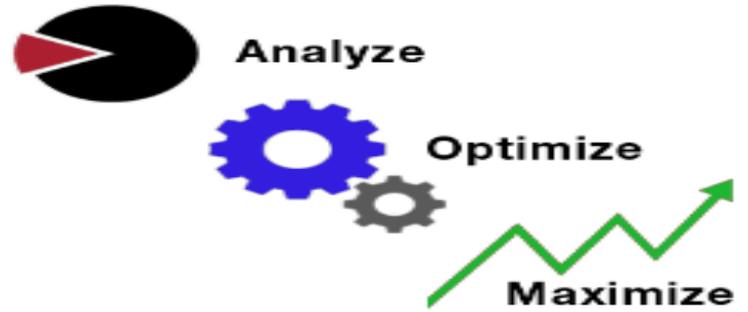
Process Analysis is the foundation toward achieving Process Excellence.



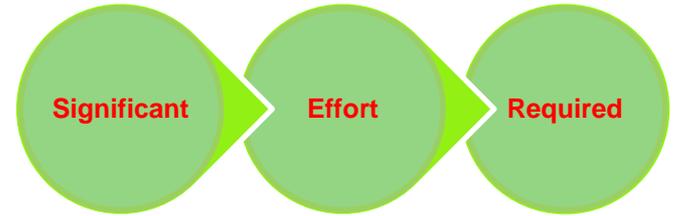
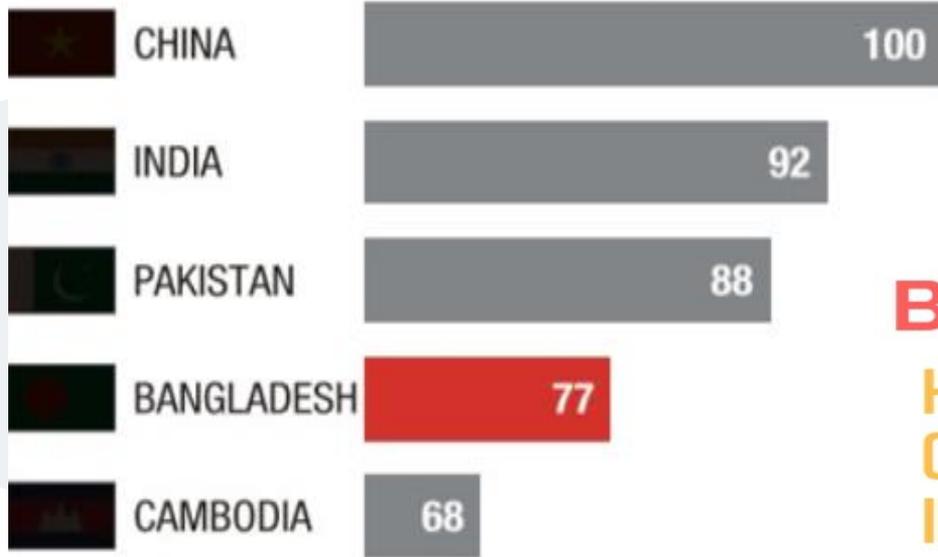
“85% of the reasons for failure to meet customer expectations are related to deficiencies in systems and processes... rather than the employee”

A bad system will beat a good person every time.

- W.E. Deming



Labor productivity gap across country PRODUCTIVITY COMPARISSION IN CHINA



Bangladesh

HUMAN CAPITAL INDEX

BANGLADESH RANK HIGHER THAN

INDIA & PAKISTAN

Launched at the World Bank's annual meeting 2018 with the International Monetary Fund in Bali, the report recognises the gains of the past 40 years in improving the number of children at school and mortality rates.

COUNTRY RANKS

SRI LANKA
72

NEPAL
102

BANGLADESH
106

INDIA
115

AFGHANISHTAN
133

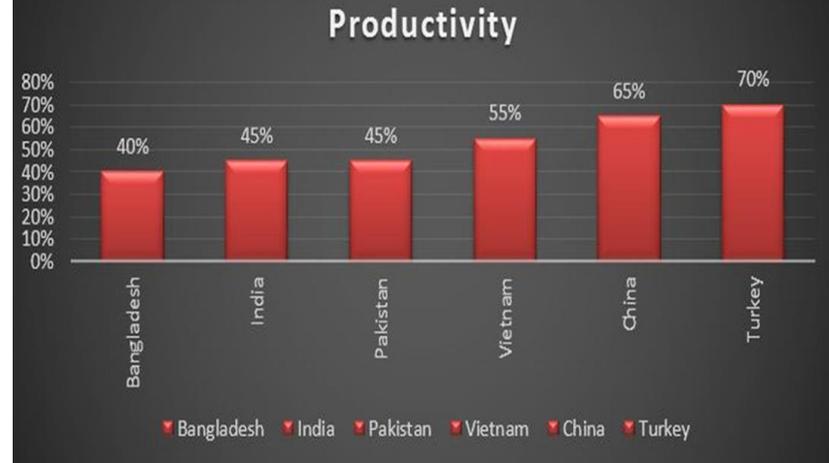
PAKISTAN
134

Bangladesh has the lowest minimum wage among Asian garment exporting countries exception on Myanmar

Considering full minute cost of 0,08 € in countries like Ukraine, Russia, Albania or even Bulgaria, i see good chances to bring back business to Europe. Productivity is double, diversification flexibility is light years ahead, sustainability already on a suitable level, transport cost and lead time to Europe much shorter and customer service on a total different standard as everybody has already the experience of losing business.

Understanding for challenges ahead might be there, but actions specially in updating production are not. Waiting, talking, talking and waiting.

