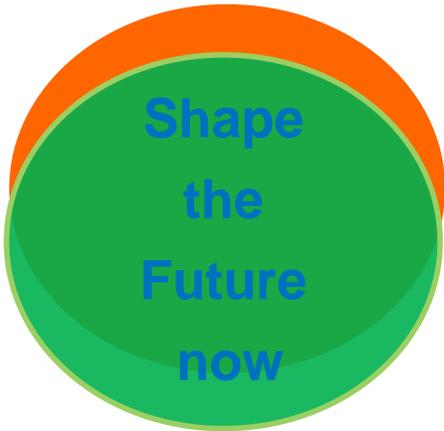




Best Practice Example is Better Than Procedure

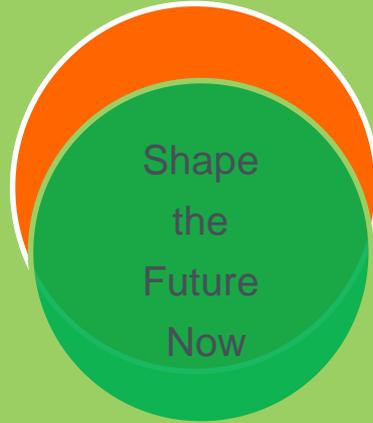
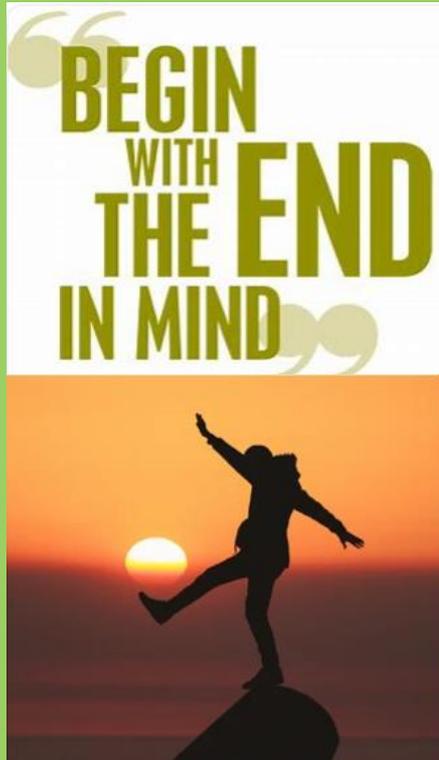


Prescriptive Quality Engineering (PQE)
A Roadmap to
Responsible Quality for Excellence

Edited by: Md. Masduzzaman Khan

Roadmap To Quality

A Power Movement Toward Zero Defect



Result set



Problem set



•Skill set



•Tool set



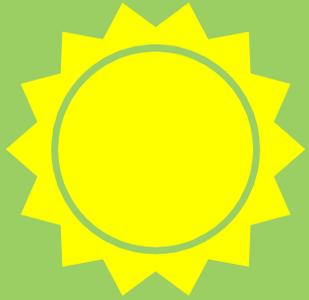
•Goal set



Mind set



Dream set



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 | SSBB | QMS | QE | Lean | TQM | ISO |

Founder, Bangladesh Garment Research Academy

(An innovative problem solving & learning toolkit)

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

Mob: 01819136606



Deals with following brands

OUR CUSTOMERS



VARNER

UNITED COLORS
OF BENETTON.



ZARA

KIABI
la mode à petits prix



BESTSELLER

CALVIN KLEIN



Timberland

George.



KONTOOR



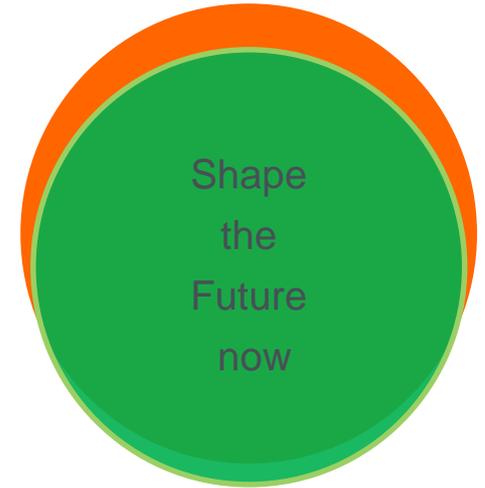
KOHL'S

Deals Bangladesh, Pakistan & Vietnam Manufacturing Unite

- ❑ **Knit Fty:** Square, Meghna, GMS, Palmal, Viyelatex, AKH, Mondal, US apparel (Pakistan)
- ❑ **SW and Outerwear fty:** Youngone, Snowtex, Paddock, Smart Jacket, Debonair
- ❑ **Woven Bottom Fty:** Kenpark, Tarasima, Ananta, Hameem, Tusuka, Columbia, Envoy, Goldtex, DMC, Simftex, Crystal apparel, Nien Hsing (Vietnam) Kassim, Kay & Emms (Pakistan), Mahmud Group, Square Denim
- ❑ **Woven Tops Fty:** Epic, Babylon, Medlar, Evince, Concord

Index:

- 1 ⑩ Objective
- 2 ⑩ Theme tile
- 3 ⑩ Hope from this project
- 4 ⑩ History and heritage of Bangladesh clothing
- 5 ⑩ COPQ –challenge- opportunity of Bangladesh clothing
- 6 ⑩ Problem define and exploration
- 7 ⑩ Visual management & solution
- 8 ⑩ Workmanship problem & solution
- 9 ⑩ Fit problem & solution
- 10 ⑩ Responsible quality for sustainability
- 11 ⑩ Conclusion
- 12 ⑩ Feedback session



Objective: Think Big

- Cultivate a high performance culture
- Implement best practice to improve process capability.
- Reduce process defects to meet quality expectations & delight consumer.
- Bridge between continuous process improvement to quality & productivity improvement.
- Implement best problem solving tools
- Reduce waste & create value for sustainable quality
- Create purpose , create relationship , create engagement

Theme Title:

1

⑩ Dream set: Dream big "Teamwork make a dream work "

2

⑩ Mind set: A historical analysis to charge our mind & "Cultivate high performance culture" ;

4

⑩ Goal set: "Good plan is half done"

5

⑩ Tool set: "Process excellence is the foundation of product excellence"

6

⑩ Skill set: "Quality people will produce quality product"

7

⑩ Problem set: "Stop problem before it starts"

8

⑩ Worst case scenario: Convert problem into opportunity

9

⑩ Achieve more doing less: 20% drives 80% result by 6D Pareto analysis

10

⑩ Conclusion: It is time for quality improvement together

11

⑩ Feedback session:; "We are the one Family that inspires people" ;
Become a guest for debate



The Heritage of Bangladesh Clothing Industry; Roadmap to Quality & Productivity
A Power Movement Toward Zero Defects.

Prescriptive Quality Engineering (PQE)



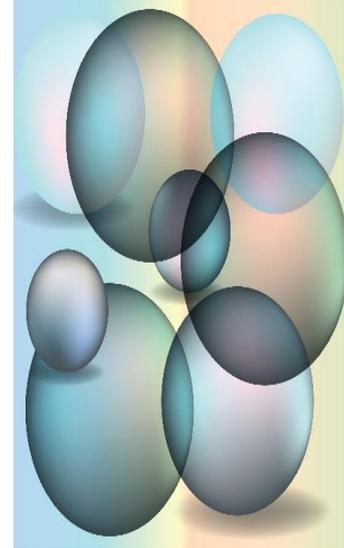
This Project is Dedicated for Bangladesh Clothing Industry



- BD apparel heritage & culture,
- Key brands core purpose and values
- PQE quality improvement approach
- ISO
- TQM
- Six Sigma
- Prominent brands manufacturing excellence approach
- Best Practice of BD apparel manufacturer
- Data engineering & intelligence
- Quality Science & Engineering
- Preventive Science & Engineering
- Production science and engineering
- Pattern engineering
- Cutting engineering
- Seam Engineering
- Safety & Sustainability approach
- Holistic Approach for Quality Improvement
- United Nations Industrial Development Organization (UNIDO) & JAICA

Guideline for Implementation of Total Quality Management in Developing Countries

“Road Map to Quality”



**Blending
Mythology
for
Alignment:**



Responsible Quality
for Manufacturing
Excellence



Project Escalation
Process

Brands QA

Certified Quality Engineer

Certified
Data
Engineer
&
Analytics

Certified
Fit &
Garment
Engineer

Certified
Fabric &
Material
Engineer

Certified
QMS &
Process
Engineer

Certified
Productive
maintenance
& Automation
Engineer

Certified
Fabric
and
Finish
Engineer

Certified
Factory
Auditor

- ❑ From JSS Pattern Approval to Shipment Lead Time will be Reduced from 75 Days to 45 Days.
- ❑ Production Lead Time will be Reduced from 30 Days to 20 Days.
- ❑ Continuous improvement in quality, productivity and cost



Hope from this project



- Can change and improve factory performance & process capability in terms of quality, efficiency, cost & delivery goal by 6 months through continuous improvement.
- Prescriptive Quality Engineering(PQE) approach will be followed for faster decision making and problem solving.
- To cultivate high performance and quality culture successfully implement quality engineering / ISO/TQM/Lean/ Six sigma tools.
- Data traceability & visibility will be improved to generate result oriented action through data engineering.
- Improve operator and QC skill & capability through coaching and development.
- Clear operational guideline, problem escalation process and training material will be provided to the concern work station and responsible employee.
- Manufacturing speed will be improved through process Digitalization, automation, OEE & productive maintenance..
- Employee safety, spirit & collaboration will be increased through 7S and visual workplace solution
- 80% workmanship & measurement defect will be prevented before sewing start.
- Sewing & Finishing DHU will be reduced below 10% by 6 month

Hope from this project



- Fit & measurement defects will be zero within 6 months.
- Effective PP meeting could be preformed by 10 minutes through pre-production engineering & PQE
- For urgent delivery styles pattern correction could be provided by pattern engineering without PP/Pilot exercise & compromising quality and measurement.
- Improve pattern accuracy & traceability 100%
- In long run bulk production could be stat without PP/pilot meeting. Sample section will be connected to the manufacturing through CTQ , historical data to overcome the quality risk. PP/Pilot sample could be provided from 1st bundle/initial bulk. It will save 10 days from precious lead time.
- Product quality will be ensure without FA by functional tollgate inspection & roaming inspection. RFT will be achieved 100% in FA
- Seam related defects will be reduced & garment appearance will be beautiful through seam engineering.
- QA will be able to give clear instruction to fty maintenance and IE for machine adjustment, needle selection, and needle change over time, machine speed, feed mechanism and other parameter using “Seam Engineering Scale” by 1 minute with 100% accuracy.
- Fabric utilization capability will be improved and wastage will be reduced 2% by 6-12 month
- Reduce off shade, CSV, SSV occurrence 0% through proper control and shade management
- Bulk gmts rejection % will be improved & cut to ship will be increased to 1% by 6-12%

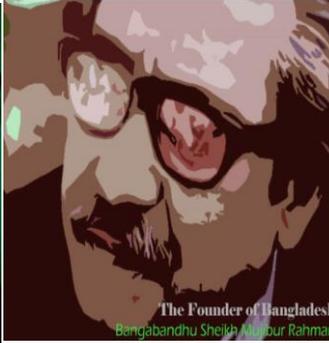


A people without the knowledge of their past, origin & culture is like a tree with no roots.



Bangladesh

"The Land of Many Possibilities and Opportunities"



The Founder of Bangladesh
Bangabandhu Sheikh Mujibur Rahman



“This is not too late to change our brain even at 80 years old”

- Neuroscience

**BRAIN
POWER**



600 billions neurons
256 billions GB
400 years live video
More than Encyclopedia Britannica

**MIND
POWER**



Most human only use 10% of their brain
Unlock the brain power
To do attitude
Growth mindset

Eye Power



Over 2 million moving parts
Can process 36,000 bits of information every hour
Powerful than 576 megapixels camera
Asses color within a second & powerful than spectrophotometer



Power to people
Improve people skill
Quality people will produce quality product



Mind Set

**POWER
MOVEMENT**

"Cultivate high performance culture"

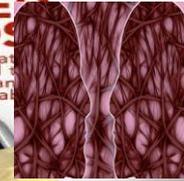


©Shanecradock.com

MINDSETS

FIXED MINDSET

The belief that intelligence, talents, and abilities are set and unchangeable.



GROWTH MINDSET

The belief that skills, intellect, and talents can be developed through practice and perseverance.



I'll stick to what I know. Either I'm good at it or not.	DESIRES	I want to learn new things. I am eager to take risks.
It's fine the way it is. There is nothing to change.	SKILLS	Is this really my best work? What else can I improve?
This is a waste of time; there's a lot to figure out.	EFFORT	I know this will help me even though it is difficult.
It's easier to give up. I'm really not smart.	SETBACKS	I'll use another strategy; my mistakes help me learn.
This work is boring. No one likes to do it.	FEEDBACK	I recognize my weakness, and I know what to fix.
It's easy for him or her. They were born smart.	TALENTED PEERS	I wonder how they did it. Let me try to figure it out.



NEW MINDSET



NEW RESULTS



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 till 1757). 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"



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 - 1800 threads per inch.

100 count	10 gm
200 count	5 gm
500 count	2 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.'



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.

Bengal textile export increased to 93% on 1840. Bengal was the major exporter than China



Mind Set

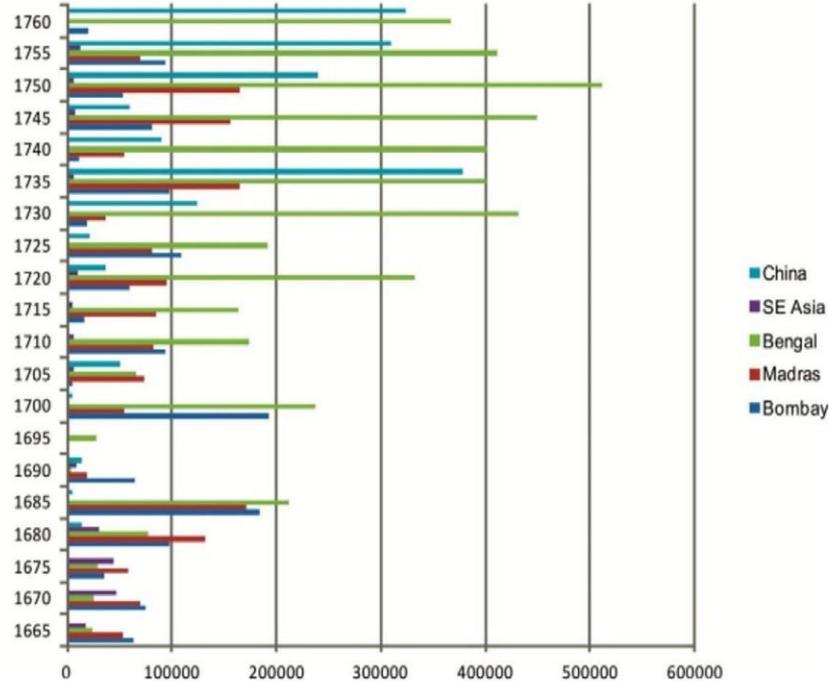


Marie Antonitte in her famous "muslin dress" portrait, 1783 (By Louise Elisabeth Vigee Le Burn)
 Queen consort of France
 Father: Holy Roman Emperor Francis



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 Muslin

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





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



1st Generation Garment Factory



M/s Reaz Garments Ltd 1960-73



Desh Garments 1977



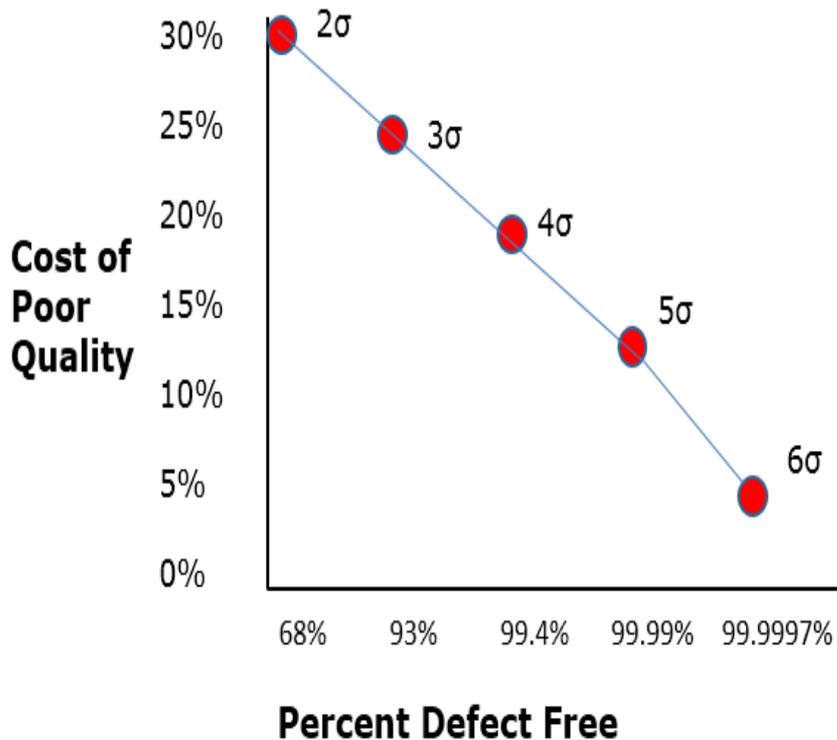
2nd Generation Garment Factory (Opex)



3rd Generation Green Garment Factory: AKH



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



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

Cost of poor quality



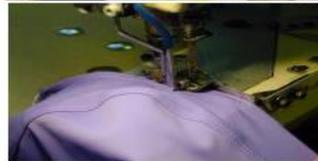
Mind Set

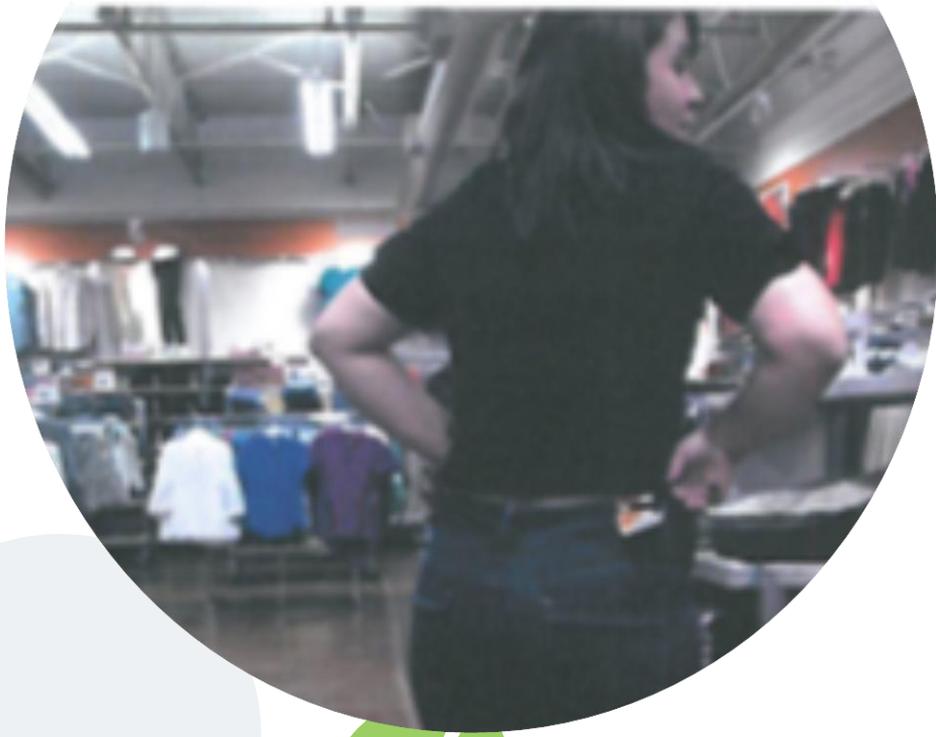
Cost of Thread breakage's & Skip stitch

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%

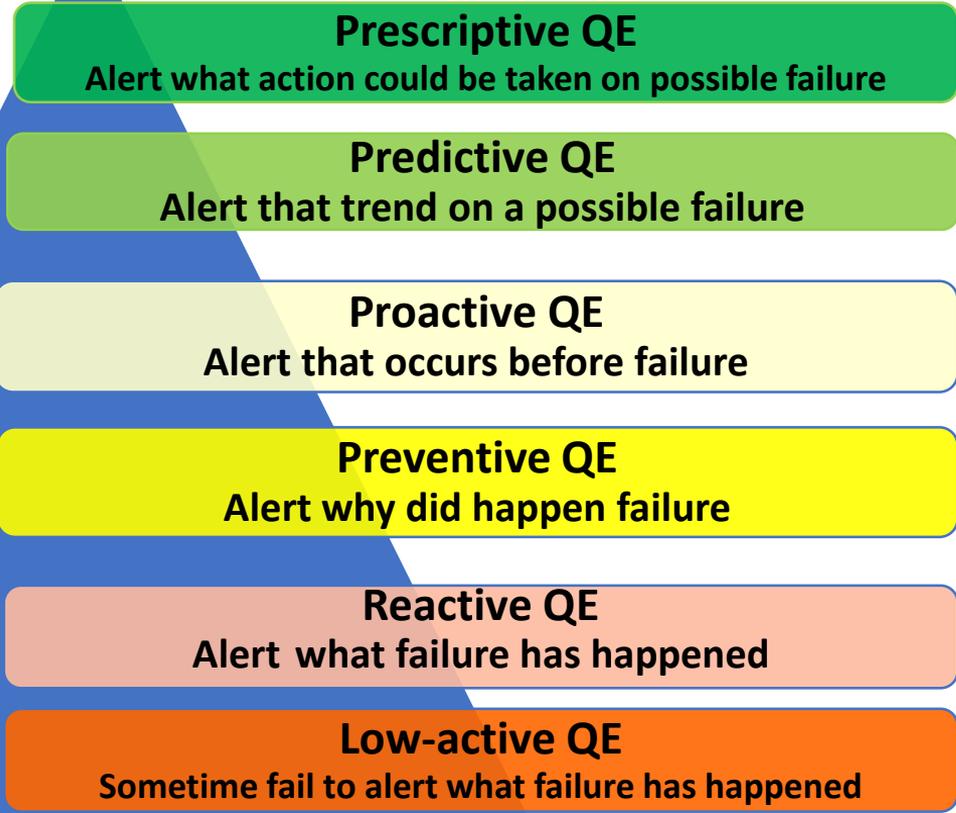
Does it matters if only one breakage, one skip stitch per Hour !!!





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

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





•Goal set

Shape
the
future
now



Data is a more valuable input than an opinion



1

• Data entry



2

• Data summary

Supplier Dashboard

Supplier	Q1	Q2	Q3	Q4	YTD
Supplier A	120	130	140	150	540
Supplier B	110	120	130	140	500
Supplier C	100	110	120	130	460
Supplier D	90	100	110	120	420
Supplier E	80	90	100	110	380



3

• Quality Metrics

Good	Alert	Risk
< 4%	4 - 6%	> 6%
< 0.5%	0.5 - 1%	> 1%
< 2%	2 - 3%	> 3%
< 4%	4 - 6%	> 6%
< 0.5%	0.5 - 1%	> 1%
< 2%	2 - 3%	> 3%



4

• KPI/KSI

3. KPIS FOR SEWING DEPARTMENT

- 3.1 Line Efficiency
- 3.2 Lost Time Percentage
- 3.3 Defects per Hundred Units (DHU)
- 3.4 Percentage Defective Level
- 3.5 Man to Machine Ratio
- 3.6 Labour Productivity
- 3.7 Style Changeover Time
- 3.8 Labour Cost per Minute



5

• Data visualization/ Infographics



6

• Goals



7

• Vision



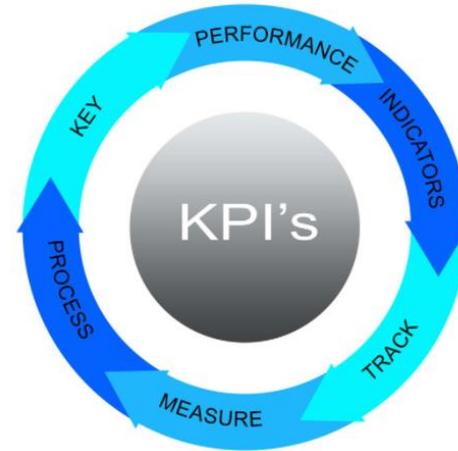
- Visual management
- Digitalization
- Process optimization
- Automation
- Robotic manufacturing

Improve “Quality Data Management System”. Take support from quality metrics and analytics to speed the problem-solving ability

Quality Management System-Complete visibility of quality for data based decision making

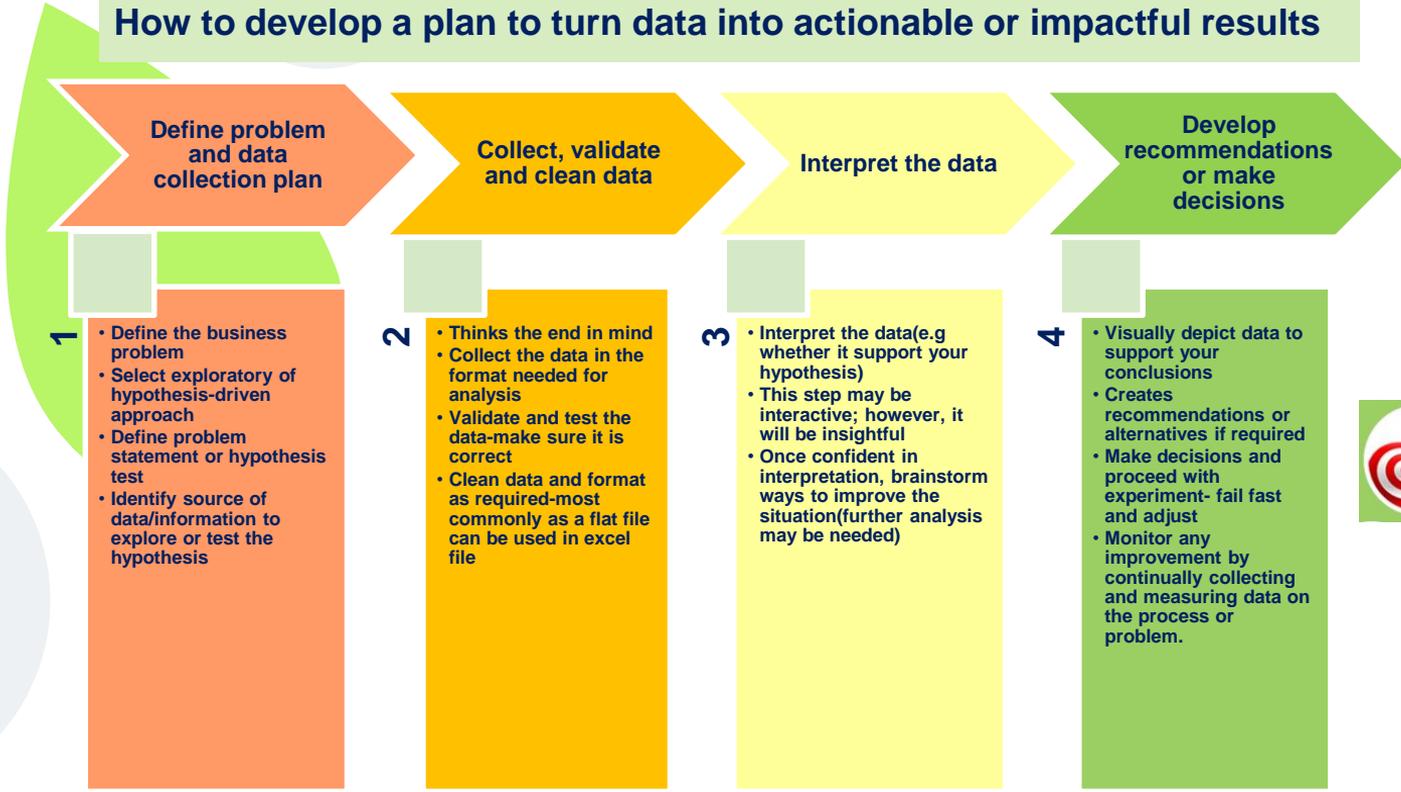
Quality data management system Index:

- 1 Pareto analysis: Fabric/trims/cutting/ sewing/finishing/laundry
2. Pareto analysis on Operator/process/machine / QI/ irregular
3. Pareto analysis on inline before & after check both sewing and finishing/ FA
4. Big cut panel, seam panel & overlock trims off measurement histogram analysis
5. Garment measurement histogram analysis before wash/before press/after press



Data analysis and decision-making process:

How to develop a plan to turn data into actionable or impactful results



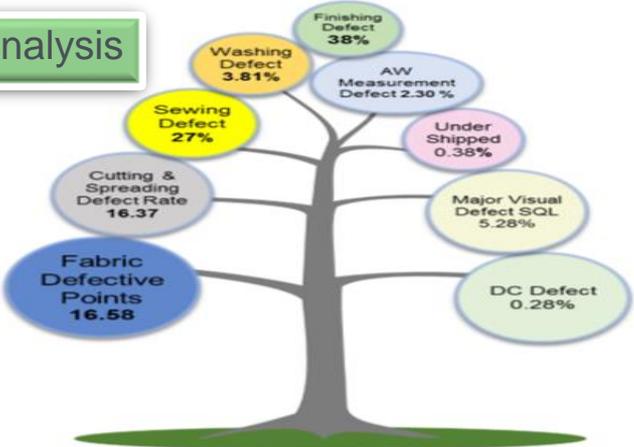
Alignment with problem-solving (DMAIC) phases:



If can't measure, you cant manage
 If you can't manage, you can't control



KPI/KSI Analysis



1. Poor inter personal skill
2. Poor maintenance
3. Lack of Quality Management
4. Lack of Training
5. Faulty Process
6. Faulty Equipment

			Good	Alert	Risk	Good	Alert	Risk
Major Visual Defects (OQL) %	Factory	Monthly	< 4%	4-6%	> 6%	< 3%	3-5%	> 5%
Labl & Pkg Defects (OQL) %	Factory	Monthly	< 0.5%	0.5-1%	> 1%	< 0.5%	0.5-1%	> 1%
FIT (OQL) %	Factory	Monthly	< 2%	2-3%	> 3%	< 1%	1-2%	> 2%
Major Visual Defects %	Brand DC/QC	Monthly	< 4%	4-6%	> 6%	< 3%	3-5%	> 5%
Labl & Pkg Defects %	Brand DC/QC	Monthly	< 0.5%	0.5-1%	> 1%	< 0.5%	0.5-1%	> 1%
FIT %	Brand DC/QC	Monthly	< 2%	2-3%	> 3%	< 1%	1-2%	> 2%
Customization %	Brand DC/QC	Monthly				< 0.5%	0.5-1%	> 1%
Major Visual Defects (SQL) %	Factory	Monthly	< 4%	4-6%	> 6%	< 3%	3-5%	> 5%
First Pass @ Plant %	Factory	Monthly	≥ 95%					
Process Audits %	Factory	Quarterly	≥ 85%					

Lean 6 Sigma > TQM approach > ISO Based Problem Solving Framework & Guideline Being Followed



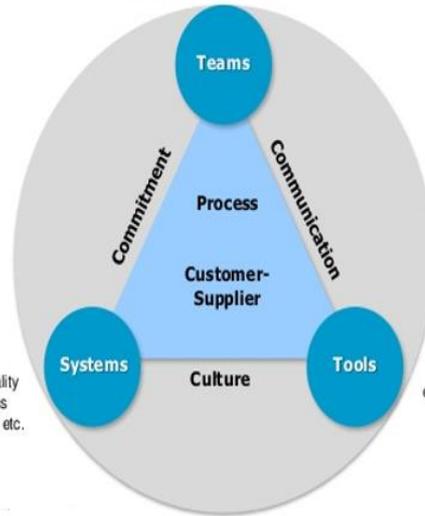
Lean Six sigma tools and techniques



TQM

e.g. Quality Management Team,
Quality Improvement Teams, etc.

e.g. ISO 9000 Quality
System, Business
Excellence Models, etc.



e.g. Problem Solving
Techniques & Tools

Main Clauses of ISO 9001:2015

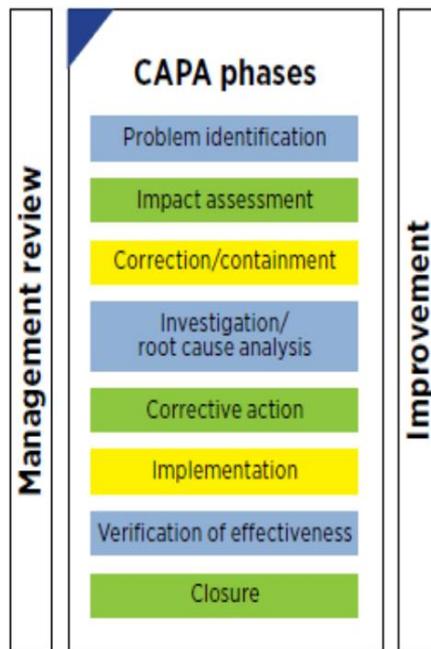


Establish problem solving process



PDCA	DMAIC	A3	8D/PSP
Plan	Define	Clarify the Problem	1. Create Team & collect Information 2. Describe the Problem
	Measure	Break down the Problem	
		Set a Target	3. Define Containment Actions
	Analyse	Analyze the Root Cause	4. Analyze the Root Cause
		Develop Countermeasures	5. Define possible corrective Actions
	Do	Improve	See Countermeasures
Check	Control	Evaluate Results & Processes	7. Define Actions to avoid Recurrence 8. Congratulate your Team
Act		Standardize Success	

The 8 phases of the CAPA process



CAPA = corrective and preventive action



PQE Problem Solving Framework

Describe the problem

- Identify problem
- Gather voice of the customer & voice of the quality & voice of the business
- Process map
- Finalize problem focus
- Escalate problem

Collect baseline data

- Collect baseline data
- KPI analysis
- Validate measurement system/MSA
- CTQ Metrics analysis
- Summary Statistics

Identify the root cause

- Conduct root cause analysis
- Pareto analysis
- Cause & effect diagram/Fishbone analysis
- Prioritize root cause/5 Why
- Process capability/cp/cpk
- Threshold analysis

Select the best solution

- Preventive & corrective action plan/Countermeasures
- Validate & Optimize solution
- Solution implementation
- 5S
- FIFO
- Preventive maintenance
- Benchmarking
- Kaizen

Sustain the gains

- Standard work instruction
- Develop standard operating procedure/SOP's
- Statistical process control/SPC
- Visual control
- Traceability
- Training requirement
- Transition project to process owner
- Monitor & stable process
- Mistake proofing

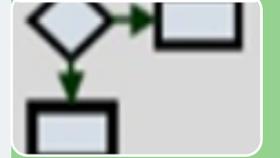
PQE Problem Solving Framework

Describe the problem

Identify Problem



Process Map



Escalate Problem



Collect baseline data

Data Collection



Data Validation



CTQ Analysis

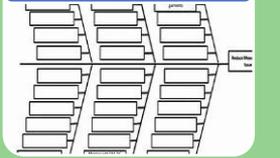


Identify the root cause

Pareto



Fishbone



5 Why



Select the best solution

Countermeasures



Validate Solution

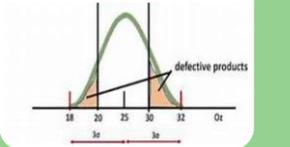


Solution Implementation



Sustain the gains

Statistical process control



Monitor & stable process



Continuous Improvement



PQE Process Improvement Framework



CTQ

Goals

Problems

Gaps

Describe Problem



Data

Analyze Data

Identify Root Cause

Select Solution

(\$\$) Result Confirmation

Success Celebration



PQE Tool Kit



-  **Leadership**
-  **Teamwork**
-  **Stakeholder Building**
-  **Project Management**

PQE Problem Solving Process excel format & presentation:

- 1 •Capture top defect by Pareto/defect frequency analysis
- 2 •Problem escalation date
- 3 •Problem description and background analysis
- 4 •Problem's current condition (metrics/picture)
- 5 •Problem solving team formation & set deadline
- 6 •Identify cause with fishbone analysis
- 7 •Root cause analysis with five why
- 8 •Preventive & corrective solution
- 9 •Improvement evidence after correction (metrics/picture)
- 10 •Validate permanent correction & prevent repetitions
- 11 •Progress monitor and result confirmation
- 12 •Recognize team with closing remark

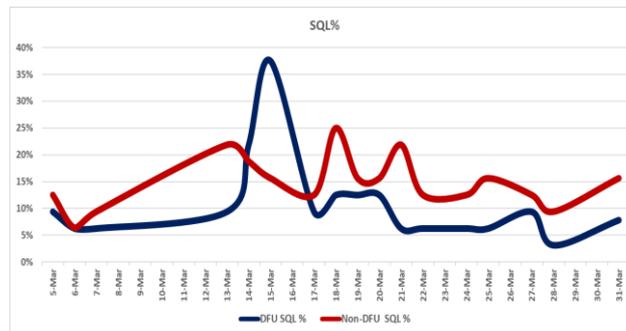
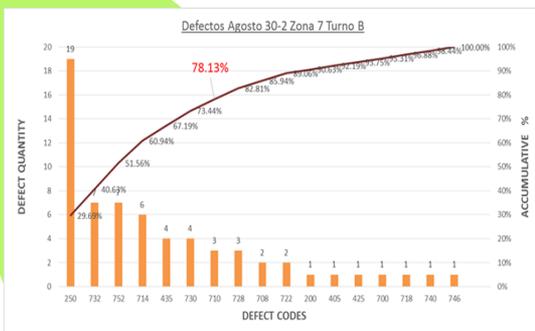


1. PQE Problem solving process presentation.
2. PSP format
2. RCA Tool

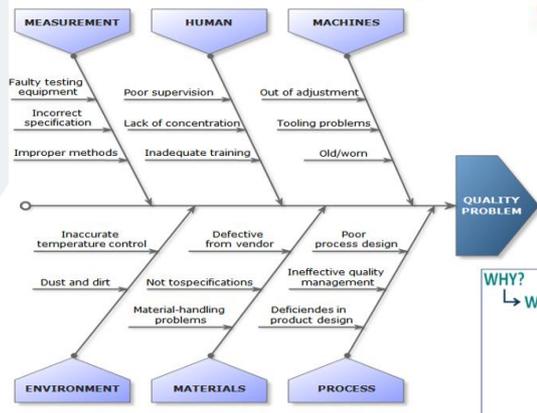
Monitor and execute corrective actions monthly basis to evaluate the progress



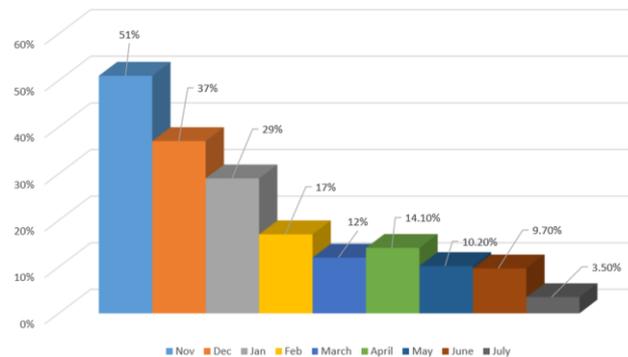
Quality Improvement



Root Cause Analysis



Broken, Skip & Uneven Joint Stitch Reduction Project Update





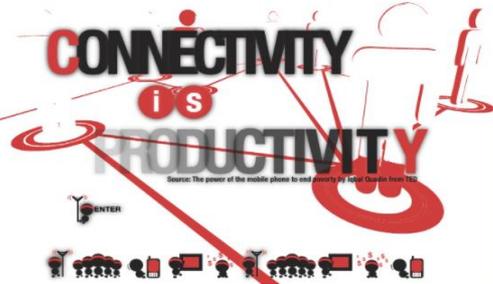
“Quality People Will Produce Quality Product”

“Quality control starts and ends with training.”
Kaoru Ishikawa



Good Training Easy Wining





Are all training materials readily available (i.e.. Manuals, presentations)?



