Good Practices in the Global Apparel Industry

International Trade Centre

TRADE IMPACT FOR GOOD

The International Trade Centre (ITC) is the joint agency of the World Trade Organization and the United Nations.

Street address: ITC
54-56, rue de Montbrillant
1202 Geneva, Switzerland

Postal address: ITC
Palais des Nations
1211 Geneva 10, Switzerland

Telephone: +41 22 730 0111

E-mail: itcreg@intracen.org

Internet: www.intracen.org/publications

Good Practices in the Global Apparel Industry

About the guidebook

Good Practices in the Global Apparel Industry provides valuable insight on ways for small and medium-sized enterprises to move up the value chain and away from low-value contract manufacturing. The practices cover areas such as design development, merchandising and sourcing, quality management, productivity improvement, social and environmental responsibility, branding and e-commerce. Real-life case studies demonstrate how these good practices have been put into action and their resulting benefits. This International Trade Centre publication also provides good practices for management of trade support institutions and educational institutes.

Publisher: International Trade Centre

Title: Good Practices in the Global Apparel Industry

Publication date and place: Geneva, September 2022

Page count: 180

Language: English

ITC Document Number: SEC-22-7.E

Citation: *International Trade Centre (2022), Good Practices in the Global Apparel Industry,* ITC, Geneva.

For more information, contact Matthias Knappe at knappe@intracen.org

Foreword

Global apparel trade has witnessed significant changes over the decades. Due to constant pressure on consumer prices, the profitability of manufacturers has suffered. And with low profitability higher objectives such as ensuring decent work and environmentally friendly processes might suffer.

To overcome this, apparel manufacturers need to develop new capabilities and provide value-added service to their customers to remain competitive and profitable. In fact, apparel manufacturing has become a service industry and manufacturers need to add capabilities in pre-manufacturing areas like research and development, design, product development, material sourcing and logistics; as well as in post-manufacturing processes such as distribution, logistics, marketing and retail.

To improve, companies need benchmarks and good practices, especially as small and medium-sized enterprises (SMEs). So do business-support organizations (BSO) that play an important role in developing the competitiveness of the sector. Industry associations, education and training institutions, and standard bodies also need to adopt best practices to improve the quality and effectiveness of their services to SMEs.

The COVID-19 pandemic also has had an important impact on the apparel sector, including changes in business practices and the loss of millions of jobs worldwide. As the apparel industry recovers, manufacturers and exporters need to adapt to the ever-changing business scenario. This requires an efficient use of all the resources available to them.

In this context, the International Trade Centre (ITC) has compiled this guidebook of good apparel industry practices that can help SMEs and BSOs address all critical areas along the value chain, including adapting to the changes imposed and accelerated through the pandemic. It also provides guidance on how to improve against industry standards. Each good practice described is supported by an illustrative real-life case study.

I am confident that small and medium-sized apparel enterprises around the world will benefit from this publication. I believe the guidebook will spark thoughts, commitment and action within the apparel SME community, leading to the adoption of good practices. These will then have a wider impact on ensuring decent work and environmentally friendly production practices.

At ITC, we support many developing countries in improving the overall export competitiveness of their apparel sector with a view to creating decent jobs for people to build a sustainable industry. The guidebook will be a valuable tool used in our Global Textile and Clothing (GTEX) programme. It will be regularly updated with new good practices and case studies that can be accessed through our Textile Academy Virtual Leaning Space. We encourage small and medium enterprise in the apparel industry to come forward to share their good practices with us so that we can highlight what companies are able to achieve.

Pamela Coke-Hamilton
Executive Director
International Trade Centre

Acknowledgements

This is the result of collaborative efforts of a large number of people and organizations from across the globe.

The publication has been compiled under the GTEX Programme implemented by ITC with financial support by SIDA and SECO. Matthias Knappe, Program Manager for Cotton, Textiles and Clothing, ITC, contributed significantly to the development of this publication and provided valuable technical and editorial input.

Rajesh Bheda Consulting, an India-based consulting firm, was entrusted with the responsibility of developing the publication. Contribution of Dr Bheda as the lead author is appreciated. The Rajesh Bheda Consulting team included Maneesha Sharma, who supported the first editing, while Priyesh Deep coordinated diverse contributions from industry professionals. Editorial support of Richa Bansal is also acknowledged.

More importantly, ITC would like to acknowledge all the industry professionals representing SMEs, educational institutions and business support organizations, as listed in the table below, for their contribution. Their willingness to share their experiences and the results of implementing the good practices of SMEs from across the globe is praiseworthy.

The contribution of the ITC publication division for bringing out this publication is appreciated. More specifically, Jayna Kika, Senior Programme Assistant for Fibres, Textiles and Clothing, ITC; and Mariana Tavares and Imane Cherifi, International Consultants to ITC, reviewed and formatted the paper in its final stages.

We would also like to thank Natalie Domeisen and Anne Griffin (both ITC), who oversaw the editing and production process; Claire Rispe and Janet Hill, who edited the report; Franco Iacovino (ITC), who provided graphic support, and Serge Adeagbo, who provided printing support.

Contributors to good practices and case studies

Title	Contributors
Chapter 1: **Design and Pre-Production Practices**	
Leveraging design and product development capability	Rajesh Bheda and R. Sabhari Girish
Case Study 1: Creating an in-house design studio to cater to customer requirements	R. Sabhari Girish
Case Study 2: Establishing product development capabilities to move up the value chain	Venkatesh Nagan
E-fit simulation for product development	Rajesh Bheda and Dipanwita Ray
Case Study 3: Using E-fit software to reduce production turnaround	Rajesh Bheda and Priyesh Deep
Optimizing costs by saving fabric	Rajesh Bheda
Case Study 4: Optimizing pattern layout to save costs	Hakan Demirgonu and Kaan Ersoy
Developing responsible and responsive merchandising	Roopak Malik
Case Study 5: Synchronizing processes and lead times when sourcing fabrics	Ramesh Nair
The Complete Kit concept improves on-time delivery	Rajesh Bheda and Ramesh Nair
Case Study 6: Complete Kit concept improves planned-cut date hit rate and on-time delivery	Ramesh Nair

Chapter 2: Production and Quality Practices

Chapter 3: **Social and Environmental Sustainability Practices**

Executive summary

The textile and clothing industry plays an important role in employment creation and economic development in many countries. Small and medium-sized enterprises (SMEs) account for a large share of textile and clothing production. International trade in textile and clothing is characterized by increasing competition and declining prices. At the same time, garment manufacturers are facing several other challenges, including addressing sustainability concerns, improving speed to market, being able to supply smaller quantities per style, becoming digitally versatile, ensuring health and safety in the workplace and offering new designs, among others. To remain profitable, garment manufacturers, mostly SMEs, must readjust their business model by offering better services and value to their customers while controlling costs.

To address these challenges, the guidebook describes good practices identified at the enterprise and institutional level along the garment value chain. The good practices illustrated cover the manufacturing floor pre-production, material sourcing and how to move from cut-make-trim-based manufacturing to delivering a full product, product development, developing a merchandising department, design development and branding, export marketing, social and environmental sustainability measures, etc. Implementing these and other good practices will enable manufacturers to increase their value and, ultimately, the profitability of their business. The publication also includes good practices related to business-support organizations like industry associations and educational institutes.

This guidebook is developed for clothing manufacturers that would like to improve their operations and move away from simple garment-sewing operations by taking over additional functions in the pre- and post-production stages of the clothing value chain. Simple sewing operations are no longer a viable business offering to gain export orders. Instead, companies need to upgrade their operations and provide additional services to customers. This guidebook provides practical recommendations in the form of good practices and case studies of companies that successfully improved their operations along the value chain.

The guidebook will also be useful resource for training centres and universities that teach production, management, merchandising and design subjects for the garment industry.

Overall, the guidebook covers 28 good practices with 33 case studies along the value-chain stages of design and pre-production, production and quality, social and environmental sustainability, branding and marketing as well as institutional and sector-level good practices.

Each good practice provides a description of the practice and why it is needed, prerequisites for its implementation, the steps required to adopt them and the expected benefits. The case studies introduce the organization and the problem statement, the process followed to implement the good practice, the results achieved through pre-implementation and post-implementation data, and business benefits. Return on investment information is also provided for most case studies. The case studies provide useful lessons learned through the implementation of the respective good practice.

The following key messages can be derived by analysing the good practices and case studies:

- Improvement opportunities exist in almost all the business processes along the of textile and clothing value chain and these opportunities can be exploited by implementing the good practices;
- Most of the good practices require limited investment, barring exceptions, and provide high returns on investment. In other words, implementing these practices has a strong business case;
- One of the prerequisites for benefitting from the good practices is the commitment of the owners and/or top management to implement them and prepare their organization for change;
- Introducing good practices means change at the organizational level. It is therefore vital to focus on communication with mid-level management and workers, explaining the need for adopting the good practices, and the expected benefits to organization and the employees. These actions will help create the necessary buy-in, reduce resistance during implementation and foster an environment conducive for sustaining the improvements;

- Training and facilitation support by expert agencies or institutes may be needed to implement some of these good practices, while others just require the desire of the management to implement them;
- The real-life case studies from different parts of the world demonstrate that these practices can be implemented in different geographies and cultures;
- A large number of good practices that require some sort of investment have a payback period of less than one year.

Finally, the publication provides useful links to references and information sources on most good practices for deepening the understanding and the potential benefit of the respective practices.

Contents

Figures, Tables

Acronyms

Unless otherwise specified, all references to dollars ($) are to United States dollars, and all references to tons are to metric tons.