Low wage vs Productivity



PRODUCTIVITY OUTPUT NOW REQUIRES MORE INVESTMENT



- Output worth **Tk1** needs capital investment of **Tk6.06** in **FY20**
- The same output resulted from **Tk3.87** in **FY19**



Incremental Capital Output Ratio of Bangladesh



Source: MoF, BBS

RMG worker productivity in Asian countries

Name of the country	Per hour productivity in value
Sri Lanka	\$15.9
Indonesia	\$12.3
China	\$11.1
Philippines	\$8.7
India	\$7.5
Vietnam	\$4.7
Myanmar	\$4.1
Bangladesh	\$3.4

Source: Asian Productivity Organization (APO) Data

Where Pay Is Lowest For Cheap Clothing Production

Monthly minimum wage in the global garment industry in 2018 (selected countries)

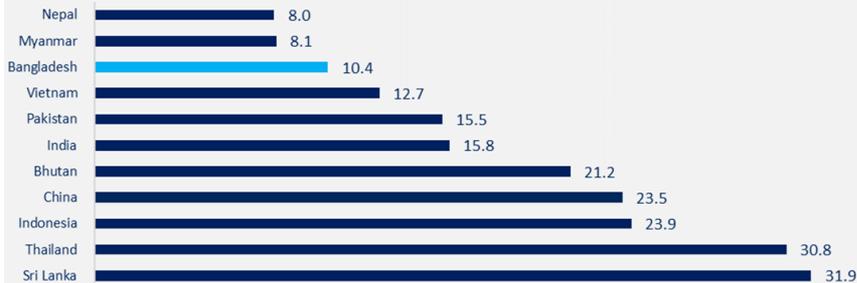


@StatistaCharts

Source: NYU Stern Center for Business and Human Rights

statista

Per-Worker Labor Productivity Level

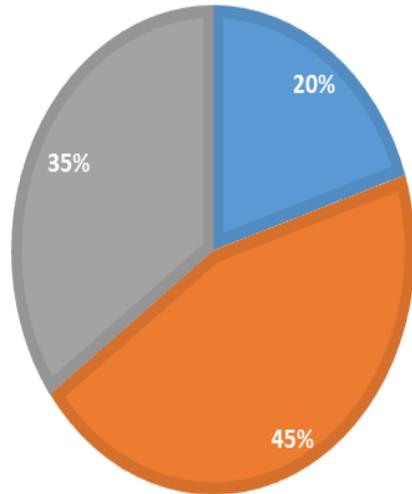


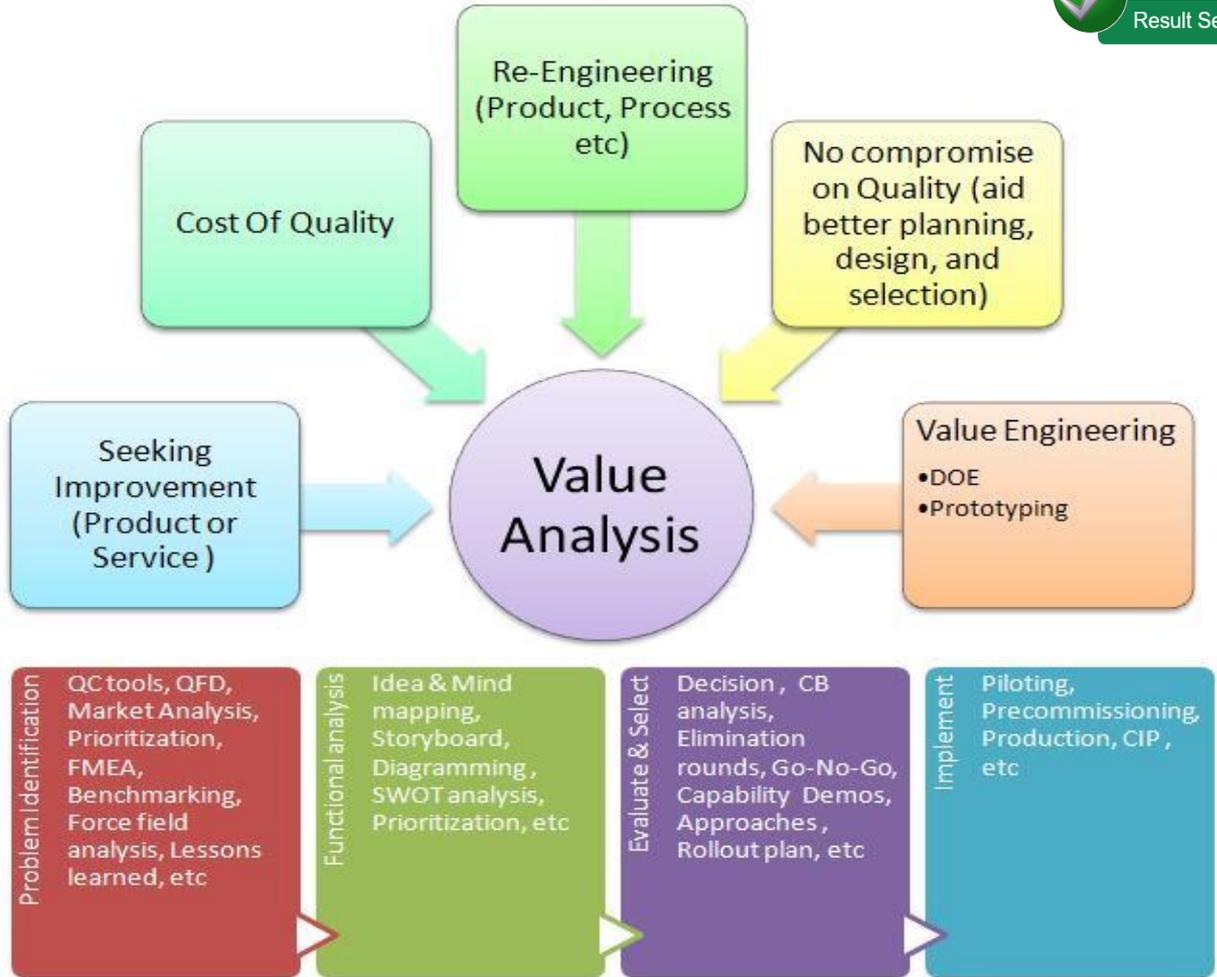
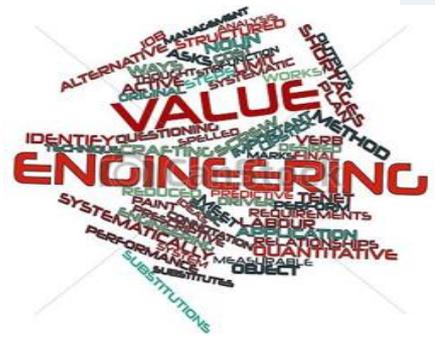
Source: Asian Productivity Organization (APO), 2020