Happy sewing

How To Be A Smarter Garment Operator



Small invest in a coach will convert big return in labor productivity

1

• Happy sewing : English

2

• Happy sewing : Bangla

3

• Presentation

4

• Survey report

•5

• Format



•Skill set

QC Skill Improvement Program



Training

Evaluation

Calibration

Qualification

Month →	January	February	March	April	May	June	July	August	September	October	November	December
Incoming Inspection	Angie						Angie					
Production: Molding		William						William				
QC Inspection			Joshua						Joshua			
CAPA				Sonya						Sonya		
Nonconforming Materials					Katya						Katya	
Purchasing & Supplier Eval.						Syria						Syria
Data Analysis	Tomas						Tomas					
Production: Assembly		Alberto						Alberto				
Maintenance & Calibration			Oto						Oto			
Document Control & Training				Kiley						Kiley		
Management Review					James						James	
Internal Audits & Mngt. Review						Meghan						Meghan

Calibration Exercise:

1. Mock evaluation.
2. Munsell Eye test.
3. Measurement correlation & mock evaluation
4. Measurement Tape Interpretation
5. Fraction Exams
6. Arithmetic Test
7. Quality inspector's Numeric & Spatial awareness test



QC training, evaluation & qualification

X



Skill Set

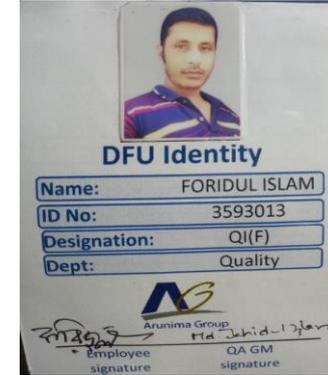
MOCK TEST RESULT SHEET

Pass > 80%

SL No	QC Name	ID/Card NO	Total Defects found by inspector (including both valid & invalid defects)-A	Total defects that the manager disagrees with inspectors finding)-B	Total defects that were missed by inspector but later found by manager)-C	Total Score=(A-B)/(A-B+C)x100%	Total Score=(A-B)/(A-B+C)x100%	Remark
1	HAFIJUR RAHMAN	3593001	14	4	7	59%	89%	
2	JASIM MOLLA	3593011				#DIV/0!	86%	
5	SHAREAR IBNA	3593034	24	2	13	63%	86%	
6	NAZRUL ISLAM	3593050	22	1	13	62%	81%	
11	SOYKOT HOSSAIN	3593039	26	0	13	67%	67%	Absent
12	MAIDUL ISLAM	3593067	24	0	14	63%	77%	
13	EMAMUL ISLAM	3593055	24	4	10	67%	65%	Fail
14	MONJURUL ISLAM	3593071	26	7	10	66%	82%	
15	RANA SHAKH	3593066	29	8	10	68%	82%	
17	SABIRUL ISLAM	3593083	26	5	12	64%	83%	
18	SALMA KHATUN	3593025	20	1	10	66%	86%	
21	SHOFIKUL ISLAM	3598082				#DIV/0!	84%	
22	HAZRAT ALI	3593076	20	1	13	59%	78%	
23	LUTFOR RAHMAN	3598051	10	1	10	47%	78%	

1st Calibration 2nd Calibration

Calibration	Total Participants	Pass	Marginaly Pass	Total Pass	Fail	Absent	Re-training required
1st Calibration	23	2	7	9	12	2	14
2nd Calibration	12	9	3	12	1	1	2

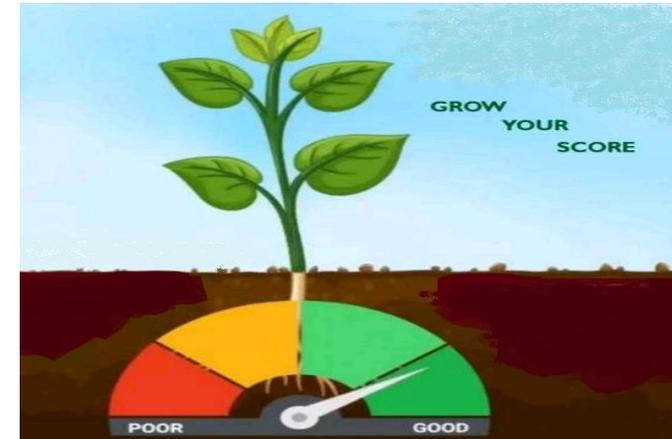


Performance		
Test Name	Gained Score	Pass Score
Mock Test	87	>80
Munsell Test	24	<30
Dexterity Test (Marble)	84	<96
Dexterity Test (Peg)	42	<61
Spatial Test	87.5	>80
Eye Vision Test	20/25	<20/40

Valid Until : 31-August-2019

General Instructions :

- Always Use ID Card in Line
- Turn The Tabs Off in Break and Closing Time



Role of QC



Data Integrity



Reporting



Accuracy

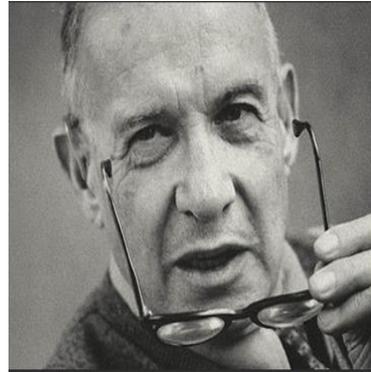


Reliability



Role of QA Manager

- “A manager develops people. Trains them to stand upright and strong or deforms them. A manager may do them well, or may do them wretchedly”—Peter F. Drucker



Maintenance, Production, IE & technical role improvement



Middle manager development-roles of middle managers





•Skill set

7 Human Resource Best Practices

 Providing security to employees

 Selective hiring:
Hiring the right people

 Self-managed
and effective teams

 Fair and performance-
based compensation

 Training in relevant skills

 Creating a flat and
egalitarian organization

 Making information easily
accessible to those who need it

Hard Training Easy Winning



MUHAMMAD ALI

“float
like a butterfly
sting
like a bee”





Transformation of QA

1

Be a Quality Controller



4

Be a Quality Architecture



2

Be a Quality Assauer



5

Be a Quality Ambassador



3

Be a Quality Engineer



6

Be a Quality Doctor



Establish problem solving process through PQE



1

- Develop problem solving process

2

- Create a list of potential problem & wastage to address root causes

3

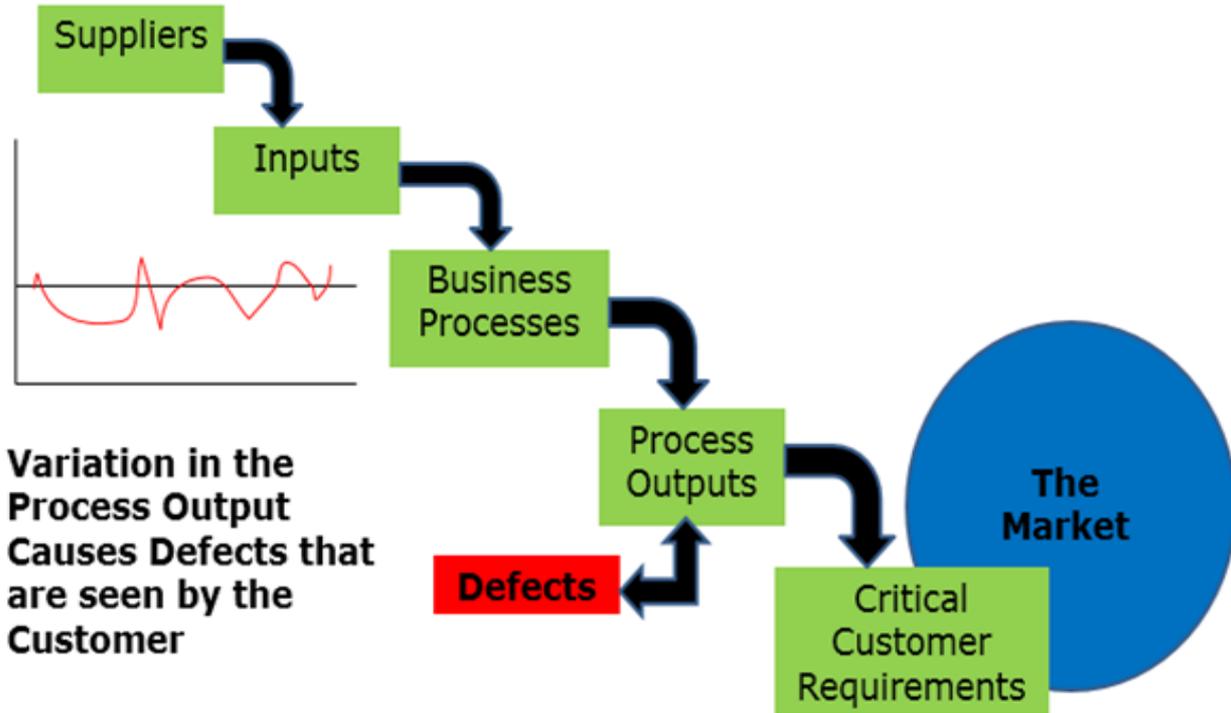
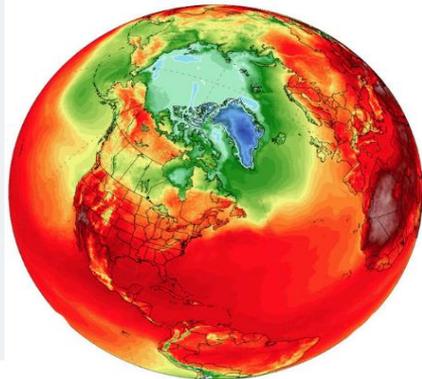
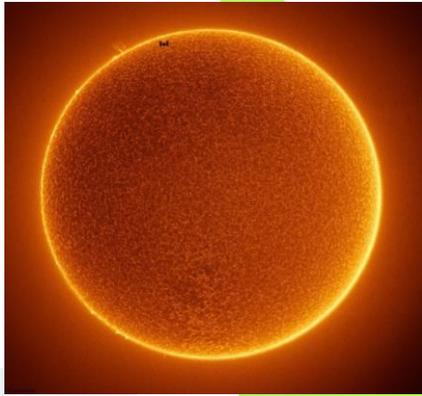
- Document all action plan & drive toward solution through PQE



Problem is the king of solution kingdom



Problem set

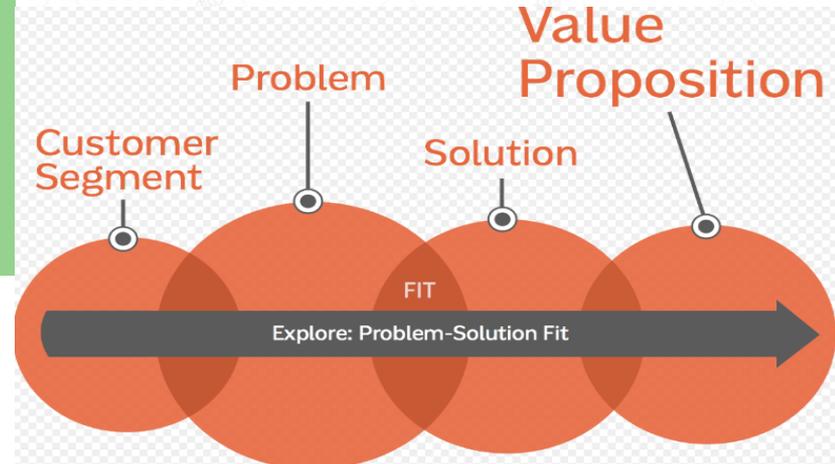




Problem set

Problem define & exploration

- ❑ Problem is the opportunity of solution
- ❑ Failure is the first step of solution
- ❑ Repetition of problem is your choice



PROBLEM SOLVING

Enter your sub headline here

1

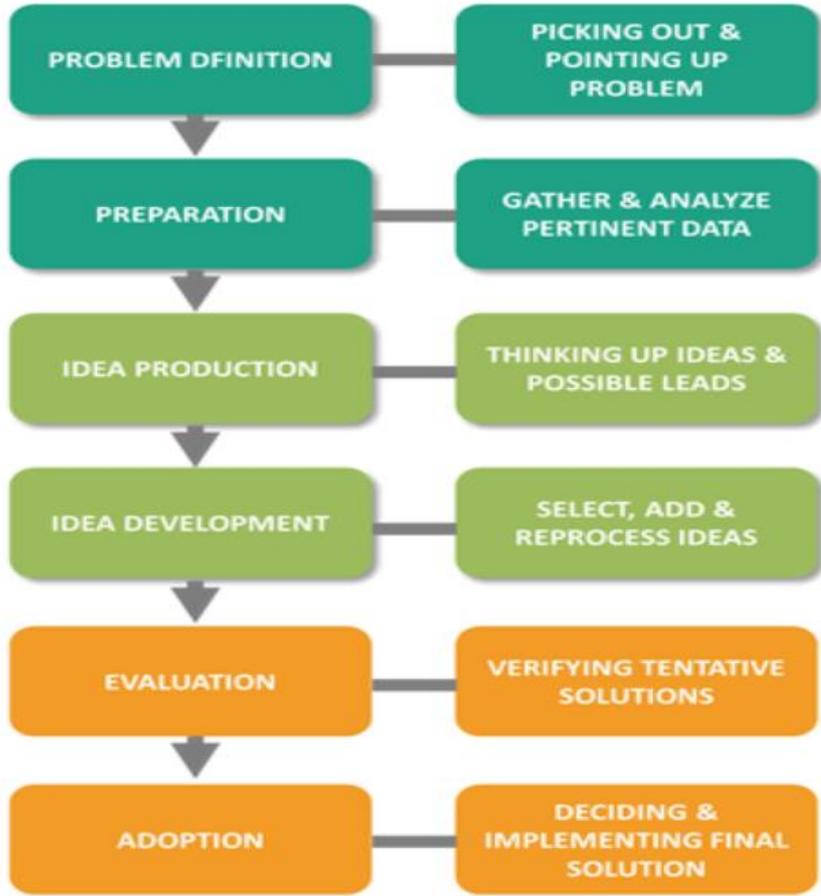
FACT FINDING

2

IDEA FINDING

3

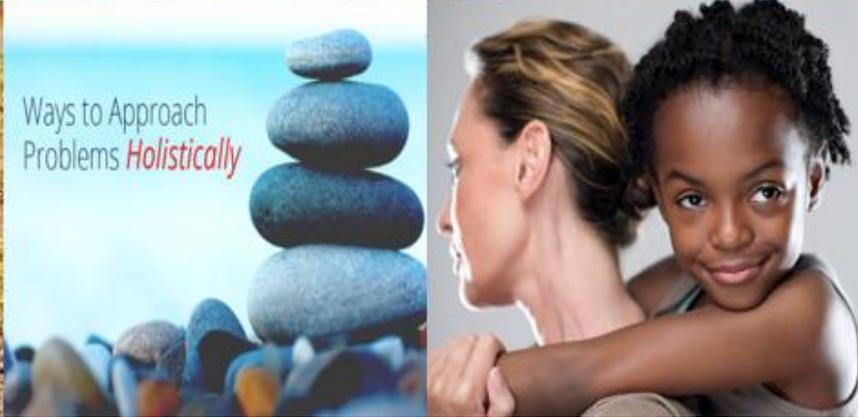
SOLUTION FINDING



Rescue approach for problem solving



Ways to Approach Problems *Holistically*





Project Management Process & Initiative

Impact

An initiative with a high impact would mean one of the followings:

- The initiative needs to happen in order to achieve the desired future state
- The initiative will significantly reduce cost or increase revenue

Effort

The “Effort” criteria is assessed based on the followings:

- Ease of implementation
- Time frame required
- Resources required (Number of people, capital investment, etc.)



PROJECT MANAGEMENT PROCESSES

- Why • Project Objective
- What • Project Scope
- How • Project Approach
- When • Project Timeline
- Who • Project Team Roles & Responsibilities
- Control • Project Management

Responsible & holistic quality improvement approach for quality and productivity excellence



- 1 • Bangladesh textile and clothing industries competitiveness and opportunity: A historical analysis
- 2 • Data engineering & digitalization for real data analysis to shape the future
- 3 • 7S & Visual management : Power to the people for quality & productivity improvement
- 4 • Operator training program: Quality operator will produce quality product
- 5 • QC coaching & development program: How to be a smarter QC
- 6 • Problem escalation process : A quick quality improvement tool for garment factory
- 7 • Smarter sample evaluation; Best approach to improve sample & mass production accuracy
- 8 • Material validation to reduce material waste & minimize quality risk
- 9 • Pattern engineering for measurement & fit excellence
- 10 • Cutting engineering for cutting quality excellence & reduce fit defects
- 11 • 6D Pareto Analysis for Achieving 80% Result by 20% Efforts & Resource.
- 12 • Understanding on seam engineering for beautiful garments
- 13 • Six sigma seam engineering project for visual defect solution
- 14 • Case study on Seam Puckering to improve visual appearance
- 15 • Six sigma quality improvement project for Brocken & skip stitch reduction
- 16 • CTQ analysis: A tool to reduce visual defect
- 17 • Measurement problem solving process for root cause analysis on fit defects
- 18 • Six sigma quality improvement project to reduce fit defect

**Hungry
for
Learning
is
Essential
for
Quality
Improvement**

Responsible & holistic quality improvement approach for quality and productivity excellence



Problem set

19

•Virtual QA tool: PP / Pilot run / Pre final/ FA/Inline/ 1st bulk/CTL/PS to improve audit accuracy

20

•**Proactive & productive maintenance for quality improvements**

21

•Thread path analysis: A preventive maintenance tool to reduce broken stitch

22

•**Efficiency method analysis: Improving quality, productivity and profitability by OEE**

23

• Garment path analysis: A tool to reduce garment damage & stain

24

•Working Fatigue of Muscle in Apparel QC Team: Impact in quality and productivity,

25

•Working Fatigue of Eye in Apparel QC Team: Impact in quality and productivity

26

•**Value engineering: A tool for sustainable quality and productivity**

27

•New Method of Belt Loop to Improve Quality, Productivity and Profitability

28

•New method of Extreme comfort and Extreme motion to delight consumer

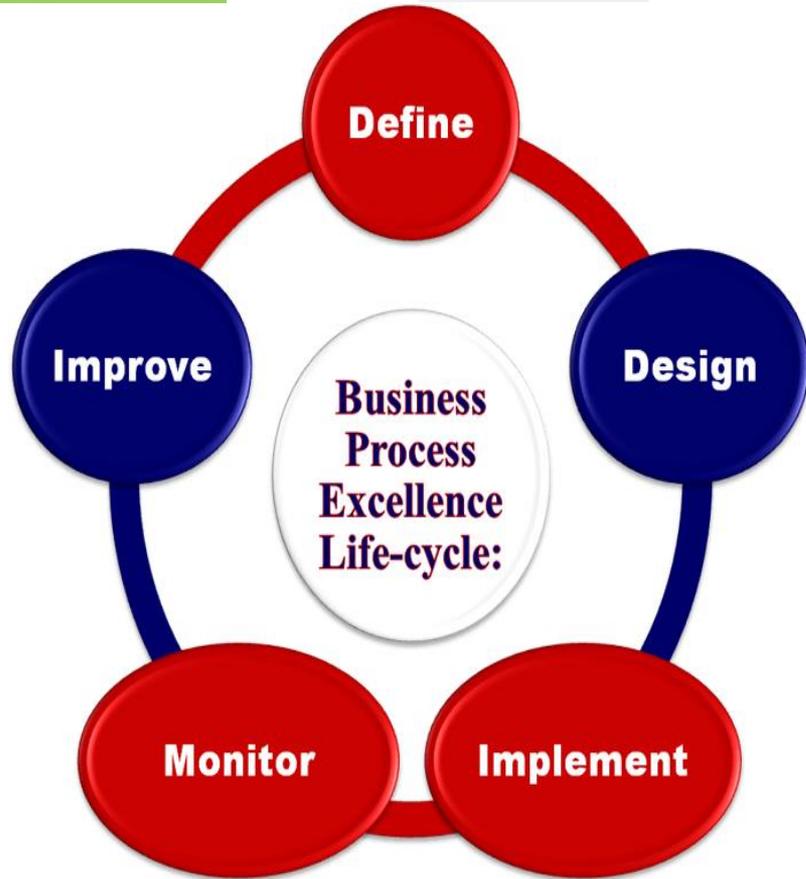
29

•PQE: A Roadmap to Responsible quality for excellence

30

31

**Hungry
for
Learning
is
Essential
for
Quality
Improvement**

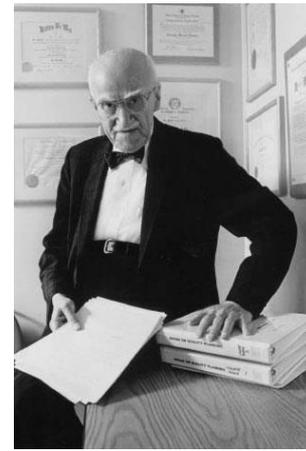


Toolkit Application Formulation Process

- Feasibility study with DFMEA/MFMEA/PFMEA/QFMEA
- CTQ analysis & problem solving
- Formulate quality improvement project/case study
- Convert method into actionable application /format for implementation
- Pilot run to verify reliability
- Validate the performance & result
- Finalize project report/material and supporting format for mass implementation
- Celebrate success

Process Improvement Toolkit includes:





“It is most important that top management be quality minded. In the absence of sincere manifestation of interest at the top, little will happen below”

Joseph M. Juran



Problem set



Process Analysis is the foundation toward achieving Process Excellence.

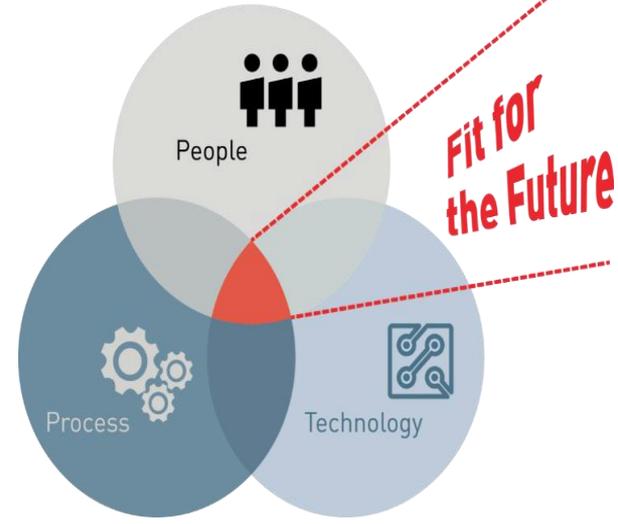
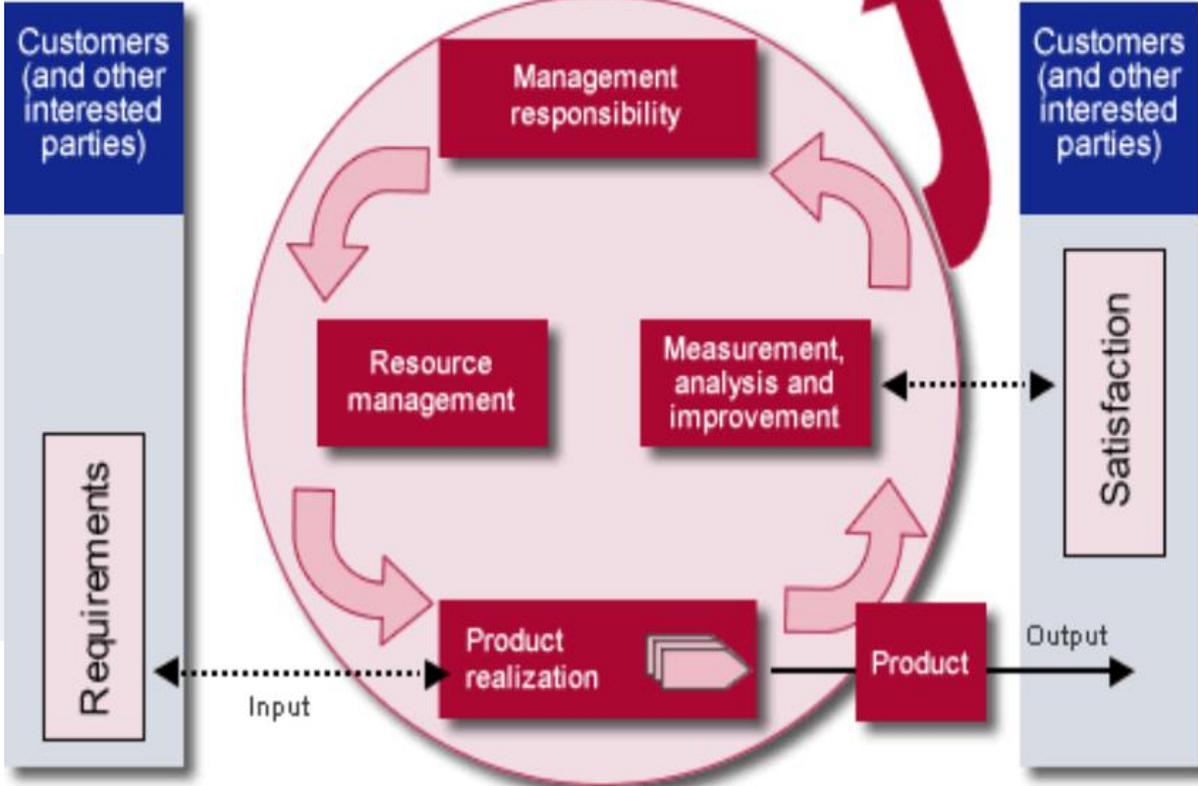


“85% of the reasons for failure to meet customer expectations are related to deficiencies in systems and processes... rather than the employee”

Quality management system improvement



Continual improvement of the quality management system

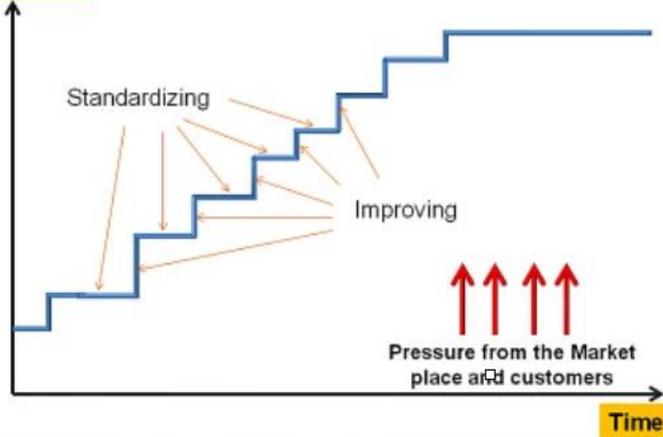




Problem set

Continuous Process of Improving Quality

Improvements



10 Best practices for process improvement

Engage all of your workers

Let your people know what you expect from them

Give them the training they need

Trust your people to make some of the changes

Control material waste

Organize your workplace with 5S

Initiate a preventive maintenance (PM) program

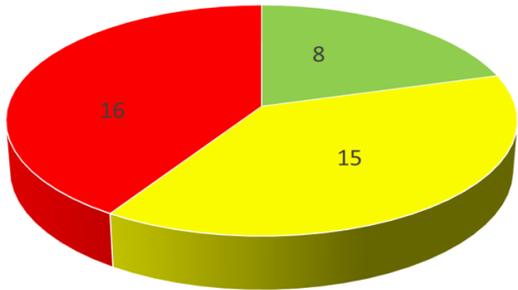
Monitor your suppliers

Solicit ideas from your customers

Standardize your workers' tasks

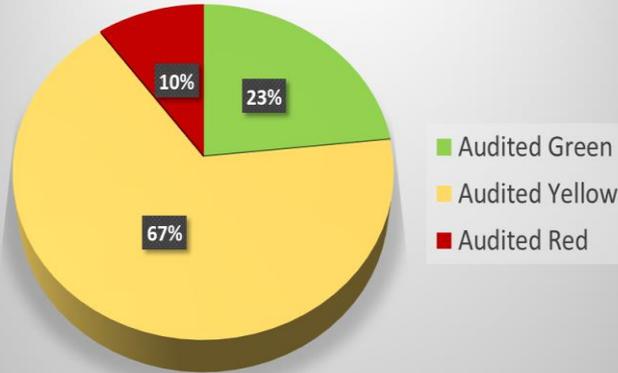
Factory QMS & Process Improvement Through Technical Audit Leading Factory of Bangladesh (More than 50 Fty)

PQI Factory Technical Audit Result
Dec, 2019



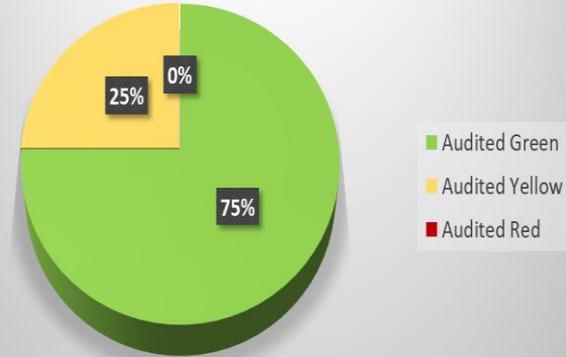
- Queue for Audit
- Audited Green
- Audited Yellow
- Audited Red

PQI Virtual Technical Audit Status Criteria
Dec 2020



- Audited Green
- Audited Yellow
- Audited Red

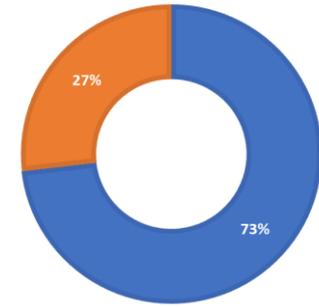
PQI Virtual Technical Audit Status Criteria
March 2021



- Audited Green
- Audited Yellow
- Audited Red

PQI NON CONFORMING CAP VALIDATION 2020

- Non conforming CAP
- Improved CAP



Problem trend analysis:

Following key non-conforming process directly related to product quality improvement & key barrier for defect minimization:

Key non-conforming process in Bangladesh apparel manufacturing : A PQE Observation:

1

- Quality management system & function

2

- Quality improvement drive and CAP validating process

3

- Problem solving team formation & quality problem escalation process.

4

- KPI analysis, validation , quality data integrity

5

- House keeping , visual management & traceability

6

- Workmanship and & measurement defect reduction capability

7

- Production, IE & Maintenance team connectivity for quality improvement drive

8

- Material validation & handling

9

- Preventive, Autonomous & Productive maintenance

Following key non-conforming process directly related to product quality improvement & key barrier for defect minimization:

Problem trend analysis:

Key non-conforming process in Bangladesh apparel manufacturing : A PQE Observation:

- 10 • Sample & CAD room performance & connectivity to mass production weak.
- 11 • Weak pre-production activity e.g. PP/pilot run process, shrinkage calculation, pattern adjustment , cutting & spreading quality
- 12 • Tollgate inspection, roving QC & data recording on time not maintaining. To get accurate data is difficult
- 13 • Fty quality problem solving process weak & not efficient to use quality tool e.g. Pareto, Fishbone, 5Why, Control chart.
- 14 • Key quality persons not aware clearly about the quality improvement tools to lead in continuous improvement in quality.
- 15 • Weak QC training, coaching, development program, training room and training material preparation process
- 16 • Weak QMS audit and auditor skill. Continuous improvement and result confirmation
- 17 • Laundry visual quality improvement and measurement defect detection
- 18 • Laundry chemical storage guideline implementation and environment weak and risky
- 19 • Mold and pest control process weak

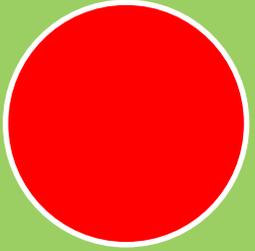
Kick -  ff



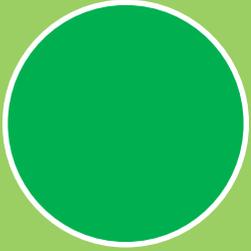
New drive for quality improvement



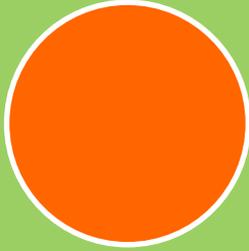
Focus Key Manufacturing KPI



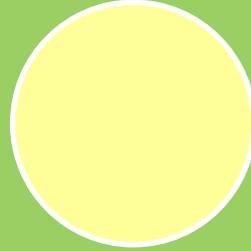
QMS



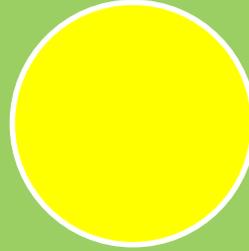
CSR



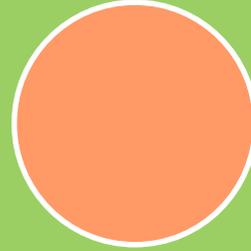
Quality



On time
delivery

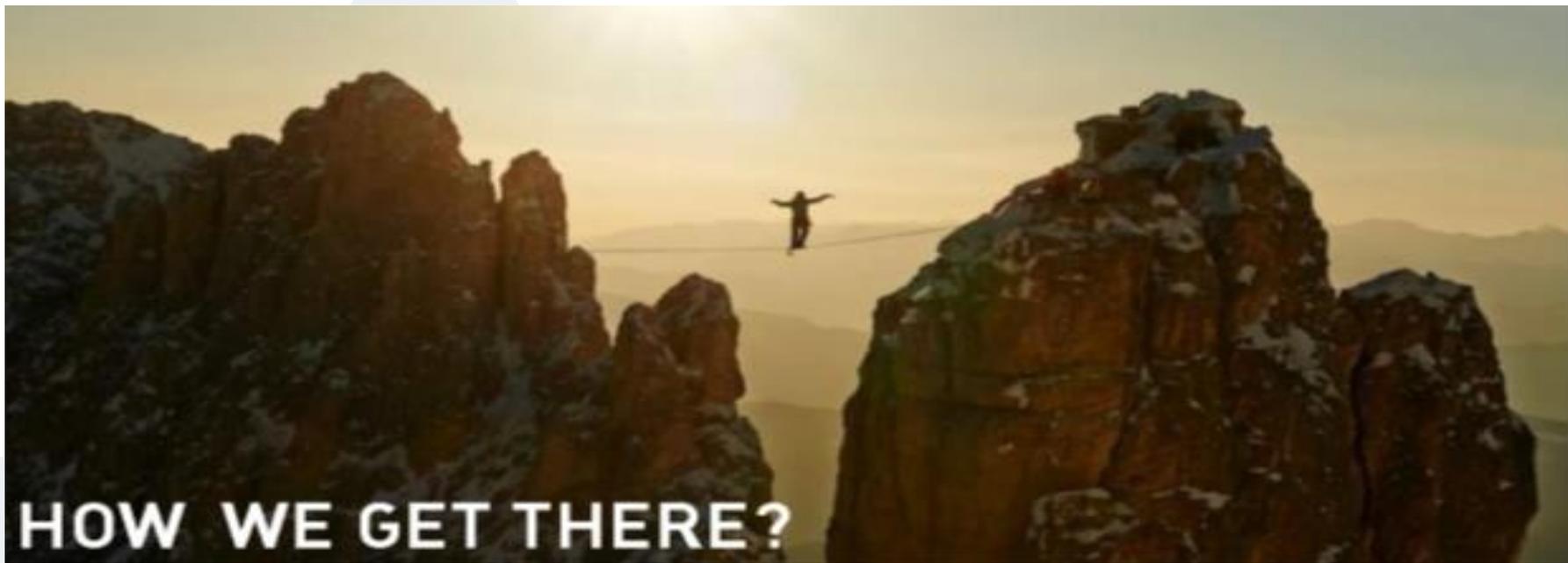


Price



Efficiency





HOW WE GET THERE?