AEPC	Apparel Export Promotion Council
AI	Artificial intelligence
CAD	Computer aided design
CSR	Corporate social responsibility
D2C	Direct-to-consumer
DHU	Defects per hundred units
ETP	Effluent treatment plant
FIT	Fashion Institute of Technology
FOB	Free on board
HR	Human resources
IE	Industrial engineer
IFC	International Finance Corporation
ILO	International Labour Organization
KPI	Key performance indicator
LED	Light emitting diode
LPCD	Litres per capita per day
NIFT	National Institute of Fashion Technology
OGTC	Okhla Garment and Textile Cluster
PD	Product development
PO	Purchase order
PPE	Personal protective equipment
RFT	Right first time
RMG	Ready-made garments
ROI	Return on investment
SAM	Standard allowed minutes
SME	Small and medium-sized enterprise
SMED	Single minute exchange of die
SOP	Standard operating procedures
T&C	Textile and clothing
VM	Visual management
ZDO	Zero-defect operator

Methodology

The ITC publication, 'Guidebook on Good Practices in the Global Textile and Clothing Sector', is the result of collaborative efforts of many people and organizations across the globe coordinated by Rajesh Bheda Consulting. The guidebook aims to describe good practices at enterprise level along the garment value chain, including shop-floor best practices, material sourcing and how to move from cut-make-trim-based manufacturing to FOB business, product development, material sourcing, design development and branding, export marketing, social and environmental compliance. It also covers good practices related to the management of industry associations, industry-academic institute collaboration and sector-level branding or business promotion.

The methodology for developing the publication is as follows:

- Keeping the overall objectives of the publication in mind, ITC identified some of the focus areas for the development of good practices. These were studied and a few more areas were identified based on the global experience of Rajesh Bheda Consulting;
- This list was shared with ITC for feedback. Based on the feedback from ITC, the good practices were shortlisted and guidelines for the potential contributors were developed for good practices, including supporting case studies;
- Based on the themes of the good practices, a list of potential contributors was drawn. The contributors were identified based on their expertise and experiences of implementing good practices in their organizations and industry in general;
- Sixty potential contributors were contacted, in phases, by email and personal phone calls to invite them to contribute to the publication. A thought was given to have a reasonable diversity of countries, such as Australia, Bangladesh, China, Ethiopia, Egypt, Germany, Guatemala, India, Indonesia, Jordan, Sri Lanka, Thailand, Turkey, United Kingdom, United States and Viet Nam;
- Several potential contributors accepted the invitation whereas several others declined to contribute due to lack of time or data confidentiality concerns raised by their organizations;
- Some of those invited were unable to fulfil their commitment to contribute due to the ongoing coronavirus pandemic; in such cases, alternative contributors were contacted;
- Each good practice write-up is supported by at least one case study based on real-life implementation of the practice so as to share the methodology used and the results achieved, including the return on investment, wherever possible. In some cases, two case studies could be generated and those have been added to the publication to provide wider evidence of the application of the good practice and its benefits;
- The draft good practices and the case studies were shared with ITC for review and feedback. The improvement suggestions were incorporated in consultation with the contributors to finalize the publication;
- Contributors include thought leaders, authors, educators, marketers, design innovators, supply chain experts, consultants, corporate social responsibility (CSR) and sustainability experts, senior management of export businesses and association heads. The publication is culmination of the input of 31 contributors and several others who supported indirectly.

Chapter 1
Design and pre-production practices

Leveraging design and product development capability

The apparel value chain comprises the following stages: research and development, design, sourcing of fabrics and trims, cut-make-trim, apparel export, distribution, apparel retail. Most apparel manufacturers in developing countries enter the value chain as cut-make-trim manufacturers and then develop capabilities to emerge as FOB manufacturers. By adding product development and design capabilities, enterprises can move upstream in the value chain. Leveraging design and product development capabilities means that an SME can upgrade its production strategy from original equipment manufacturer to original design manufacturer.

The lack of design capacity keeps value addition at a low level as the factories can function only as a cut-and-sew facility. Cut-make-trim manufacturers merely replicate samples of their customers; they do not create own designs, nor do they have related capabilities. Since many manufacturing facilities are aware of their clients' requirements, including price points, creating designs could be an added advantage.

With research and development capacity along with in-house designers, an SME can attract more domestic or overseas clients and increase its value addition. Herein lies an opportunity to transform into an original brand manufacturer and cater to the market demand through both offline and online channels.

Leveraging design and product development capabilities could be especially advantageous for SMEs that manufacture niche products as they can then reach out to existing brands to offer their design services. For example, an SME with expertise in ethnic wear could reach out to a formalwear brand that could be keen to expand its portfolio by introducing a new category. Since the SME would have an established design and product development team, the brand could approach it to develop a line.

Thus, to improve competitiveness, SMEs need to offer an assorted basket of categories to ensure product differentiation. The research and development team must be strong in design and in sync with changing fashion trends, and the manufacturing team must have the infrastructure to develop samples on time and manage bulk production seamlessly.

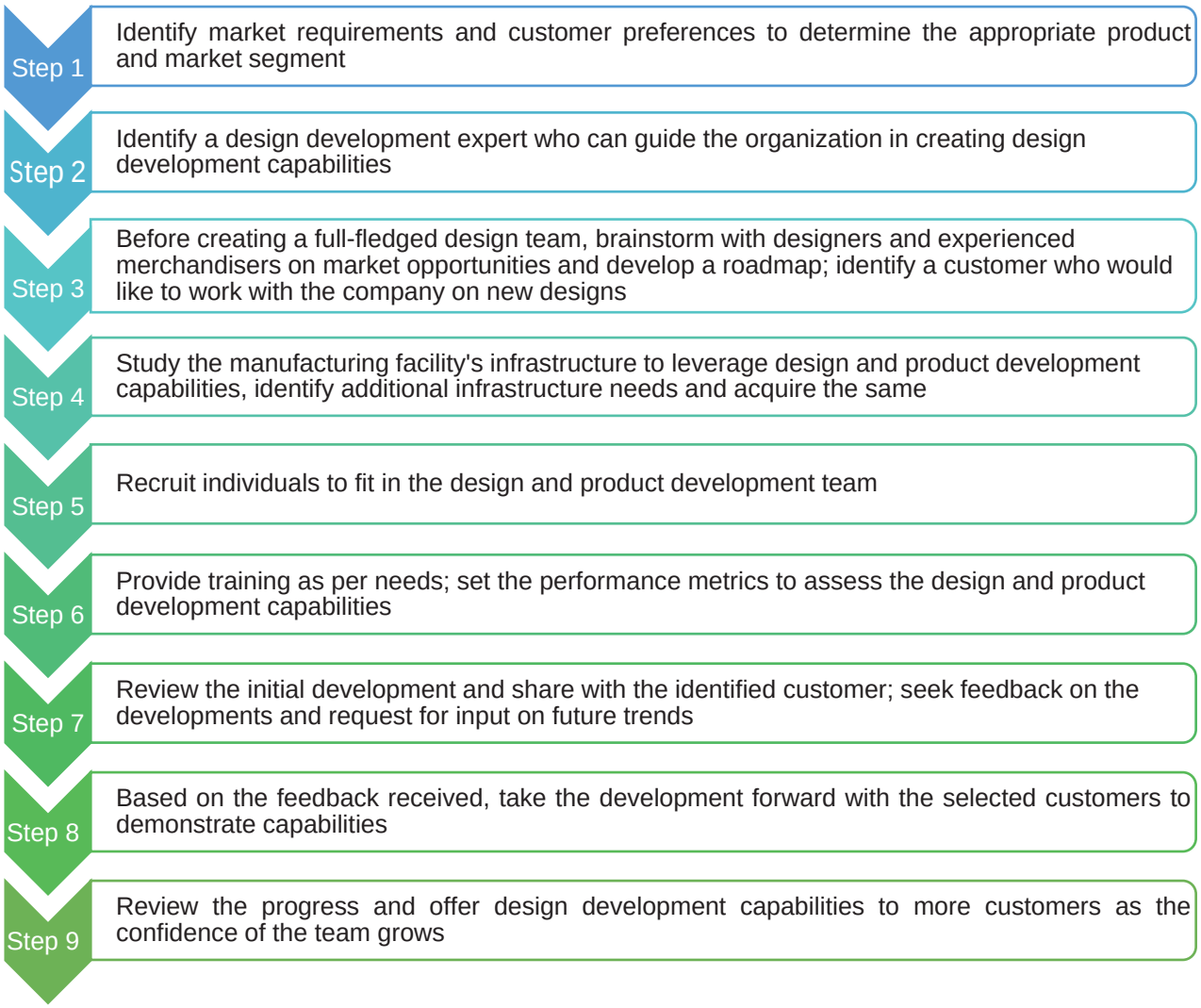
The in-house design capability may be further strengthened by supporting more specialized design training, providing facilities for innovation, supporting the design and product development teams with the required technology, and encouraging participation in trade fairs to get the right exposure to market trends.

Resource/preconditions required

The requirements to move a notch up the apparel value chain and implement designing capability include the following:

- Creative individuals to form a design team;
- Willingness to invest in designing software or subscription to tools such as Adobe Illustrator, Adobe Photoshop, Corel Draw, along with a graphic tablet for ease of software use;
- Willingness to subscribe to forecasting platforms like WGSN, Trendstop, etc.;
- Availability of infrastructure to manufacture the designed products;
- Willingness to wait for results to be visible and provide freedom to the design team to develop innovative ideas.

Implementation steps



Potential benefits

Leveraging design and product development capability is beneficial as it is a value addition to the existing process.

The benefits to the company are:

- Changing perception and confidence of the buyer in the company's capabilities, resulting in better business with them;
- Additional service offering that differentiates the company from competitors;
- The manufacturer can demand a better price through an increase in service offering;
- Since SMEs operate in a flexible and dynamic environment where changes are introduced within short timescales, the company would be able to cater to multiple designs and new trends.

Key performance indicators

- Improvement in average value of products;
- Number of designs selected by customer.