Productivity barrier and improvement

BARRIERS IN PRODUCTIVITY AND EFFICIENCY GROWTH IN BANGLADESH'S APPAREL INDUSTRY

■ Lack of strategic decision ■ Non-productive time (NPT) ■ Supply chain issues





Manufacturing Speed



OEE = Availability x Performance x Quality

$$OEE = \frac{B}{A} \times \frac{D}{C} \times \frac{F}{E}$$

Availability

A = Total Operative Mode Time

B = Run Time

Time Losses

Performance

C = Normal Speed

D = Actual Speed d_r

Speed Losses

Quality

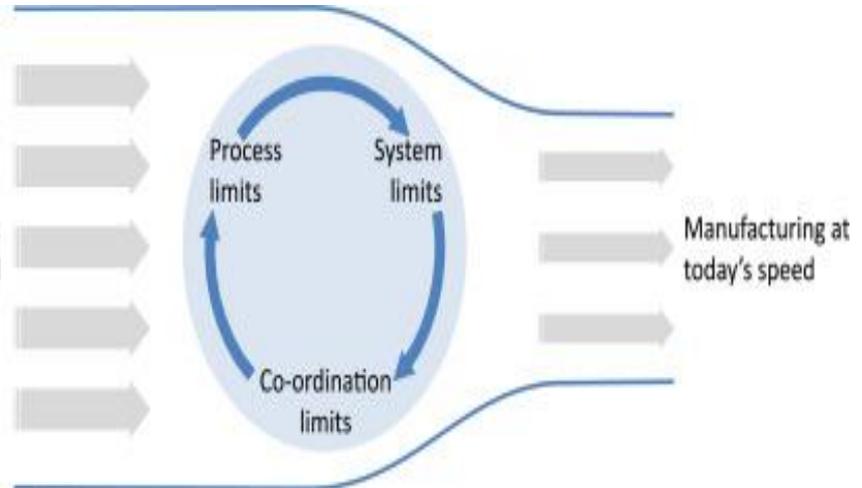
E = Product Output

F = Actual Good Product

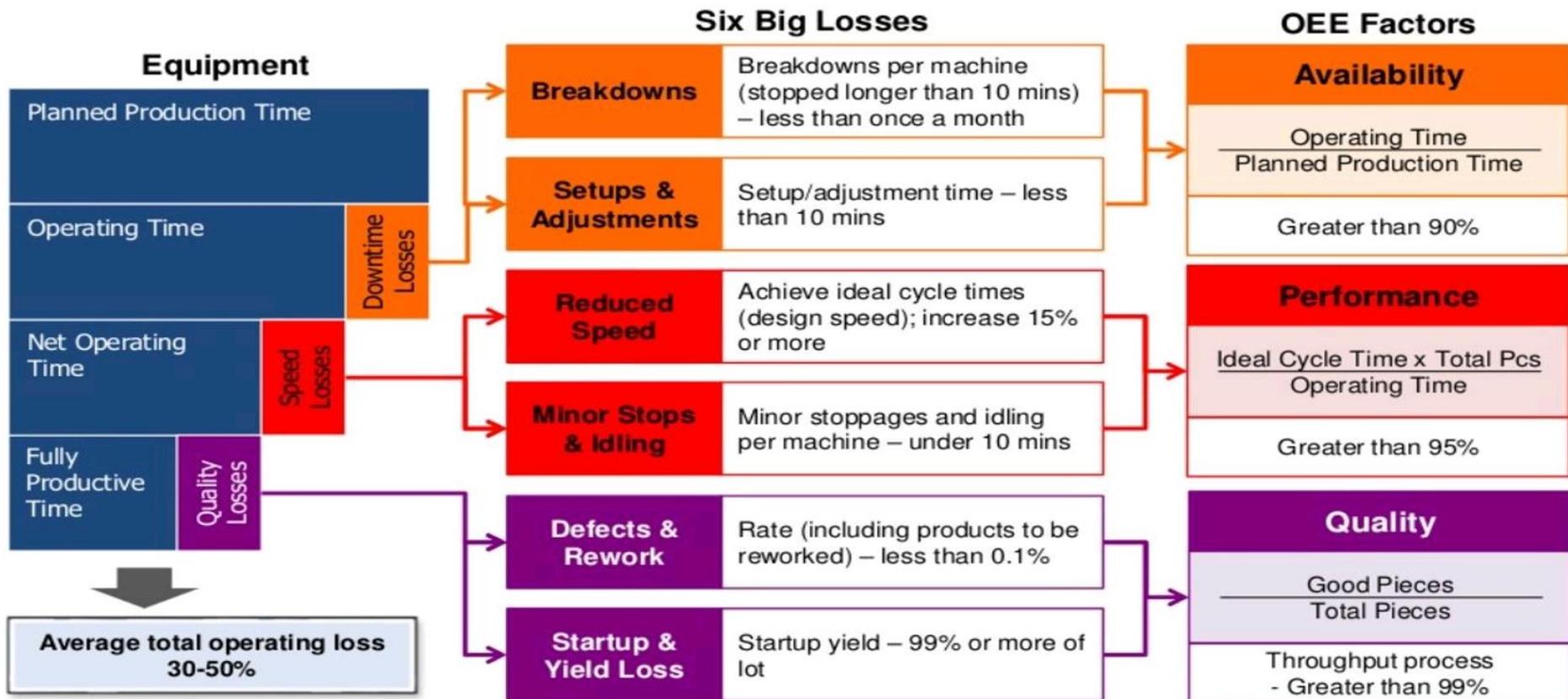
Scrap Losses

Figure 1: The simple overview of the elements of OEE and how they inter-relate in OEE.

Manufacturing at double the speed



Equipment Losses & OEE



$$\text{OEE} = \text{Availability} \times \text{Performance} \times \text{Quality}$$

Efficiency comparison and calculation by OEE can create scope to find best quality & productivity friendly method raising profitability.



Efficiency Comparison: OEE vs SAM/SMV

Improving efficiency by defect reduction



Date	10-Oct-20
Fty Name	Snowtex Outerwear Ltd

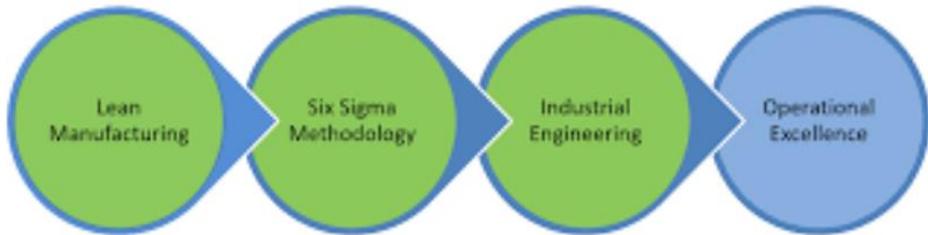
Section	Operator Name	ID	Operation Name	Efficiency method	Current efficiency %	OEE %	Difference (-)	Remark
Bk Part	Jahangir	26954	bk rise jnt	Manual/Time Study	73%	49.33%	23.67%	18.16% efficiency loss because of higher DHU/repairing %(quality failure) contributing 1.85% profitability loss
Assembly	Marjan	9284	side seam jnt	Manual/Time Study	93%	91.47%	1.53%	
Wst Band	Tania	25842	Waist belt jnt	Manual/Time Study	90%	70.40%	19.60%	
Wst Band	Sojol	13868	Waist belt jnt	Manual/Time Study	91%	67.10%	23.90%	
Bk Part	Forid	26677	bk rise jnt	Manual/Time Study	53%	35.00%	18.00%	
Assembly	Halima	1968	side seam jnt	Manual/Time Study	79%	57.00%	22.00%	
Wst Band	Shanaz	0093	Waist belt jnt	Manual/Time Study	87%	76.00%	11.00%	