Annual quality improvement plan framework?



Process Quality Improvement Plan

- Identify non conforming process
- Internal process audit
- Process CAP implementation
- Monthly follow up
- Benefit analysis



Product Quality Improvement Plan

- Problem identification
- Brand KPI
- Fty KPI
- Goal set
- Key defect analysis
- Preventive & corrective action plan
- Progress validation
- Continuous improvement
- Barrier analysis
- SOP update



People Quality Improvement Plan

- Operator training
- QC training
- Supervisor & Manager training
- Exam
- Calibration
- Seminar & workshop
- Award & recognition
- Empowerment of people
- Working environment



Preventive Maintenance Plan

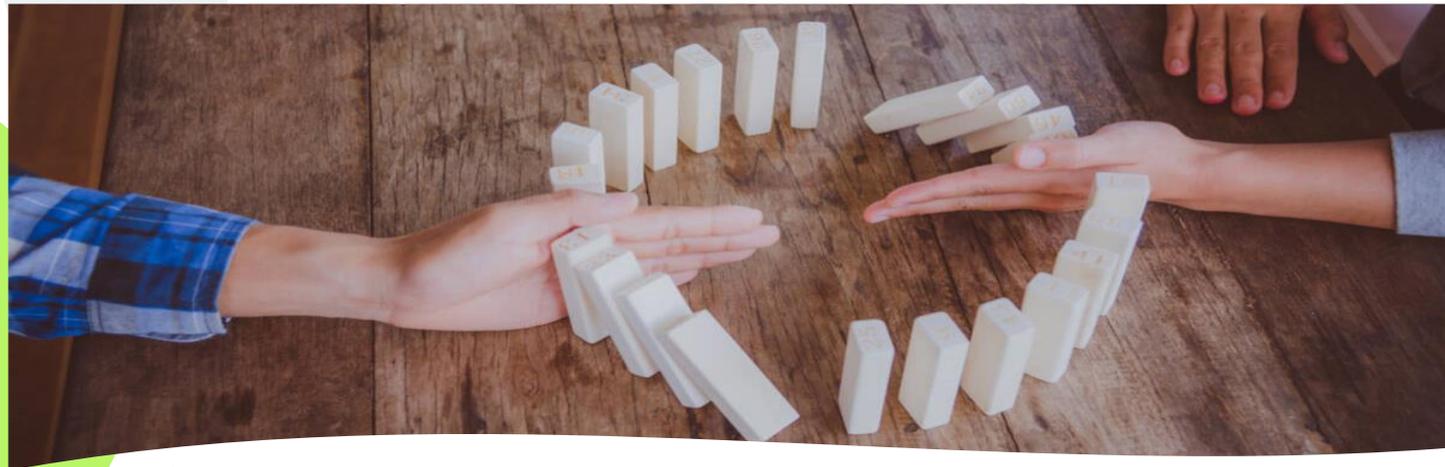
- Maintenance policy
- Maintenance schedule
- Machine wise operator guideline
- Machine/sewing aid improvement
- Machine performance evaluation
- Machine replacement
- New machine





Problem set

Management team review the quality analysis report at least monthly



Monthly Quality Meeting Agenda

1. Monthly quality report & presentation
2. Brand KPI
3. Fty Internal KPI
4. Quality CAP progress & follow up
5. QMS internal audit & CAP progress
6. Safety audit and CAP progress
7. Productive & autonomous maintenance
8. Problem solving activity & new action items



Visual management & Workplace Solution



Make work place more pleasant

Make work more efficient

Connect employee & speed the manufacturing

Make quality product

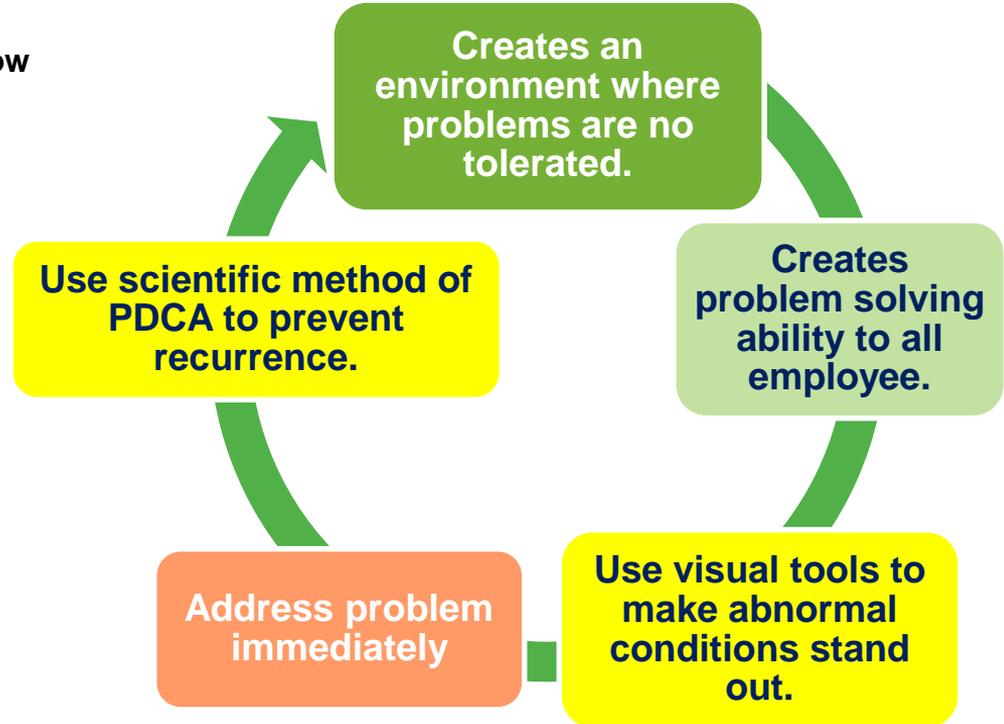
Make work place more safe & healthy

Do jobs utilize visual management?

- ❑ The purpose of visual management is to improve the effectiveness of communication and reaction.
- ❑ Visual aids can convey messages quicker and invite more interest than written information. And this also means exposing defects and problems to allow them to be addressed sooner.

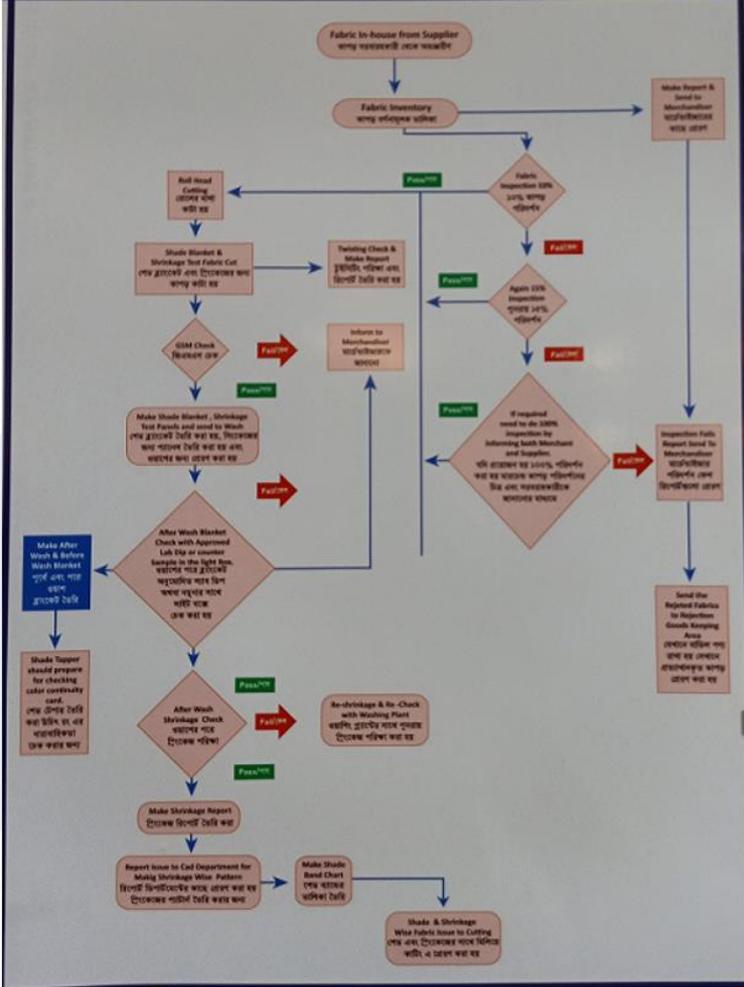
Visibility of the whole quality in manufacturing process.

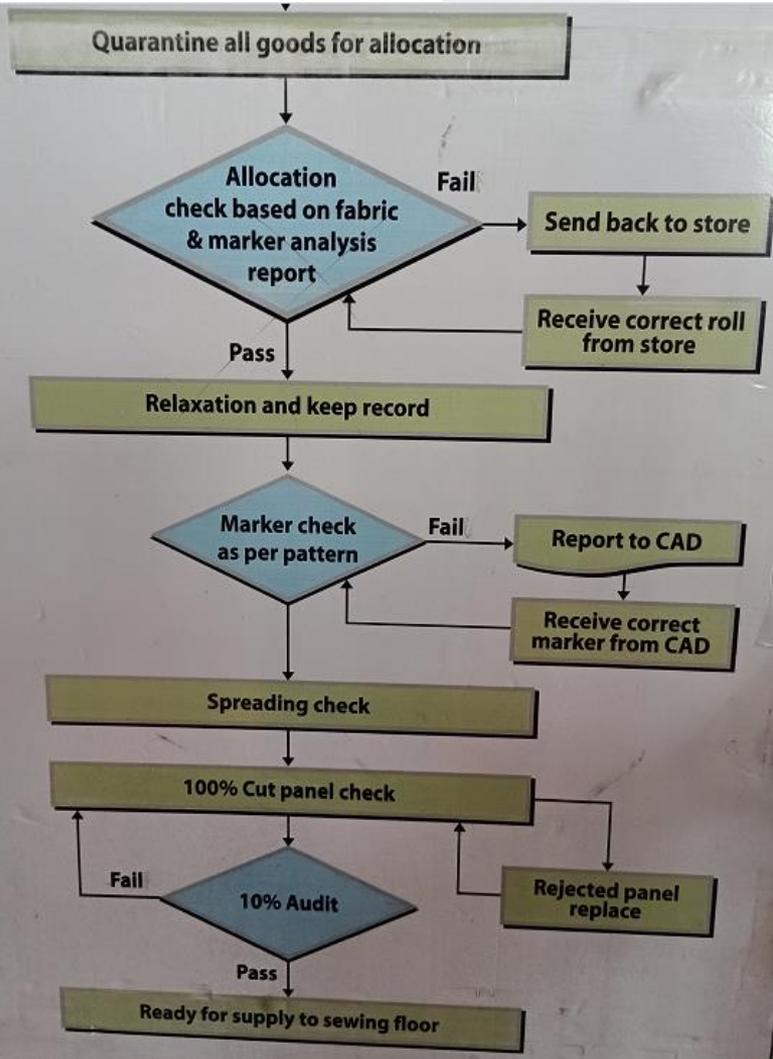
Proper production monitoring system that ensures best quality in manufacturing.



FLOW-CHART FOR FABRIC INSPECTION

কাপড় পরিদর্শনের চিত্র





'Housekeeping: Are machines well kept, aisles clear, WIP organized?'



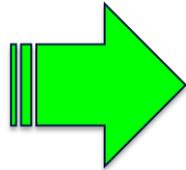
Housekeeping: Are machines well kept, aisles clear, WIP organized?

THINK TIDY

GOOD HOUSEKEEPING IS ESSENTIAL



Problem Set

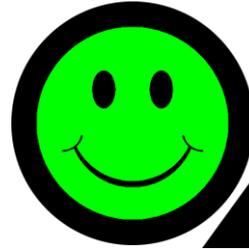


Housekeeping: Machines well kept, aisles clear, WIP organized.

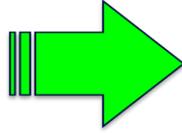


Problem Set

Trims storage at finishing section



WIP Organized at Finishing



- ❑ Identify visual aid for all work station & section: Sample, warehouse, room, cutting, sewing, finishing, packing.
- ❑ Factory need to develop a check & conduct monthly audit for implementation and monitoring.



- 1 • Display DHU at operator/QC work station
- 2 • Key approval/mock up/ Display board
- 3 • Operation standard/guideline
- 4 • Dashboard on work place
- 5 • Working flow chart
- 6 • Display key SOP
- 7 • Defect board
- 8 • Defects % (Rejects, Repair, Rework)
- 9 • Problem escalation process
- 10 • Quality metrics(Pareto/Fishbone/Trend chart/)
- 11 • Problem solving(CAP/A3/8D/ Gantt chart/Meeting minutes)
- 12 • Periodically validate shade & shrinkage test result

Visual Management



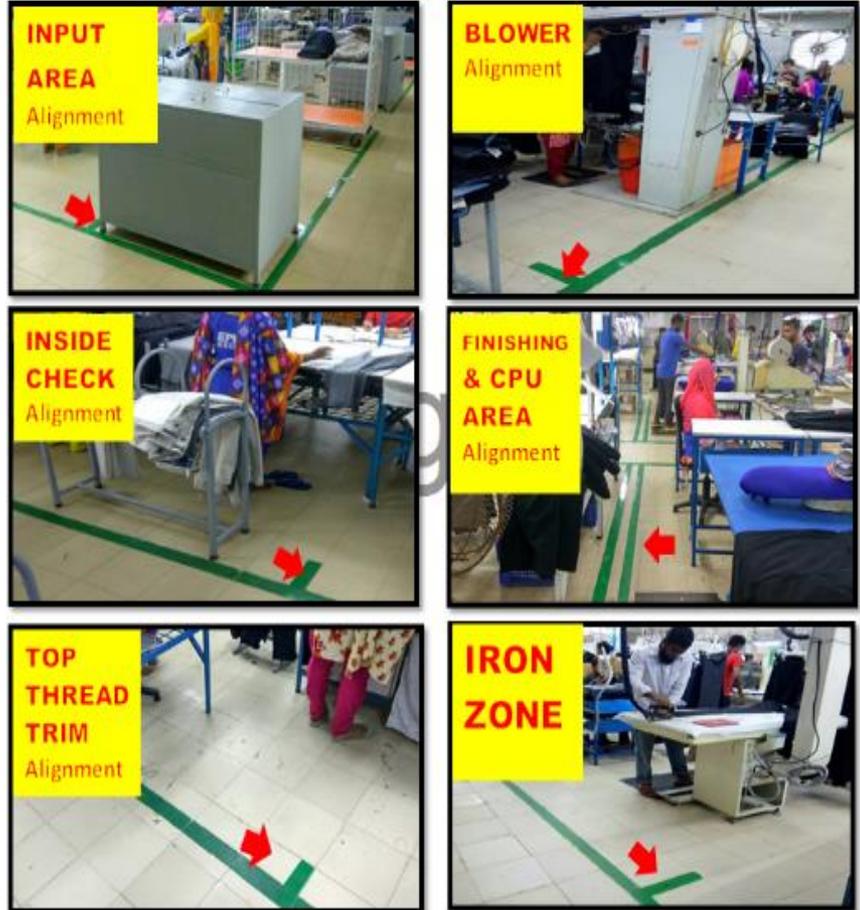
The work area/cell/machine should "talk" to you in simple terms



Finishing dashboard example



Zone Alignment Demarcation



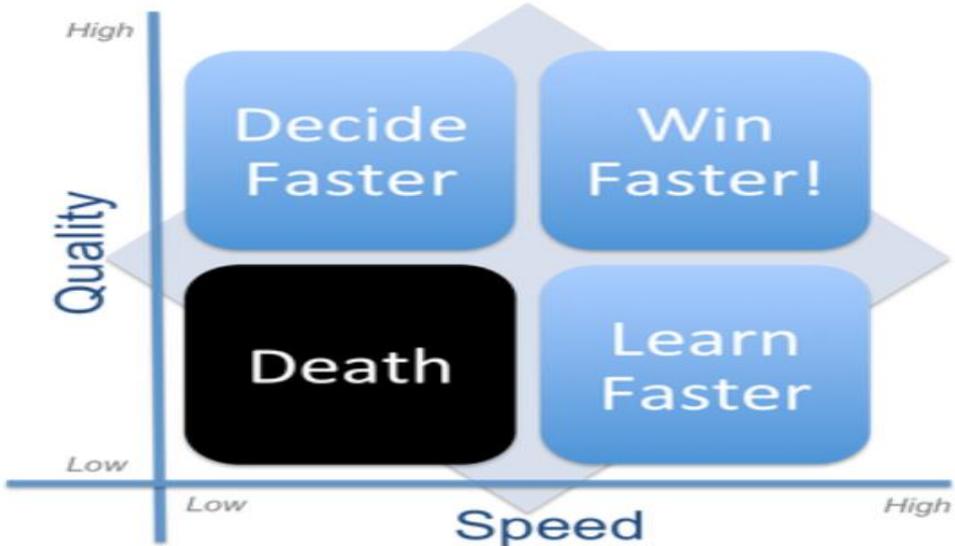


Quick Win

T20 match



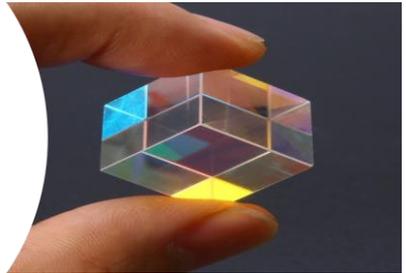
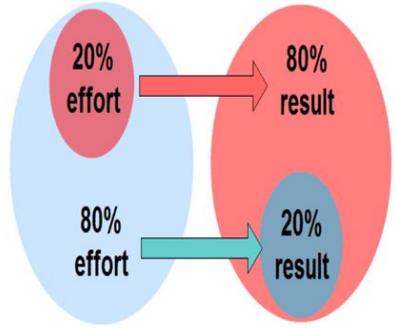
Decide fast, learn fast, win fast





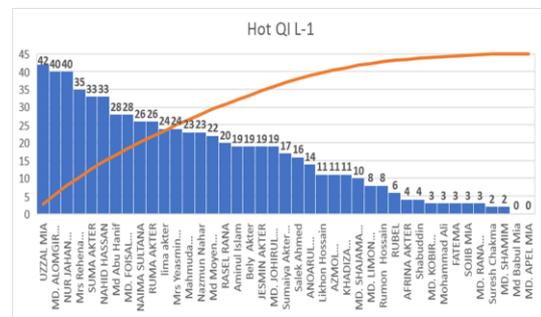
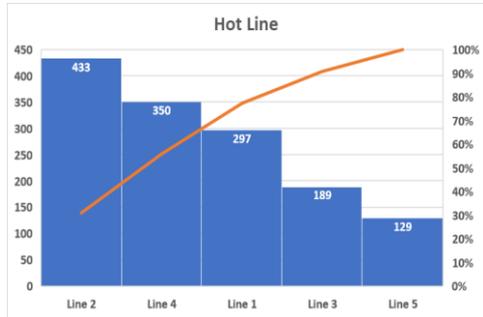
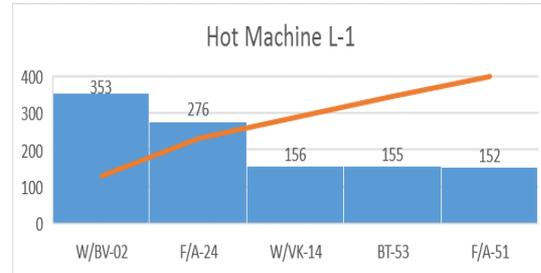
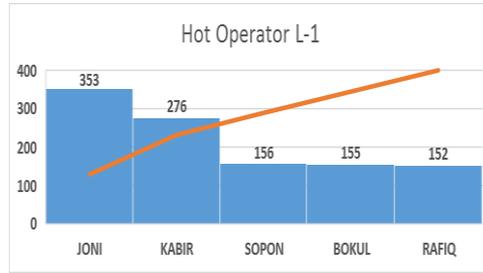
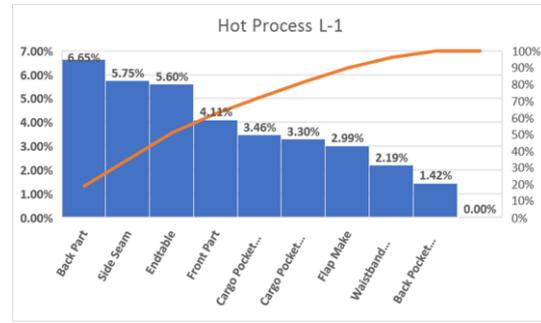
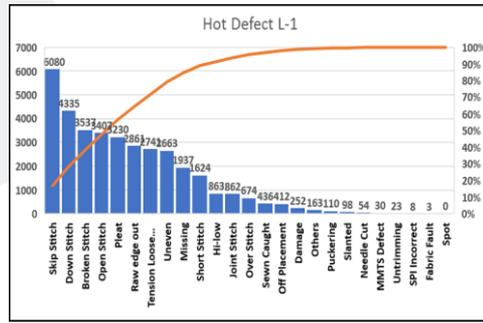
6D Pareto Analysis for visual defect solution

80/20 Rule



- 1. Hot defect (Top defects)
- 2. Hot process (Top defective process)
- 3. Hot operator (Top defect producer)
- 4. Hot QI (Top defect skipper)
- 5. Hot machine (Top defective machine)
- 6. Hot line (Top defective line)

6D Pareto analysis for visual defect solution



**NGC VPR
Simftex at
2.18.19**

Factory Name	Brand	FFC# (Factory)	QA Approved Ship Qty	Total Lots PO's Audited	Total Lots PO's 1st Pass	First Pass %	First Fail %	First Pass % YTD	First Fail % YTD
SIMFTEX Apparel and Washing Lt	Jeanswear US	67496	310,811	62	62	100.00%	0.00%	100.00%	0.00%

Pack Units Audited (SQL)	Pack Defective Units (SQL)	Pack Defect % (SQL)	YTD Pack Defect (SQL)	YTD Total Pack (SQL)	YTD Pack Defect % (SQL)	Average Defect % (SQL)	YTD Average Defect % (SQL)
1,137	0	0.00%	0	1,137	0.00%	0.60%	0.60%



Problem set

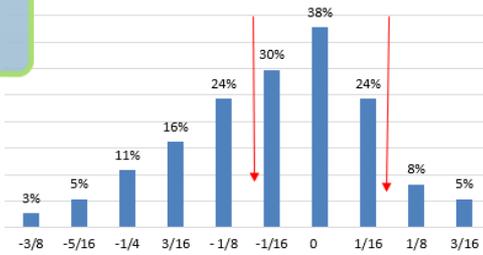
6D Histogram analysis for fit defect solution

6D



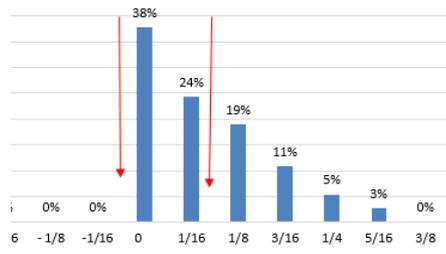
Cutting panel mmts

LTCH26584A-(4183506)



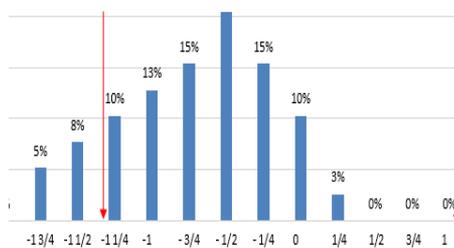
Overlock trims off mmts

LTCH26584A-(4183506)



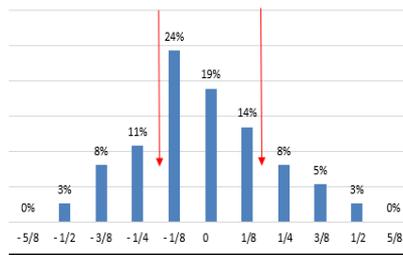
Before pressing gmts mmts

LMCH11491A-(4183506)



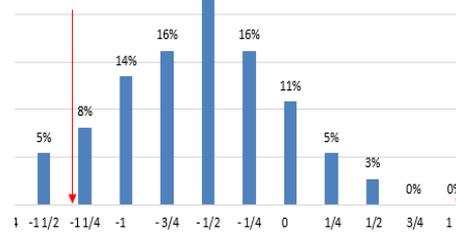
Seam panel mmts

LMCH11491A-(4183506)



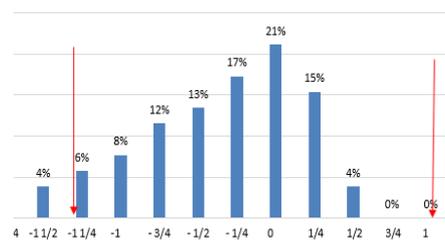
Before wash gmts mmts

LMCH11491A-(4183506)



After pressing gmts mmts

LMCH11491A-(4183506)



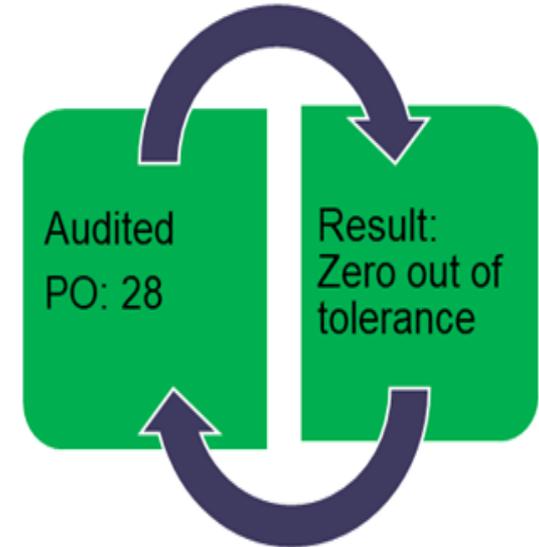
NGC VPR Simftex at 2.18.19

Country of Origin	Vendor Name	Factory Name	Brand	FFC# (Factory)	QA Approved Ship Qty	Total Lots PO's Audited	Total Lots PO's 1st Pass	First Pass %	First Fail %	First Pass % YTD	First Fail % YTD
BANGLADESH	SIMFTEX APPAREL AND WASHING LT	SIMFTEX Apparel and Washing Lt	Jeanswear US	67496	310,811	62	62	100.00%	0.00%	100.00%	0.00%

Fit Units Audited (OQL)	Fit Defective Units (OQL)	Fit Defect % (OQL)	YTD Fit Defect (OQL)	YTD Total Fit (OQL)	YTD Fit Defective % (OQL)	Pack Units Audited (OQL)	Pack Defective Units (OQL)	Pack Defect % (OQL)	YTD Pack Defect (OQL)	YTD Total Pack (OQL)	YTD Pack Defect % (OQL)
710	0	0.00%	0	2,667	0.00%	0	0	0.00%	0	1,137	0.00%

Fit Units Audited (SQL)	Fit Defective Units (SQL)	Fit Defect % (SQL)	YTD Fit Defect (SQL)	YTD Total Fit (SQL)	YTD Fit Defect % (SQL)	Pack Units Audited (SQL)	Pack Defective Units (SQL)	Pack Defect % (SQL)	YTD Pack Defect (SQL)	YTD Total Pack (SQL)	YTD Pack Defect % (SQL)
2,667	0	0.00%	0	2,667	0.00%	1,137	0	0.00%	0	1,137	0.00%

QC Center Audit Report



New Production Introduction & Capabilities Improvement



Problem Set

“To ensure product quality and customer satisfaction typically involves 80% effort from pre-production and 20% manufacturing”

Pre production activity and Fty/sample room responsibility:

A

- New Production Style Set Up

B

- Raw Material Inspection and Validation

C

- Pattern Review & Confirmation

D

- Pilot Run/Test Cut

Scope of improvement on pre-production activity

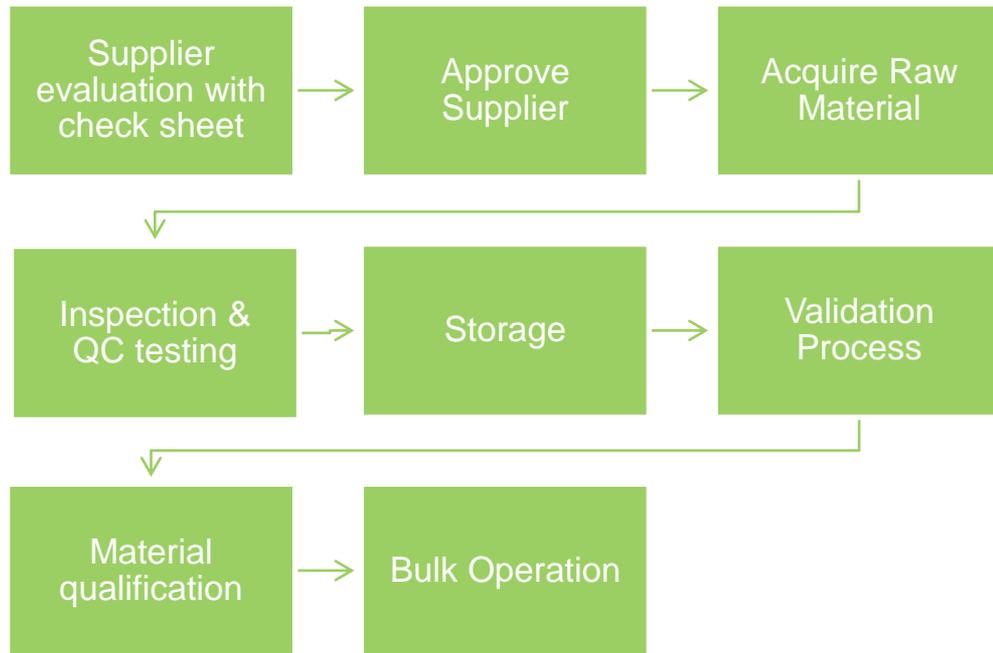
PQE requirement

- Fty sample section should conduct CTQ analysis & submit report to PP meeting
- Material /shrinkage/pattern adjustment/relaxation/spreading and cutting validation
- Conduct PP/pilot run & submit detail evaluation to QA
- Need complete visibility captured of defect with rejection report
- After brand QA evaluation focus to the top defect and submit CAP from bulk to solve all defects captured in PP/Pilot run

Current practice

- Week or missing CTQ
- Validation process not in place
- Manipulated PP/pilot run report submitted to QA based on good gmts only
- Missing rejection report. Not reflecting real defect & rejection occurrence of PP/pilot run
- Missing CAP
- Without getting real defect occurrence in PP /pilot run bulk defect repetition cant be prevented

Raw Material Supplier Evaluation & Validation Process



Validate the bill of materials before bulk is processed



Material Qualification



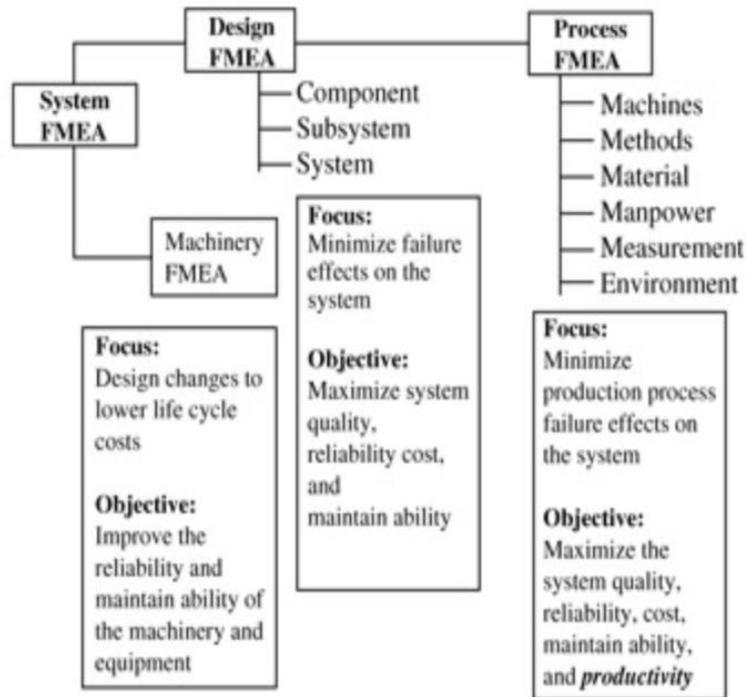
General Check Point for Raw Material Validation

General Check Points:	Remark	Status			General Check Points:	Remark	Status		
		Ok	Not OK	N/A			Ok	Not OK	N/A
Inventory report		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Apearance test by mock wash as V code/ 3/5HL		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier inspection report		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FTY inspection report		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier test report		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CTQ/Risk analysis		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material storing process		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Design review		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compared with BOM		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk process review		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compared with approved trim card		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Internal test report		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

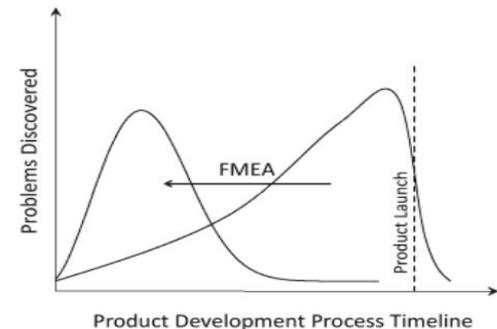
Effective FMEA

Achieving safe, reliable & economical products & process using failure mode and effects analysis

Types of FMEA



- 1 • Design FMEA
- 2 • Material FMEA
- 3 • Machine FMEA
- 4 • People skill FMEA
- 5 • Process FMEA
- 6 • Defect FMEA



Key reminder of pre-production 10X10 theory

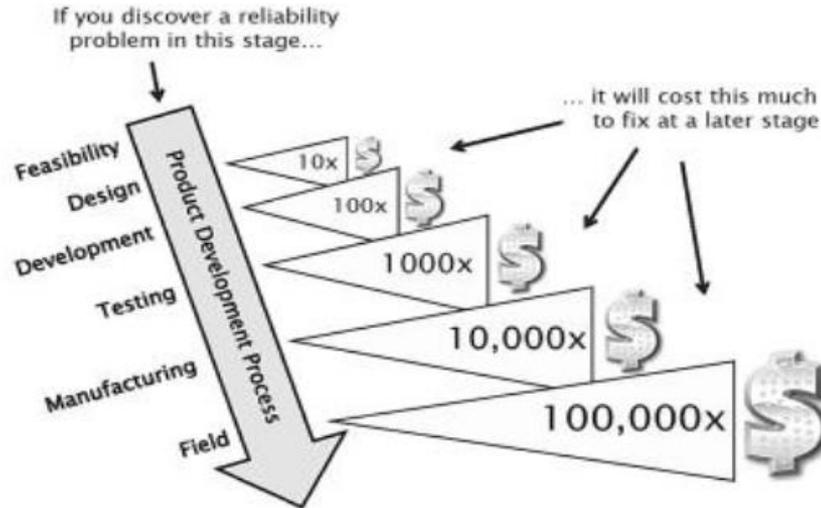
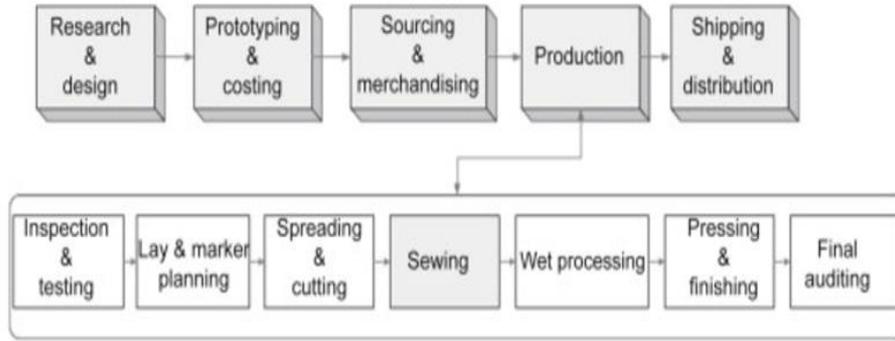
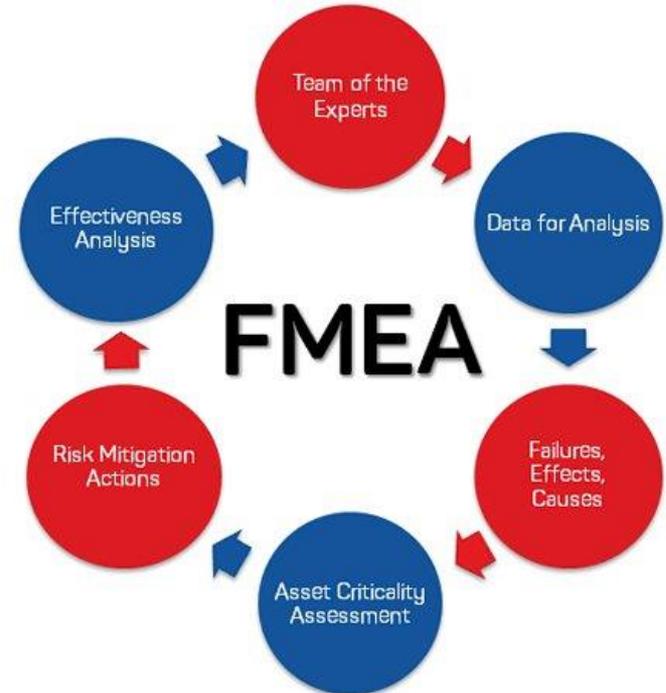


FIGURE 1.3 Factor of 10 rule.