Case Study 1: Creating an in-house design studio to cater to customer requirements

Company background

Name	A sleepwear manufacturer
Location	Tirupur, India
Number of employees	1,600 (60% women)
Number of units	700,000 per month
Major articles	Women's and kids' (girls') sleepwear
Major customers	European and American market

Problem description

With growing demand from customers to provide design input, it became necessary to develop design capabilities and capacities. The company saw its business and order levels decreasing as peer companies started showcasing their design strengths to clients. The ever-increasing competition and the need to stay ahead compelled the company to develop and showcase its design capabilities.

Process followed

1. Due to demand from customers, the exporter decided to create an in-house design studio that could offer a wider design spectrum to its customers. Years of working together with key customers had helped it gain an understanding of the customers' business and requirements.

2. The organization hired two fresh design graduates from a fashion school. The designers were initially asked to assist the overseas team of buyers by researching on the internet and compiling trend reports. Eventually, they were given access to trend forecasting sites, such as WSGN, which helped them to understand trends and draw inspiration. It also helped them to create new designs. They also used CAD for print developments.

Results achieved

The company was able to see instant results as its clients became more receptive to all communication. The customers started briefing the exporter with their thoughts and began sharing their mood boards. This helped the factory to work in sync with the customers' requirements and to respond faster.

Moreover, owing to its design development capabilities, the company was able to get a higher price from its key customer, who earlier -Would want to bargain hard for every cent. Within a year of establishing the design studio, the company was able to increase business by 20% with this key customer.

Benefits for the company

While initially the visits of the customer would be for a few hours, once the in-house design studio was in place, the customers started spending nearly an entire day discussing the designs. This close engagement created a stronger bond and mutual understanding, resulting in higher orders. The in-house design studio also supported other departments in the company, like the men's sleepwear segment.

Return on investment

The company invested in a good computer with a graphic card and a licence for Adobe Creative Cloud, along with digital draw pads that helped the designers to instantly draw on the system while creating the designs. The initial investment amount was $4,500. The remuneration to the designers was also appropriate as per industry standards for fresh graduates. The investment was minimal as compared to the benefits. At a later stage, after seeing the initial returns on the investment, the company invested in the subscription of trend forecasting services.

Lessons learned

Continuous monitoring and being actively involved in co-creating a range with the customers are crucial steps in developing the right products and nurturing a long-term relationship with customers. Trend forecasting and knowledge of fabrics was also enhanced by attending fabric and yarn fairs.

Case Study 2: Establishing product development capabilities to move up the value chain

Company background

Name	A woven manufacturing unit
Location	Bangladesh
Number of employees	30,240 (About 60% women)
Annual production capacity	50 million pieces (32% denim and 48% non-denim bottoms, 10% jackets and 10% shirts)
Major articles	Woven bottoms, jackets and shirts
Major customers	H&M, Inditex, Kiabi, Lidl, C&A, Aeropostale

Problem description

In a highly competitive fashion industry, brands and retailers are cutting down on costs with leaner teams and less of travel. This has increased their dependence on partnering with production factories not only in merchandising, production, shipping and logistics, but also in co-creating product ranges.

Factory XYZ is a renowned name in the Bangladesh ready-made garments (RMG) business, catering to top-notch fast-fashion brands in the European Union. In 2016, it decided to disengage with a UK-based mass market brand, which sought big quantities but with tight pricing that did not allow for enough profit to sustain and grow. The company decided to pursue business with some of the other fast-fashion brands with whom it was already working.

The company had to step into other product categories apart from non-denim bottoms (like denims and casual shirts). When it first approached other brands, its offer was turned down as it did not possess experience in these product lines. The company realized it needed to invest in design development for the new products lines and hired the services of a designer who came with good experience and had set up design teams in other successful design-oriented companies like Beximco and Bitopi Group in Bangladesh.

Process followed

1. The factory carried out an assessment of its performance and identified the need to diversify into new product offerings apart from improving productivity.

2. It studied what competitor factories were doing for better performance and gained insight into how to take up a design-centric approach and market the factory as a fashion-driven company.

3. It identified the right candidate for the head of design job and, together, they plotted how to achieve their goal within six months. The head of design was given a free hand and backing, within an approved budget, to not only develop a product range, but also change the goal of the factory, which is to produce higher design content value-added products.

4. The newly appointed head of design asked for space in the factory building to create a design studio and budget for the revamp of the showrooms. Desperate to change the company's outlook and profile, the factory management put its faith in the designer's vision.

5. Along with structural changes, the head of design built a design, fabric and product development team and created a trend collection for the young fast-fashion brand. The whole process took around nine months but by the time the buyers visited the revamped office, were introduced to the design team and looked at their new collection (in the new categories), they were convinced by the factory's focus on design and started with trial orders.

6. By 2019, the company had stopped working with the UK brand and allocated its lines to its old and few new clients and was now making more profit than before.

7. The company then collaborated with Turkish and Bangladeshi mills, presenting to them the best-selling fabrics of other brands, to create new collections before the start of the season. It also set up a sewing and pattern unit (of 30 machines) for sampling next to the design floor so that the sample development could be fast-tracked under supervision with no communication gap.

Results achieved

- By hiring an experienced head of design with flexibility to turn things around, the process of creating a design team and inculcating a design culture was achieved effectively;

- Through collaboration, the factory managed to secure priority in the outsourced washing unit for new developments and wash trials to speed up the development process;

- The above changes resulted in huge success for the factory in the denim market and the fast-track line helped it to churn out samples quickly.

Benefits for the company

- Quick turnaround of customer samples and the interpretation and implementation of tech packs became much easier as the company now has trend forecasting, research and sourcing capabilities;

- Timely exposure to design trends helped the factory get ready for future production requirements from various customers;

- Pitching for new fashion products gave the company an edge in the market and it could command a better price without getting trapped in a price war;

- The whole exercise created a positive environment within the organization. With enhanced enthusiasm within its own teams and the boost in market standing, the company has become a much-appreciated proactive supplier with design strengths.

Return on investment

The factory owners were patient and invested heavily in the design team in terms of the right human resources, systems, exposure of the designers to design fairs and international market research trips. The initial investment in introducing and maintaining the design team, the new space, revamping showrooms and the like, added costs to the company but the conspicuous change ushered in a design culture in the factory.

The company was able to retain and build new customers, and there is an enhanced sense of pride within its rank and file. It has since become a preferred supplier to key international brands following its upgraded capabilities and design development, interpretation and presentation strength.

Lessons learned

- Co-creating new products with brands requires trendspotting input by factories, forecasting, research on new fabrics, materials and trims by attending fairs, sourcing new fabrics and developing new collections;
- The investment may not show immediate results, but the mindset of the brands starts to change when they find someone in the factory who understands trends and designs; someone who not only facilitates new designs and fabrics but also comes up with solutions and alerts;
- The success of this case resulted in a mindset change of several other factories operating in the region and they started investing in forecasting sites, 3D software solutions, etc.;
- The backup and support provided by other departments like fabric and trims sourcing, merchandising, and technical risks assessment team makes this design-centric shift a success;
- Appreciative communication, trust and providing reasonable time for the results of such an intervention to show change is critical.

E-fit simulation for product development

Garment factories lose a lot of time getting the fit of the garment approved by the buyers. In some cases, buyers send physical samples through couriers to the manufacturers and, in turn, manufacturers must send multiple physical samples to buyers, involving huge cost and time. E-fit simulation allows the garment manufacturers to share 3D-simulated garments for fit approval with the buyers. This reduces the need for multiple iterations of sample approval and results in significant time savings. It also helps provide enough time for production of the garments.

The E-Fit Simulator takes digital patterns and turns the pattern pieces into ‘virtual cloth’ that can be ‘sewn’ in the computer and tested on a 3D fit model, right in the software, showing exactly how the garment is going to look before sewing it as a physical sample. With accurate virtual prototyping, the garment fit to the 3D fit model reflects and combines the attributes of the garment style, garment pattern design, and mechanical properties of textiles.

Resources/preconditions required

E-fit simulation requires the following preconditions when a software is used:

- Buy-in must be created for the team to accept the new technology;
- Appropriate software and IT hardware with good processing speed for fast results.

Implementation steps

Step 1	Formation of a team to understand the requirements and availability of technological advances in the market for virtual prototyping
Step 2	Selection of the software based on the value addition, return on investment and other parameters like comfort of key customers; carry out reference checks with existing users of the software; several solutions available do not require the customer or the buyer to purchase the same software for visualization, thus reducing the need for additional investment by buyers.
Step 3	Procure the software to speed up the sampling process
Step 4	Train the team to use the software
Step 5	Implement the software on the available styles and monitor the changes observed in terms of sample development; carry out a pilot with a customer who is keen to reduce product development time and is open to new technology
Step 6	After succesful pilot, share the results with other cutomers and try to adopt the practice across the organization

Potential benefits

- Reduction in sample development and approval time;
- Obtain instant feedback from the built-in motion simulator to correct mistakes immediately;
- Convenient to present the test garment and receive comments from anywhere;
- Modelling on different body shapes and sizes is possible;
- Significant reduction in cost involved in sample making and shipping by courier;
- Smaller ecological footprint due to less waste generation and lower CO_2 emissions.

Key performance indicators

- Sample approval rate
- Sample turnaround time
- Pre-production lead time

Case Study 3: Using E-fit software to reduce production turnaround time

Company background

Name	Timex Garment Private Limited
Location	Colombo, Sri Lanka
Number of employees	Over 10,000
Monthly capacity	1 million garments
Major articles	Dresses, blouses, lingerie, shorts, skirts, pants
Major customers	Next, Wallis, Vera Wang, Marks & Spencer

Problem description

Timex's mission is to reduce turnaround times for garment production and, to meet this objective, the company is interested in evaluating and investing in new technology solutions. The company has successfully used CAD systems for generating original patterns and developing markers since 2004 to speed up the product development process and save fabric.