Bk Part	Sopna	22546	bk yoke jnt	Manual/Time Study	89%	65.33%	23.67%	
Assembly	Marufa	19714	side seam jnt	Manual/Time Study	78%	57.90%	20.10%	
Average					81.44%	63.28%	18.16%	

Operator incentive system



Case Study: Incentive Scheme





- 1 • What task need to be done?
- 2 • Why task need to do
- 3 • How to complete the task?
- 4 • Which document & material needed?
- 5 • Who is responsible for the task
- 6 • When task should be completed?
- 7 • Whom to handover the completed task



Gemba Walks Questions & Advice

- WHAT ARE YOU DOING NOW?**
Observe, Approach, Ask. Giving feedback should be part of the workplace culture.
- IS THERE A STANDARDISED PROCESS FOR COMPLETION?**
If there is a process, is it being followed? If there isn't, create one!
- WHAT CHALLENGES DO YOU FACE?**
Make sure staff feel comfortable answering this question. Again, giving feedback should be a positive experience.
- HOW DO YOU IDENTIFY A CHALLENGE?**
Anything that frustrates staff, leads to double handling or requires escalation to fix should be identified as a challenge.
- WHAT CAN YOU FIX?**
Anything within the job remit of any Gemba walk team member.
- WHAT CAN'T YOU FIX?**
Anything outside the responsibilities of Gemba team members should be captured, escalated and pursued until fixed.
- WHO DO YOU SPEAK TO WHEN SOMETHING GOES WRONG?**
Immediate supervisor ideally, however in a true continuous improvement culture, anyone should be approachable when something goes wrong.
- DO YOU USE A VISUAL MANAGEMENT TOOL?**
These could be Production Tracking Boards, Traffic Signals, Automated Production Screens etc.
- IF YES, IS IT USEFUL?**
Take the feedback and apply it elsewhere across the business. Do more of whatever is working!
- IF NO, WHY?**
Take the feedback and fix the faults. Can lessons learned be applied elsewhere across the business?