New Style Introduction Kick off & Handover Meeting

CTQ & PQE Problem Solving Process 2021



Development in Sample Evaluation;

Past, Present & Future

Co-Operation & Partnership With Vendor in Perspective

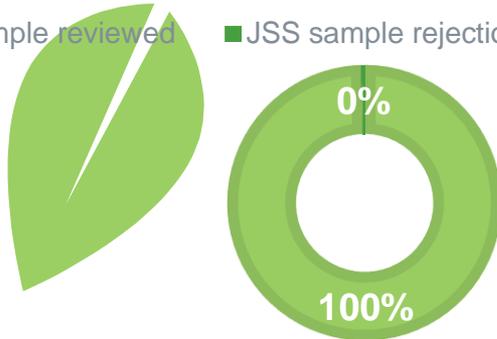
SMARTER EVALUATION

JW BOTTOM E-PATTERN, JSS & CTL SAMPLE PROCEDURE & REQUIREMENT:

JSS SAMPLE REVIEW & APPROVAL STATUS 2013

JSS sample reviewed

JSS sample rejection

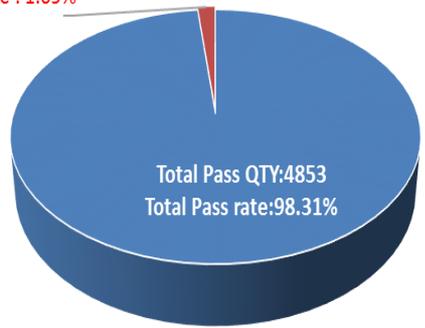


- 1 • Smarter sample evaluation
- 2 • Project presentation
- 3 • New method of sample review
- 4 • Report
- 5 • Information

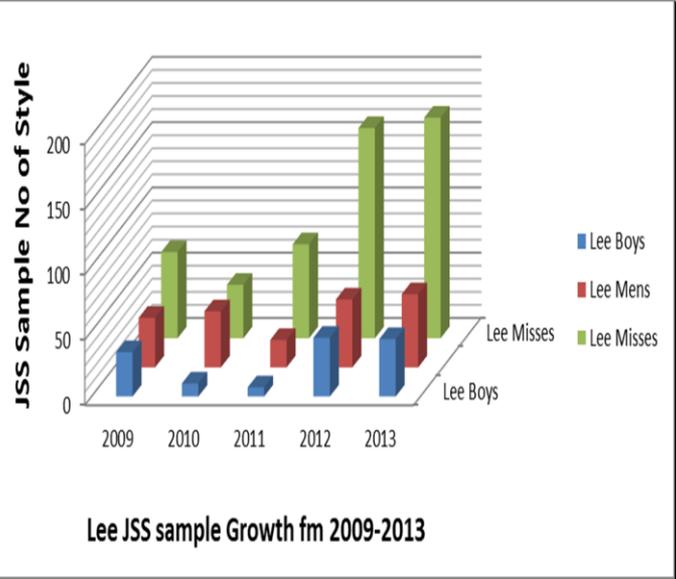
Has sample room recorded the reasons and qty of rejected samples within a fixed period of time ?

Proto/PP/JSS/Seal/Ref/CTL/Mock-up review status ; 2013

Total fail QTY :82
Total fail rate : 1.69%

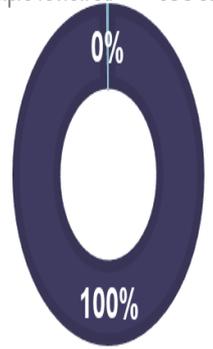


■ Grand total sample reviewed ■ Grand total sample fail by GS



JSS SAMPLE REVIEW & APPROVAL STATUS 2014

■ JSS sample reviewed ■ JSS sample rejection



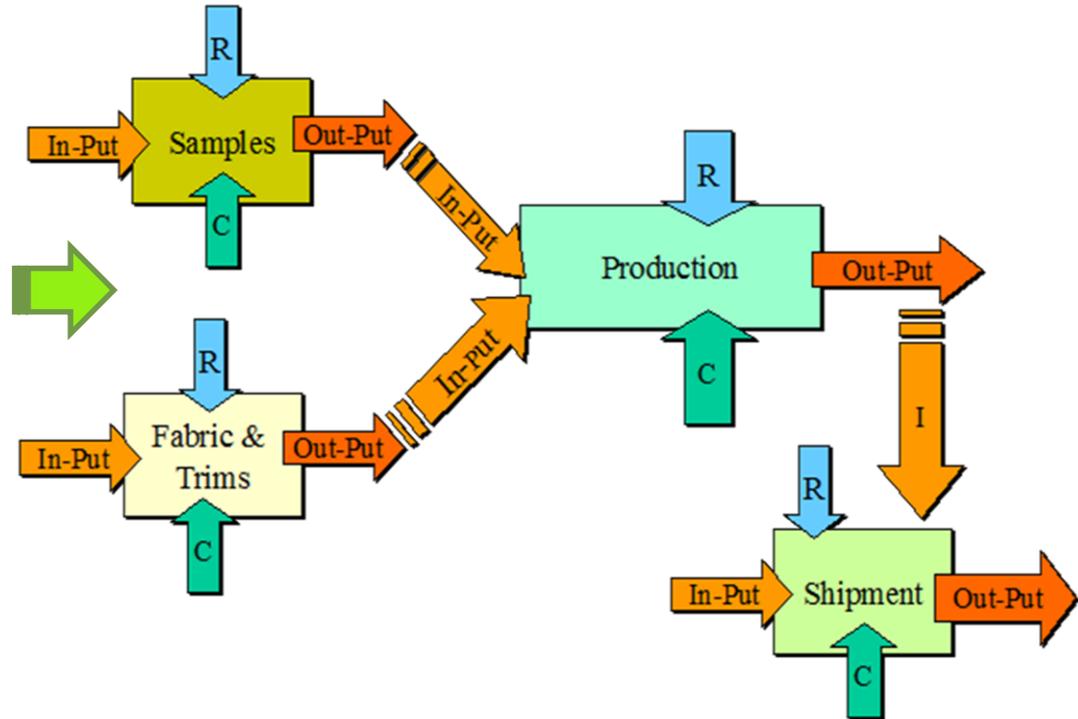
Sample room performance evaluation



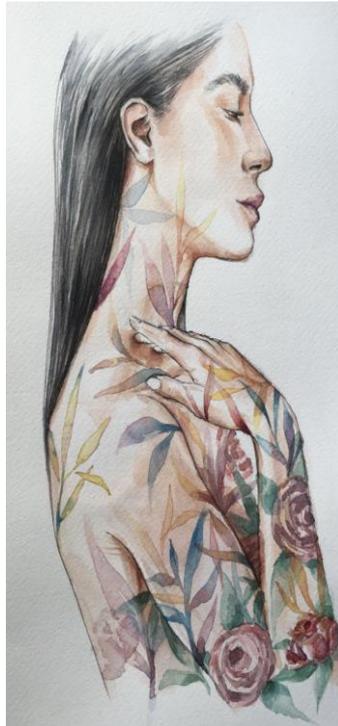
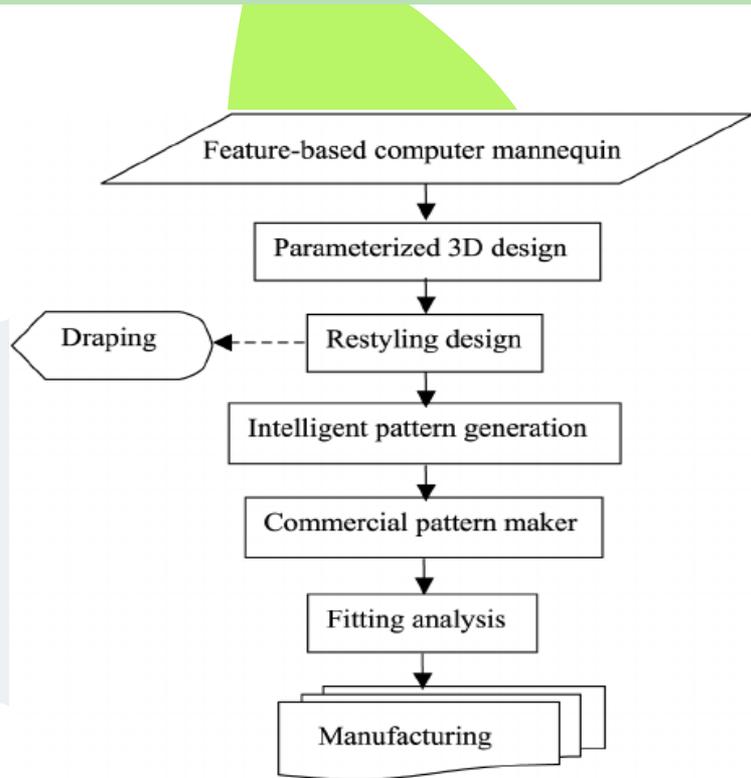
Pre-sample activity

On process sample activity

Post sample activity



Virtual design, pattern, sample development and approval



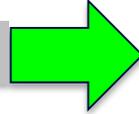


Pattern Integration



Correct Practice

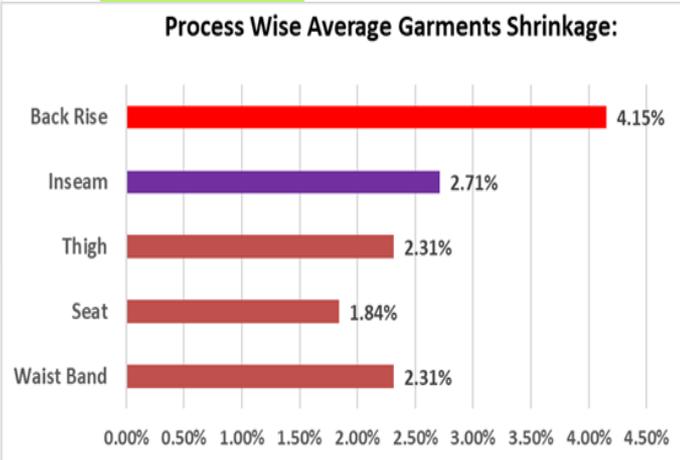
Incorrect Practice



- Shrinkage Pattern
- Mismatch shrinkage%

- Spec/Net pattern
- Sewing allowance
- Washing shrinkage% as range
- Apply correct manufacturing loss and elongation (Sewing loss/Cutting loss/Elongation)

Process Wise Average Garments Shrinkage:



Contributing factors of manufacturing loss & new thinking for pattern integration:



- 1 • Inconsistent fabric shrinkage
- 2 • Fusing shrinkage/elastic shrinkage
- 3 • Inconsistent fabric relaxation
- 4 • Spreading elongation & tension
- 5 • Inconsistent lay bad relaxation
- 6 • Band knife cutting accuracy
- 7 • Inconsistent panel measurement.

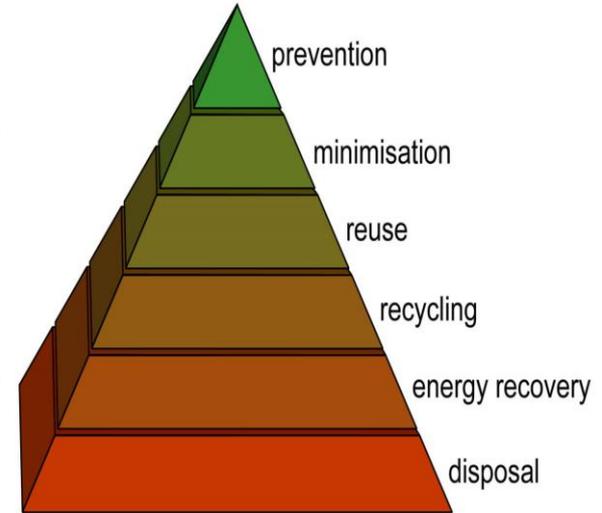
- 8 • Mismatch notch mark/uneven sewing panel/scissor cutting
- 9 • Sewing allowance & inlay
- 10 • Seam shrinkage/elongation
- 11 • Puckering % or intensity/Operator handling
- 12 • Machine RPM/machine adjustment/tension
- 13 • Bulk wash recipe & inconsistent washing shrinkage
- 14 • Garment drying condition
- 15 • Pressing shrinkage/elongation
- 16 • Garment ease/weather/RH%

Fabric management & cutting capability

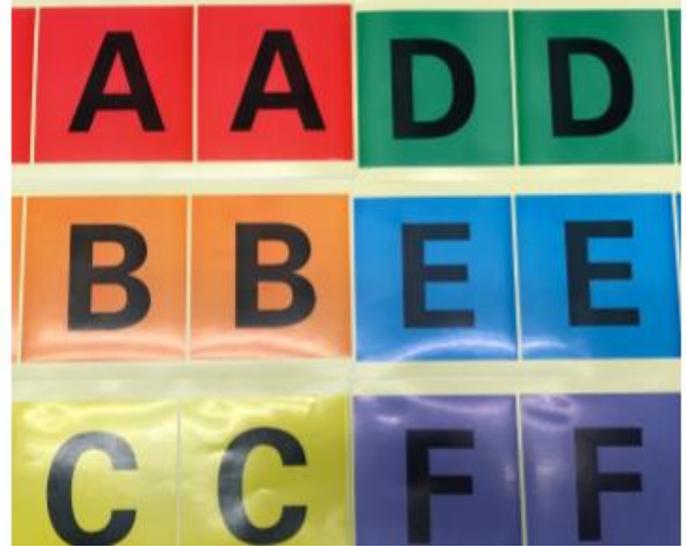
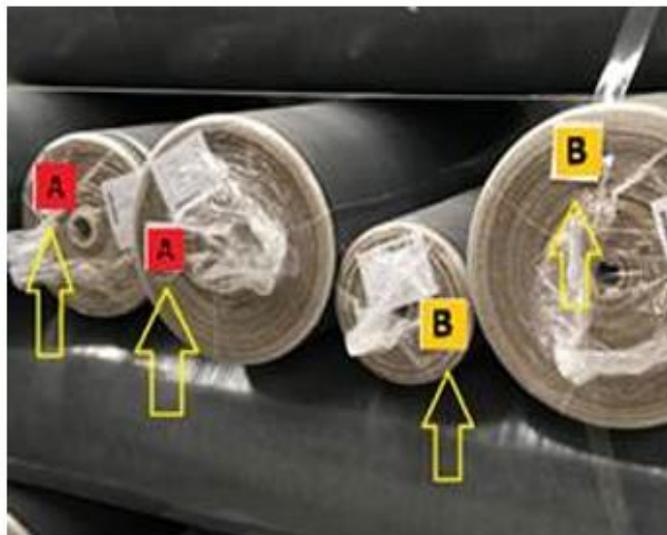


most favoured option

least favoured option



Follow taper thru to the spreading process
:Keep all rolls with max 6 shade family

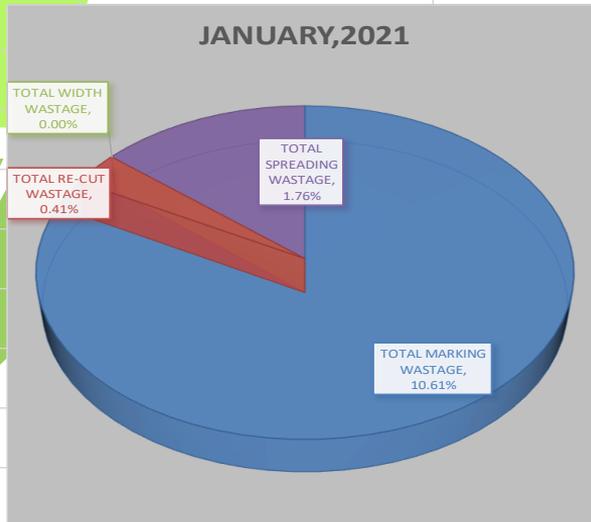


Fabric & Cutting waste



Monthwise Cutting Waste Calculation

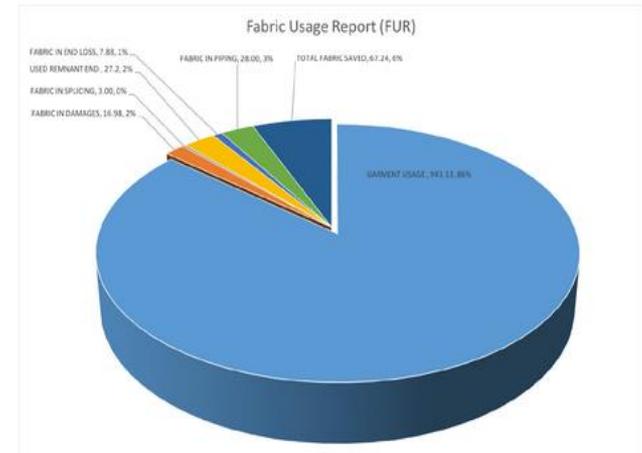
Monthwise Cutting Waste Calculation		January,2021	
Pcs Cut	228654.00	TOTAL MARKING WASTAGE	10.61%
Total Spreaded Yds	295611.42	TOTAL RE-CUT WASTAGE	0.41%
Standard Spreading Yds	291611.40	TOTAL WIDTH WASTAGE	0.00%
Fabric Defect Yds	1200.00	TOTAL SPREADING WASTAGE	1.76%
Testing Yds	2000.00	TOTAL WASTAGE	12.78%
Total Purchased Yds	295611.42		
Re-cut (yards)	1200.00		
Unused Leftover yds	800.00		
Actual Ply	20887.00		
Marker Length	2725.40		
Marker Yds	2725.40		
Marker Width	17007.25		
Marker Utilization	89.39%		
Marker Waste (yd)	31364.30		
Width Waste	0.00		



Cutting engineering & Critical path analysis for cutting excellence

Fabric Usage Report (FUR)

TOTAL FABRIC AVAILABLE	1091.43	GARMENT USAGE	941.13	86.23%
FABRIC IN DAMAGES	16.98	FABRIC IN SPLICING	3.00	0.27%
USED REMNANT END	27.2	FABRIC IN END LOSS	7.88	0.72%
FABRIC IN PIPING	28.00	TOTAL FABRIC SAVED	67.24	6.16%



Source of fabric wastage

1. Fab roll tension and relaxation shrinkage
2. Testing yds: Blanket/shrinkage specimen/leg/mock
3. Maker efficiency
4. Spreading loss: Edge and end bit loss
5. Remnant
6. Defective panel replacement
7. Recut
8. Fusing shrinkage
9. Overlock cutting/Trims off
10. Puckering shrinkage
11. Pressing shrinkage
12. Unused fabric/leftover
13. Garment rejection/2nd quality/irregular

Lazy loop feed



C-TEX Fabric Relaxing Machine

Advantages

- 1.If you use a relaxation machine such as the C-TEX machine above, you will find that you have many advantages and positives to ensure correct fabric usage and accurate cutting is achieved.
- 2.During the relaxation process you can confirm actual cut width to enable width batching you can also confirm fabric roll lengths to make sure you are receiving what you are paying for
- 3.Together with width batching, you can now make claims against the fabric mill and maximize any positives in the received fabric.
- 4.Every single roll will have the same tension so measurements will no longer be an issue from roll to roll, ensuring your cutting is accurate.
- 5.**The time factor is taken out as you no longer need to relax the fabric for 12 to 48 hours, once the fabric has passed through the relaxation machine it can be cut immediately**





Utilizing Fabric for Cutting Excellence:

Cutting Room Best Practices:

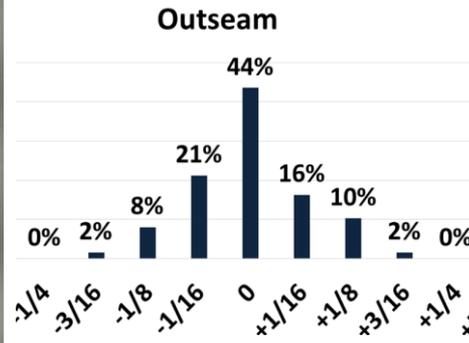
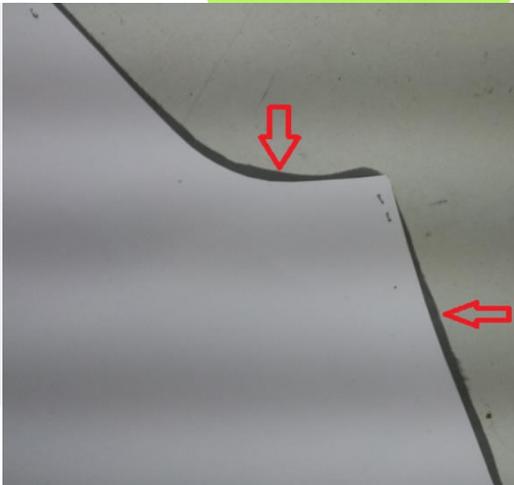
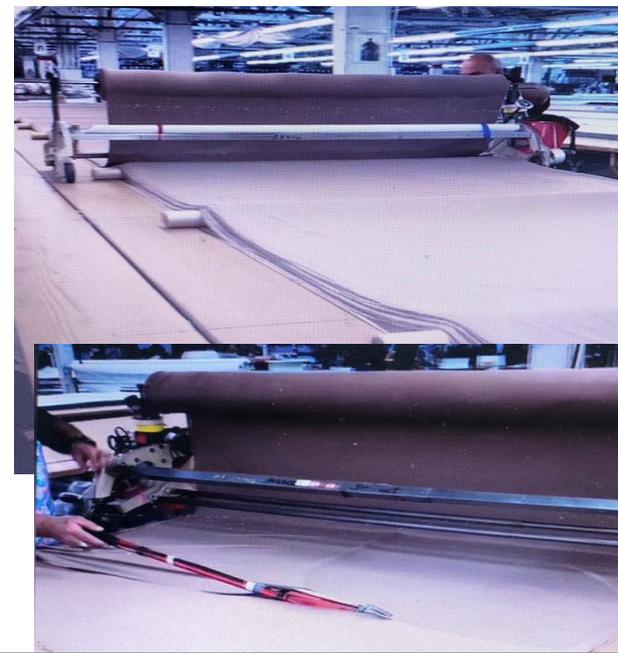
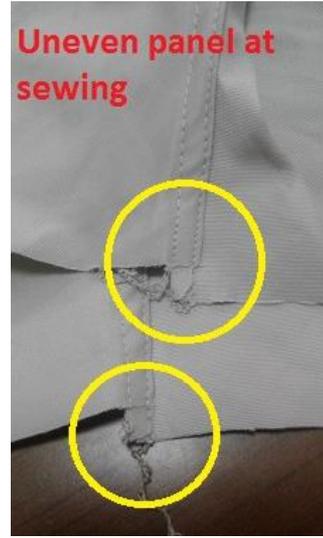
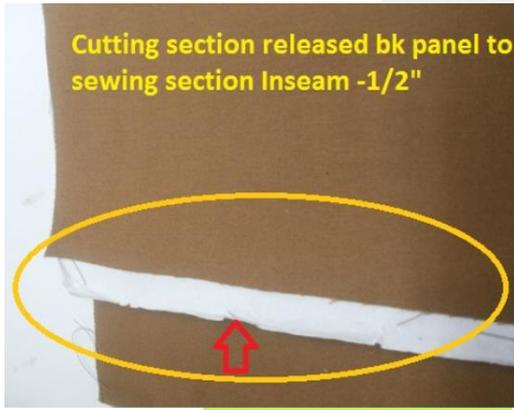
ROLL NO	CUTTABLE WIDTH AFTER RELAXATION	TICKET/PL LENGTH	BEFORE RELAXATION LENGTH	AFTER RELAXATION LENGTH	LENGTH DEVIATION (+/-)	OPENING DATE	RELAXATION TIME ON	RELAXATION ENDING DATE	RELAXATION TIME OFF	TOTAL REL TIME/HR
G 250	57 INCHES	84	88	81.25	-2.75	15/11/2017	9.5 AM	16/11/2017	10.45 AM	24 HOURS UP
G 235	57.5 INCHES	92	94	86.25	-5.75	15/11/2017	9.16AM	16/11/2017	10.48 AM	24 HOURS UP
G 202	57 INCHES	85	87	80.75	-4.25	15/11/2017	9.20AM	16/11/2017	10.56 AM	24 HOURS UP
H 129	57 INCHES	70	72	66.25	-3.75	15/11/2017	9.28AM	16/11/2017	11.4 AM	24 HOURS UP
G 06	57.5 INCHES	83	85.5	80.5	-2.5	15/11/2017	9.37 AM	16/11/2017	11.15 AM	24 HOURS UP
H 44	57 INCHES	66	66	64	-2	15/11/2017	9.48 AM	16/11/2017	11.2 AM	24 HOURS UP
G 68	57 INCHES	84	83	79.25	-4.75	15/11/2017	9.54 AM	16/11/2017	11.29 AM	24 HOURS UP
G 81	57 INCHES	70	70	67	-3	15/11/2017	10.3 AM	16/11/2017	11.36 AM	24 HOURS UP
G 24	57.5 INCHES	83	64	60	-23	15/11/2017	10.11 AM	16/11/2017	11.47 AM	24 HOURS UP
G 87	57 INCHES	71	73	68.75	-2.25	15/11/2017	10.22 AM	16/11/2017	11.56 AM	24 HOURS UP
G 130	57 INCHES	78	80	74	-4	15/11/2017	10.31 AM	16/11/2017	12.04 AM	24 HOURS UP
G 31	57 INCHES	87	90	84.5	-2.5	15/11/2017	10.39 AM	16/11/2017	12.08 AM	24 HOURS UP
G 56	57.5 INCHES	41	42.5	40	-1	15/11/2017	10.43 AM	16/11/2017	12.15 AM	24 HOURS UP
H 142	57 INCHES	70	71	66	-4	15/11/2017	10.51 AM	16/11/2017	12.26 AM	24 HOURS UP
H 134	15+F30:	111	112.5	109	-2	15/11/2017	10.57 AM	16/11/2017	12.35 AM	24 HOURS UP
		1175 YDS	1178.5	1107.5	-67.5					

- ❑ “Width Batching & Length Confirmation Format” to confirm inconsistent fabric relaxation, prevent short fabric from fabric supplier & get more fabric.
- ❑ Spreading tension reduction through Physiotherapy approach:
- ❑ Panel accuracy through histogram analysis:
- ❑ Shade control through visual and digital assessment

Fabric Booking vs Receive Analysis for year 2018

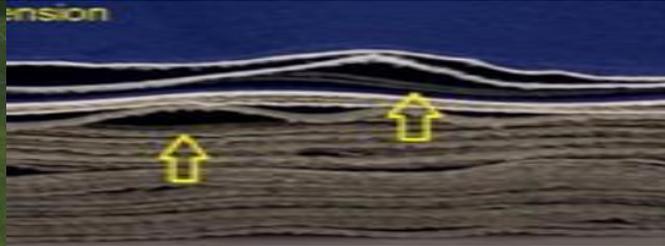
Criteria	BOOKING QUANTITY YDS.	RECEIVED QUANTITY YDS.	Short/Excess Qty	Short/Excess %	Financial value (\$)
Non-stretch 100% cotton Fabric	3508351	3520471	12120	0.35%	18180
Stretch Fabric	1539072	1537712	-1360	-0.09%	2720

Case Study: Cutting efficiency & cut panel review at sewing and cutting section



		Seam Panel MMTS Before Sewing VS After Sewing														
Measure in	CM	Seam shrinkage									Seam elongation					
		-4	-3.5	-3	-2.5	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2	2.5	
POM	Pattern MMTS/Panel MMTS															
Waist Band								2	2	1	1	3				
Bk Yoke Seam											4					
Bk Rise Seam												2	3			
Inseam									1	2	3	1	1			
Outseam											3	2	1			
Front Rise												3	2			
Front pkt opening													1	3		

Panel deformation? Spreading bed preparation? Do physiotherapy !!!



Cricket pitch preparation

1

• Case study

2

• Video

3

• Histogram analysis

• Critical path analysis

• Relaxation guideline

• Cutting engineering parameter



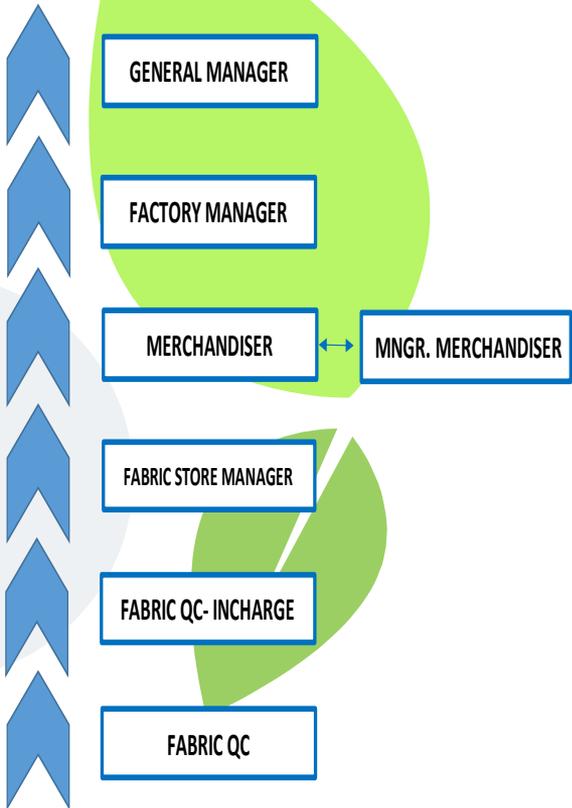
Cutting Engineering Paramiter for Cutting & Measurement Excellence

(Utilizing fabric for profit thorough cutting & measurement excellence)

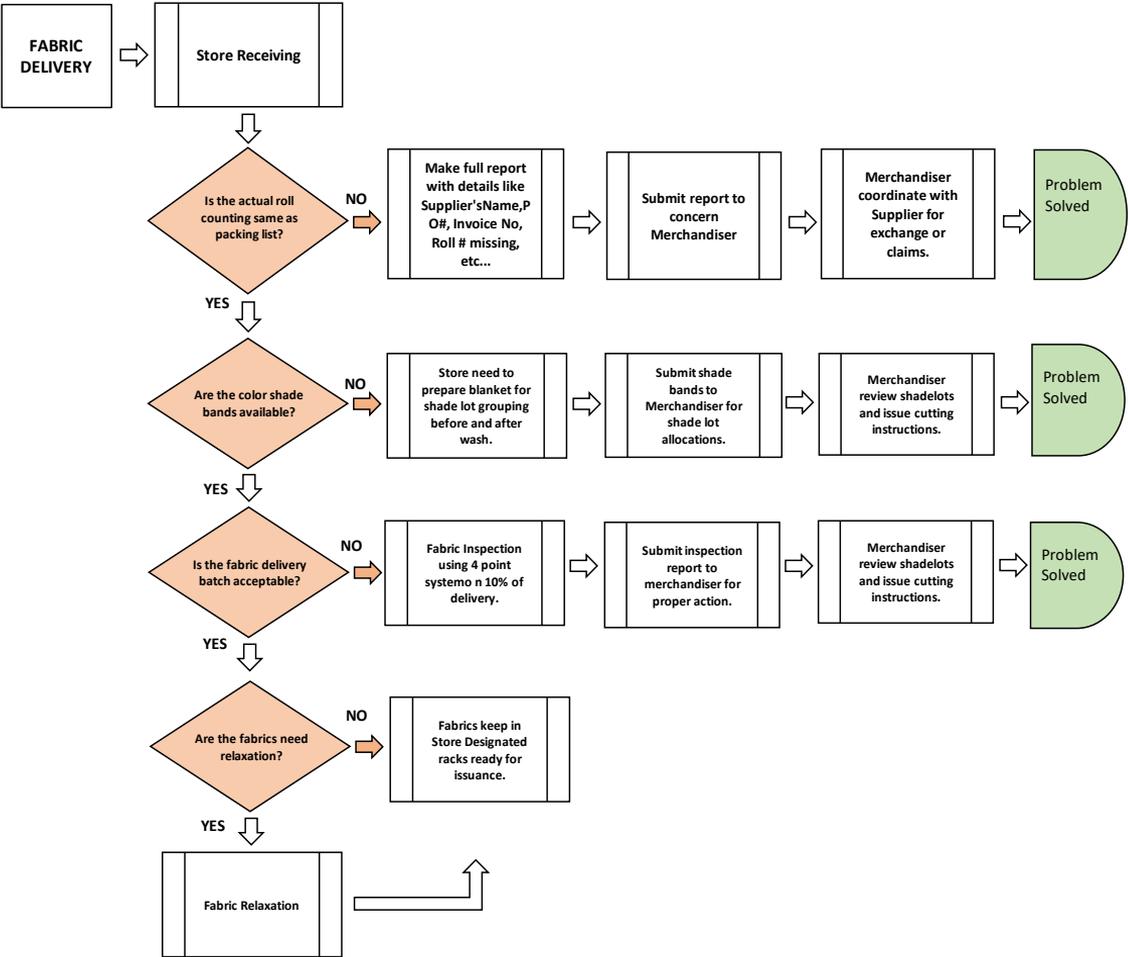
Fabric Category and Weight			Spreading Control		Fabric Relaxation Time Selection						Marker Types & Section						
Fabric Category	Oz./Sq.Yd.	Grams/Sq Mtr.	Ply count	Lay height	Relaxation Time rigid fabric(non stretch)	Relaxation Time stretch woven & non stretch knit fabric	Relaxation Time high stretch woven & stretch knit fabric	Relaxation Time super stretch woven & knit fabric	Lay bed relaxation time non stretch fab	Lay bed relaxation time stretch fab	No Problem-Consistent distribution of Dye Staff	Tailing-Running Shade	Center to Side Variation	Side to Side Variation	Center to Side Variation + Side to Side Variation	All Problems Combined (Listing + Tailing)	Remark
Ex-Light	2 – 4 oz	68 – 136gr.	180	3"	6 hour	24 hour	48 hour	72 hours	6 hour	12 hour	Random Marker(most efficient) 92% efficiency	Length Wise Grouped Marker(2-4% less efficient)	CSV Marker(4-5% less efficient)	SSV Marker(4-5% less efficient)	CSV Marker + SSV marker(6-7% less efficient)	Better to Reject Lot-Other wise Do (Listing + Tailing Marker)(7-8% less efficient)	
Light	4 – 6 oz	136 – 204gr.	150														
Medium	6 – 8 oz	204 – 272gr.	120														
Med.- Heavy	8 – 10 oz	272 – 339gr.	100	4"	6 hour	24 hour	48 hour	72 hours	6 hour	12 hour	Random Marker(most efficient) 92% efficiency	Length Wise Grouped Marker(2-4% less efficient)	CSV Marker(4-5% less efficient)	SSV Marker(4-5% less efficient)	CSV Marker + SSV marker(6-7% less efficient)	Better to Reject Lot-Other wise Do (Listing + Tailing Marker)(7-8% less efficient)	
Heavy	10 – 12 oz	339 – 407gr.	80														
Ex-Heavy	12-14 oz	407 – 475gr.	60														

Fabric problem escalation process

FABRIC STORE ESCALATION HIERARCHY



FABRIC STORE ESCALATION FLOW PROCESS CHART



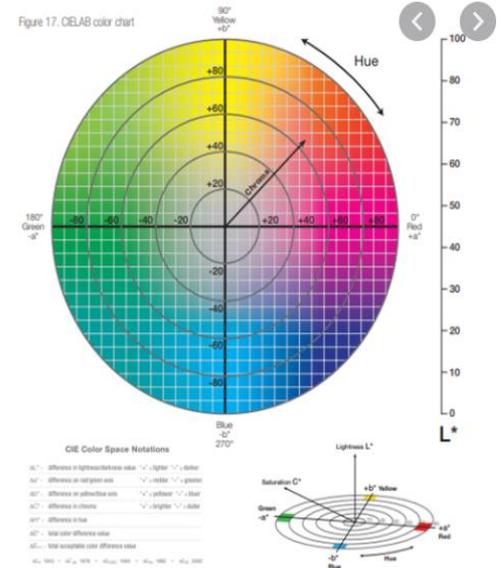
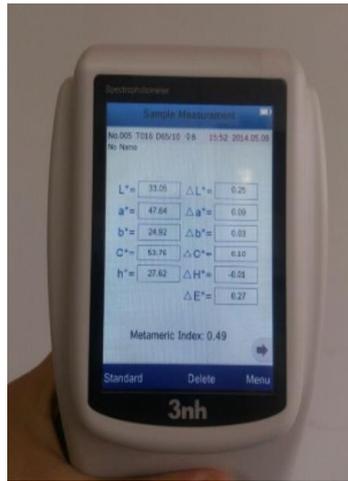


Figure 18. The L* value is represented on the center axis. The a* and b* axes

Portable Spectrophotometer for quick color assessment from Fabric to FA

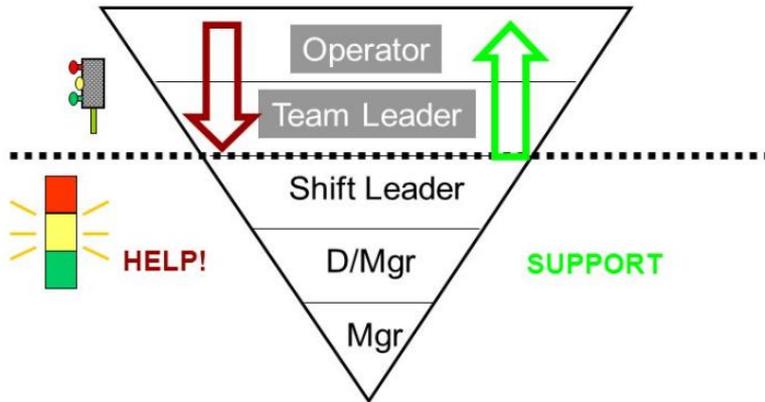
Sewing Problem escalation process ?