The company is in women's fashion garment business with specialization in dresses, and has to develop more than 600 styles a month; but side by side, the lead times were getting shorter. This made physical production of samples highly resource-intensive and sample approval rates were suboptimal. To address this challenge, management decided to invest in 3D sample development software for generating realistic simulated garments for fit evaluation and submission to its customers for a faster sample turnaround time. Timex wanted to be a leader in this area and leverage the resultant strength for business growth.

Process followed

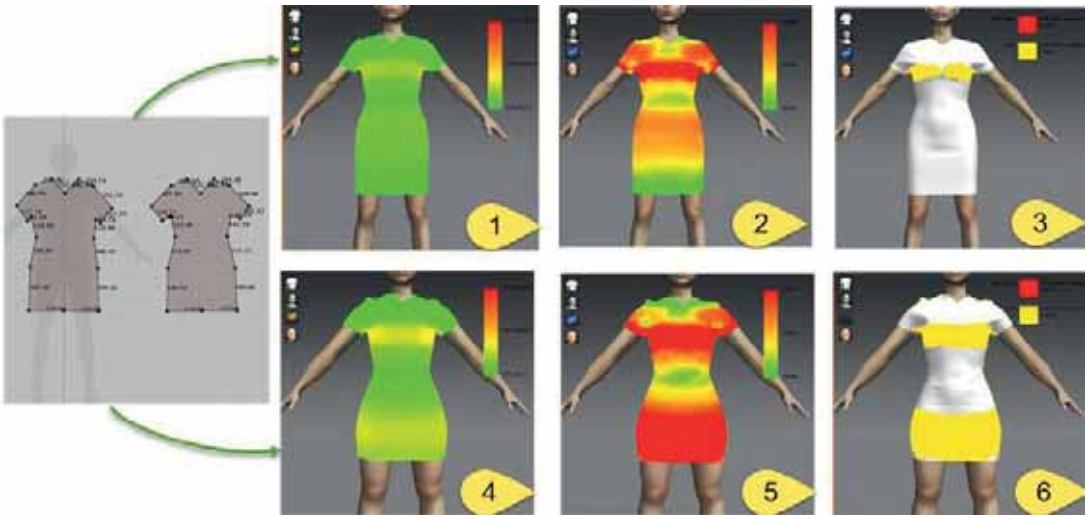
1. A research team was formed to understand the challenge of rapid sample development and ways to address it.
2. The team concluded that usage of E-fit software can significantly reduce the sample development time and cost, and would help the company to increase its sample development capacity.
3. After careful consideration, the company acquired E-fit software from Tukatech Inc.[1] and staff members were trained in its usage.
4. A few styles from their buyer were requested with technical and fit model specifications.
5. As per the specifications of the fit models, the virtual models were created using the CAD system. These 3D models were an exact replica of the buyer's fit model.
6. E-fit software also allowed them to analyse the fabric behaviour. It uses real physical properties of cloth, including the flexibility, stretch, shearing, weight, air resistance and other features.
7. A 3D simulator was used to arrange the patterns on the 3D body form. Once the patterns were balanced, they were virtually stitched on to it.
8. Using fit mapping, the fit of garment was tested on the model for different activities like running, dancing, posing, walking, etc. using the built-in feature of full-motion simulation (see Figure 1). The problem areas were analysed and changes were made accordingly.

[1] Some of the other developers providing 3D CAD systems are Gerber, Lectra, Browzwear, Optitex, Cloe and Assyst-Bullmer.

9. The files were then sent to the buyers to review the fit. Buyers were able to see the garment in 3D and could comment on any style or fit-related changes and, after incorporating the changes, samples were approved. Since the virtually developed samples could be reviewed by the customers without the need for specialized software, the process became relatively easy to adopt.

10. After the initial success with a few buyers, the system was rolled out to other buyers.

Figure 1 Fit mapping



Note Source: Tukatech Inc.

Results achieved

- There has been a dramatic increase in the number of patterns that the normal pattern makers could make in a day. A team of 15 pattern makers used to develop patterns for 25 styles/day on average. This increased to more than 45 styles/day, leading to an increased number of styles created in a season, making almost 1,000 new styles per month;

- It allowed the users to see how the garments would look on their fit model and the way the clothes drape under stationary and moving situations in real time. This significantly eased the approval process and buyers did not have to use a 'fit model' for the sample approval process;

- Since the sample development lead time was reduced and sample accuracy improved, sample approval rate improved, and the buyer gave the company additional styles for development;

- It was possible to do 90% of the work involving physical sample development through the E-fit simulation software. This efficiency gave them a huge increase of business (approximately 40%).

Benefits for the company

- The Timex team reduced the original product design time per style from three days to half a day in many cases;

- Improved sample approval rate resulted in the company gaining new business from its customers;

- The company's own brand, Avirate, which started in 2010, benefited from E-fit simulation. 'We currently produce about 300 styles every two months, and that is something we could not do without the E-fit solution,' said Arshad Sattar, Director of the company. The company now uses system-generated images and videos for product promotion and selling online, producing garments after they have been sold. This has helped the company to eliminate its inventory of unsold garments.

Return on investment

- Timex invested in eight stations of 3D software, costing a total of approximately $200,000;
- The company estimates that this investment was paid back in less than one year due to savings from sample courier charges and two to four weeks of time reduction in product development, faster sample approval rate and additional business generated.

Lessons learned

- Top management's commitment is crucial for successful technological upgrading;
- There must be a reliable and committed technology partner to address the initial difficulties that those factories face during the introduction of new solutions.

Optimizing costs by saving fabric

In a highly competitive market, the global apparel retailer continues to demand increasingly lower prices from its suppliers. According to US apparel import data from the Office of Textiles and Apparels (OTEXA), China's per unit cost of garments shipped to the US came to $1.79 in 2020 as compared to $2.24 in 2019. For Bangladesh, the average price per square metre equivalent (SME) came to $2.76 in 2020, a decline of 6% year-on-year. In fact, nine of the top 10 suppliers of apparel to the US saw prices decrease as compared to a year earlier.

This downward pressure on price necessitates apparel manufacturers to evaluate all opportunities available to reduce costs associated with apparel manufacturing. Fabrics tend to be the largest cost component in garment manufacturing. It can go up by 50% to 70% of garment-making cost. Hence, any effort to reduce manufacturing costs in the garment industry must include fabric saving opportunities. As can be seen in Table 1 below, even a 3% saving in fabric cost could result in about 2% manufacturing costs of the factory. Such savings can also significantly improve the profit margin of a company.

Table 1 Fabric savings

Fabric saving rate	Manufacturing cost ($)	Cost of fabric @ 65% of mfg. cost	Impact saving of fabric in $	Net reduction in total manufacturing cost
3%	10	6.5	0.195	1.95%
5%	10	6.5	0.325	3.25%

Note Source: Rajesh Bheda Consulting Pvt. Ltd

The following practices could save fabric and thus reduce overall manufacturing costs:

1. It is vital to estimate the fabric consumption accurately and order it accordingly. Often, pattern masters, merchandisers or fabric managers add a buffer to the fabric consumption estimation. This, in turn, increases product cost as more fabric is ordered than required. Extra fabric ordered could be up to 3% to 10% depending on company practices. Using CAD systems to generate patterns at sampling stage and developing 'costing markers' based on CAD patterns can help to accurately estimate the fabric requirements.
2. Engineering the patterns wherever possible by adjusting seam allowances or pattern corners leads to saving of fabric.
3. Buying extra fabric first and then saving during the cutting process makes no sense as the extra cost is already incurred, resulting in a financial loss. Fabric purchases per a particular style may not be usable for other products.
4. Ensure that purchase orders do not permit fabric suppliers to ship more than the ordered quantity.

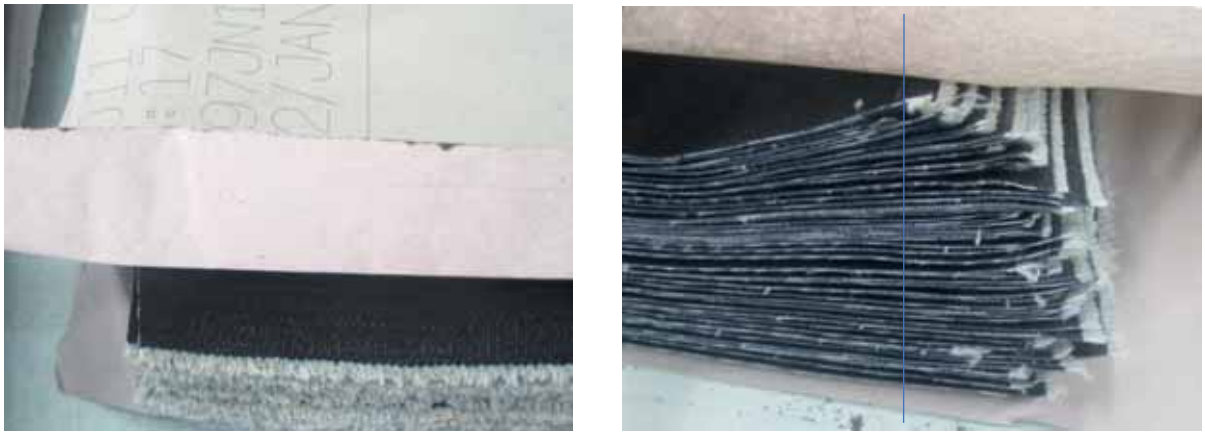
5. Ask suppliers to share information on actual fabric length and width of all fabric rolls supplied. Ensure that fabric suppliers provide fabric with a minimum specified width. This will help segregating of fabric rolls as per the actual width. Fabric issued to the cutting room should be segregated as per width lots so that fabric rolls of the same width are spread together. This helps in creating and using correct markers for higher-width fabrics. This can result in about 1%-1.5% fabric savings.