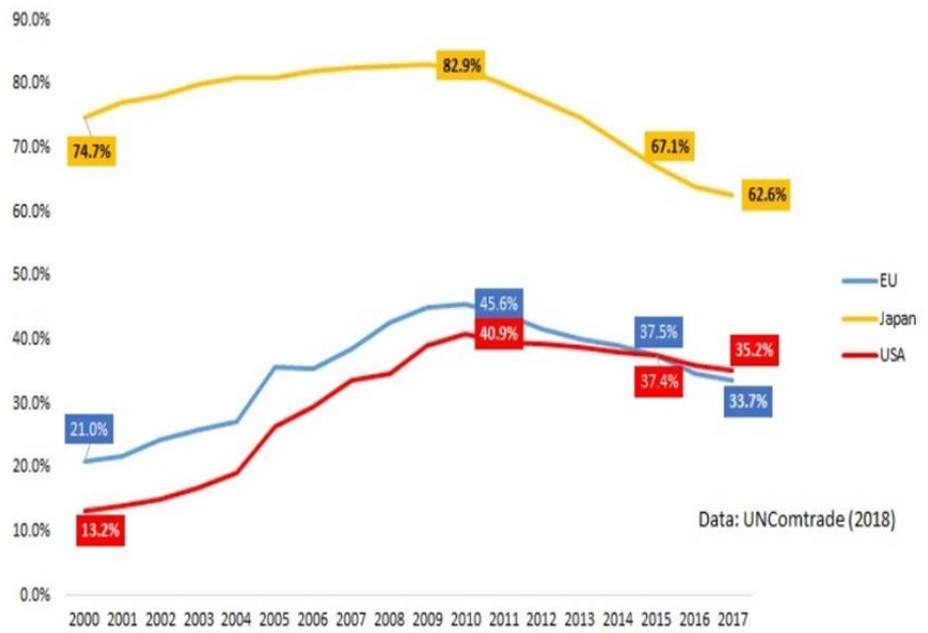
THERE'S
scope
FOR
IMPROVEMENT
AT WORK

Bangladesh productivity and human skill behind than other competitors but this country moving forward very quickly to reduce this gap. If we can have aligned based on their skill level, they can achieve most challenging goal in the world.



Mind Set

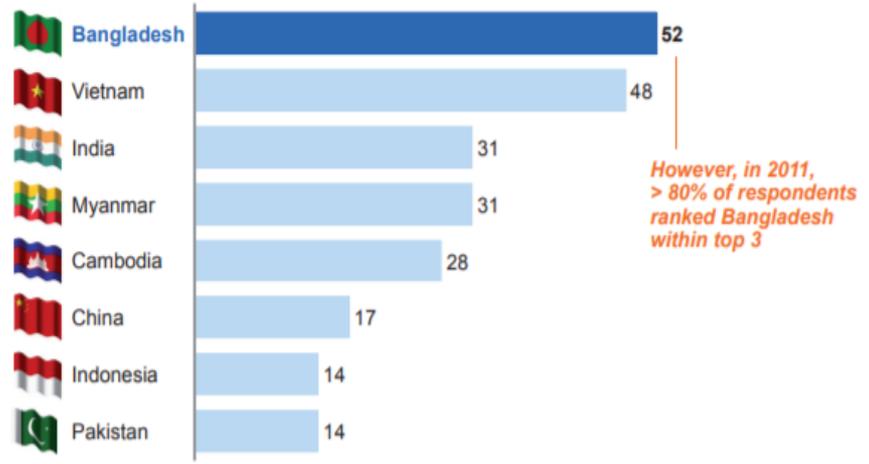
China's Market Shares in Leading Apparel Import Markets (by value)



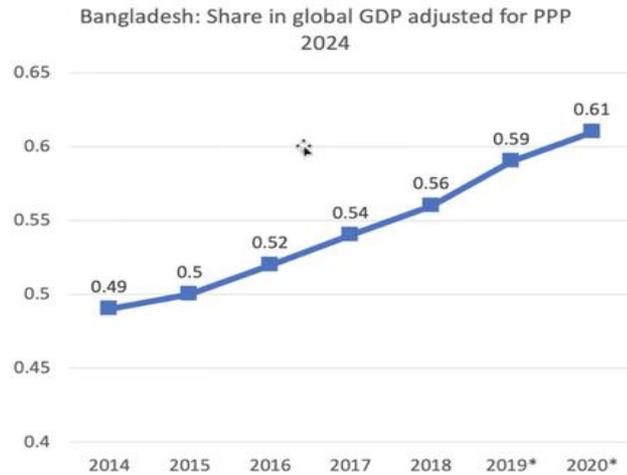
Despite recent events, Bangladesh remains at the top of the list of sourcing countries expected to grow in importance in the next 5 years

"What will be the top 3 country hot spots over the next 5 years?"

Percent of respondents who ranked the respective countries within top 3, n = 29



Bangladesh: Share in global GDP adjusted for Purchasing Power Parity (PPP)



Bangladesh apparel industry export

Trade diversion impact of US-China trade war

Asia's emerging economies are winning US-China trade war

Vietnam exports to US jumped 33% while China's fell 12% year-on-year in first half



Bangladesh has seized market share in textiles © Bloomberg

Chinese entrepreneurs are setting up factories in Bangladesh to bypass US tariffs. **American retailers** are also placing more orders with Bangladesh in order to offset increasing tariffs.