Escalation process

Stage 1

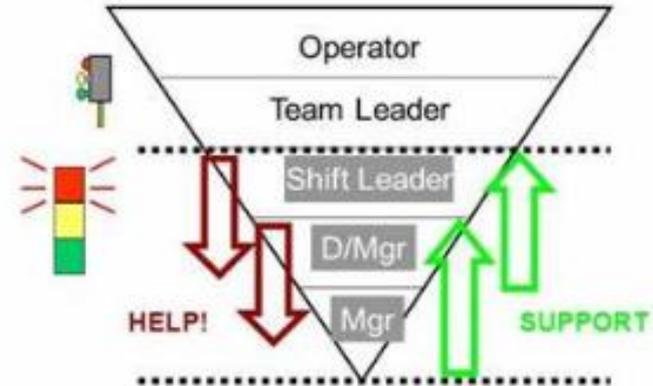
Once an abnormality is identified it is escalated to the Team Leader to resolve it. The Issue is not escalated beyond this point until the Team Leader has tried everything in his power to resolve the issue. If TL cannot resolve it, then, and only then raise it to Shift Leader.



Escalation process

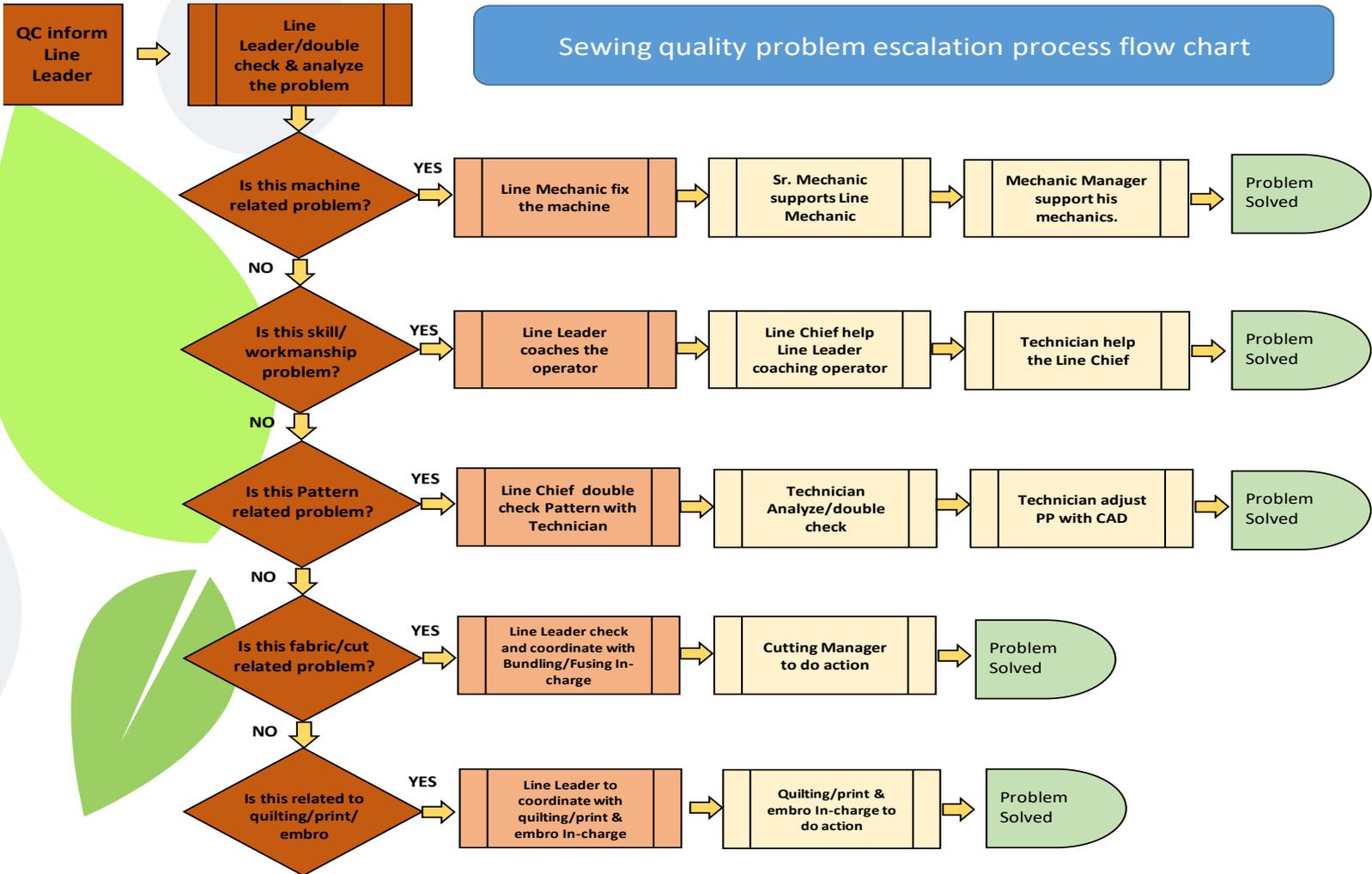
Stage 2

Once all effort to solve the problem have been exhausted at Team Leader level, the problem is escalated to the highest level to avoid non completion of a process or avoidance of program slip.





Sewing quality problem escalation process flow chart





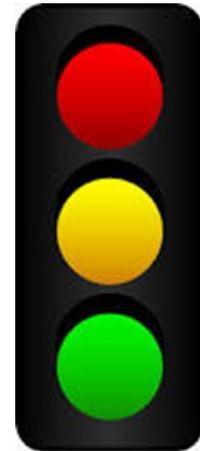
Benefits



- Problems are detected early
- Quick response.
- Increase productivity
- High RFT
- On Time Delivery
- Reduce costs
- No airfreight
- Happy Customer

Traffic Light System.

IN LINE QUALITY INSPECTION SYSTEM

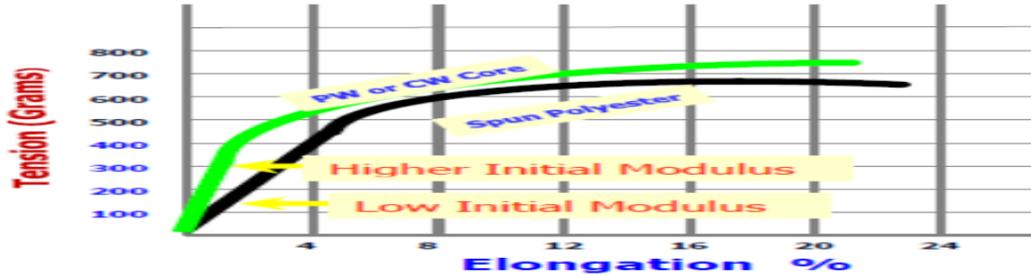


Case study on Puckering



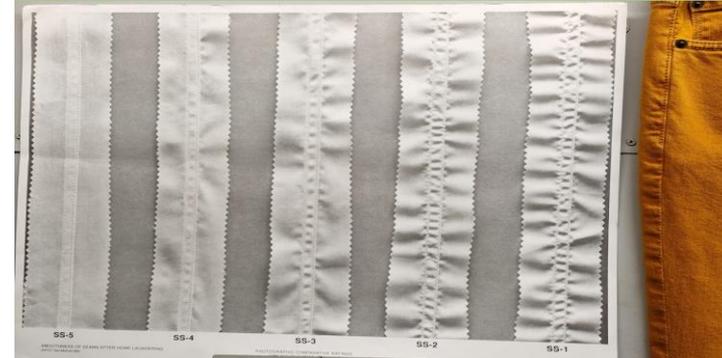
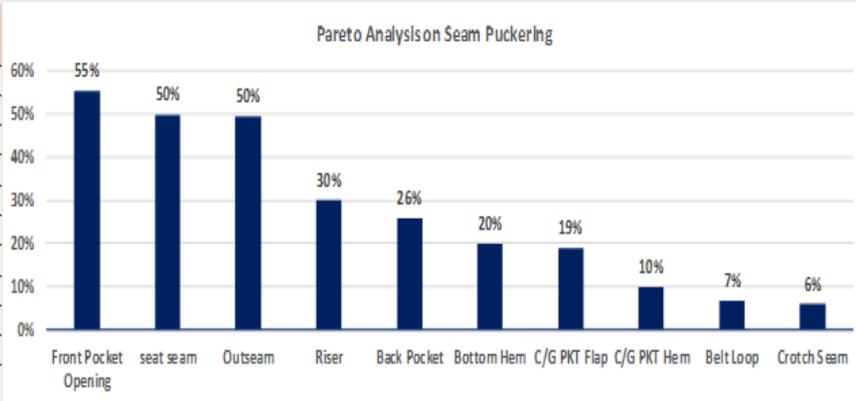
Puckering

Caused By Thread Tensions being too Tight!



- Case study
- Survey report
- Format

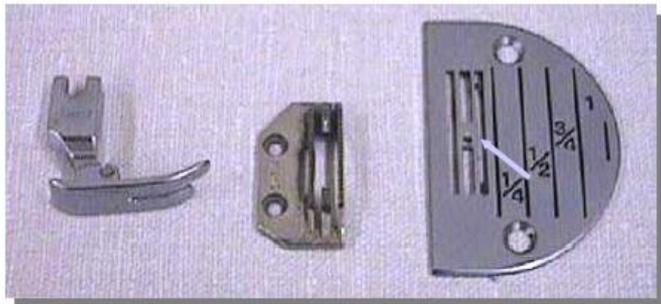
Seam Type/Area	Puckering %
Front Pocket Opening	55%
seat seam	50%
Outseam	50%
Riser	30%
Back Pocket	26%
Bottom Hem	20%
C/G PKT Flap	19%
C/G PKT Hem	10%
Belt Loop	7%
Crotch Seam	6%





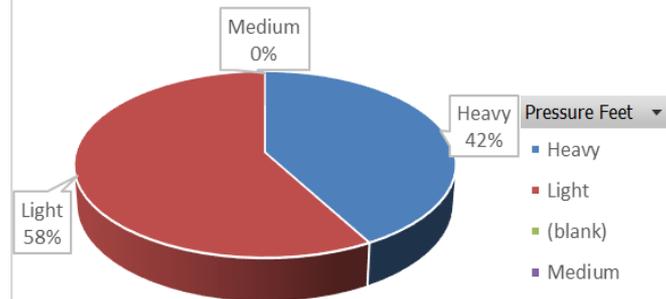
SOLUTIONS TO FEED PUCKERING

- The feed dog should have the optimum teeth per inch and number of rows of teeth for the operation and fabric being sewn.
 - Light weight wrinkle resistant fabrics 20 - 24 teeth per inch.
 - Medium weight fabrics 14 - 18 teeth per inch.
 - Heavy weight fabrics 8 - 12 teeth per inch.



Row Labels	Sum of M/c Qty	Sum of Percentage
Heavy	1750	42%
Light	2427	58%
(blank)		
Medium	0	0%
Grand Total	4177	1

Sum of M/c Qty Sum of Percentage



Values

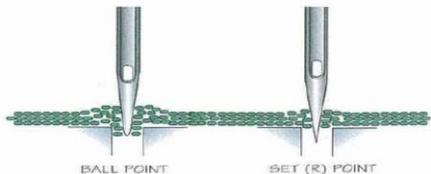


Needle hole & mark solution by correct point Selection 2021

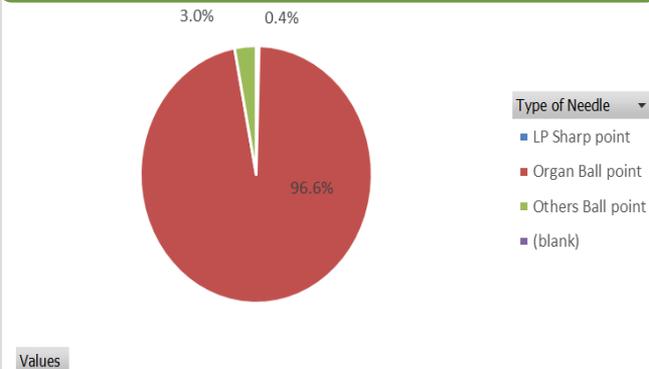
ABBREVIATION	NEEDLE POINT	POINT PROFILE	POINT DESIGNATION
SPI			Acute round point
-			Normal round point
SES			Light ball point
SUK			Medium ball point
SKF			Heavy ball point
SKL			Special ball point

POINTS

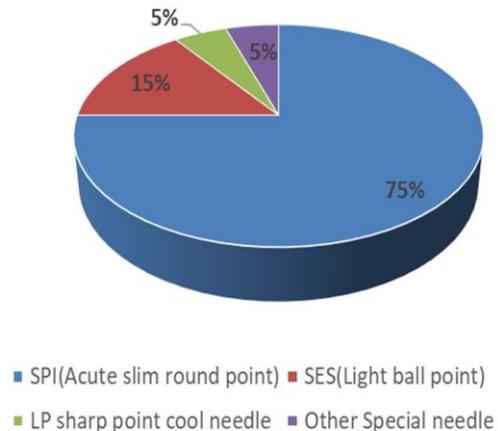
- In woven fabrics round point needles cause more pucker than acute sharp point needles due to weave displacement.



Current needle stock 2021



Recommended needle stock 2021





Needle Bulletin Guideline

Seam Engineering Paramiter for Beautiful Garments

Fabric Category	Oz./Sq.Yd.	Grams/Sq Mtr.	Thread Tex Sizes(Must follow as PDM)	Needle Sizes	Needle Types for Non Stretch Denim/Twill	Needle Types for Stretch Denim/Twill	Needle Types for 100% polyester/Microfiber	Needle Types for Elastic	Needle Types for Knitwear	Needle Types for Combination of Woven & Knitwear
Ex-Light	2 – 4 oz	68 – 136gr.	Tex 16, 18, 21, 24	60, 65/8,9	R	SES	SPI	SUK	SUK	SES
Light	4 – 6 oz	136 – 204gr.	Tex 27, 30,35,40	65, 70, 75/9,10,11	R	SES	SPI	SUK	SUK	SES
Medium	6 – 8 oz	204 – 272gr.	Tex 35, 40,60	75,80, 90/11,12,14	R	SES	SPI	SUK	SUK	SES
Med.- Heavy	8 – 10 oz	272 – 339gr.	Tex 60,80	90,100, 110/14,16,18	R	SES	SPI	SUK	SUK	SES
Heavy	10 – 12 oz	339 – 407gr.	Tex 80, 105	110,140/18,22	R	SES	SPI	SUK	SUK	SES
Ex-Heavy	12-14 oz	407 – 475gr.	Tex 105, 120, 135 +	140,160/22,23	R	SES	SPI	SUK	SUK	SES

Comments:

- 1) Inspect the needle point at every hour and check for sharp or burred points with a piece of nylon stocking.
- 2) Inspect the feed dog teeth directly behind the needle holes and make sure they are not sharp.
- 3) Check the thread path and make sure no sharp object.
- 4) Use thension gauge to check thread tension

Laundry and finish engineering



Dirty Dye



Enzyme



Sandblasted



Sunbleached



Stonewashed



Fabric Dyed



Cut, bundle & shade integrity maintained through process?



Problem Set

ANANTA LABEL POLY SHADE COLOR

Sl No.	Label Poly	Color	Shade
01		White	A1-A2-A3-A4
02		Red	B1-B2-B3-B4
03		Green	C1-C2-C3-C4
04		Yellow	D1-D2-D3-D4
05		Purple	E1-E2-E3-E4
06		Orange	F1-F2-F3-F4
07		Blue	G1-G2-G3-G4
08		Pink	H1-H2-H3-H4
09		Black	I1-I2-I3-I4





Problem Set

Does maker follow customer's washing recipe to wash the garments and report any deviation to client?

Quality Failure (Indian Order)

Whisker Pattern, PP placements, Spray intensity and Tint Variation



Shade band Recipe

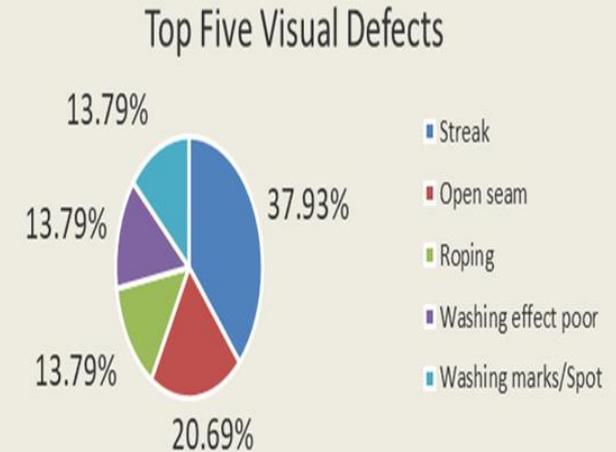
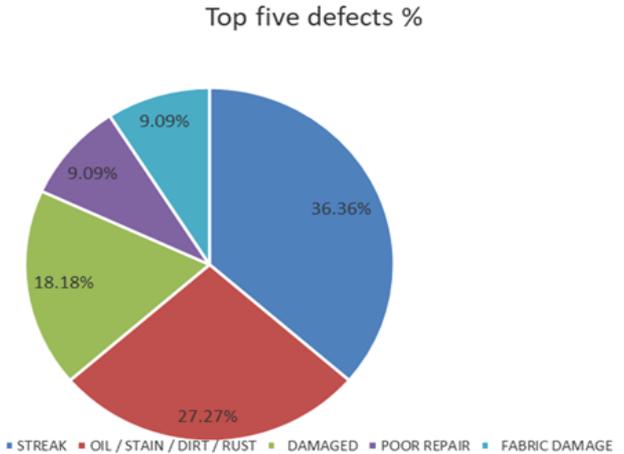


Laundry contributing 80% visual, measurement, repairing & rejection problem on Denim & wash garments

Following styles fabric shrinkage, garments shrinkage & dimensional change of garments for ref & example.

Case 1: Fabric shrinkage 13%, added shrinkage 21.84% in 2nd PP(abnormal shrinkage):

Pattern Version No:		Srvey on Fabric, Pattern & Manufacturing Shrinkage(2nd)				
Date of approval						
CAD technician						
Pattern correction						
Brand						
Kontoor Brands						
Fabric group						
Key points	Fabric Shinkage %(X)	Fabric Shinkage %(Y)	Total Pattern Shrinkage %(X)	Total Pattern Shrinkage %(Y)	MFG shrinkage % X (Patt shink-fab shinkage)	MFG shrinkage % Y(Patt shink-fab shinkage)
WAIST		13.00%		14.36%		1.36%
SEAT 3 POIN MEASUREMENT		13.00%		19.72%		6.72%
THIGH 1' DOWN FROM CROTCH		13.00%		19.92%		6.92%
KNEE @ MID POINT OF INSEAM		13.00%		21.84%		8.84%
WIDTH OF BOTTOM HEM		13.00%		21.43%		8.43%
FRONT RISE	3.00%			4.67%		1.67%
BACK RISE	3.00%			4.58%		1.58%
INSEAM	3.00%			5.16%		2.16%



Common Mistakes in Laundry



Pin tack can be added at side seam(seat area)

Use soft tension & reduce SPT at bar tack

Insert bar tack after wash

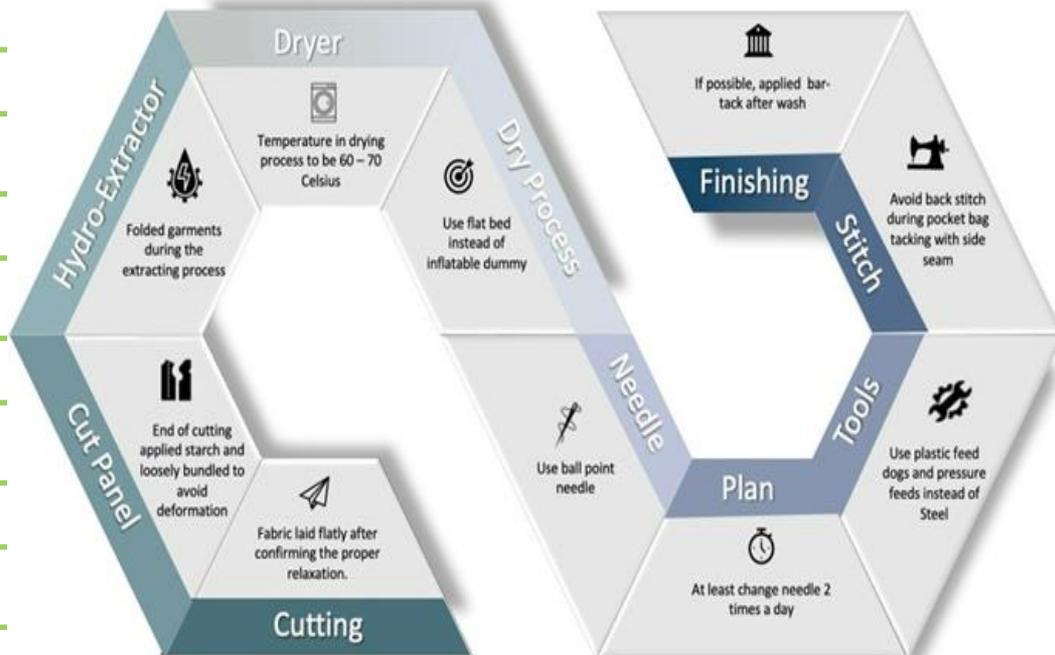
Use addition stitch at side seam(6 thread)

Use fusing at side seam top cord area & crotch seam

Poly sheet at pocket corner

Fabric reinforcement under belt loop & hip pocket corner

Possible Countermeasure to Avoid Lycra Breakage



Chemicals stored in a safe environment (safe containment)



Chemical management & risk minimization

1

- Manufacturing date, storage temperature & expiry date must be mentioned on chemical drum

2

- Selecting a safe unit is only the beginning when installing explosion and non-explosion proof temperature control in your chemical storage building.

3

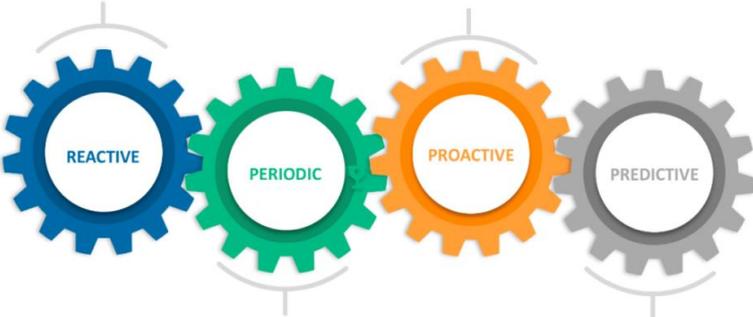
- Hazardous materials often require a specific temperature range in order to maintain their integrity and remain in a production-ready state

4

- % of vendor chemical store under risk

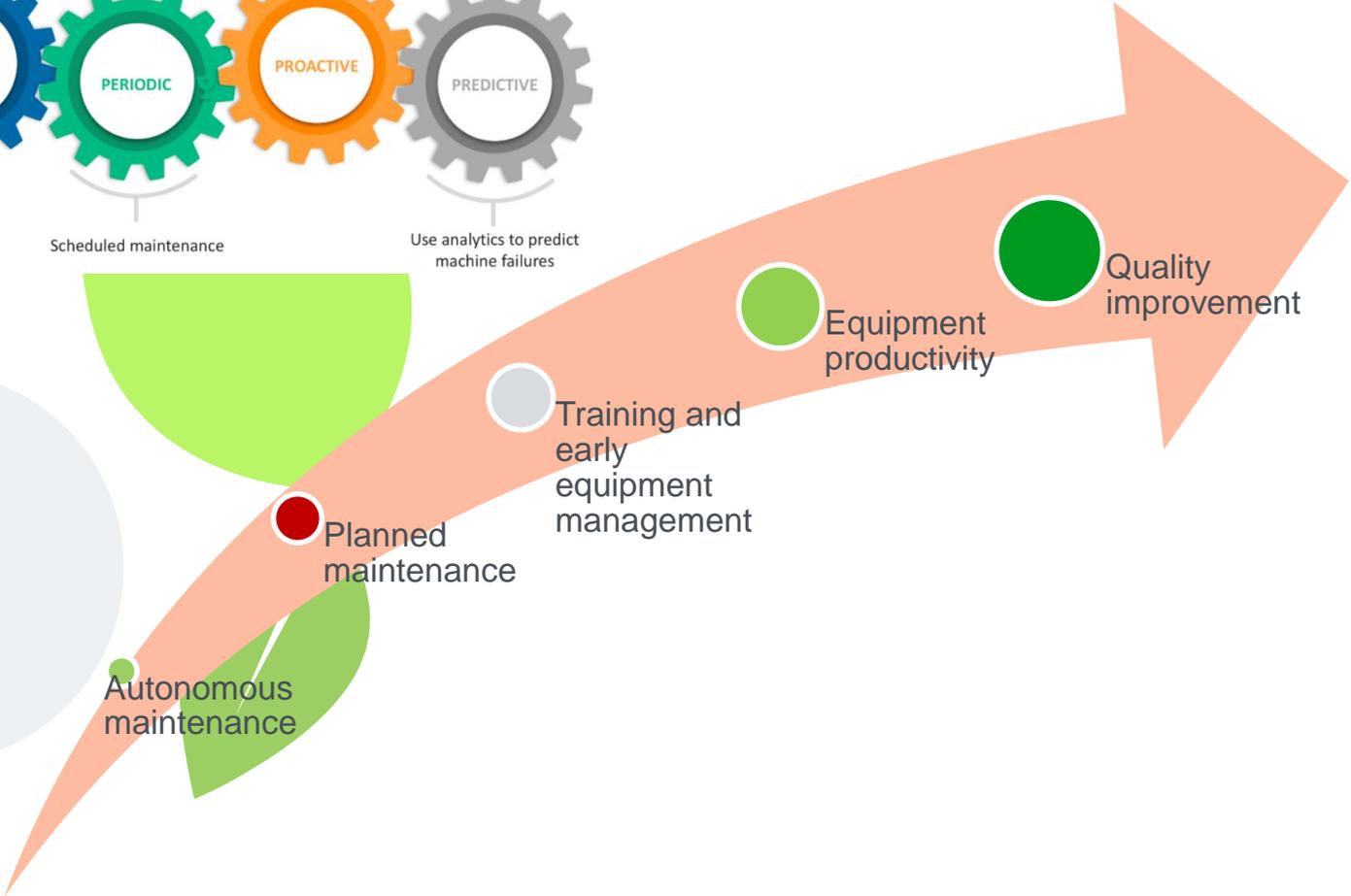
Fix when the equipment is down

Eliminate defects at an early stage



Scheduled maintenance

Use analytics to predict machine failures



Preventive

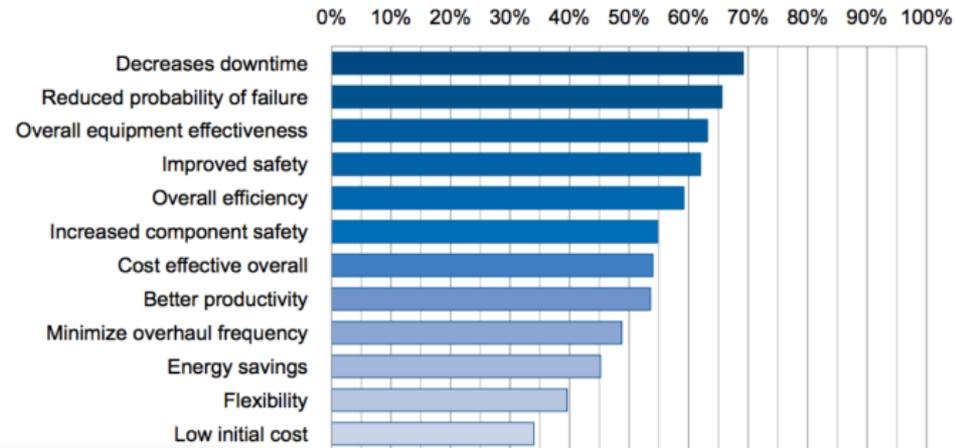
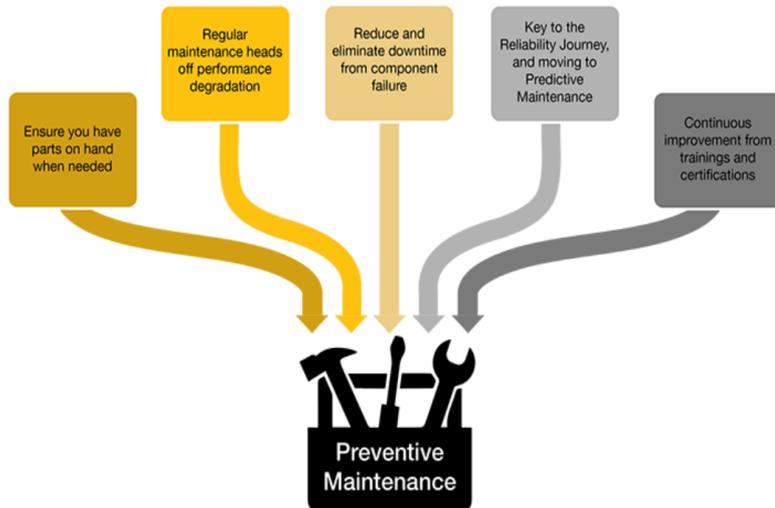


Maintenance!



Advantages of preventive maintenance

Six in 10 respondents who use preventive maintenance techniques within their facilities have witnessed decreased downtime (69%), a reduced probability of failure (66%), overall equipment effectiveness (63%), and an improvement in safety (62%).



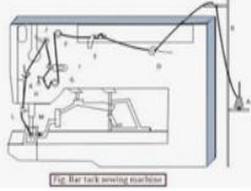
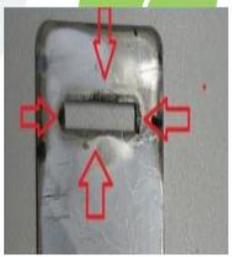


Fig. Bar lock sewing machine

Thread path analysis



Thread path analysis and Survey on sewing machine of Simftex

Machine Name	Total Machine	OK Machine	Problem Machine	OK M/C Percentage	Problem M/C Percentage
Bartack Machine	21	11	10	52.38%	47.62%
Feed of the arms	2	2	0	100.00%	0.00%
2N Machine	3	1	2	33.33%	66.67%
Total Machine & %	26	14	12	53.85%	46.15%

After/Improved Condition

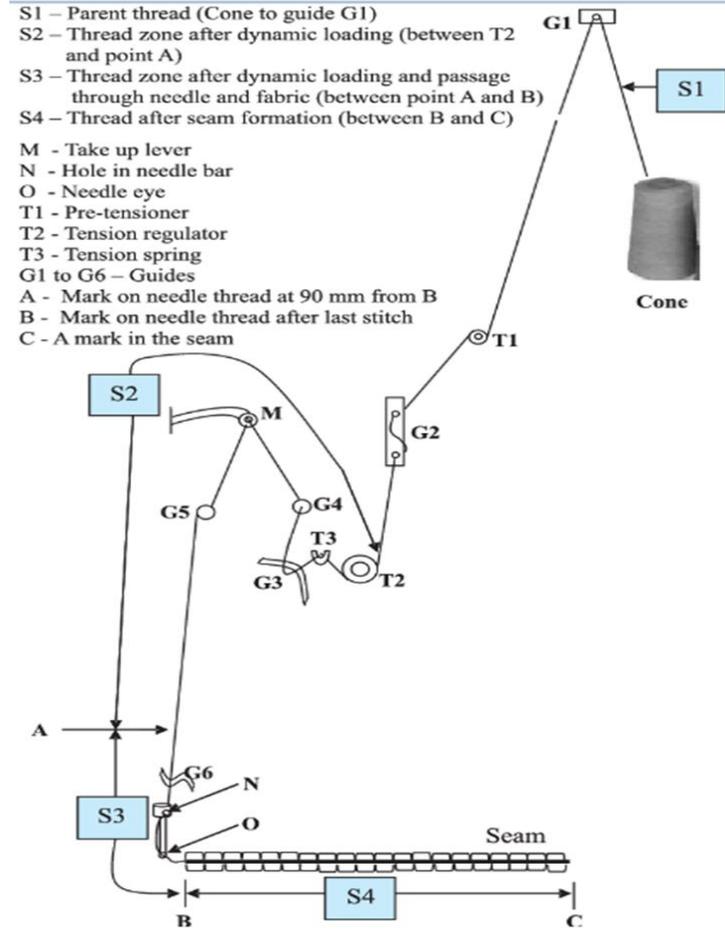


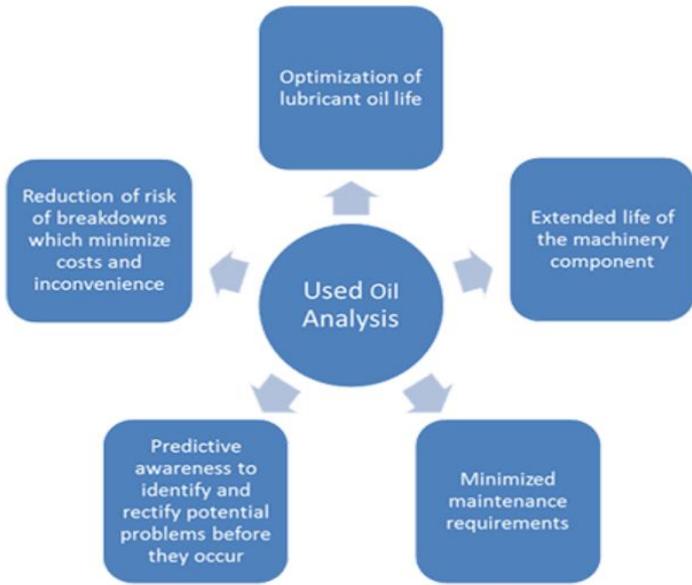
DHU of Broken, skip, joint stitch 2018



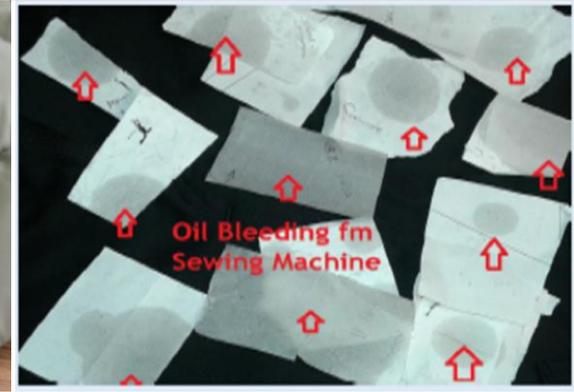
- S1 – Parent thread (Cone to guide G1)
- S2 – Thread zone after dynamic loading (between T2 and point A)
- S3 – Thread zone after dynamic loading and passage through needle and fabric (between point A and B)
- S4 – Thread after seam formation (between B and C)

- M - Take up lever
- N - Hole in needle bar
- O - Needle eye
- T1 - Pre-tensioner
- T2 - Tension regulator
- T3 - Tension spring
- G1 to G6 – Guides
- A - Mark on needle thread at 90 mm from B
- B - Mark on needle thread after last stitch
- C - A mark in the seam

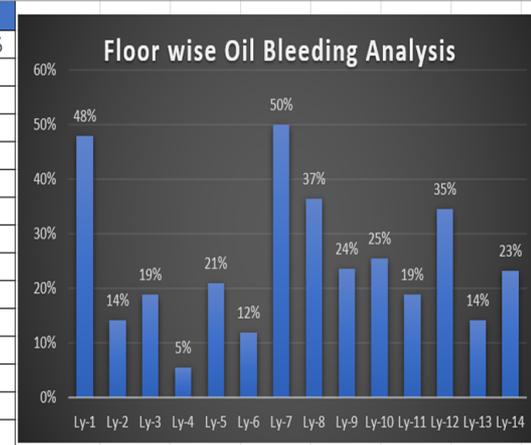




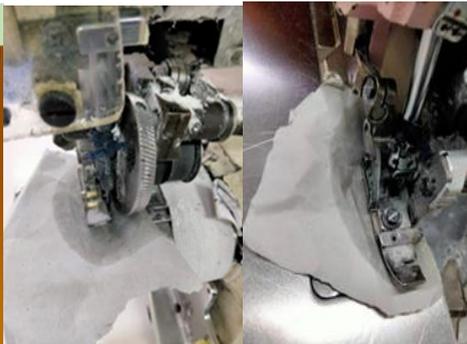
Oil Mark & Machine Oil Bleeding Test



Lily floor				
Line	Total machine	Oil not dispuessed	Oil dispuessed	Oil dispuessed %
Ly-1	48	25	23	48%
Ly-2	49	42	7	14%
Ly-3	53	43	10	19%
Ly-4	55	52	3	5%
Ly-5	57	45	12	21%
Ly-6	50	44	6	12%
Ly-7	54	27	27	50%
Ly-8	52	33	19	37%
Ly-9	55	42	13	24%
Ly-10	55	41	14	25%
Ly-11	53	43	10	19%
Ly-12	52	34	18	35%
Ly-13	56	48	8	14%
Ly-14	60	46	14	23%



Oil Viscosity



Overlock Trims Off Audit

Prevent
1% -3%
sewing loss



Date	Style	PO	LINE.NO.	Operation / Process	Operator Name	Card No	Trims off/ Deviation CM (-)
30-10-21	100343	422873	1	Side Seam	ZAHID	8474	0.5
30-10-21	100343	422873	1	Front Rise	SALAHA	6442	0
30-Oct-21	726489	426414	2	Side Seam	SRITY	4551	0.5
30-Oct-21	726489	426414	2	In Seam	LIPY	170	0.3
30-Oct-21	726489	426414	2	Front Rise	HASEM	3989	0.4
30-Oct-21	726489	426414	2	Bk Rise	KHALEDA	8229	1.5
30-Oct-21	SPH00038	2468250	4	Side Seam	ETY	1851	0.7
30-Oct-21	SPH00038	2468250	4	In Seam	SHAKIL	7925	0.9
30-Oct-21	GS8	108301	5	Side Seam	MOMTAJ	5744	0.8

Date	Style	PO	Operation / Process	Operator Name	Card No	Trims off/ Deviation CM (-)	Remarks
16.11.2021	12201708	9385	Side Seam	FUJIAH	8582	0.80M	ADVISE OPERATOR PRE BOM CUT BODY
11	11	11	In Seam	SADIP	8582	0.60M	SUP ADVISE TO OPERATOR
			Front Rise				
			BL Rise				
17.11.2021	12201708	9385	Side Seam	SAHIL	7828	0.60M	HE DISCUSS WITH OPERATOR
			In Seam				
19.11.2021	12201708	9385	Front Rise	RANA	5496	0.50M	ADVISE O/P FOR BOM CUT BODY
			BL Rise				

Pre Production Engineering & New Style Introduction

Scope of improvement on pre-production activity



Process Validation Sequence

Phase 1 process design

Phase 2 process verification

Phase 3 Continuous process improvement

Based on product quality

Whether process is known ?