6. Use 'cut-to-order planning' tools to optimize the number of markers and lays to be used for a cutting order. This can help reduce fabric end losses.

7. Use splice-marks to reduce fabric wastage due to fabric quality defects. Use end-bits well to cut garments out of them.

8. Ensure the fabric lay ends are aligned well. Several factories do not control this: Variations of three to six centimetres have been observed. Use of end cutters can help in controlling this loss.

9. Use new generation marker-making software to generate markers and carry out a comparative analysis to ensure the best fabric consumption.



Extra end allowance and width variations in fabric (© Rajesh Bheda Consulting Pvt. Ltd)

Resources/preconditions required

- Use of pattern making CAD with auto marker making features;
- Strong supervision by management of the fabric consumption estimation, ordering and utilization process along with regular performance review.

Implementation steps

Step 1	Formation of a team to understand the various opportunities of fabric savings in the sampling and cutting department. If needed, organize a training session with an expert on fabric saving opportunities or use online resources
Step 2	Assess the fabric consumption esimation process; use a sophisticated CAD software for pattern making, grading and marker making; and eliminate multiple buffers. Identify a qualified person who can review and approve 'costing markers-arrangement of garment pattterns physically or with the help of a CAD to estimate the fabric consumption and costing of the garment accurately' and material consumption estimates
Step 3	Review fabric purchasing practices, identify opportunities for improvement, ensure extra fabric is not ordered, and carry out a supplier performance review
Step 4	Implement fabric width and shade segregation rigorously immediately on receipt of fabric from the supplier; and prepare markers as per various available widths
Step 5	Ensure that the right amount of fabric in the right width with a corresponding width marker is available for spreading; provide a correct underlay paper to initiate the speading, and ensure narrow marker is not used for wider fabric
Step 6	Check the lay for quality control before the actual cutting process starts
Step 7	Supervise implementation, review results and create SOPs for standardization of the process

Potential benefits

- Reduction in fabric consumption per garment ordered: Several factories globally have saved 1%-10% of fabrics ordered depending on their maturity and baseline performance;
- Reduction in fabric cost per garment and thus overall reduction in the cost of the garments produced;
- Improved fabric consumption accuracy and reduction in fabric consumption can improve chances of securing new orders due to a more competitive price offer.

Key performance indicators

- Fabric savings
- Cost reduction of the garment

Case Study 4: Optimizing pattern layout to save costs

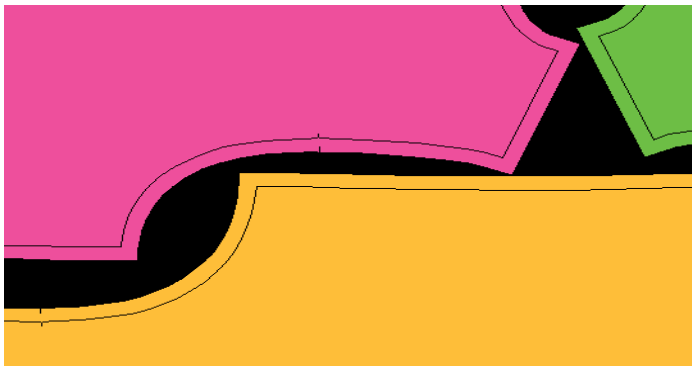
Company background

Name	Sun Tekstil
Location	Turkey
Number of employees	866 (73% women)
Monthly capacity	3 million pieces
Major articles	Women's apparel
Major customers	Inditex Group, Tesco, Marks & Spencer, Next, Kiabi

Problem description

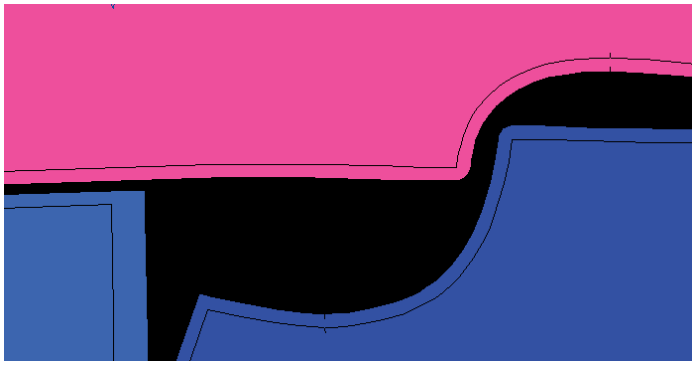
Fabric cost plays a vital role in the overall cost of a garment. By judicious use of fabric, a factory can save a lot of money and optimize its costs. The factory had orders that had sharp corners on the patterns (like armhole at chest or front/back rise), which is a common phenomenon across products. During sewing, the sharp corners of the fabric were trimmed, resulting in wastage of fabric. Also, for some styles, buffers were given in the patterns while making markers. These were reduced to minimize fabric wastage.

Figure 2 Sharp-edged pattern



Note Source: Sun Tekstil

Figure 3 Pattern corner rounded at underarm point



Note Source: Sun Tekstil

Process followed

1. The company explored areas for improvement under ongoing efforts to optimize costs.

2. The cutting team analysed the existing patterns to understand the areas where fabric consumption could be reduced; they noted that sharp edges and buffers in patterns led to fabric wastage.

3. Discussions were held with the cutting team to identify where cutting buffer could be reduced and, based on that, buffers were reduced in the different styles. The patterns had 1 mm buffers between them, and it was reduced to 0 mm.

4. Figures 2 and 3 show patterns with sharp corners and use of buffers. Figures 4 and 5 show the arrangement after the improvement.

5. Figures 6 and 7 show an example of fabric consumption reduced from 7.19 metres to 7.07 metres for a marker.

Figure 4 Pattern arrangement after removing buffer and rounding corners

Note Source: Sun Tekstil

6. CAD systems (e.g., from Gerber, Lectra) were introduced later to maximize marker efficiency.

Figure 5 Top lay plan – regular pattern

Pastal Adi	URT-MS-T41-162095-7869-KOSELI-BUFFERLI	B	7.19m,	Verim	85.38%	Kalip Sayisi	7(22), 7(12), 7(14), 7(16), 7(18), 7(8), 7(20), 7(10)
Tarih	Mon Dec 28 10:07:08 2020	E	1.58m,	Stil	URT-MS-T41-162095-7869-KOSELI-BUFFERLI	Bedenler	22, 12, 14, 16, 18, 8, 20, 10

Note Source: Sun Tekstil

Before: Lay plan length: 7.19 metre

Fabric consumption: (7.19 x 1.58 x 0.300)/8 = 426 grams/garment

Figure 6 Top lay plan – rounded and without buffer

Pastal Adi	URT-MS-T41-162095-7869-YUVARLAK-BUFFERSIZ	B	7.07m,	Verim	86.88%	Kalip Sayisi	7(22), 7(12), 7(14), 7(16), 7(18), 7(8), 7(20), 7(10)
Tarih	Mon Dec 28 10:07:21 2020	E	1.58m,	Stil	URT-MS-T41-162095-7869-YUVARLAK-BUFFERLI	Bedenler	22, 12, 14, 16, 18, 8, 20, 10

Note Source: Sun Tekstil

After: Lay plan length: 7.07 metre

Fabric consumption: (7.07 x 1.58 x 0.300)/8 = 418 grams/garment

Results achieved

The results achieved are shown in Table 2. As can be seen, the average savings in fabric consumption was 0.85% based on the analysis of six styles. The estimated average saving per garment across six styles was $0.0422 (€0.037) per garment produced.

Table 2 Savings in fabric consumption

Type	Style	Lay plan length with rounded corners (cm)	Lay plan length with rounded corners & buffers removed (cm)	Total saving per lay (cm)*	Total saving %	Saving per garment (gr)**	Saving value per garment (EUR)***
Tops	A	590	586	4	0.7%	2.37	0.02
Tops	B	710	706	13	1.8%	7.70	0.06
Bottom	C	942	939	3	0.3%	1.78	0.01
Bottom	D	956	948	8	0.8%	4.74	0.04
Dress	E	1351	1343	8	0.6%	4.74	0.04
Dress	F	1234	1223	11	0.9%	6.52	0.05
* Considering fabric width 158 cm and weight 300 g/m^2							
** Always 8 pieces of garment of different size (1 full size set) has been located per lay in this study							
*** Considering fabric cost is 8 EUR/kg							

Note Source: Sun Tekstil

Benefits for the company

By undertaking this experiment, the company identified a potential saving opportunity in fabric costs. Although in percentage terms it is limited, when the potential annual saving is calculated it is significant. More importantly, this good practice does not require any capital investment if no software is used.

Return on investment

It takes an average of three minutes for a pattern maker to change the corners from sharp-edged to round. One does not need extra time placing the patterns without buffers. The cost of this operation is $0.228 (€0.20) per style and the operation cost decreases when more orders are cut with the same pattern. The company produces 930 styles per year. Thus, the total additional operation cost comes out to less than $228 (€200) per year.

Considering yearly production of the factory to be 36 million pieces and the average saving per garment to be $0.0422 (€0.037), the yearly potential savings could be around $1,519,972 (€1,332,000).

Lessons learned

- Fabric constitutes 55% to 65% of the garment cost. Such saving opportunity in fabric cost exists in almost all factories. Sincere efforts in this direction can provide good results;
- Not all cost saving efforts require capital investment; with human initiative and creativity, several improvement opportunities can be tapped.

Developing responsible and responsive merchandising

While the need to increase shop floor productivity and improvement techniques, such as Lean and Industrial Engineering, gains attention, the focus on merchandising and its role in improving overall operations of a company tends to be low. Merchandising involves critical activities of communicating and coordinating between buyers, suppliers and the sampling and production departments. An efficient, responsive and innovative merchandising process is vital to meet the demands of short production lead time and competitive pricing.