The country's apparel exports to the US maintained a hefty growth - both in terms of value and volume - during the first month of current calendar year. The US imported ready-made garment (RMG) items worth US\$756 million from Bangladesh in January 2022, marking a 45.53 per cent growth, according to OTEXA, an affiliate of the US Department of Commerce. Bangladesh exported goods worth \$519 million to the US in January 2021.

RMG Industry: Lifeline to Bangladesh Economy



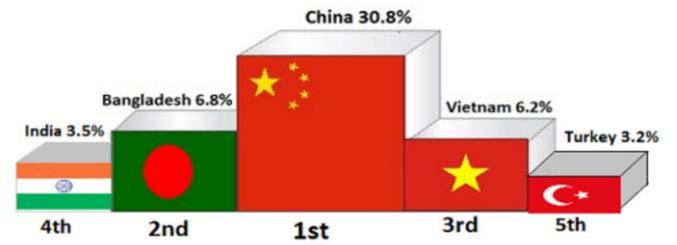
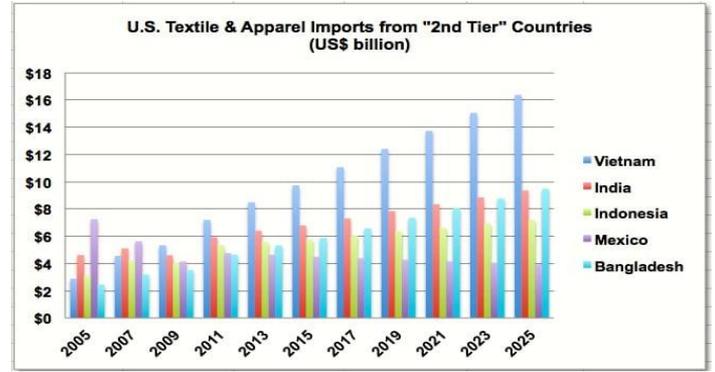
BANGLADESH is
2nd
best apparel exporting
country in the world

81%
of the country's
total export
earnings come
from RMG

4.4
Million workers earn
their livelihood from
the industry

16%
Of GDP of
Bangladesh is
contributed
by the RMG

The industry indirectly
supports livelihood of
40
Million people of the
country

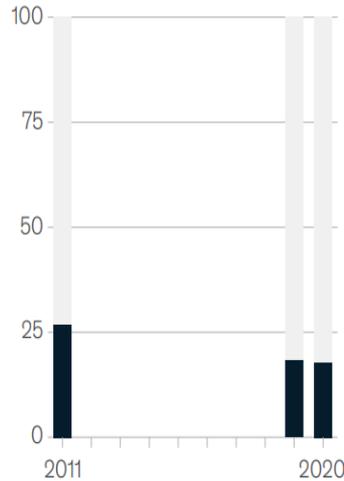


Bangladesh apparel export earnings growth achieved new heights in March 2022. Witnessing a staggering 60.15% year-on-year growth.

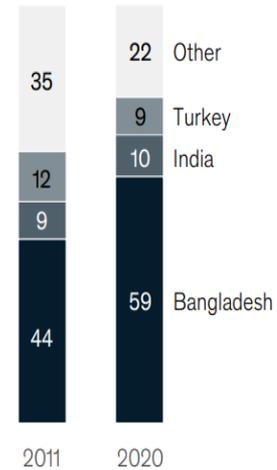


The cotton t-shirt remains the iconic product for Bangladesh sourcing, despite price pressure

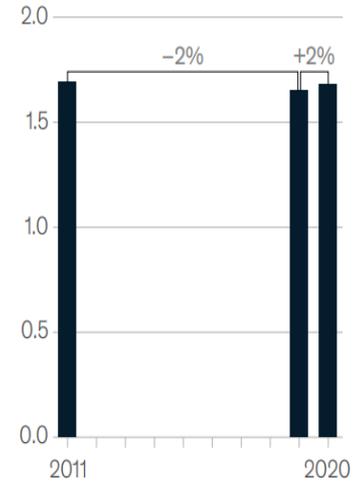
Imports of cotton t-shirts from Bangladesh to Europe (EU27), value share, %



Imports of cotton t-shirts to Europe (EU27), value share, %



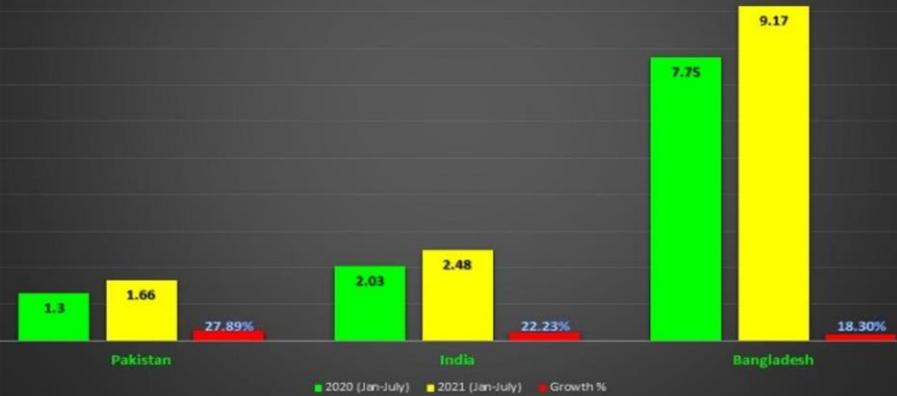
Average import price to Europe (EU27), € per t-shirt imported from Bangladesh



Source: Eurostat; McKinsey analysis

Compared to Bangladesh, India & Pakistan's apparel export amount (\$ bn) growth in EU was better in Jan-July 2021