Whether variable is known ?

When to achieve confidence ?

How is expectation?
How long does it need?

1.Process understanding

2.Process design

3.Process verification

4.Commercial production

5.Monitoring and improvement

Risk Assessment

Requirement of CTQ

Process standard
Process deviation

Process flow/SIOPC review
Process performance review
Process qualification

Continuous process verification
Monitor response to problems
Process improvement

- + Quality
- + Productivity
- + On time delivery
- + Cost

PRE PRODUCTION MEETINGS



Scope of Pre-Production Engineering

Content of Innovative PP Meeting Apps:
A Tool to Reduce 80% Workmanship & Measurement Defects Before Sewing Start

Pre-production management system Index:

1. Virtual PP/Pilot run format
 - a. Check sheet
 - b. Garment histogram analysis before wash/before press/after press
 - c. Defect gallery
 - d. Evaluation report
 - e. Key problem solving process
2. Prescriptive guideline through CTQ analysis
 - a. Key reminder of quality process
 - b. Seam engineering parameter
 - c. Cutting engineering parameter
3. Survey and analysis
 - a. Pattern history and change log
 - b. Fabric length and width mmts report after relaxation
 - c. Big cut panel mmts histogram analysis
 - d. Seam engineering parameter survey report



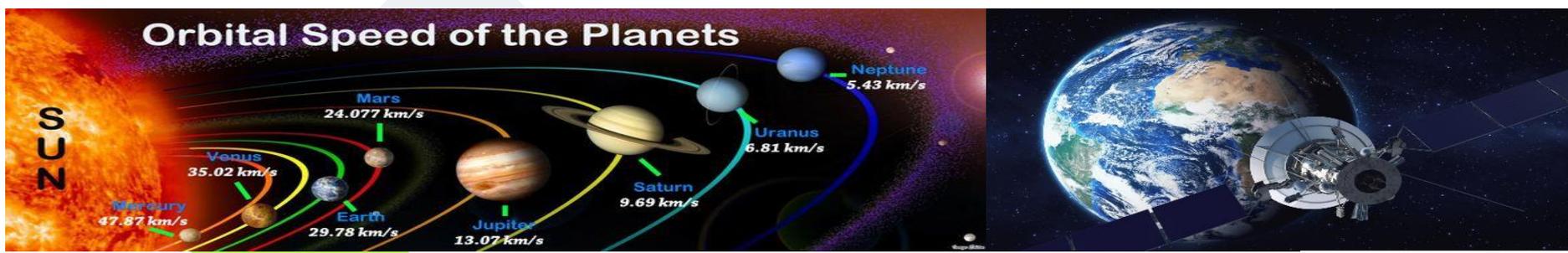
Well begun is half done.
Aristotle

How to prevent problems before they happen ?

FIRST TIME RIGHT



Orbital Speed of the Planets



New style introduction through Pre- production engineering &
Bulk production problem solution in the Prescriptive quality engineering in a minute!!!
Decide Fast, Solve Fast ,Win Fast & Speed the Manufacturing

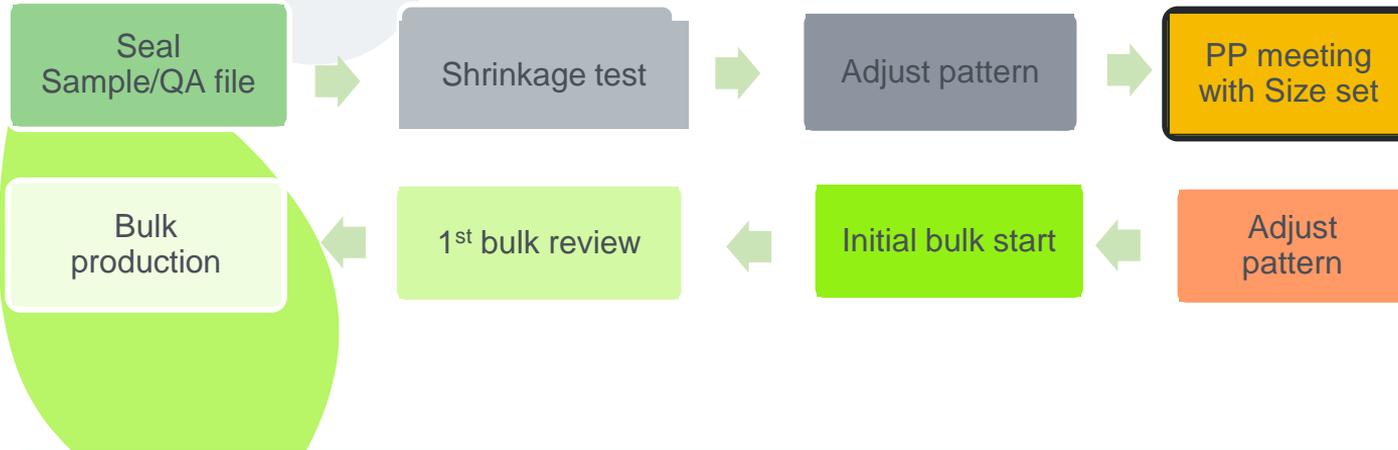
Speed
Improvement
Example &
Scope in
Garment
Manufacturing
Decision
Making

- 1) QA process improvement guideline(SOP+ QMS+ QPE) : 1 Minute
- 2) Sample problem and bulk production complicity guideline: 1 minute
- 3) Bulk pattern correct guideline in the pattern engineering: 1 Minute
- 4) Guideline for material defect in the material validation : 1 Minute
- 5) Guideline for cutting problem solution in the cutting engineering: 1 Minute
- 6) Operator & QC skill improvement guideline in training material: 1 Minute
- 7) Guideline seam related defect solution in the seam engineering : 1 Minute
- 8) Guideline for key defect solution in the CTQ analysis: 1 Minute
- 9) Guideline for sewing defect & problem solving: 1 minute
- 10) Guideline in the KPI analysis & data engineering/intelligence: 1 Minute

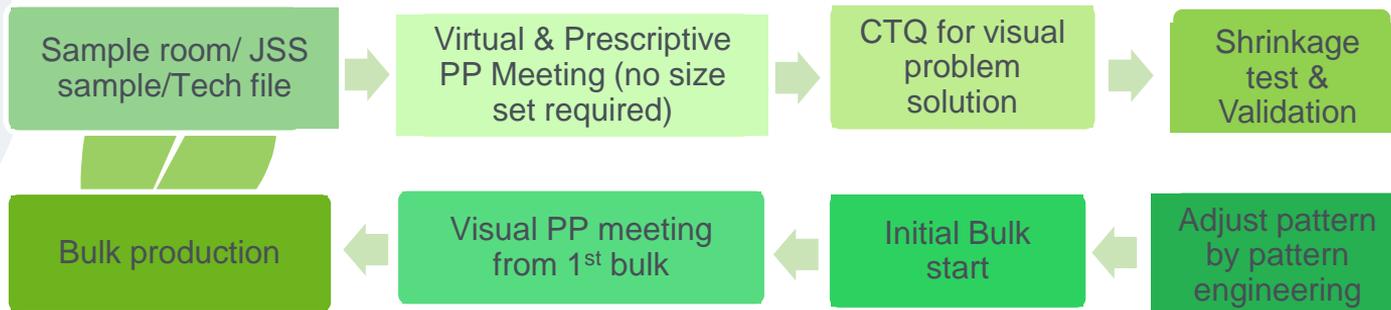
Total problem solving prescriptive guideline time in PP meeting : 10 Minutes



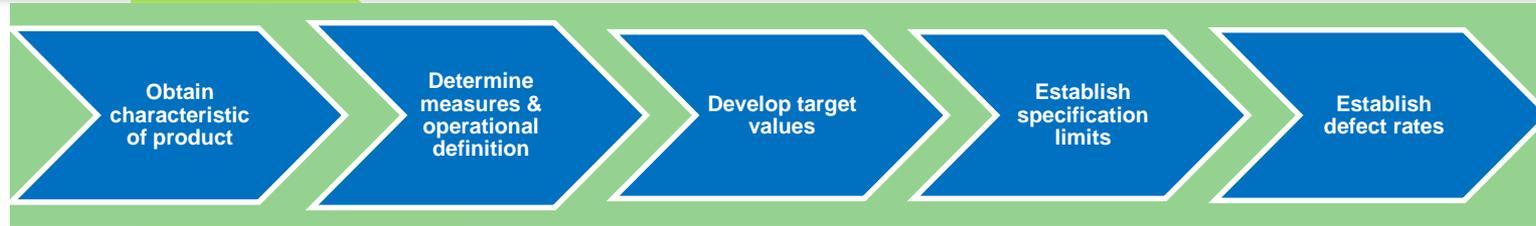
Current model of PP meeting



New model of PP meeting with Zero time



Prior to running pilot run, has a process flow been established to include CTQs by job?



Flow chart for VOC to CTQ

Guideline for Garment Factory:

- Critical products analysis (Top 5-10)
- Critical defects analysis (Top 5-10)
- Critical operation analysis (Top 5-10)



Defect Library

“Every defect is a treasure, if the company can uncover its cause and work to prevent it”

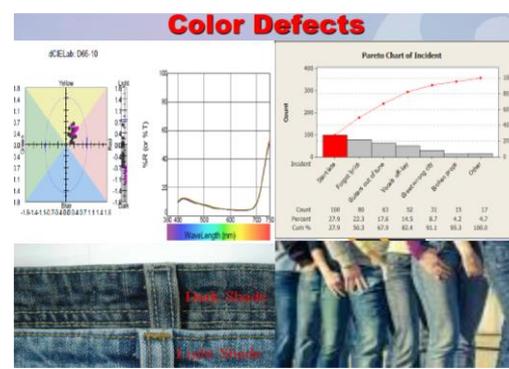


Presentation

Guideline:

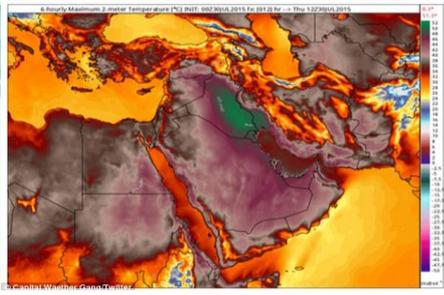
- 1. Defect board need to display for all section**
- 2. Establish a archive on key defect:** The breakdown of the categories is as follows & share across the team:
 - Fabric Defects
 - Trims Defects
 - Cutting Room Defects
 - Sewing Room Defects
 - Finishing Room Defects
 - Machinery Defects
 - Laundry Defects
- 3. Set all process/operation standard for operator & QC**
- 4. Provide mock to operator as visual example**
- 5. Note the variation/defect during pilot run**

“Every defect is a treasure, if the company can uncover its cause and work to prevent it across the corporation.”





Heat Map

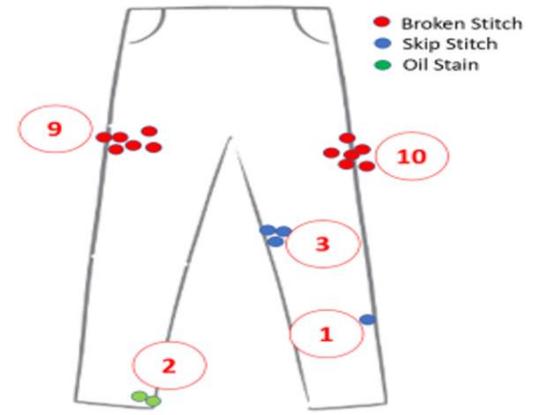


Severity	Catastrophic					
	Major					
	Moderate					
	Minor					
	Insignificant					
		Rare	Unlikely	Possible	Likely	Almost Certain
		Probability				

Low	Moderate
High	Extreme



Heat Map: Top defect producer process



Key Problem Solution Can be Provided by One Minutes from Historical Database

Sewing Defect

Measurement out of tolerance

Untrimmed Thread

Oil Stain & Soil stain

Puckering /Roping/Pleating/Wavy seam

Brocken & Skip Stitch

Needle Mark & Hole

Leg twisting

Hi-low pocket

Leg twisting

Raw edge out

Shading problem

Uneven SPI & SPT

Uneven Shape

Panel Uneven

Poor repairing

Finishing Defect

Poor pressing/over pressing/Crease mark

Off shade/shading/Mixed shade

Packing error

Mold growing & insect

Washing Defect:

Bleach spot/wash stain

Lycra breaking

Wash streaky mark/Crease mark

Inconsistent dry process
(PP/Whisker/Destroy/Grinding)

Hand feel hard or soft

Tearing

Sewing & Washing damage

Key Problem Solving Process:

Fabric Problem:

Foreign Yarn

Missing yarn

Slub / Neps

Color migration/Bleeding

Bubbling/Hairiness

Lycra breaking

Offensive odor

Trims Defect:

Button/Rivet falling

Fusing bubble/ strikethrough

Care label letter not legible

Discoloration of fabric due to fusing/seam seal

Discoloration hardware

Embellishment defect
(Print/EMB/Rhinestone)

Print breaking

Rhinestone falling

Placement off

Heat seal peeling off

Cutting Defect:

Spreading tension

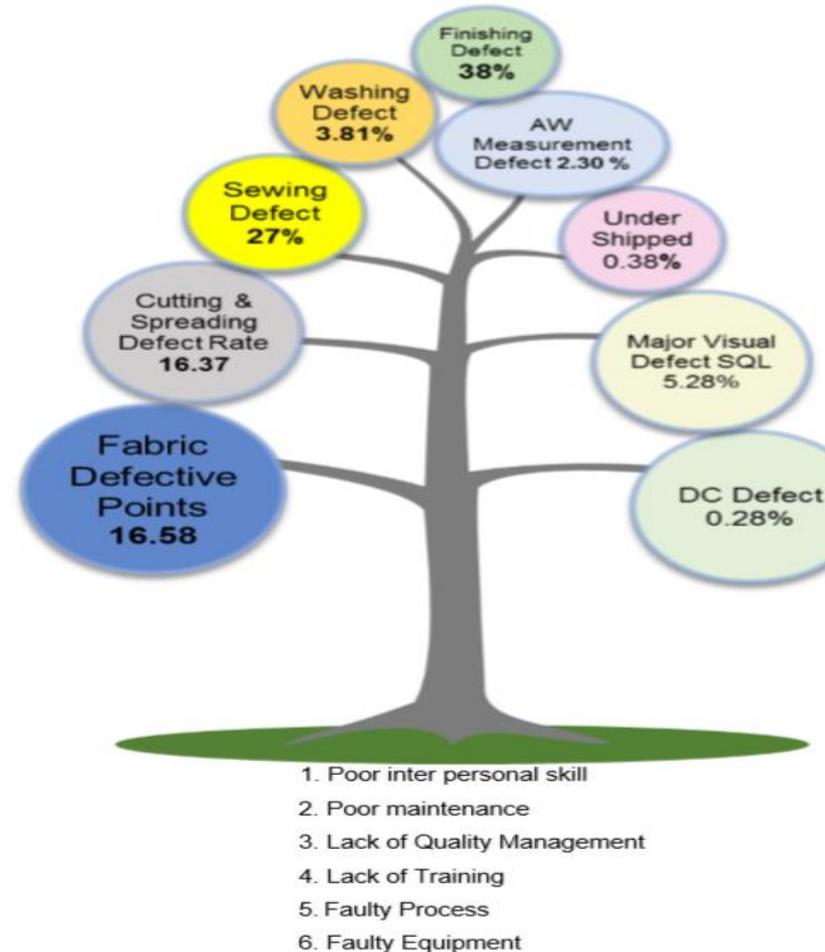
Panel measurement (+/-)

Uneven Panel(Up/Down)

Uneven cutting(outside marker line)

Problem identification and follow through becomes much easier when you make the entire process visible 100 100 100

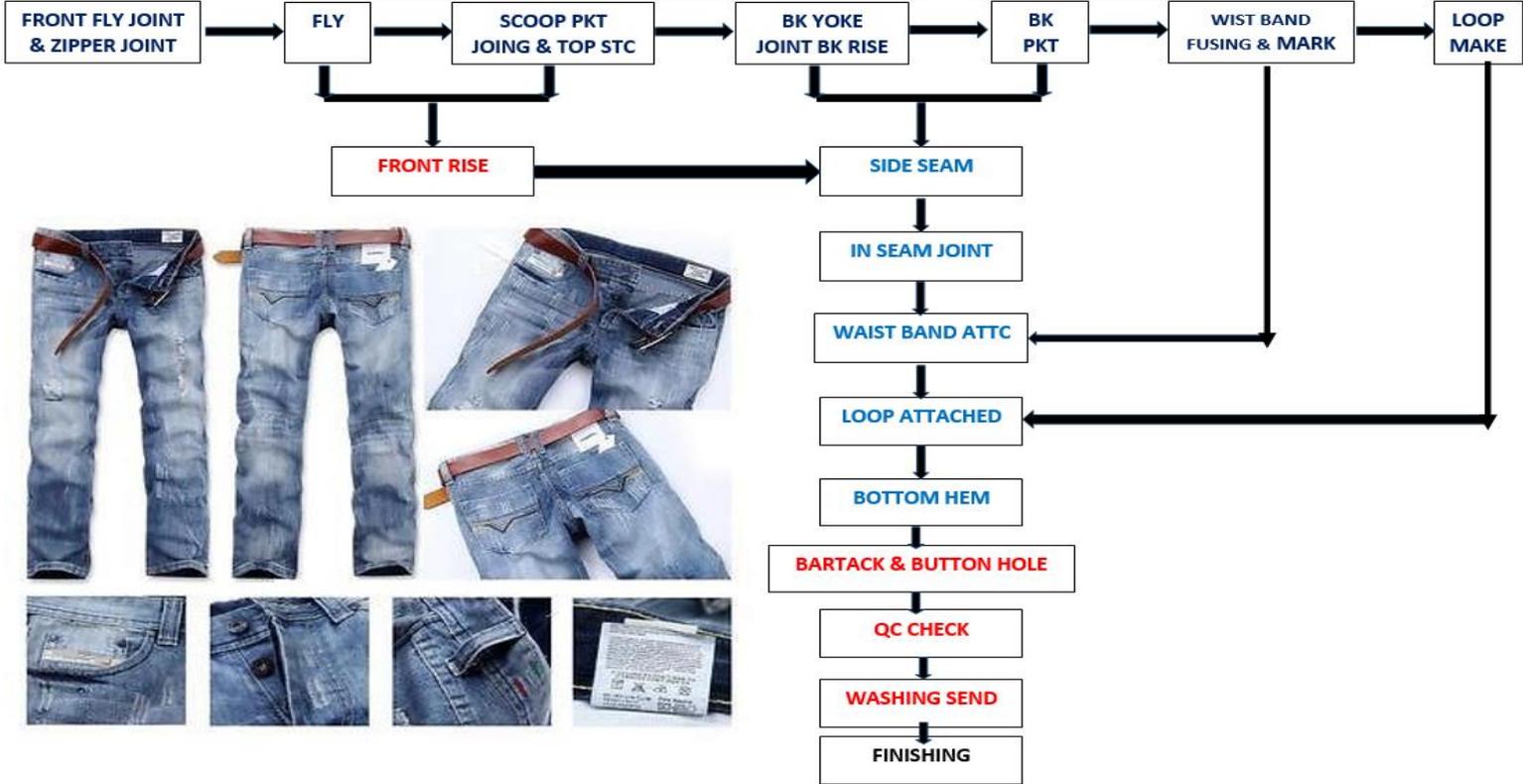
- Step 1: Determine your measure of success (KPI's)
- Step 2: Map the process
- Step 3: Identify gaps/problems and establish goals
- Step 4: Conduct team-based problem solving
- Step 5: Establish a visual process for recurring accountability
- Step 6: Identify roadblocks
- Step 7: Remove roadblocks
- Step 8: Celebrate all success' and learnings



CTQ analysis



SAMPLE CREATE OPERATION LIST.



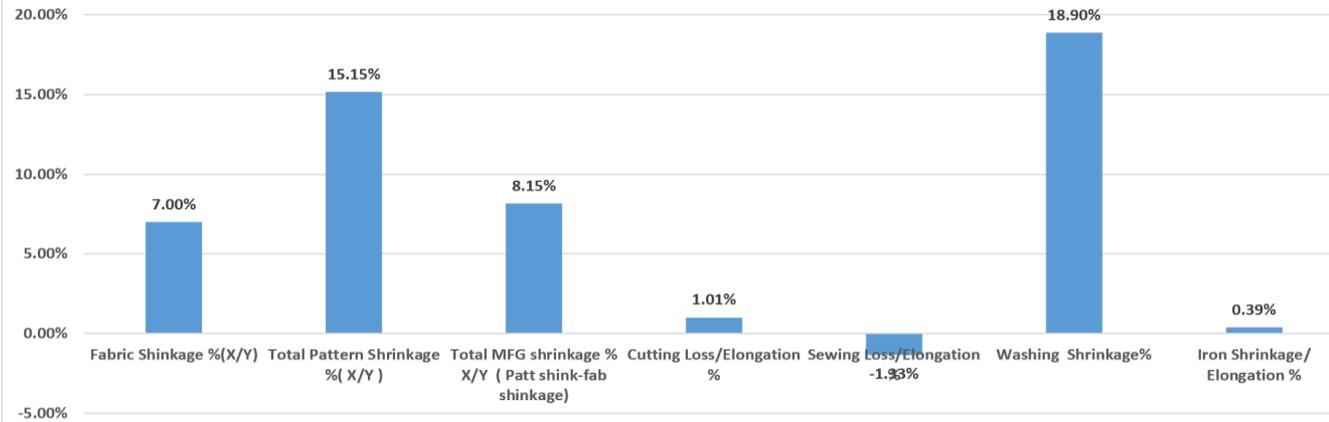
One piece garment analysis for beautiful garments, fabric saving & measurement performance improvement

- 1) One Fabric Roll
- 2) Base size pattern
- 3) Base size cutting panel
- 4) Base size sewing panel
- 5) Base size after sewing non wash garment
- 6) Base size garment before dryer
- 7) Base size after wash/After dryer/before iron garments
- 8) Base size after press garments

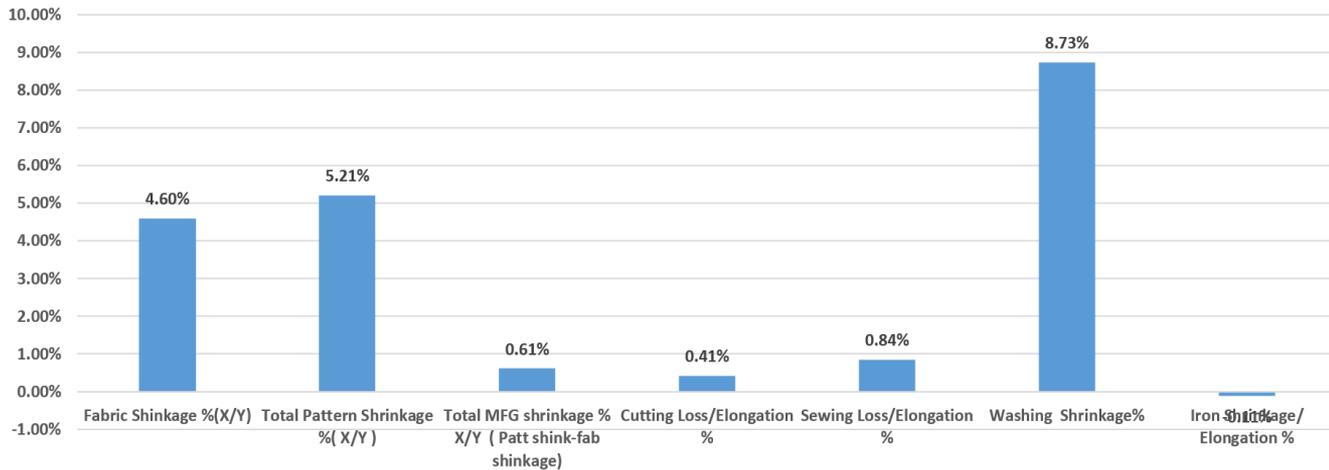
- 1) Fabric loss reduction and fabric utilization performance improvement
- 2) Seek for higher YY/Consumption to buyer
- 3) Get higher fabric from supplier
- 4) Measurement performance improvement & out of tolerance reduction.
- 5) Puckering reduction & seam appearance improvement
- 6) DHU/SQL reduction
- 7) COPQ reduction
- 8) Efficiency improvement

Shrinkage Profile Analysis

Hip Shrinkage Profile



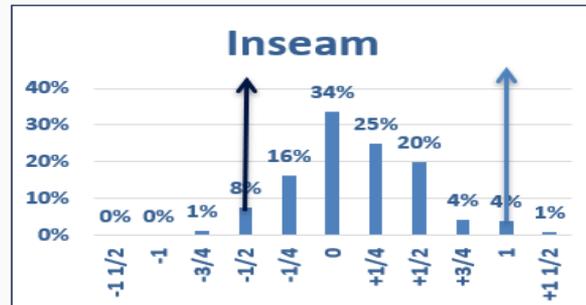
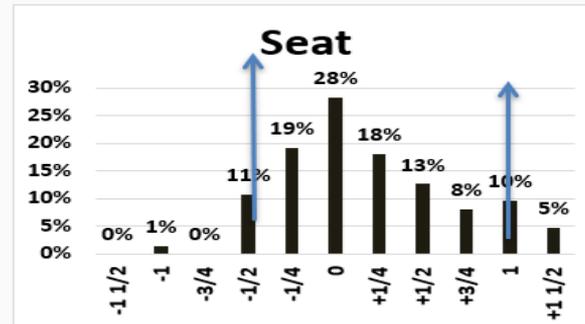
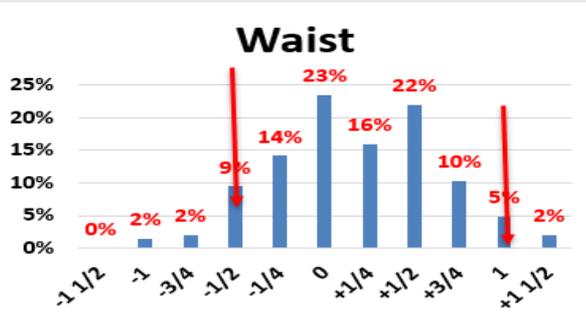
Inseam/Outseam Shrinkage Profile



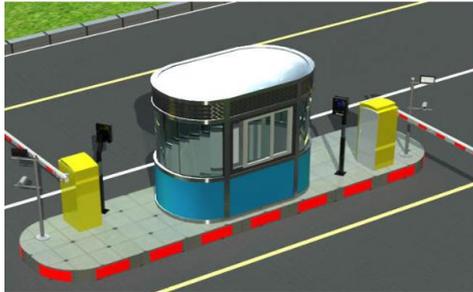
Measurement & Shrinkage Analysis with histogram

Before wash, After wash(Before dryer), After wash(before iron), After iron

Inline measurement out of tol. 4.7%



Tollgate inspection & roving QC improvement project



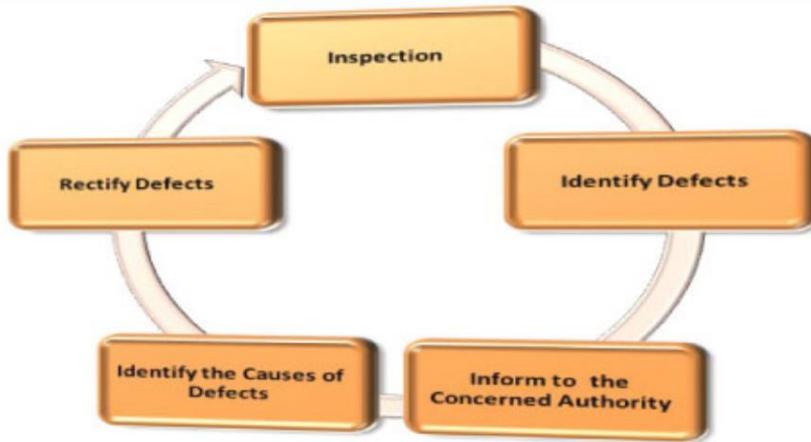
Acceptable Quality Level



Don't receive defect
&
Don't deliver defect

Quick action to stop the bleeding:

- During in process audit we should monitor factory internal Tollgate inspection & roving QC to improve
- Improvement of tollgate inspection and roving QC will help DHU/Fast pass
- DHU report analysis: Cutting tollgate/Sewing tollgate/Finishing tollgate/ Landry tollgate
- Result: 1st pass improvement & DHU reduction
- Eliminate inspection points (pre-final / 25 carton audit)



Garments Inspection Loop

Final Quality Audit to insures product meets customer requirements without fail



Benefit analysis:



Virtual Final Quality Audit:

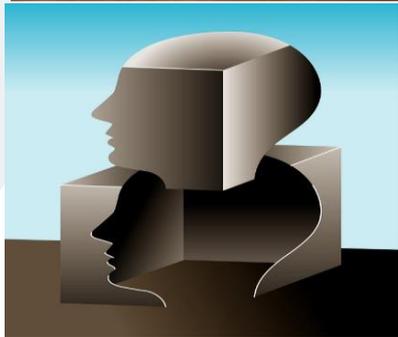
- Will be helpful to comply Brand SOP & guideline & PQE
- It's a systematic approach. Helpful to maintain audit standard
- Improve defect capturing ability
- QC will get complete picture of FA & evaluate result quickly
- Vendor will be more accountable
- Customer complain could be investigated quickly





“Excellence is a
Continuous Process”

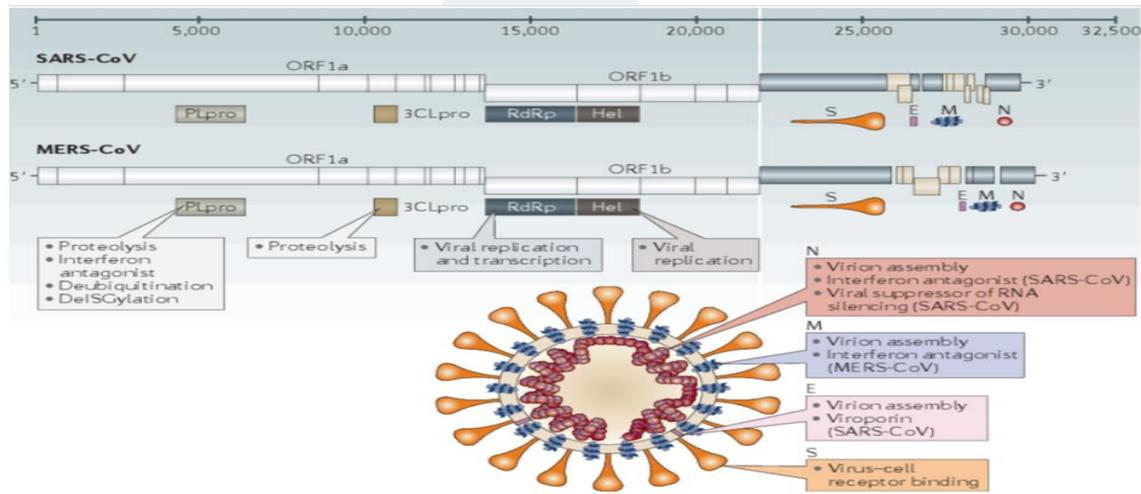




Everything is possible

There is nothing called "Problem", It's just absence of an idea to find Solution.





Problem is the king



Root Cause Analysis - The Concept

The Weed



Problem

Above the surface, obvious

The Root

Source

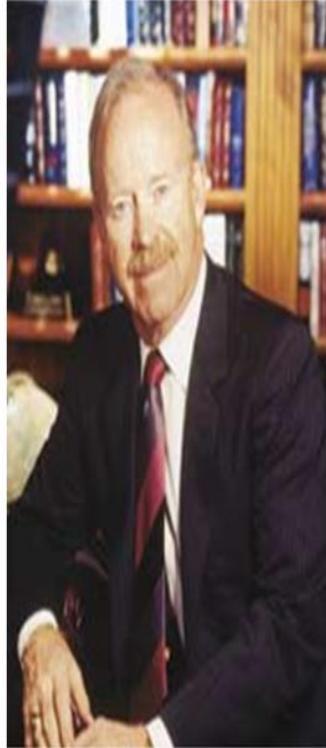
Below the surface, obscured

- Contributing factors
- Underlying issues
- Drill down
- Root out
- Dig into



“It is always cheaper to do the job right the first time.”