Owners of small and medium-sized factories in the apparel industry usually lead operations and are reported to by the various departments in the organization. The merchandising manager in most cases is either a family member or a long-time employee. She or he is typically involved in a host of activities, such as marketing, sample development, approaching buyers and buying offices, travelling with the owner to meet clients, participating in fairs, working out FOBs, etc. Thus, it is challenging to supervise day-to-day communication related to all orders and address issues at hand.

To ensure that there is someone to investigate the problems, merchandisers are hired to carry out the day-to-day merchandising tasks. In many cases, they are relatively inexperienced or fresh out of college, lacking formal training and the skill sets to tackle challenging situations.

Many organizations often experience the following problems with their merchandising staff:

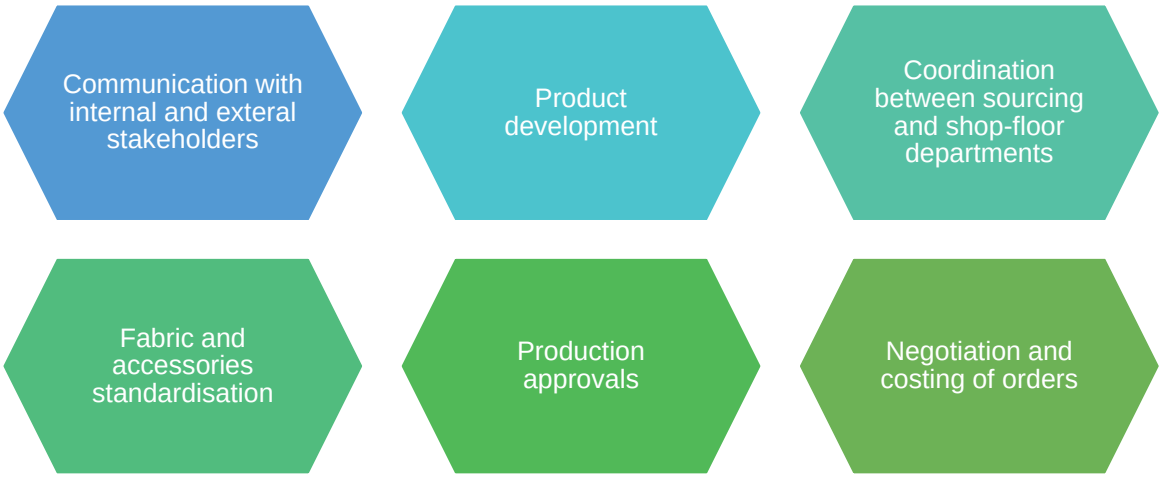
- Poor communication skills;
- Lack of ability to decide on the level of acceptability of production-related approvals;
- Inability to follow a client's operating procedures due to lack of formal training and/or skills;
- Lack of authorization to take minor decisions;
- Delay in decision making or poor-quality decisions due to low accessibility to senior managers;
- Information sharing between different departments may not be systematic and regular, leading to delays in order execution;
- Merchandisers may lack the ability to anticipate potential problems and find innovative solutions;
- Poor time management skills lead to difficulties in handling unplanned activities and prioritizing or delegating tasks.

Resources/preconditions required

For efficient functioning of the merchandising department, the requirements are as follows:

- Effective written and spoken skills to communicate with internal departments, external buyers and suppliers;
- Sufficient technical skills to understand a buyer's instructions/comments and communicate to the product development departments;
- Ability to determine the level of acceptability of fabric document submissions, such as lab-dips or strike-offs, as per the standards specified by the buyer;
- Ability to work in close coordination with the fabric and trim sourcing departments, clearly standardizing and communicating the fabric and trim specifications, and placing orders at the right time and in the correct quantity;
- Knowledge and initiative to gauge market trends related to silhouettes, colours and detailing. The merchandiser may need to submit specific textiles and designs as per these market trends;
- Time management skills to effectively prioritize various planned and unplanned tasks, and ability to discern regarding delegation of work to subordinates;
- Ability to red-flag chronic unsolved operational issues and bring them to the attention of senior management for immediate response and resolution.

Figure 7 Key functions of a merchandiser



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Implementation steps

Step 1

Hire personnel with formal training in merchandising and sourcing with some prior exposure to the industry

Step 2

Once on board, the newly hired merchandiser should undergo a minimum of two weeks' orientation in the company to become familiar with the product portfolio, raw material inputs in use, buyer profiles, standard operating procedures, communication protocols and interdepartmental coordination guidelines

Step 3

Training for in-house ERP systems and flowcharts usage, MS Excel and other basic software covering all merchandising functions; the merchant must be guided by detailed standard operational procedures covering all aspects of the job function

Step 4

The merchandiser may need to update a work in progress report (as shown in Figure 9); The merchandising manager should conduct a routine review to ensure that all orders are attended to as per requirements

Step 5

As the first line of contact with buyers, it is imperative that the merchandiser be supported by other departments, notably sourcing and product development;
she or he needs to be periodically updated with fabric and accessories in-house status and should convey this to the client

Step 6

Formulate a reward sharing mechanism for merchandising team to ensure that the team remains motivated

Table 3 Work in progress status report

WORK IN PROGRESS REPORT (STATUS REPORT)

A. PRE PRODUCTION

S.No	Submit	Target date	Submit 1	Outcome	Submit 2	Outcome	Approved on
1	Fabric quality						
2	Special accessory						
3	Color/pattern submit						
	A						
	B						
	C						
	D						
4	Fit sample						
5	Main label						
6	Care label						
7	COD label						
8	Tab/other label						
9	Hangtag						
10	Special ta						
11	UPC/price ticket						
12	Buttons						
13	Polybag						
14	Tissue/butter paper						
15	Colourbond /butterfly						
16	T-board						
17	Chips/pins						
	Bulk colour /pattern submit						
	A						
	B						
	C						
18	D						
19	Bulk wash panel						
20	Bulk thread panel						
21	Bulk special accessory						
22	PP samples size set						
23	Bulk lables						
24	Bulk tag						
25	Bulk packaging						
26	Shipment samples						
27	Shade lots (if any)						

B. QUALITY PROCESS							
28	Bulk fabric test						
29	Bulk garment test						
30	DPI (During Production Inspection)						
31	FPI (Final Product Inspection)						
32	Compliance (as applicable)						
C. PRODUCTION							
	Order quantity	Cut	Input	Output	Ironed	Packed	Cartoned
Combo a							
Combo b							
Combo c							
Combo d							
Total							

Note Source: Rajesh Bheda Consulting Pvt. Ltd

Case Study 5: Synchronizing processes and lead times when sourcing fabrics

Company background

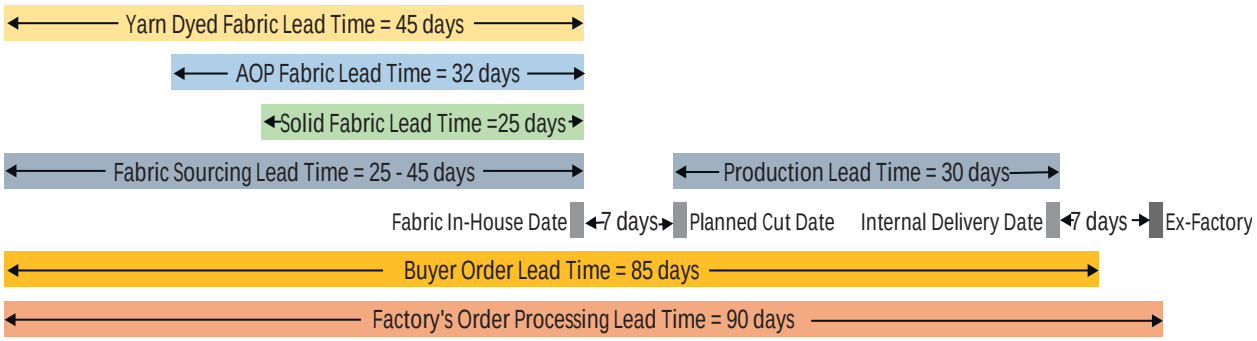
Name	**A manufacturing unit focused on children's wear**
Location	Tirupur, India
Number of employees	950
Major articles	Children's wear (Sleep suits, bodysuits & gift packs)
Major customers	UK-based retailer

Problem description

As per the main buyer's requirement, the factory had many orders where three garments were packed together (combo pack), which required three different fabrics – solid-dyed, all-over printed and yarn-dyed. As 80% of products were in combo-pack form, the merchandising team faced a major fabric-sourcing challenge since each of the fabrics had a different lead time.

The manufacturer also faced a problem of low on-time delivery rate (45%) and spent thousands of dollars on air freight to compensate for the delays caused. The lead time required for sourcing of fabric and production of garments was close to 90 days, while the order time stipulated by the buyer was 85 days. The problem was due to the different sourcing lead times of fabrics affecting the availability for garment production and packing.

Figure 8 Lead time for different fabrics



Note Source: Ramesh Nair, who worked as a consultant for the factory

The difference in lead times created a lag between cutting, sewing and packing of the combos. Solid-combo garments would be out of the line first. Printed combo garments would follow after a week's time. Further, there would be a lag of another seven to 10 days before the yarn-dyed combo garments would be ready and packing could begin.

The repetitive starting and stopping of lines for the same style led to frequent changeovers, loss of productive sewing time and high work-in-process. The waiting time spent in storage before packing caused handling stains and other quality issues that were detected at the final packing stage, leading to rejections and ratio-out. The unavailability of any one of the three combos would result in an incomplete combo pack that could not be shipped, which in turn led to a low order-to-ship ratio of less than 94%.

The late deliveries along with the low order-to-ship ratios left the customer dissatisfied and the factory began losing out on many high-margin repeat orders to competitors.