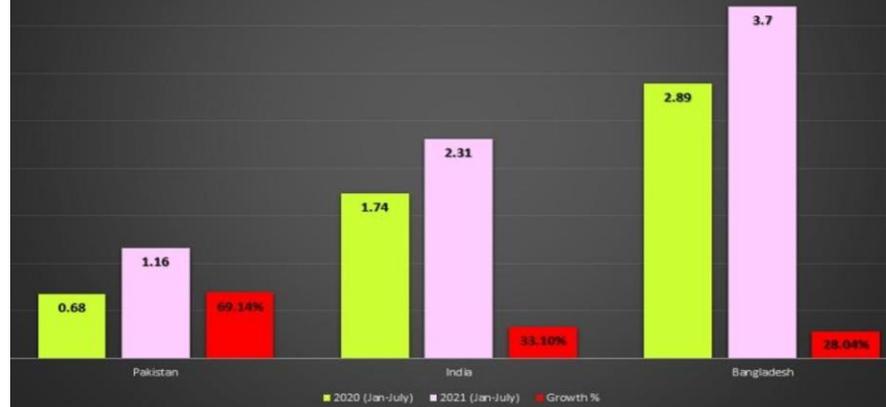
(Source: Eurostat)



US apparel import amount (\$ billion) from India, Pakistan & Bangladesh

(Comparison between Jan-July 2020 Jan-July 2021)

(Source: OTEXA)



Bangladesh's Trade Partner Structure

The United States, Germany and the UK are Bangladesh's top three export partners.

Trade structure by destination/origin

(% of total)

Exports		Rank	Imports	
United States	16% 	1	 26%	China
Germany	14% 	2	 15%	India
United Kingdom	10% 	3	 6%	Singapore
Spain	6% 	4	 5%	Japan
France	6% 	5	 3%	Korea, Republic of

Source: [Euler Hermes Bangladesh Country Report](#)

Bangladesh's Trade Product Structure

Apparel and clothing accessories dominate Bangladesh's exports.

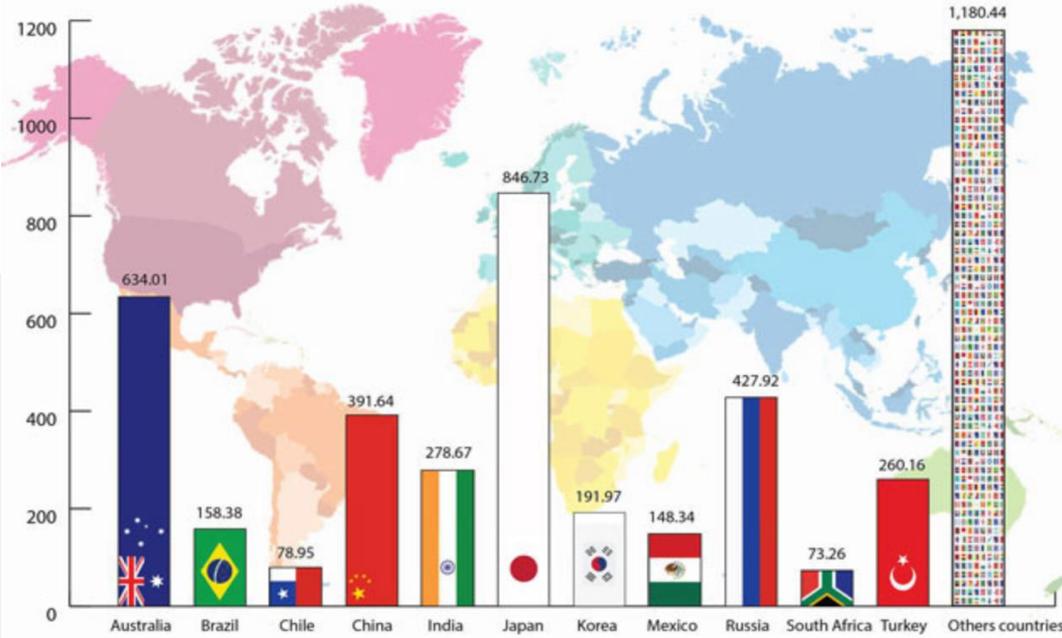
Trade structure by product

(% of total)

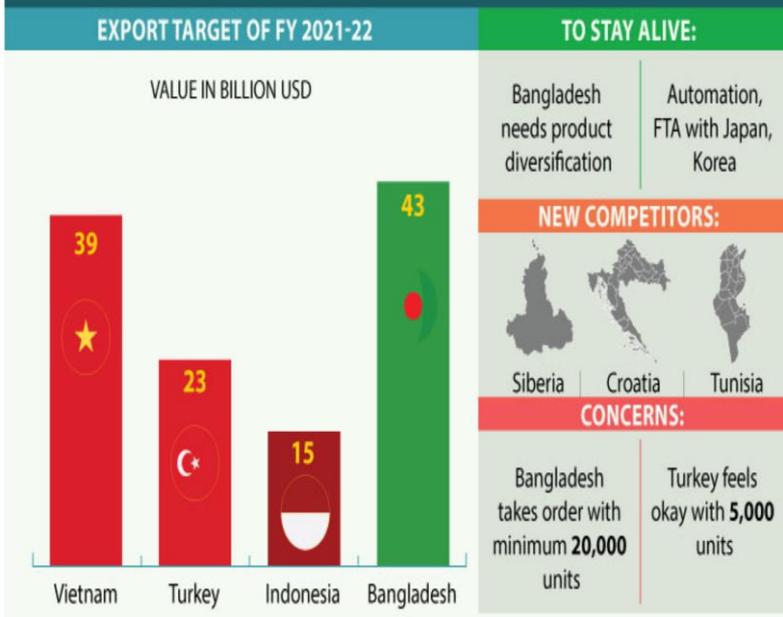
Exports	Rank	Imports
Articles of apparel & clothing accessories 83%	1	17% Textile yarn and related products
Textile yarn and related products 5%	2	6% Textiles fibres and their wastes
Footwear 2%	3	6% Fixed vegetable oils and fats, crude, refined of fractionated
Fish, crustaceans, molluscs and preparations thereof 2%	4	6% Petroleum, petroleum products and related materials
Leather, leather manufactures and dressed furskins 1%	5	5% Specialised machinery