Phillip Crosby



Problem is the ice burg

Visible cost

15%

Cost of device parts

Invisible cost

85%

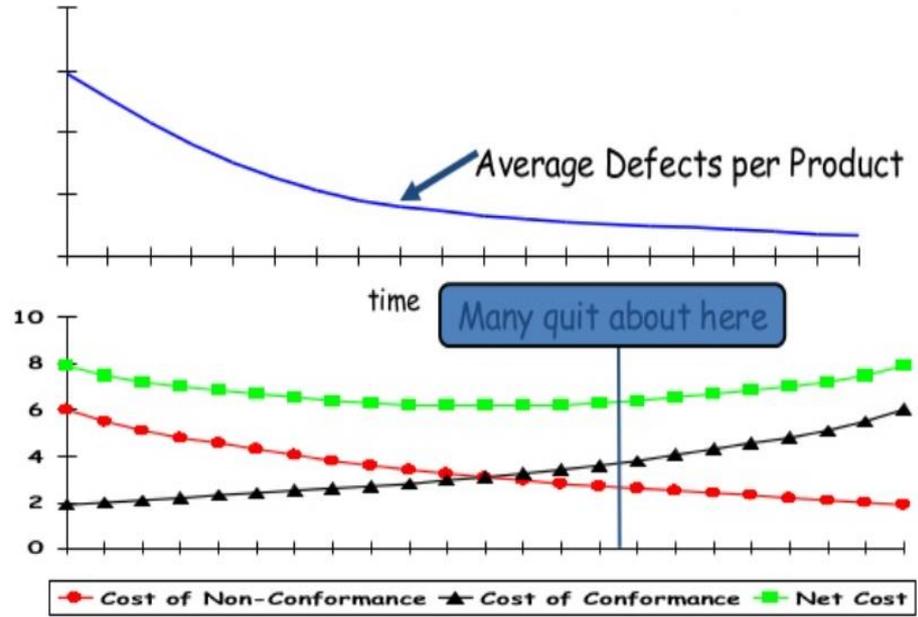
- Sourcing ●
- Design ●
- Logistic and handling ●
- Ordering ●
- Quality inspection ●
- Stocking ●
- Pre-assembly ●
- Assembly ●



ZERO DEFECT
ZERO EFFECT



Zero defect experience



Tools for capturing problem quickly & solve quickly

Mini Digital Probe Thermometer



Coats Tension Meter



Thermal imaging camera



thermographic camera



Endos

Endoscope borescope camera



A flexible borescope includes a bundle of optical fibers which divide the image into pixels. It is also known as a **fiberscope** and can be used to access cavities which are around a bend, such as a combustion chamber or "burner can", in order to view the condition of the compressed air inlets, **turbine** blades and seals without disassembling the engine



Android endoscope



Seam Engineering for beautiful garments & delight consumer

Innovative tools for Seam engineering & preventive maintenance

LED Headband Magnifier



Seam Elongation Miter



1. A Case study on different technical parameters

1A. Trials, observe and record

Fabric Type	Thread Type	Needle Type	Feed Dog Pitch	P. Foot type	T. Plate eye
Oz/Sq. Yd	Thread Size	Needle Size	Feed Dog rows	P. Foot pressing	T. Plate size
Grams/Sq. Mtr	Physical properties	Needle Temperature	Feed Dog height	P. Foot clearing groove	M/C type, subclass
Fabric Finish type	Thread Tension	Needle run time	Feed Dog teeth	P. foot run time	RPM

1B. Impact analysis

QUALITY CONTROL & ANALYSIS

A case study on different sewing parameter

Seam Engineering Paramiter for Beautiful Garments

Fabric Category	Oz./Sq.Yd.	Grams/Sq Mtr.	Thread Tex Sizes(Must follow as PDM)	Needle Sizes	Needle Types for Non Stretch Denim/Twill	Needle Types for Stretch Denim/Twill	Needle Types for 100% polyester/Microfiber	Needle Types for Elastic	Needle Types for Knitwear	Needle Types for Combination of Woven & Knitwear	Needle Life/Run time	Feed Dog Teeth Per Inch	Feed Dog Pitch(distance between pitch)	Feed Dog Height	No of Rows Feed Dog Teeth	Throat Plate Eye Dia	Machine Speed: SPM/RPM (Non stretch)	Machine Speed: SPM/RPM (Non stretch)	Machine Speed: SPM/RPM (Non stretch denim)	Temperature at Needle Point	Needle Cooler	Silicon oil lubricating unite for needle thread	Thru		
Ex-Light	2 – 4 oz	68 – 136gr.	Tex 16, 18, 21, 24	60, 65/8,9	R	SES	SPI	SUK	SUK	SES	8 Hours	24 Teeth per Inch	Fine pitch: 1.15 mm	0.5 mm to 0.6 mm	Four Raw of Teeth	30% Larger Than Needle Dia	2000	2500	2000	150 °	N/A	Silicon oil lubricating unite is an auxiliary device to reduce the thread breakage caused by hot needle	15		
Light	4 – 6 oz	136 – 204gr.	Tex 27, 30,35,40	70, 75/10,11	R	SES	SPI	SUK	SUK	SES	7 Hours	20 Teeth per Inch	Fine pitch: 1.15 mm	0.5 mm to 0.6 mm	Four Raw of Teeth	30% Larger Than Needle Dia				2500	2500			175 °	N/A
Medium	6 – 8 oz	204 – 272gr.	Tex 35, 40,60	80, 90/12,14	R	SES	SPI	SUK	SUK	SES	6.5 Hours	18 Teeth per Inch	Standard pitch: 1.50 mm	0.7 mm to 0.8 mm	Four Raw of Teeth	30% Larger Than Needle Dia				3000	3000			200 °	Use Needle Cooler
Med.- Heavy	8 – 10 oz	272 – 339gr.	Tex 60,80	90,100, 110/14,16,18	R	SES	SPI	SUK	SUK	SES	6 Hours	14 - 18 Teeth per Inch	Standard pitch: 1.50 mm	0.7 mm to 0.8 mm	Four Raw of Teeth	30% Larger Than Needle Dia	2500	3000	3500	225 °	Use Needle Cooler				
Heavy	10 – 12 oz	339 – 407gr.	Tex 80, 105	110,140/18,22	R	SES	SPI	SUK	SUK	SES	5 Hours	12 Teeth per Inch	Coarse pitch: 1.80 mm	0.9 mm to 1.2 mm	Four Raw of Teeth	30% Larger Than Needle Dia			4000	4000	250 °			Use Needle Cooler	
Ex-Heavy	12-14 oz	407 – 475gr.	Tex 105, 120, 135 +	140,160/22,23	R	SES	SPI	SUK	SUK	SES	4 Hours	8 -12 Teeth per Inch	Coarse pitch: 1.80 mm	0.9 mm to 1.2 mm	Four Raw of Teeth	30% Larger Than Needle Dia			4500	4500	275 °			Use Needle Cooler	

Comments:

Beauty of Seam Engineering a Typical Example: New method of Extreme comfort and Extreme motion

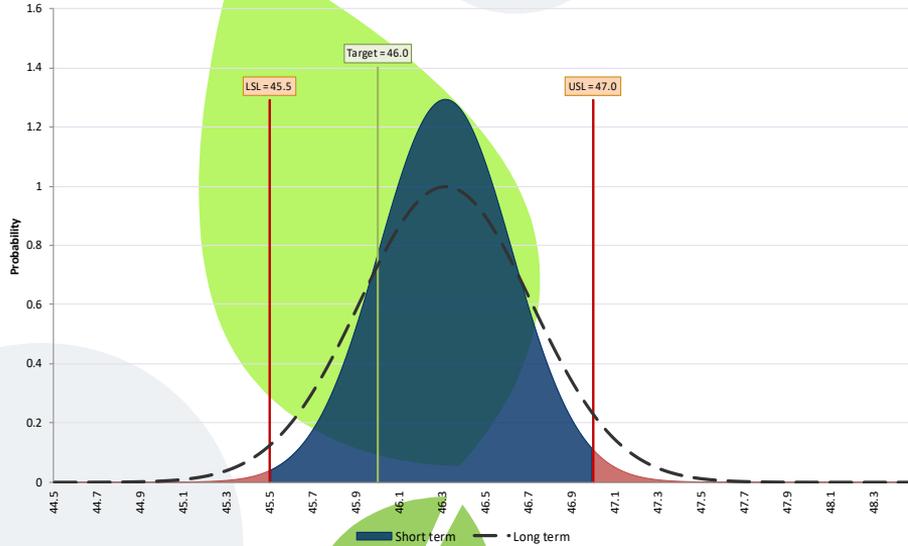


- 1 •Case study
- 2 •Presentation
- 3 •Format

Measurement problem solving process



Capability Analysis for SEAT, SZ 32, Jan 15



Capability Statistics	
Cp	0.81044
Cpl	0.88189
Cpu	0.739
Cpk	0.739
Pp	0.62466
Ppl	0.67972
Ppu	0.56959
Ppk	0.56959

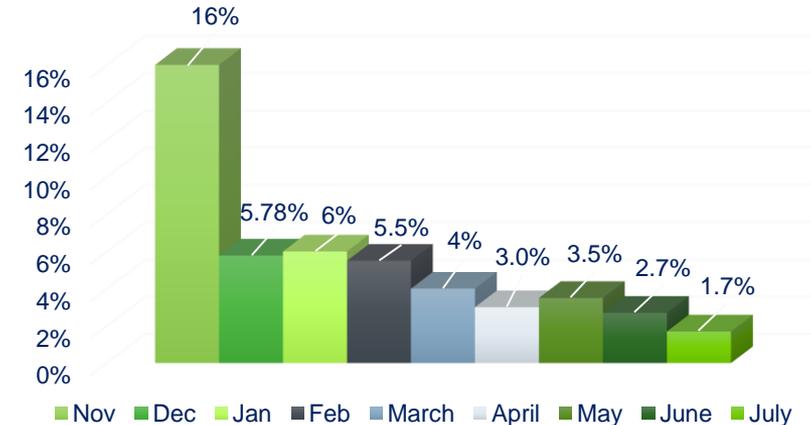
Defects Per Million	
Observed Defects	
PPM < LSL	0.0
PPM > USL	16,528.9
PPM Total	16,528.9
Short Term Defects	
PPM < LSL	4,076.57
PPM > USL	13,311.7
PPM Total	17,388.2

Statistics	
Sample size	121
Mean Overall	46.316
Stdev Overall	0.40022
Stdev Within	0.30847
Min	45.5
Max	47.25

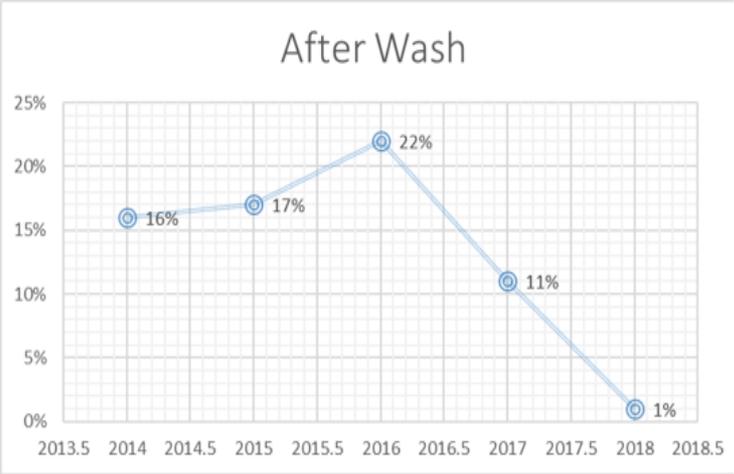
Overall or Long Term Defects	
PPM < LSL	20,716.5
PPM > USL	43,746.5
PPM Total	64,463.0

- 1 • Six sigma project
- 2 • Case study
- 3 • Thesis
- Measurement problem solving process

Progress of MMTS Defect % at Finishing End Line



Before and After Wash Out of Tolerance



NGC VPR, December 2018

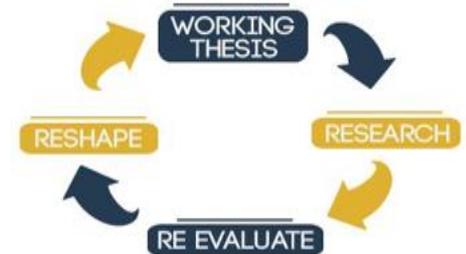
Vendor Name	Factory Name	QA Approved Ship Qty	Total Lots PO's Audited	Total Lots PO's 1st Pass	First Pass %	First Fail %	Fit Units Audited (OQL)	Fit Defective Units (OQL)	Fit Defect % (OQL)	YTD Fit Defective % (OQL)	Fit Units Audited (SQL)	Fit Defective Units (SQL)	Fit Defect % (SQL)	YTD Fit Defect % (SQL)
SIMFTEX APPAREL AND WASHING LT	SIMFTEX Apparel and Washing Lt	554,572	91	91	100.00%	0.00%	5,181	0	0.00%	0.00%	5,181	0	0.00%	0.01%

Garment Relaxation Time, Individual Measurement Variation & Climate Change: Impact on Dimension & Measurement; A Typical Solutions

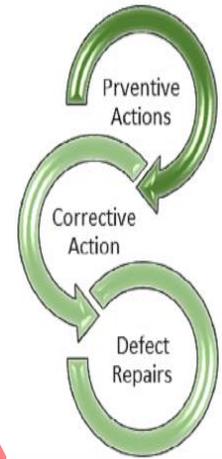
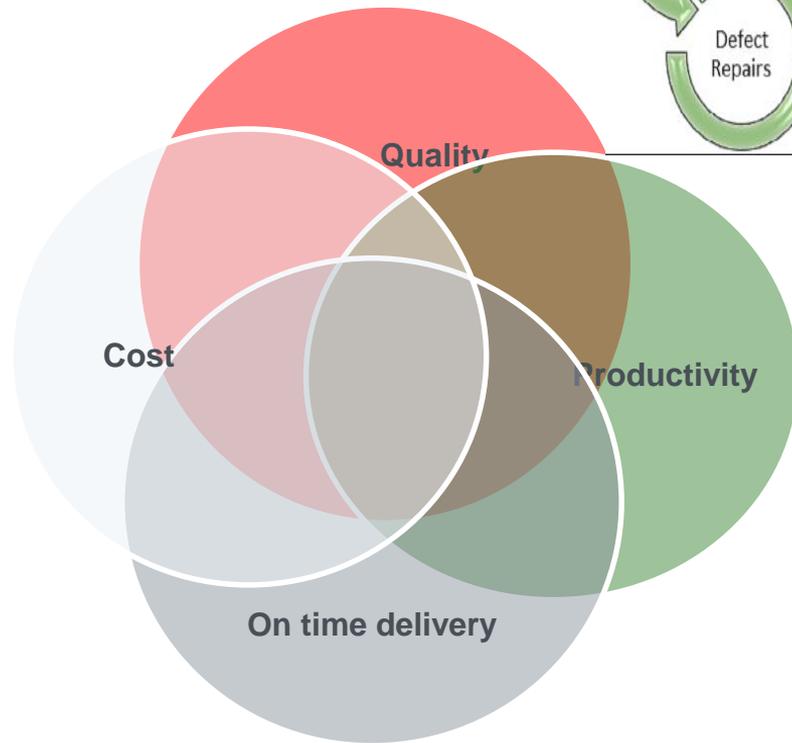
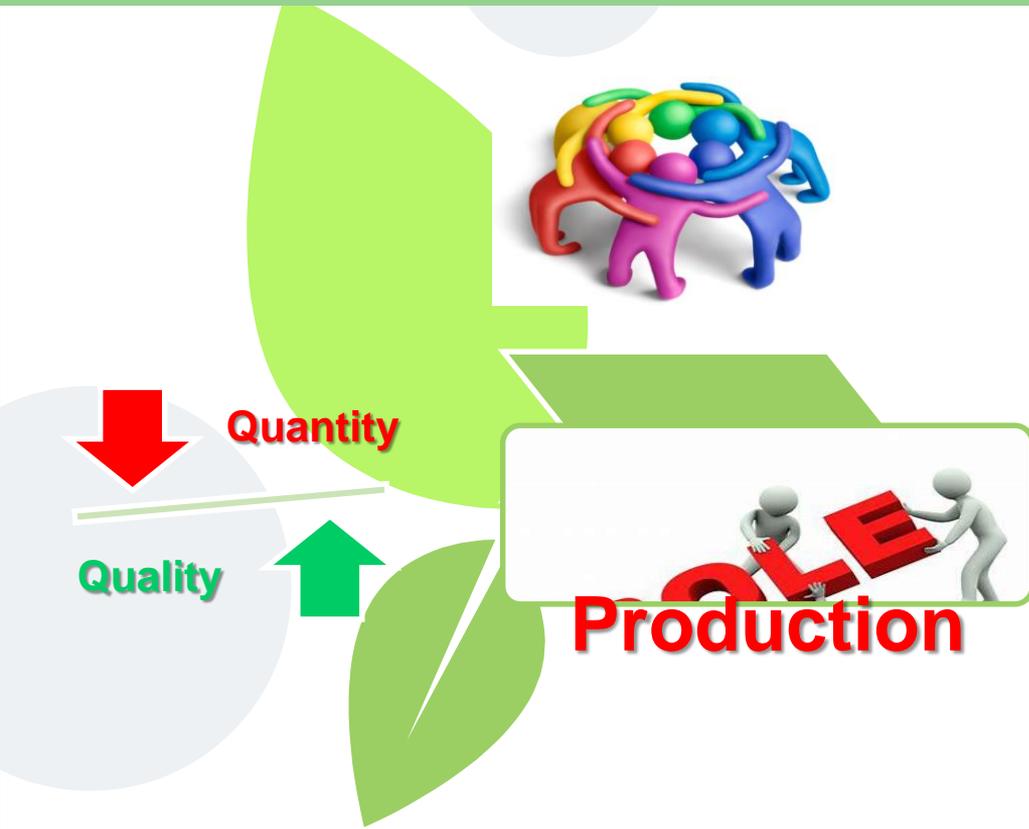


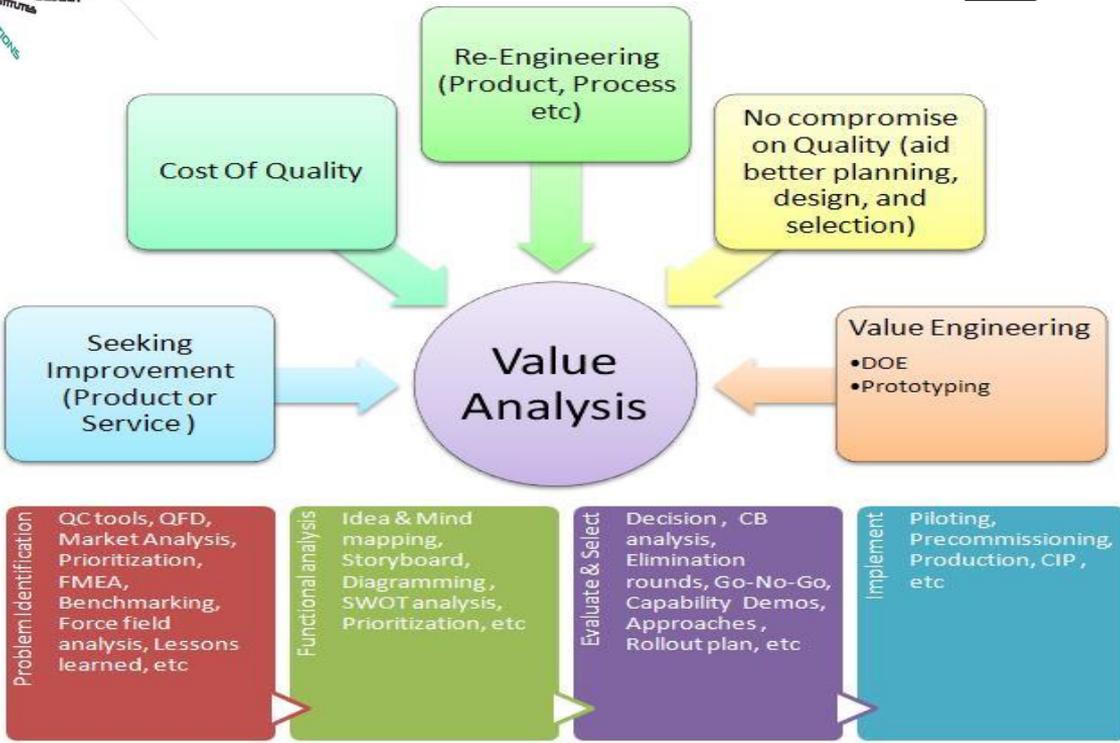
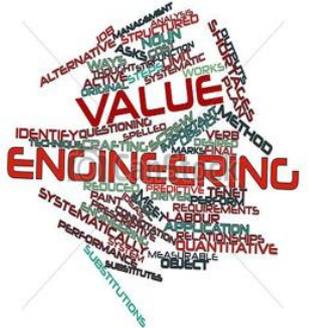
Created & Presented By: Md. Masuduzzaman Khan

Thesis



Responsible quality & productivity





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

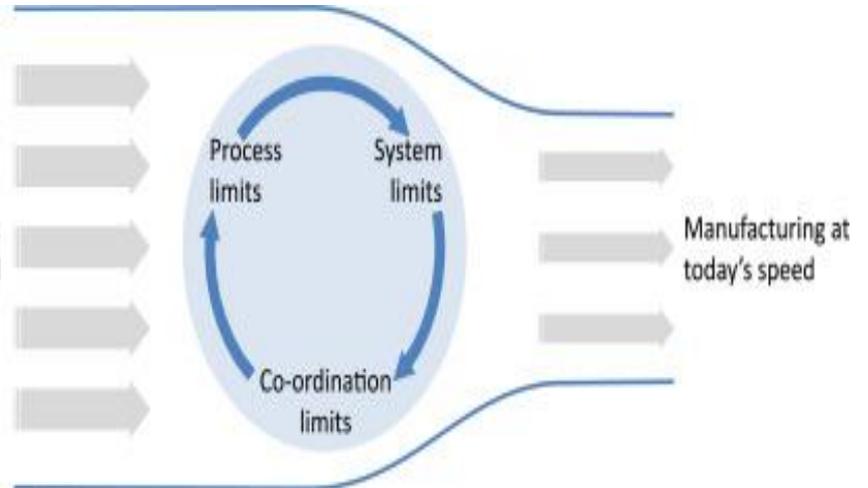
E = Product Output

F = Actual Good Product

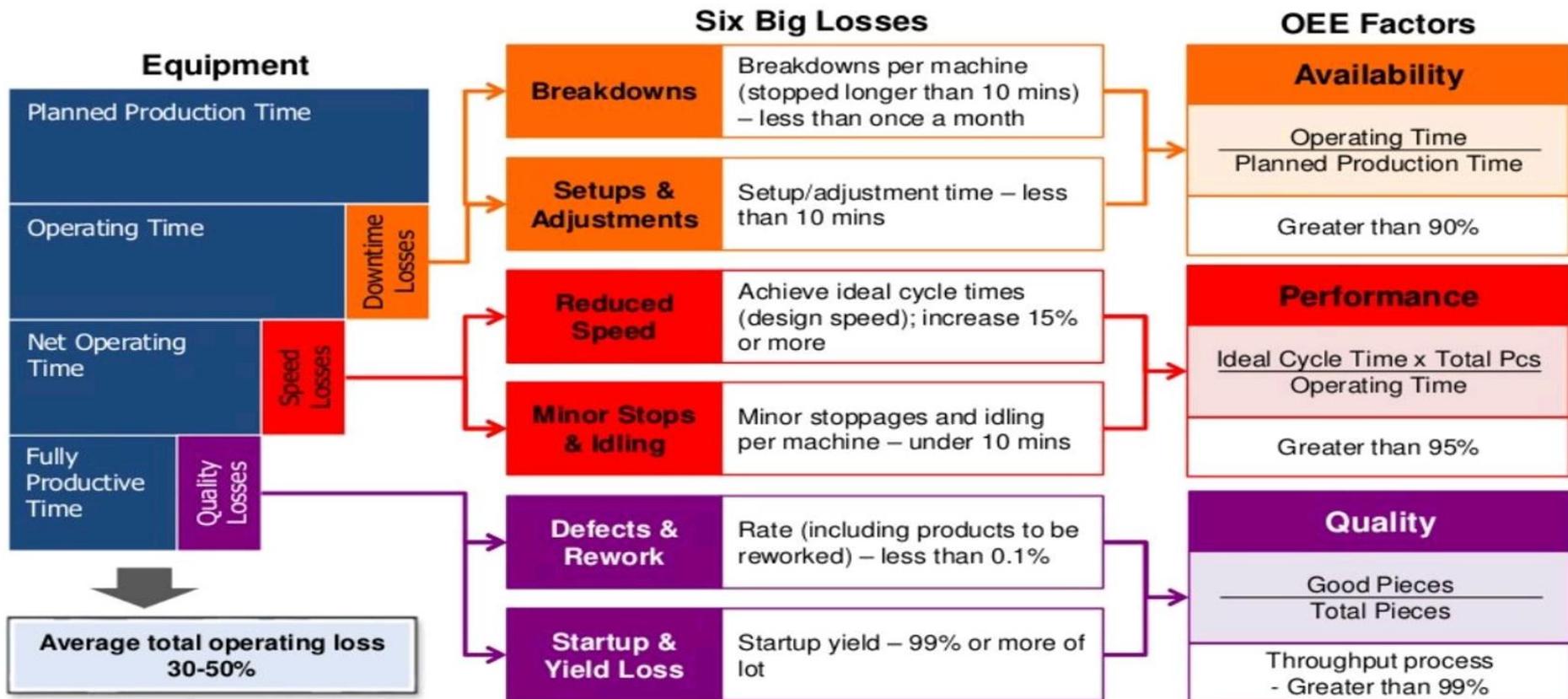
Scrap Losses

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

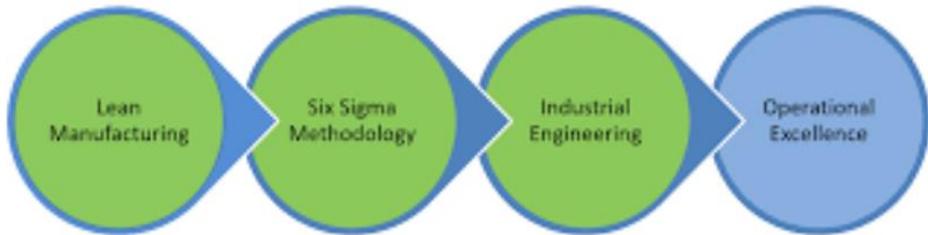
Section	Operator Name	ID	Operation Name	Efficiency method	Current efficiency %	OEE %	Difference (-)	Remark
Bk Part	Jahangir	26954	bk rise jnt	Manual/Time Study	73%	49.33%	23.67%	18.16% efficiency loss because of higher DHU/repairing %(quality failure) contributing 1.85% profitability loss
Assembly	Marjan	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?

Garment Path Analysis



Fabric & trims

Cutting

Sewing

Laundry

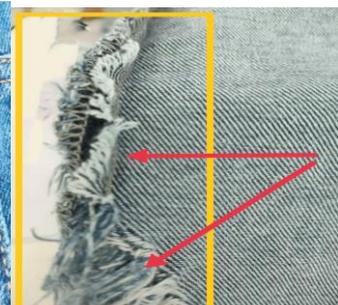
Finishing



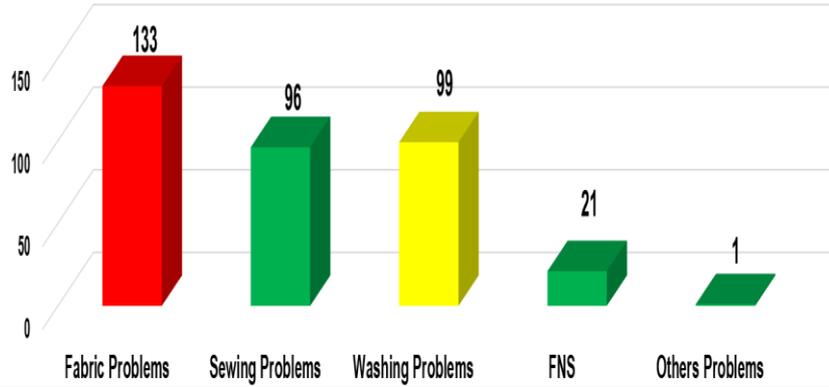
Severity: Damage, hole, cut: 5.20%

DPMO: 52,000 pcs

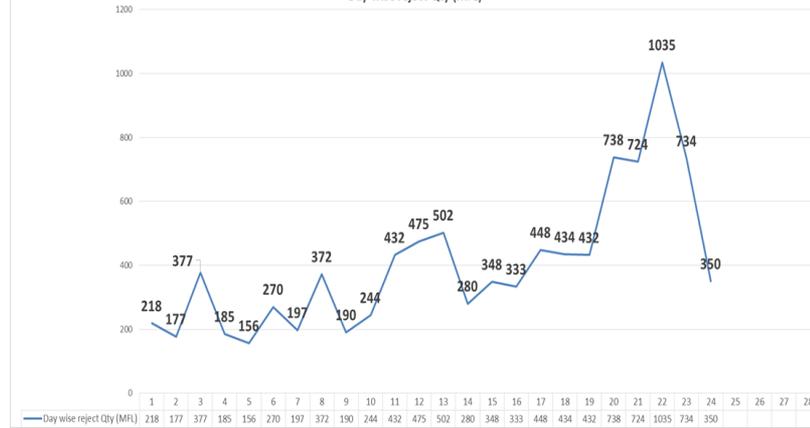
Yearly Impact: \$748,800



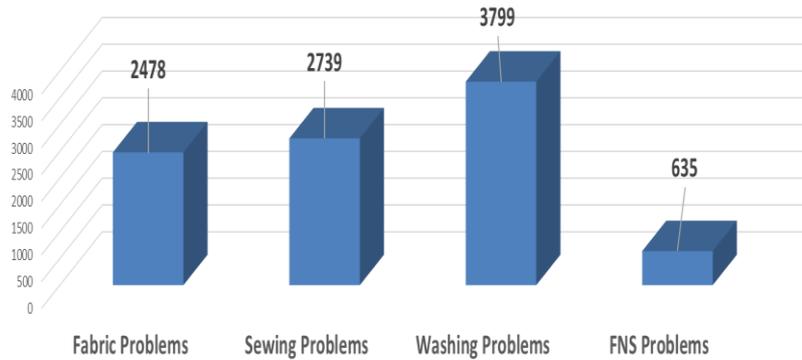
Section wise Daily Rejection



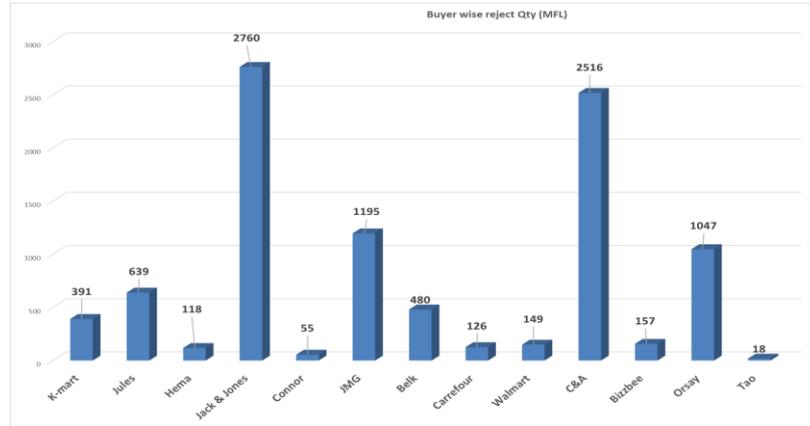
Day wise reject Qty (MFL)



Dept. wise reject Qty (MFL)



Buyer wise reject Qty (MFL)

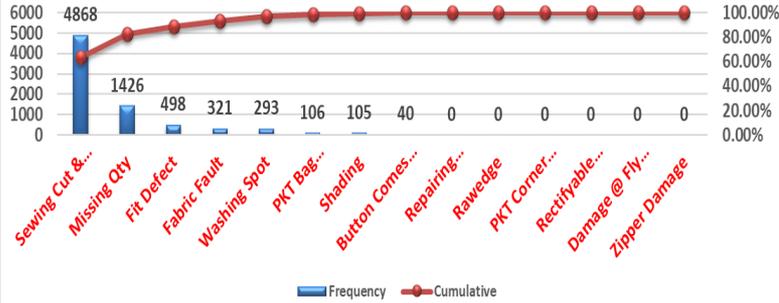


**Better controls and procedures to follow up on non conforming /rejected products on the production floor.

**Trims or finding inspection process:

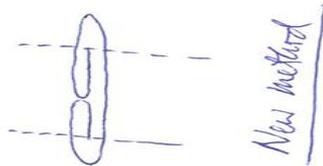


Pareto chart of Irregular Deatil-May,2016



Year	Cut Qty	Ship Qty	Irregular	Simftex Irregular %	MMTS irregular Qty	MMTS irregular vs Cut Qty	Simftex MMTS Irregular %
2015	2370202	2251717	118485	5.00%	12108	0.51%	10.22%
2016	2837038	2712492	124546	4.39%	6576	0.23%	5.28%
2017	2564328	2462849	101479	3.96%	1887	0.07%	1.86%
2018	3784816	3670183	114633	3.03%	588	0.02%	0.51%

Sustainable Option to Remove Fusible/Q-Loop from Lee/RC Casual & R&R Bottom SBU



Value analysis 2018

- ❑ R&R total= 724351 pcs
- ❑ Lee casual total: 4729148 pcs
- ❑ RC casual total: 1723277 pcs
- ❑ Grand total =7176776 pcs x 0.03(Q-loop cost/pc)
- ❑ = \$ 215,303.23/year saving in BD 2018
- ❑ \$17941/Month saving in BD 2018

New Method of Belt Loop to Improve Quality, Productivity and Profitability:

Creating quality value from wastage

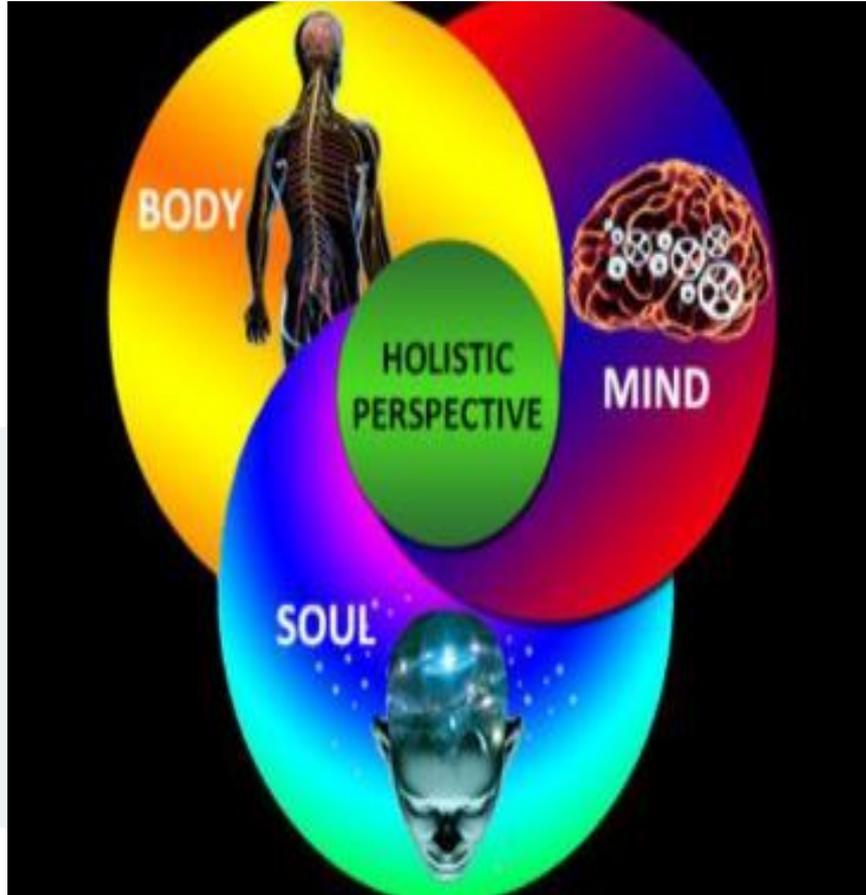


Insert unremovable "Shade/Pattern/line label" under care lbl for better traceability and investigate mmts and wash problem

- ❑ Usually KB maker insert shade and pattern lbl during sewing and remove it in finishing. But we have stopped to remove this lbl and utilizing this lbl for quality improvement, traceability and investigation with zero cost and saving time
- ❑ As discussed with Carole during her visit at Hameem > she approved and agreed to insert small Shade and Pattern label under care lbl & this lbl need not to remove in finishing. It means gmts will ship with this two additional lbl.
- ❑ It will help us to investigate mmts and wash related issues to trace pattern and wash recipe from Shade and Pattern label
- ❑ Sewing mmts inspector can select the before wash spec based on pattern lbl & will be helpful to maintain shade wise packing/ctn in finishing.
- ❑ If any customer complain arise- it will be easier to investigate and find the root cause.
- ❑ Maker are also agreed to follow our recommendation to add Shade and Pattern label with benefit on quality, traceability and time saving.

Criteria	Before Secnario	After Secnario
Process	Attach shade label with care label (SAM 0.1)	Attach shade label with care label (SAM 0.1)
	Attach ply over carelabel for heavy washed goods (SAM .25)	
	After recieveing goods, remove poly & shade label from garments (SAM .25)	
SAM	0.6	0.1

Comments: if we can ship shade label it will save us .25 minutes for normal wash & .50 minutes for heavy washed goods.