Process followed

The merchandising and production teams found that the sequential arrival of the three different fabrics with a time lag of a week or more created the issues. They called for a synchronized approach to both sourcing of fabrics and shop floor operations. Simultaneous arrival of the three combo fabrics would enable the shop floor to cut all three fabric types in parallel, start sewing simultaneously in three parallel lines, and obtain the complete set at the end of the line for packing.

The challenges posed and the solutions are explained as follows:

1. Delays in fabric order processing: The merchandising department took two to three days just to input the complete order details into the master order book. It took another four to five days to derive accurate fabric consumption and generate the bill of materials.

   Solution: Revised procedures were put in place to enable input of a fresh order and preparation of a bill of materials within a maximum of two working days. This enabled them to save precious time at the fabric order processing stage.

2. Delays in fabric approval process time: Bulk fabric processing was often disrupted due to delays in getting colour approvals, which usually took up to 10 days for solid fabric, and 12-14 days for printed and yarn-dyed fabrics.

   Solution: Prior to the release of the garment purchase order, the merchandising teams worked in parallel with the fabric mills to generate the lab-dips, strike-offs and yarn colours to seek approvals for all three types of fabric. The advance receipt of the approvals helped the mills to fast-track the fabric processing and save at least seven to eight days of fabric processing time.

3. Delays in fabric processing due to unavailability of greige fabric: Greige fabric supplied by the factory to the mills was often delayed, resulting in missed slots leading to fabric delivery delays.

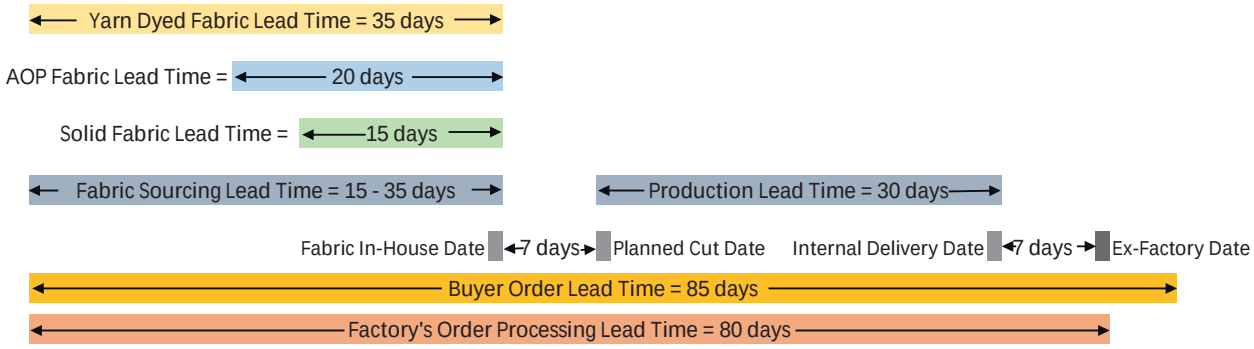
Solution: The factory management took a collaborative approach, giving complete order visibility to the mills for the entire season. The factory management also committed to and shipped greige fabric to the dyeing mills in advance. This, in turn, gave confidence to the dyeing mills, leading to predictability in the processing and delivery of dyed fabrics. This was particularly beneficial for the yarn-dyed fabric mills, enabling them to dye and stock yarns in advance.

4. Training of the sourcing team to adopt a prioritize-focus-finish approach enabled them to look at series of orders by delivery date and ensure timely order delivery and completion.

Results achieved

- Fabric order processing lead time was reduced from six or seven days to two days at most;
- Fabric approval process lead time was reduced by seven to eight days;
- Fabric processing lead time was reduced by six to eight days;
- Cumulatively, the sourcing lead time for the solid and all-over print fabrics reduced by 10-12 days, and the yarn-dyed fabrics sourcing lead time reduced significantly, by around 15 days.

Figure 9 Revised lead time for different fabrics



Note Source: Ramesh Nair, who worked as a consultant for the factory

Additionally, the increased visibility and reliable supply of greige fabric enabled the fabric mills to deliver as per their plans. This was complemented by the sourcing departments prioritize-focus-finish approach to monitor and deliver specific series of orders by priority.

Benefits for the company

The lead time reduction coupled with consistent on-time delivery of the fabrics allowed the factory to assemble all three fabric combos in around 35 days, well within the planned cut dates. Synchronization of the cutting, sewing and packing processes became much easier, enabling consistent on-time delivery with higher order-to-pack ratios. This improved customer satisfaction and provided an opportunity to win back some of the lost high margin repeat orders.

Return on investment

The company had paid air freight charges of close to $83,000 due to delayed shipment. The results leading to reduction in the sourcing lead time and synchronized arrival of all the three types of fabrics was achieved in around six months with an investment of $50,000. This led to timely deliveries and complete elimination of air freight costs, thereby giving an ROI of 1.66 times the money invested.

Qualitatively, due to synchronized feeding into the lines, cut-to-pack ratio also increased from 94% to 98.5%. With deliveries on time and a high cut-to-pack ratio, the factory once again became a leader in performance, making it a candidate for high-value repeat orders.

Lessons learned

Merchandisers play a crucial role in synchronizing the activities of the various departments. They need to be trained not only to carry out day-to-day tasks, but also to thoroughly analyse any problem and find innovative solutions. The company should give merchandisers enough responsibility so they can carry out the tasks in an effective way by making timely decisions.

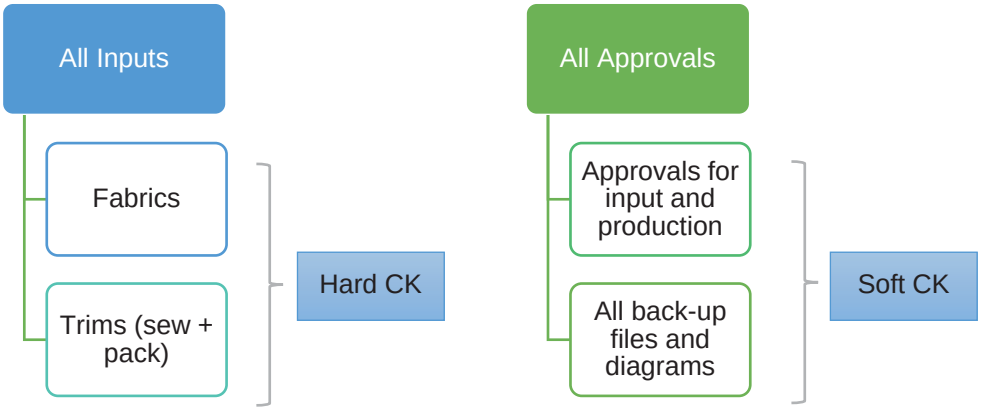
The Complete Kit concept improves on-time delivery

On-time delivery of shipment by garment factories is crucial for global customers. One of the hurdles in achieving an on-time planned-cut date is the unavailability of raw material inputs in time, and delays in key approvals.

The unavailability of raw material inputs necessitates a change of production priorities, wasting precious shop floor production time. This leads to the factory floor working overtime to expedite the completion of the orders to meet the delivery date. Thus, not only is production disrupted and deliveries delayed, but issues also arise in terms of product quality and shipment quantity. It is therefore imperative to be able to gather all inputs comprising fabrics, accessories and all approvals needed to start production as one complete package, called a Complete Kit (CK).

The Complete Kit concept Is the practice of putting together all the raw material inputs, approvals, drawings and sketches as a complete package and delivering it to the production department well in time before the planned-cut date. The CK practice is an integral part of lean manufacturing practices. The application of CK to the apparel industry includes both inputs and approvals, referred to as hard CK and soft CK, respectively. The figure below represents the inputs and approvals commonly used in the apparel industry:

Figure 10 Inputs and approvals on the production floor



Note Source: Rajesh Bheda Consulting Pvt. Ltd

To explain the CK concept, let us take the example of a ‘two-pack nightwear set’, which has both a top and bottom. According to this concept, one would start with the production or cutting the fabric only if the following conditions are fulfilled:

- Both the components of fabric are available in-house at the same time;
- All trims are available in-house;
- All production approvals, including pre-production approval, and embroidery and applique approvals are in place with complete details of design, placement and grading by different size ranges;
- All paperwork, which includes files, sketches, specifications, combo details, fabric and trim cards, placement details, are clear and complete.

Table 4 Sample Complete Kit for a two-pack nightwear set

1	Fabric 1 (Solid)
2	Piping Fabric
3	Heat Transfer Sticker
4	Main Label
5	Size Label
6	Wash-care Label
7	Sewing Thread
8	Elastic
9	Draw Cord
10	Price Tag
11	Hanger
12	Poly Bag
13	Cartons
14	Stickers

Note Source: Rajesh Bheda Consulting Pvt. Ltd

CK as a concept is widely used to ensure delivery of the complete package of fabrics, accessories and approvals. However, it can also be extended across other functions as part of the workflow from one department to another, such as the handing over of a fabric requisition from the merchandising to the fabric sourcing department or the handover of a production file to the production department before the start of production. The CK philosophy suggests that material should not be released to the factory floor until all items required for completion of the job are available.

Resources/preconditions required

While CK as a concept looks simple and self-explanatory, in practice assembling a CK is a complex practice, involving close coordination among many departments. The preconditions needed are as follows:

- Close coordination between the merchandising and sourcing departments;
- Putting into place a CK report for each style. The report details the inputs, i.e. the fabrics, accessories and the approvals needed for a style to go into production. Importantly, the report also stipulates the date by when these inputs are required and the status of the input arrival, as-on-date;
- Agreement for updating the CK report daily and circulation to the planning and production departments is yet another prerequisite for a successful implementation;
- Close coordination with the planning department and periodic reviews are important. This enables highlighting potential delays well in time, enabling the planning department to re-plan production lines;
- Full commitment of the top and mid-level management is imperative to successfully implement and sustain the CK methodology;
- Data collection across processes and departments is intensive, hence there is a need for a dedicated person to collect and input the data, prepare the CK report and distribute it daily for review and action.