Source: [Euler Hermes Bangladesh Country Report](#)

Bangladesh's RMG exports to non-traditional markets in FY18 (\$ million)



APPAREL TRADE: PEERS CHASE BANGLADESH



Bangladesh apparel exports challenge & opportunity

- ❑ Bangladesh still enjoys the lowest cost for labor in manufacturing clothing products in global perspective
- ❑ The edge gives the manufacturers a definite competitive advantage among its peers in the global export markets.
- ❑ The \$95 monthly minimum wage is the lowest in global standard, according to a survey report of the Japan External Trade Organization.
- ❑ It said cheap labor is one of the strong factors behind the success of Bangladesh in apparel sector in the global export markets.
- ❑ “The leverage of cheap labor is not a solution to the Bangladesh apparel industry, as it is going up continuously due to a rise in production cost, rise in wages and investment for safety improvement,
- ❑ We should focus on QE & efficiency improvement & adapt modern technology and manufacturing method to speed the sustainable growth



Supply chain capability improvement

1

•Seamless sourcing buyer and supplier to reduce supply chain risk & Optimize internal supply network , inbound freight & cost

2

•Integrated business planning to improve customer service and satisfaction for continuous improvement

3

•Real time seamless inventory ,order management , shipment tracking, Production and quality data visibility

4

•Collaborate with merchandising , ,sample, quality, production & IE

5

•Vertical integration, Regulatory compliance, QMS improvement & Embed predictive analytics

6

•Accurate cost visibility with Production customization and diversification

7

•New employee capabilities and manpower skill improvement

8

•Optimization tools and technology to improve efficiency

9

•Automation ,advanced robotic technology & digital manufacturing

10

•Sustainability, environment activities , Waste management and social responsibility



Top ten apparel sourcing countries to watch in 2022



Bangladesh



Vietnam



Turkey



China



Mexico



Morocco



Egypt



El Salvador



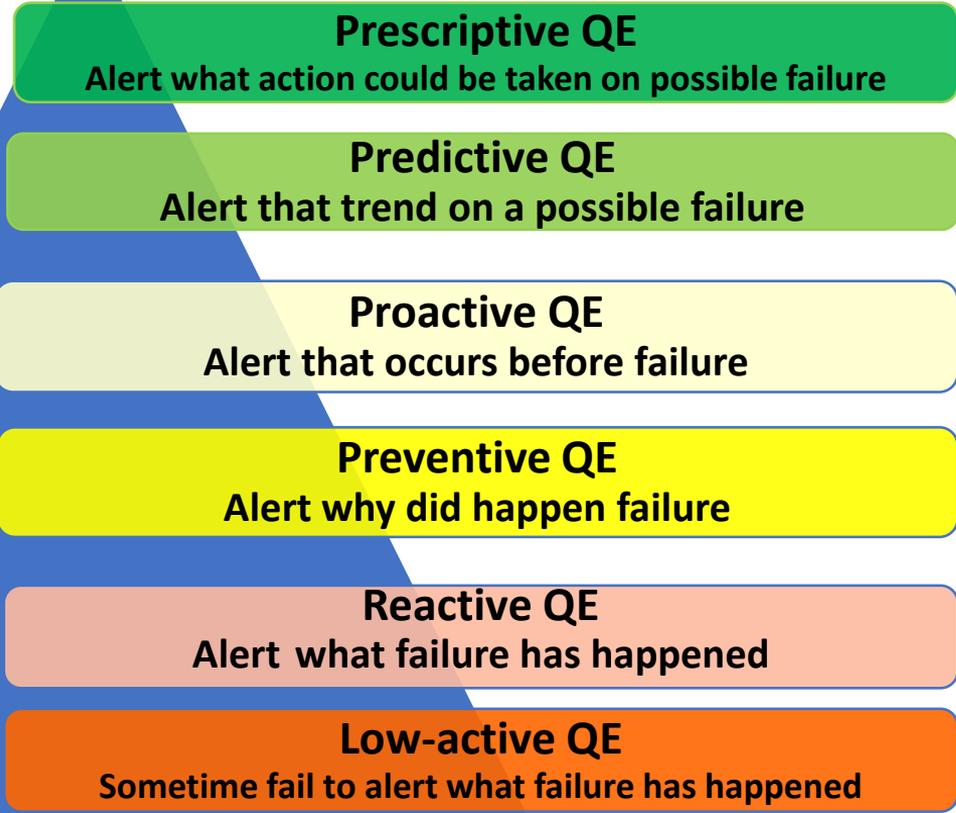
Peru



Thailand



Transformation of QA, QE & QMS Toward Prescriptive Quality Engineering (PQE)





•Goal set

Shape
the
future
now





Love the World



Together we have the power to make a change



Today's guest for debate

- Let us know if you have any query?
- Let us know if you have any recommendations?
- We will be more than happy to accept your criticism
- Feel free to raise your hand