Emotional intelligence & empathy
to boost productivity 10%



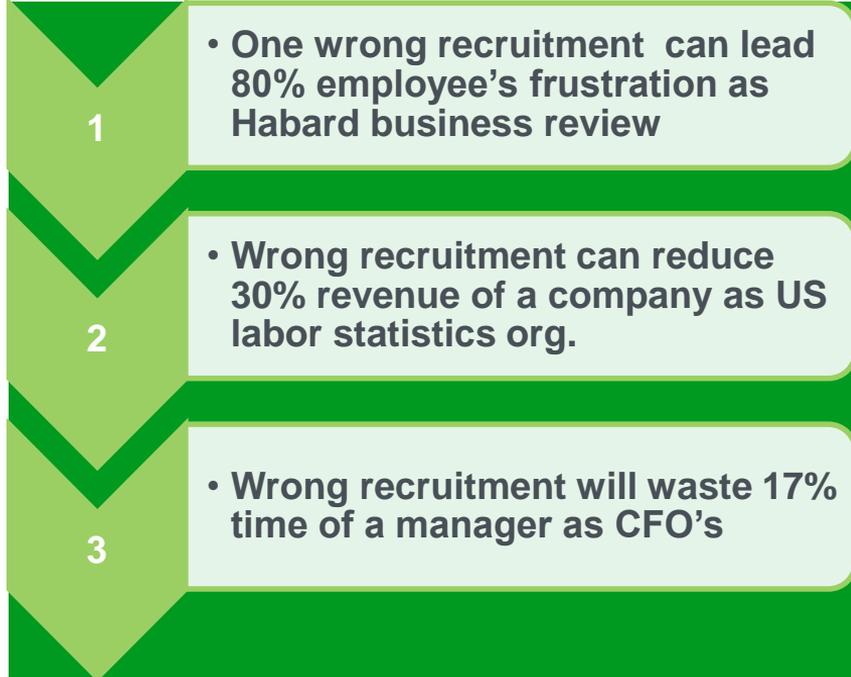
Holistic Approach for Quality
Excellence

Deploying Emotional Intelligence

- User Friendly, Valid Assessments
- Cognitive Data on Performance, Neuroscience, Positive Psychology, Communication & Relationships
- Powerful Visual Images
- Experiential Learning Activities
- Custom Tailored, Blended Learning
- Personal & Professional Application
- Result Focused, Comprehensive, Systemic Development
- Coaching & Reinforcement



Wrong recruitment and unutilized talent can lead 30% revenue loss



3 Key Productivity Statistics You Should Know

1 The effect of employee health on productivity

Sources: HubSpot, PwC, Merck



employees who say their companies' health programs impact productivity



better performance from employees who eat healthily each day



improved productivity from use of cognitive-enhancing medication

2 Numbers that show an evolving workforce

Sources: HubSpot, Wells Tower Watson



3 Importance of technology in productivity

Sources: Ascentium, Kinross, Deloitte, HubStaff



global organizations that are projected to increase use of productivity tools



retailers who believe technology can positively impact productivity

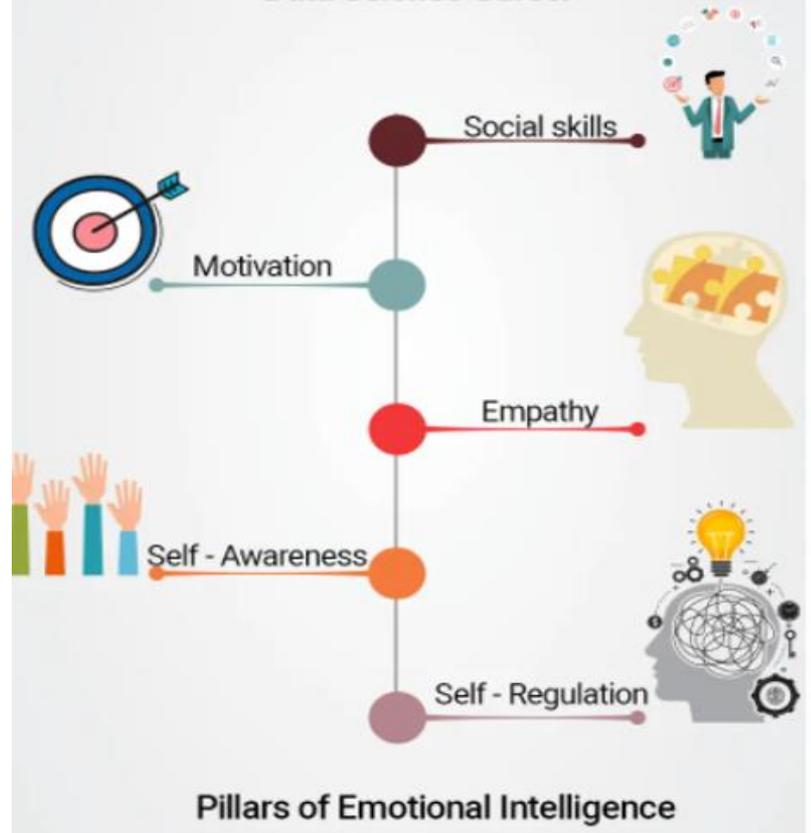


improved productivity brought about by IoT



better productivity by companies with robust online social networks

Demand for Emotional Intelligence Skills



The personal benefits of coaching are as wide-ranging as the individuals involved. Numerous clients report that coaching positively impacted their careers as well as their lives by helping them to:

- ❑ Establish and take action towards achieving goals
- ❑ Become more self-reliant
- ❑ Gain more job and life satisfaction
- ❑ Contribute more effectively to the team and the organization
- ❑ Take greater responsibility and accountability for actions and commitments
- ❑ Work more easily and productively with others (boss, direct reports, peers)
- ❑ Communicate more effectively

The Personal Benefits of Coaching



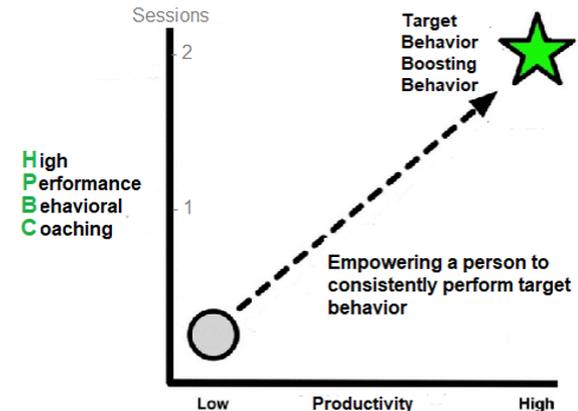
BOOSTING Productive Behavior

- and the need for all persons to engage in HPBC

The importance of Boosting productive behavior in all people.

Productive cultures first originate from a set of positive behaviors exhibited by leaders to their employees.

Organizational Productivity depends not only on the individual's behavior patterns and well-being levels, but on the positive behavior exhibited by people they work with.



THE NATURE OF LEADERSHIP

A leader leads by example



IF YOUR ACTIONS INSPIRE
OTHERS TO *DREAM* MORE,
LEARN MORE, *DO* MORE,
AND
BECOME *MORE*, YOU ARE
A LEADER.

- JOHN QUINCY ADAMS

$$\frac{\text{People}^{\text{Right}} + \text{Place}^{\text{Right}} + \text{Time}^{\text{Right}}}{\text{Work}} = \text{Success}$$

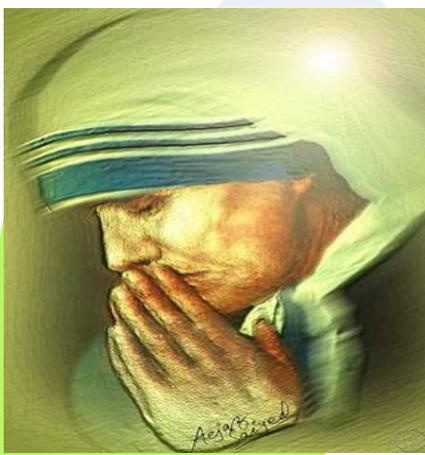
**Create purpose
Create relationship
Create engagement**

**Words + Actions =
Trust**

**If you reword
something do
you get more
of the
behavior you
want?**

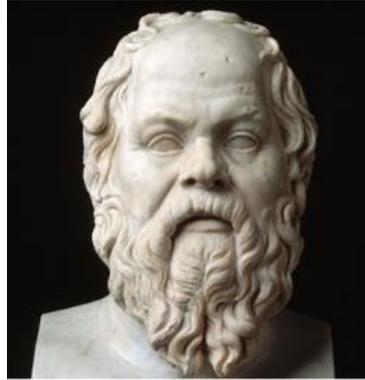
**If you punish
something do
you get less of
the behavior
you want?**





If we believe, we will love; If we
love, we will serve
-Mother Teresa

Quality excellence



Prevention is better
than cure-Socrates

QE & QA



If your are police
counter part is theft

QC

Quality
Voice of customer

Profitability
Voice of Owner

Productivity
Voice of manufacturing

Ontime delivery
Voice of supply chain

Bonus System
Voice of worker



PARTNER

Build a business you can be proud of

Case Study on Kathin Chibar Dan: A Buddhist Religious Festival in Bangladesh

CHT women's are making cloth from row cotton by 24 hour without technology

- ❑ Kathin Chibar Dan, the biggest religious festival of the Buddhist people in Chattagram Hill Tracts. *Bishakha, a nurse of Goutam Buddha, introduced the religious festival about 2500 years ago. Since then the Buddhist community celebrate the Kathin Chibar Dan or the yellow robes offering ceremony every year.*
- ❑ Kathin Chibar Dan means difficult (Kathin) cloth (Chibar: used by monks) donation (Dan). On this day, it usually takes 24 hours to prepare Kathin Chibar from thread processed by spinning jum cotton. *The chibars (robes) are made of cotton and sewed by devotees under several preconditions for which it is termed as kathin (difficult).*





- Safe & healthy work environment
- Performance and productive culture
- Discount shop from rejected garments
- Utilize leftover fabric for new operator training & produced garments can be sale on discount shop
- Discount shop for groceries

Case study on PPE ; Apparel sector





**Roll Opening
New Method**

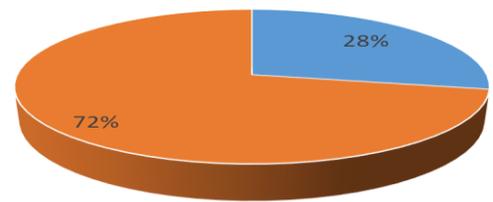


Working Fatigue of Eye: Apparel QC Team

Impact to Health, quality & productivity

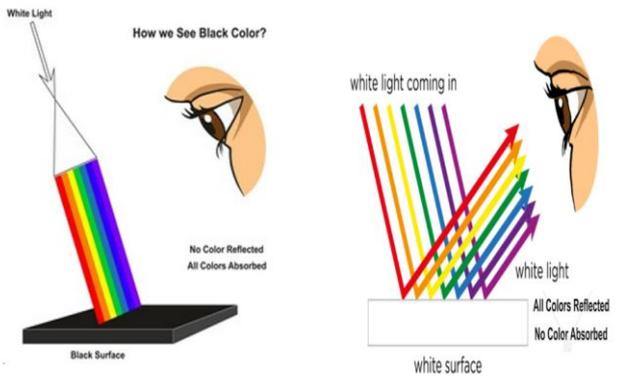


Simftex Final Audit Fail PO Analysis on 2018(Jan to Dec)



- Final Audit Fail PO on Light Color
- Final Audit Fail PO on Dark Color

Light & Color : Reflection & Absorption

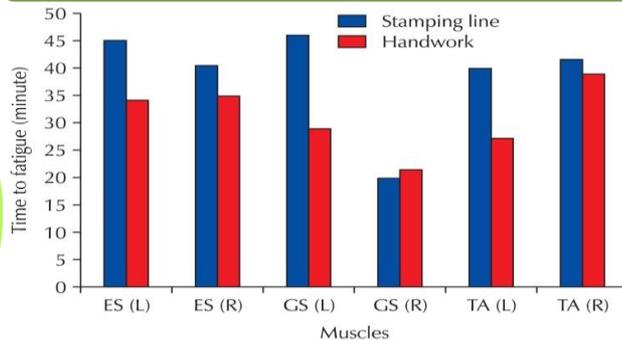


Working Fatigue of Muscle: Apparel Long Hour Standing QC Team

Impact to quality, productivity & health



Working fatigue test result at Morning



Working fatigue test result at afternoon

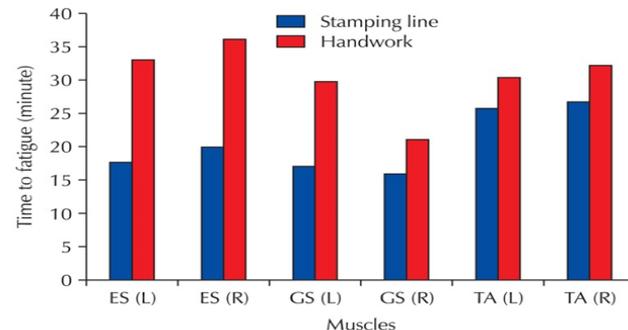


Fig. 8

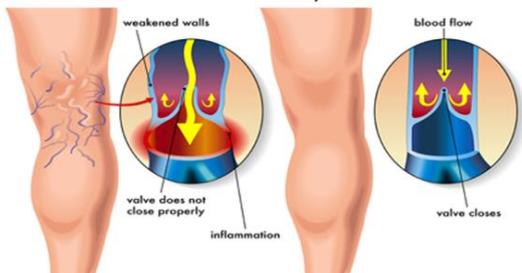
Average of time-to-fatigue between metal stamping lines and handwork section during beginning of the workday. L: left, R: right, ES: erector spinae, GS: gastrocnemius, TA: tibialis anterior.

Fig. 9

Average of time-to-fatigue between metal stamping lines and handwork section during middle of the workday. L: left, R: right, ES: erector spinae, GS: gastrocnemius, TA: tibialis anterior.

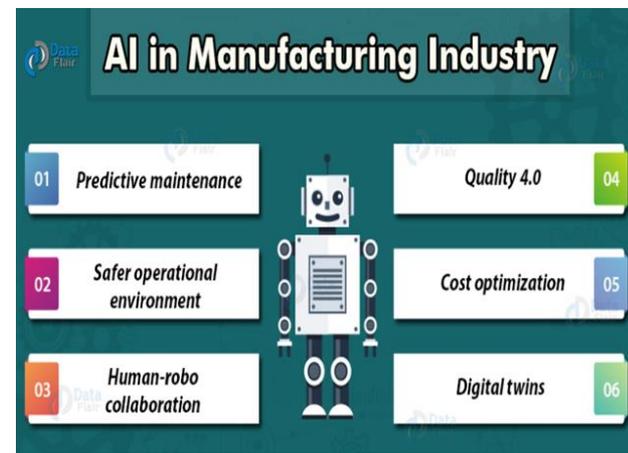
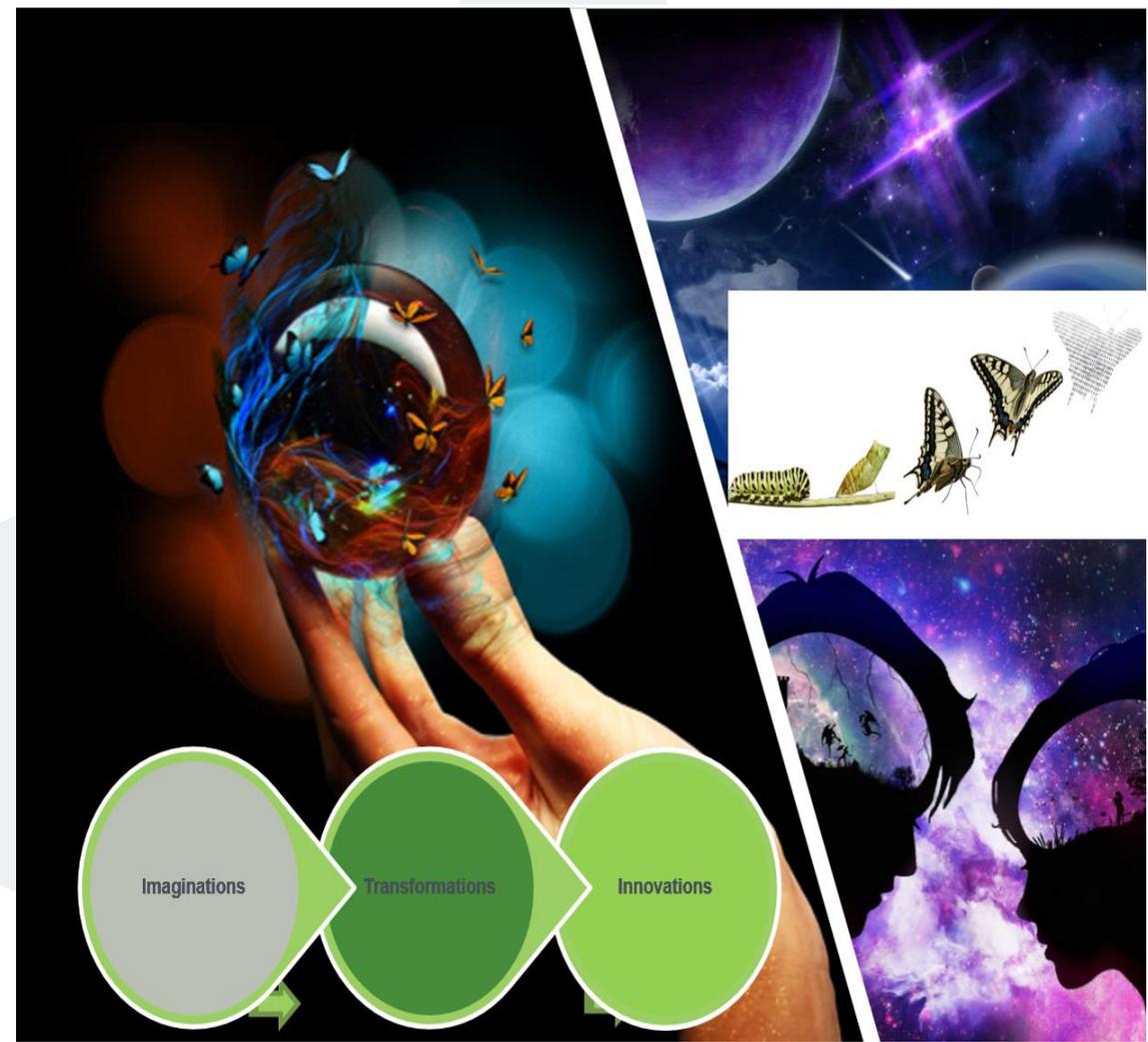


Varicose Veins vs Healthy Veins



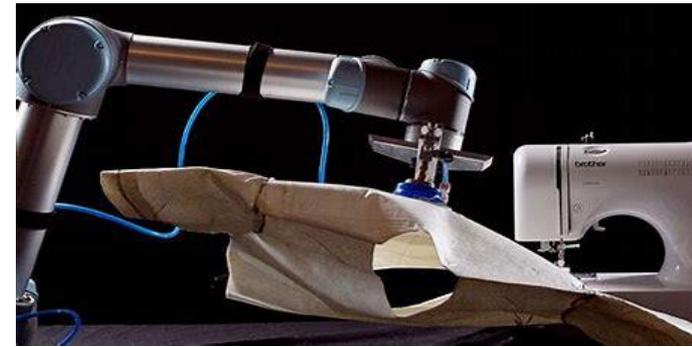
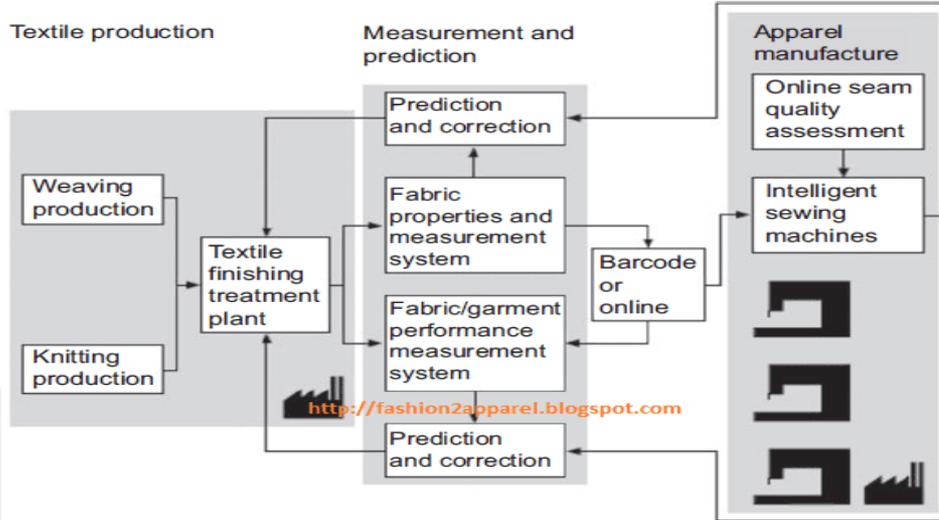
Left side	Body parts	Right side
0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue	Lower back 	0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue
0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue	Legs (back side) 	0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue
0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue	Legs (front side) 	0: No fatigue 1: Little fatigue 2: Moderate fatigue 3: Fatigue 4: Extreme fatigue



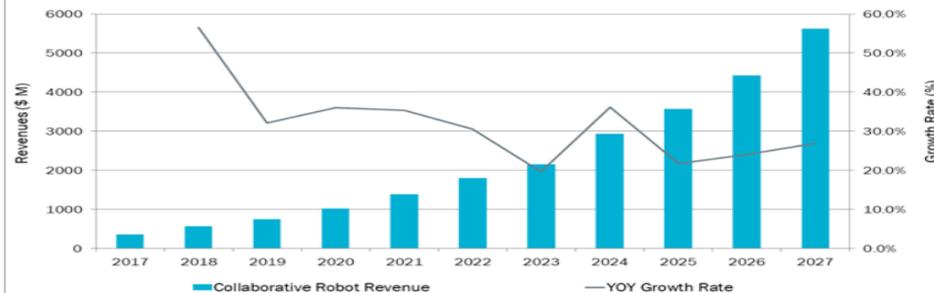


Automation in manufacturing

Textile production



Forecast for Collaborative Robot Revenues (2017 - 2027)



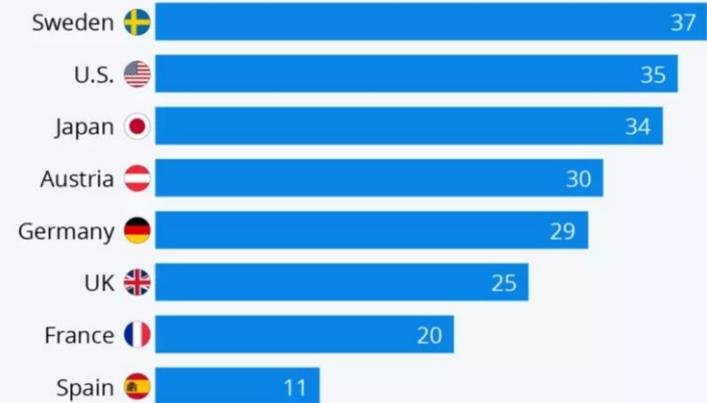


- Labor productivity in developed countries can increase by 40% due to the influence of AI, according to analysis from Accenture and Frontier Economics.
- Sweden, the U.S. and Japan are expected to see the highest productivity increases.
- Despite this, 15% of companies in the global automotive industry recorded an AI-related decline of 3 to 10% in 2019 according to McKinsey.

Where AI is Aiding Productivity



Projected increase in productivity due to AI in selected economies until 2035 (in percent)



Sources: Accenture, Frontier Economics



Digitalization in Garment Sewing & Finishing Unit for Real Time Data

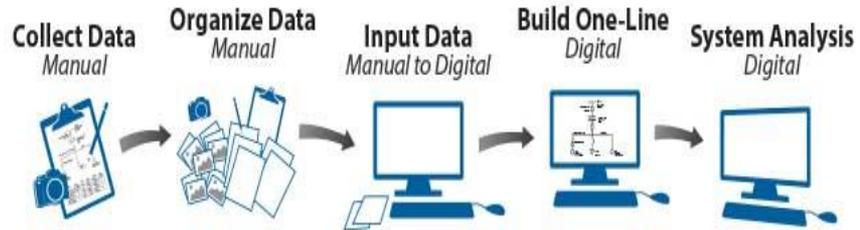


• Tool set



BEFORE

Existing data collection workflow



AFTER

New OnSite data collection workflow



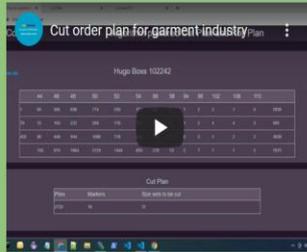
Digitalization at Cutting



• Tool set

Cut Plan & Roll Plan software

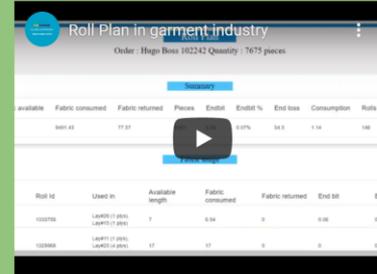
- Make one more garment per roll.
- Gives optimal cut ratios for fabric saving with minimal plies.
- Segregates fabric rolls width wise, enabling wider markers.
- Allocates markers to rolls such that endbits (remnants) is near zero.
- Make 2% more garments with same fabric.



 CutCorners

Cut Plan & Roll Plan software

- Groups plies shade wise and shrinkage wise, leading to vast improvement in garment quality.
- Gives multiple cut plan ratios and roll plans to choose from.
- Gives composite cut plan ratios for multi-color or multi-PO orders, leading to dramatic decrease in number of markers.
- Enhance your profit by 10%



 CutCorners



https://docs.google.com/presentation/d/e/2PACX-1vSRFc3kTVRQNBHwvykRBpsInnezVC7U14kj0J8s2gTAgZWwtx5kcAN71ZzJBavT33nrj-w_df_cofG/pub?start=true&loop=false&delays=30000



Multiple options for cut plans and roll plans

Different emphasis on plies, number of markers and perimeters results in different optimal marker ratios and roll plans. The cutting manager can choose the most appropriate one for the order in question.



Multi color/PO/shipment orders

Many orders involve multi color/shipments. If taken individually, each color/shipment will lead to a large number of markers and thin plies. CutCorners gives out shared markers across colors/shipments. This results in fewer markers and thick plies, saving labour.



Bundle ticket generation

Manual creation of bundle tickets, often in excess of 1000 for an order, is laborious and error-prone. CutCorners takes into account shade and shrinkage and lay number and generates bundle tickets instantly.

Reduce spreading labour

Reduce plies by about 25%. No unforeseen additional markers for remnants. No grappling with endbits. Structure roll lay plan. Automate bundle card generation. Effect reduction of spreading labour by 25%.

Digital Finishing Unit (DFU) VF 3rdway Manufacturing Unit > Simftex



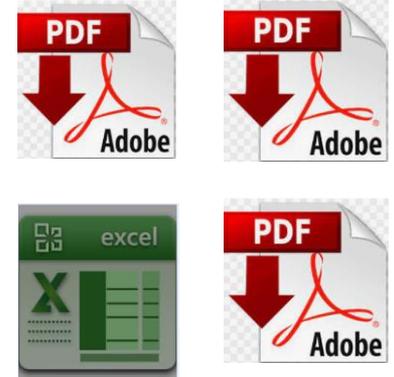
PivotBB Manage Resources Contact Us English 3719 41% 11:51



Confirm Repair
Workmanship Defects
BROKEN STITCHES
✔ ✘
Unrepairable
Rework
Repair OK

1/2

© 4.18 78a9a997049518 | pdfd



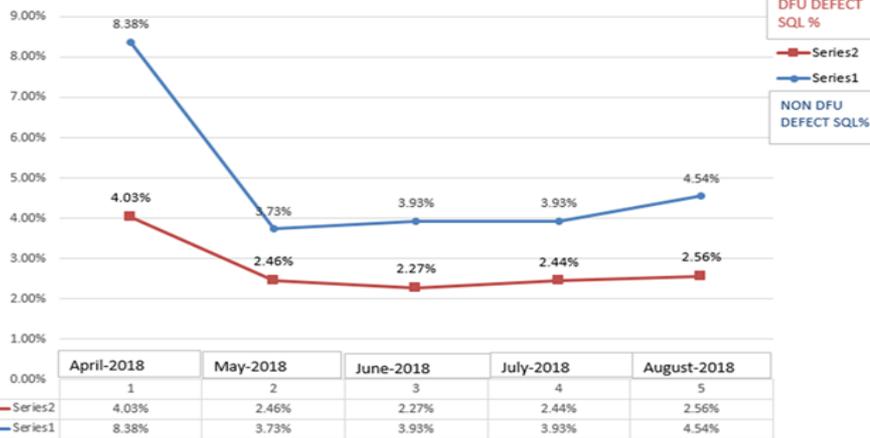
Digital Sewing Unit (DSU) at Hameem



Achievement through DFU 2019: VF 3rdway Manufacturing Excellence



DFU & NON DFU VISUAL DEFECT SQL CONTROL CHART ANALYSIS



Reduced DFU visual defects SQL from 80% to 2.56%

Reduced DFU first pass from 43.37% to 100%

Reduced Non DFU visual defects SQL from 80% to 4.54%

Reduced Non DFU first pass from 5.56% to 100%

Reduced final audit defect SQL from 5.27% to 3.73%

Reduced final audit first pass from 80% to 100%

Achieved DC irregular laundry audit : 2.56%

Achieved zero measurement defects in final audit

Zero Defect : Roadmap to quality

Accomplishment:

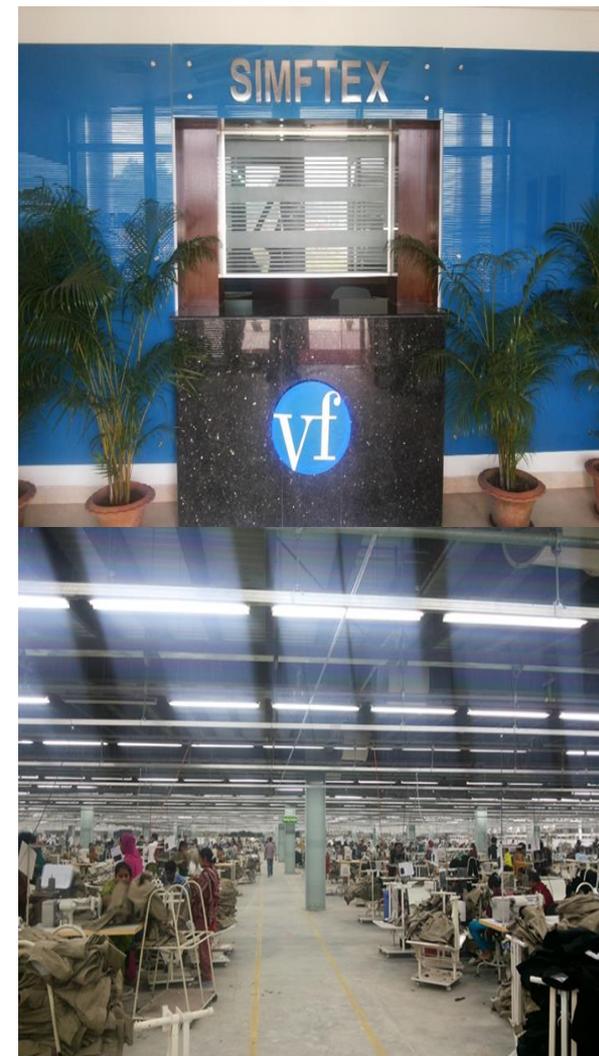
- ❑ Zero JSS sample rejection 2013-2014
- ❑ Belt loop construction improvement: Yearly savings \$ 215,303 from 2014 - continuing
- ❑ VF Star award nomination for “Zero fit & mmts defect at 2018”
- ❑ VF 100 awards for charity & volunteerism
- ❑ Provided pattern correction for popular 5 factory of Bangladesh in 3 months through histogram analysis. All sewing and measurement defect eliminated from top 5 defects except laundry defect.
- ❑ Prepared responsible & holistic quality improvement project for quality excellence 2021





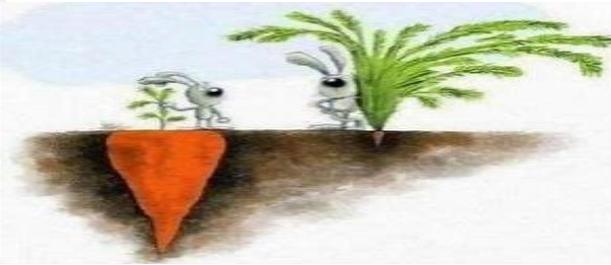
Roadmap To Quality: 2014

VF 3rdway Manufacturing Excellence



List the worst case scenario

**"EXPECT THE BEST,
PREPARE FOR
THE WORST"**



Worst case scenario 2014

1. Factory process audit score:72%
2. In process out of tolerance: 16%
3. Broken, skip and joint stitch :51%
4. Irregular % (cut vs ship): 10%
5. Fabric waste 1% higher than other fty
6. Visual puckering % : 55% (as height method)
7. DHU : 80%

Challenges

8. No helper/ marking/sewing aid as other fty to help operator
9. 80% operator 1st time in garment fty.
10. 85% QC 1st time in garment fty.
11. Key sewing machines selection incorrect (heavy feed i/o light feed mechanism)
12. Higher temperature, noise level & dust

Best practice example 2019

1. Process audit score: 90.38%
2. DC Defect rate: 1.04%(YTD)
1. Visual defect SQL: 0.60%(YTD)
2. Packing defect SQL: Zero %(YTD)
3. Fit Defect SQL: Zero % (YTD)
4. Fit Defect OQL: Zero % (YTD)
5. Fit Defect % QC center audit: Zero %(YTD)
6. First Pass :100%(YTD)
7. In process out of tolerance: 0.51%
8. Irregular % (cut vs ship): 0.57%(YTD)
9. Broken, skip and joint stitch: 5.43 %
10. Sewing machines feed mechanism changed to medium/light feed: 80%
11. Visual puckering reduced to below 25% (as height method)

“Quality is never an accident. It is always the result of intelligent effort.”

John Ruskin



1

- Alex Thomas, VP, Manufacturing excellence, VF
- Masud activity and projects are “Deep drive quality”

2

- Veit, VP , Quality Assurance, VF
- Recognition and appreciation

3

- Denham, Director, Africa Zone, VF
- Recognition and appreciation on “Seam engineering project”

4

- Gihan, Director, Kontoor
- Recognition and appreciation on “Seam engineering project”

5

- Vincent, Director, VF Asia
- Approved, Recognition and appreciation

7

- Wesley, VP & MD, Kontoor – Reviewed and liked new drive of quality

8

- Asli, Director, Engineering Team, Kontoor - “Thanks for sharing Masud - we'll invite you to our department meeting to talk about the work you carried out. I'll reach out to you separately

9

- Surendar, Director, EU, Kontoor - That is indeed impressive, great work Masud

People Who Like This Message



Arifur Rahman

Merchandise Manager



Asli Akinturk

Jeanswear Technical and Garment Engineering Director



Mian Md. Ahsan

Quality Assurance Inspector



Surendar Sihag

Director, Asia Product Supply – International



Wesley Gibson

Vice President, Managing Director Product Supply (APAC)





Charity and Volunteerism:

Read books



People rarely read books anymore. This could be due to some reasons like a hectic work schedule or procrastination. Nonetheless, we highly encourage that you read as many books as possible. This will help you gain perspective and motivate you to work on your masterpiece.

a. Community public library & information center (Estd. Since 1993)

Community Public Library

(A initiative of a Community Public Library Trust)
Since 1993, REGD No : 109/10



Wapda Road, Khagrachari Hill District, Bangladesh,
Phone : 88 0371 62477, E-mail: cpl.khagrachari@gmail.com



VF 100 winner for volunteer & charity

Congratulations letter from VF Corporation, USA

Quote//////////
Hi Masduzzaman

- Congratulations on being one of the 100 associates of VF 100. VF Corporation will award you with a Certificate of Achievement and VF 100 TNF top (I understand you have already selected Men-small size). The VF Foundation will donate US\$1,000 on your behalf to the qualified charity of your choice. Katie will be in touch shortly when we collect this information.
 - During our VF Day employee meeting last Friday, Sep 10 in Hong Kong, we acknowledged your achievement and Christopher U, Vice President of Regional Offices received the award on your behalf. We will arrange for your award and gift to be hand delivered to you when one of our associates next schedules a trip to Bangladesh.
- Thanks and Regards, Elaine
- Unquote//////////

Certificate of achievement

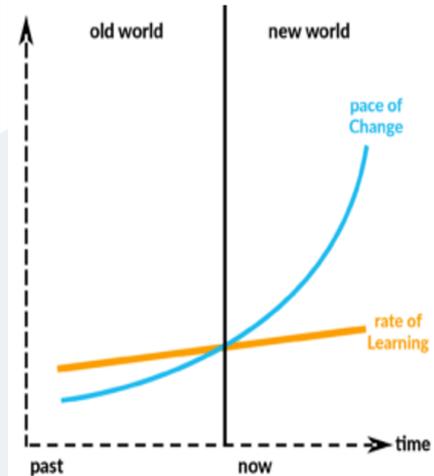


Bangladesh Garment Research Academy : An Innovative Virtual Learning Platform and Solution Toolkit

Background: 1) Its created from more than 50 successful quality improvement project's result evaluation in lass 22 years.
2) Historical data analysis in the QMS & QE about 50 apparel manufacturing & 20 key brands



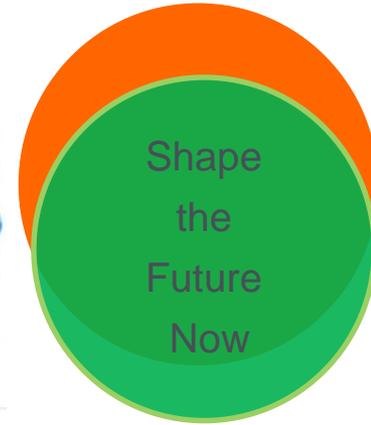
Skill Set



- 1 • Index & Information
- 2 • Project profile and presentation
- 3 • Bangladesh textile heritage, challenge & competencies
- 4 • Quality improvement project
- 5 • Case study and survey report
- 6 • PQE problem solving process & solution
- 7 • Dream's factory best practice example
- 8 • Brand requirement and comparative study
- 9 • Automation & high productive culture
- 10 • Quality management system improvement
- 11 • Coaching and skill improvement program

Prescriptive Quality Engineering (PQE)

A Roadmap to Responsible Quality for Excellence



Dream

Goal

Project

Result

Success
Celebration

- Transformation of Bangladesh clothing industry & find the scope of improvement
- Transformation Dream of QE to a Project to achieve amazing result
- Transformation of method to a actionable application toolkit
- Transformation of QA/QAM/QMS/PQE toolkit to metaverse (visual to virtual & virtual to visual)
- Transformation process improvement > quality> productivity> profitability toward sustainability and mankind
- Transformation from top down quality improvement approach to bottom-up approach
- Transform problem into solution through one piece garment analysis only
- This project is a guideline and handbook for quality lovers



- Active lifestyle with exercise
- Balance work & family life



Love the World



Together we have the power to make a change





How was training effective ?

Learned a lot	55	80	95	100
Learned some	40	65	85	90
Learned a little	25	50	70	75
Didn't learned much	0	30	45	60
 Didn't like at all	It was Ok	Liked most of it	Loved It	

Average Feedback score:88%

Feedback



T

TOTAL

Q

QUALITY

M

MANAGEMENT



“Quality is never an accident. It is always the result of intelligent effort.”

John Ruskin

Success celebration

YOUR CHOICE.





Conclusion:

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 connect with us to share your opinion





We are the learner & quality family that inspires people to live with passion and confidence