Implementation steps

Step 1	Train the supply chain and shop floor departments on CK concept; the training duration in most cases does not exceed two to three days
Step 2	Rigorously train merchandising and sourcing teams, as the CK implementation shall be led by these departments
Step 3	The planning team serves as the focal point, coordinating and communicating between the pre-production and production functions
Step 4	Based on the existing order book and the planned-cut dates set by the planning department, CK dates are allocated and orders for fabrics and trims are placed by the merchandising to the sourcing departments
Step 5	The CK status report for all orders for the next three to four weeks is prepared keeping in mind CK date priorities
Step 6	All stipulated orders whose CK date falls within the coming two weeks are closely reviewed and actions taken on priority to get inputs for these orders on or before the planned CK date
Step 7	Conduct a daily review of sourcing status and the production approvals involving the merchandising, sourcing and sampling teams; based on the inputs received from the teams, an overall CK status report is prepared
Step 8	The CK status report is circulated and any potential delays are red-flagged to the top management for expeditious action
Step 9	Adoption of new analytics for performance assessment is another important step taken to align the key departments to the new way of working. Two new analytical metrics are to be introduced: 1. CK%: Number of instances in a season when all required inputs for starting production of a style are delivered 'together as one package' out of total instances 2. Lead time taken: Total time taken for receipt of purchase order to processing and shipping of an order

It is imperative to adopt new metrics to align merchandising and sourcing teams to the new way of working. The CK% measures the number of instances when all required inputs for starting production were delivered into the shop floor as CK. For instance, in a given season, if Complete Kits were delivered for 26 out of 35 styles planned for production, this translates into a CK of 74%. Thus in 74% of the cases, inputs were delivered to the factory floor as a CK. A sample CK report has been represented in Table 5.

Table 5 Example of CK report

CK report								
CK date: 19/02/2014 to 25/02/2014								
S.No.	**Order No.**	**Style**	**Ref No.**	**CK date**	**Fabric**	**Sew.Acc**	**Pak. Acc**	**CK**
1	MIL#*ON00001*	Girls' leggings	4208280	23/02/2014	OK	NK	NK	NK
2	MIL#*ON00002*	Girls T-shirt	4208276	23/02/2014	OK	NK	NK	NK
3	MIL#*ON00003*	Girls T-shirt	4208256	23/02/2014	OK	NK	NK	NK
4	MIL#*ON00004*	Girls T-shirt	4208282	23/02/2014	NK	NK	NK	NK
5	MIL#*ON00005*	Girls T-shirt	4208284	23/02/2014	OK	NK	NK	NK
6	MIL#*ON00006*	Girls T-shirt	4208289	23/02/2014	NK	NK	NK	NK
				Percentage	66.67%	0%	0%	0%
				Fabric CK	66.67%			
				Accessories CK	0%			
				Overall CK	0%			

Note Source: Ramesh Nair, who worked as a consultant for the factory

Potential benefits

The adoption and implementation of the CK methodology does not entail any capital investment. The existing sourcing and merchandising teams must spend three to four days in intensive training. The training entails understanding the CK concept as applied to sourcing of all inputs, i.e. fabrics, accessories and seeking production approvals. It also entails computation of the CK date and correctly computing the lead times for timely sourcing of all inputs.

CK as a methodology offers immense benefits to companies that adopt and follow the process meticulously. It serves as a planning and control mechanism for sourcing all inputs and helps synchronize the working between pre-production and production domains.

- The adoption of CK helps to gather all inputs and approvals on time with greater consistency, enabling very high planned-cut date hit rates;
- This, in turn, helps to eliminate unplanned production, which is undertaken to keep the lines busy, due to the non-arrival of inputs for the scheduled production;
- A combination of the above factors enables companies to achieve high on-time delivery, while substantially reducing inventory, whether in the form of raw material inputs, work-in-process or even finished goods;
- Companies that have successfully adopted and implemented CK have reported substantial increase in both sales and profitability within the existing infrastructure of workforce, machines, skill sets and working hours.

Key performance indicators

- On-time delivery rate
- Planned-cut date hit rates
- Production downtime due to raw material delay

Case Study 6: Complete Kit concept improves planned-cut date hit rate and on-time delivery

Company background

Name	A manufacturing unit focused on infant wear
Location	Tirupur, India
Number of employees	900
Number of machines	550
Major articles	Infant sleepsuits, bodysuits, hats, mittens, etc.
Major customers	UK-based children's speciality retailer

Problem description

The factory had extremely low planned-cut date hit rate of less than 40%. Due to the poor record of raw material arrival, there was frequent disruption in production, resulting in low output by production lines and unplanned overtime. This resulted in frequent need of night shift working, resulting in higher costs.

On-time delivery was at 45% and average lead time was more than 100 days. Due to poor on-time delivery, the factory had to pay for air freight often in order to deliver the products to the customer in time.

The low planned-cut date hit rate was due to the sourcing constraints faced by the company. The company worked on a wide variety of styles every season. Each style has multiple fabrics and accessories sourced from different suppliers with varying lead times. In addition, each style had to be delivered across multiple delivery dates and, in many cases, these deliveries were spread across a time span of as much as six weeks. This meant that fabrics and accessories for a particular style had to be sourced multiple times. To summarize, the company faced challenges on two fronts:

1. The company needed to cultivate a mindset within the merchandising and sourcing departments, requiring them to deliver all fabrics, accessories and production approvals as one complete package. This would enable the shop-floor production to proceed smoothly without interruption.

2. A methodology was needed that would enable the merchandising and sourcing teams to source inputs (fabrics and trims) across multiple suppliers with varying dates, and yet deliver the complete package (fabrics, trims and production approvals) as per production priorities in a consistent and predictable manner.

The solutions came from applying lean manufacturing and theory of constraints methodologies to resolve the sourcing challenge.

- To help cultivate and embed the mindset of delivering all fabrics, accessories, and production approvals as a complete package, the CK concept was borrowed from the lean manufacturing practice of kitting. Practised in the auto-industry, kitting delivers different components and sub-assemblies to the shop floor in pre-determined quantities, with a view to streamline the entire manufacturing process;

- To schedule the sourcing and consistent delivery of Complete Kit across different suppliers, timelines and priorities, the 'priority management system' was borrowed from the theory of constraints methodology;

- The two methodologies complemented each other, with one methodology clearly defining the total input requirements, while the second methodology put in place a mechanism to facilitate the timely arrival of all material inputs as one complete package consistently in sync with the production priorities.

Process followed

The four phases in implementation of the CK process in the factory involved:

1. Collecting baseline data related to the existing performance of the factory on their deliveries. The baseline data was discussed with the sourcing and merchandising teams to help them understand the root cause of delays and get their buy-in on changing the existing processes involved in sourcing of fabrics and accessories.

2. The sourcing and merchandising teams were trained on the CK concept. Different teams handled different brands and product categories, and each team faced specific challenges in terms of existing processes, lead times to work on and buyer procedures. For each customer account, the merchant team was trained to define the CK, duly factoring in the inputs and production approvals required:

   - Accurately estimating the cumulative lead time for each of the inputs (fabrics and trims) and setting the order-trigger-date for ordering of inputs, which ensured that the inputs were ordered just in time;

   - Close and repetitive coordination with the finance department to enable timely payment to the suppliers, thereby averting delays.

3. A standard operating procedure was put into place. The sourcing and merchandising teams along with the top management were kept in loop for smooth implementation of the CK methodology.

4. To accurately assess and evaluate performance, a new set of metrics were agreed upon and put into place for the sourcing and merchandising departments.

Results achieved

- Due to adoption of CK, raw material arrivals were synchronized with production planning requirements; this enabled the factory to record a planned-cut date hit rate of 85% against the baseline of less than 50%;

- Productivity increased across three main product categories, ranging from 32% to 38%;

- On-time delivery of the factory improved to 90% and above; air freight shipment charges were eliminated.

Benefits for the company

Ordering of fabrics based on correct trigger dates not only enabled timely arrival of the fabric, but also freed up precious working capital that was often locked up in unplanned yarn and greige fabric bookings. Thus, fabric inventory was reduced by an average of 45%, freeing up much needed working capital for growth and expansion.

Return on investment

Adoption of CK does not entail investment in infrastructure, machinery or software. In most cases, the implementation of the CK concept can be taken after a short training of a week's duration. Like all other change-management initiatives, CK implementation seeks investment in terms of top management commitment and oversight.

The project ran for 12 months with investments made by the factory towards the implementation of this methodology totalling $51,000. The benefits were as follows:

- Due to improved planned-cut date hit rates of more than 85%, the company managed to stick to its day-to-day production schedule, saving money on sending delayed merchandise by air; the company had paid $64,000 in air freight in the previous year, hence these savings were more than enough to make up for the investments made into implementing the methodology;

- The application of the CK methodology was among many key practices that led to the improvement in productivity; at least another $100,000 was contributed to increased productivity due to using the CK methodology;

- The reduction in fabric inventory led to a substantial reduction in finance charges amounting to $36,000.

Thus, with an investment of $51,000, the company, through savings and increased earnings, reaped an additional income of $200,000, a return on investment of about 300% for its investments.

Lessons learned

Adoption of the CK methodology streamlines the fabrics and accessories sourcing function, enabling timely arrival of raw material inputs and approvals as one complete package on a consistent basis in a very high number of cases (85% and above).

This translates into minimum disruption from the perspective of the planning and production departments, which implies higher productivity, substantially less unplanned overtime, and very high on-time delivery.

Chapter 2
Production and quality practices

Method study improves productivity

Method study is the systematic recording and critical examination of existing and proposed ways of doing work as a means of developing and applying easier and more effective methods, thereby reducing costs. By applying the right method of work procedures, design of workstation and workstation layout, overall performance and productivity can substantially be improved.

Standardization of operations plays a vital role in improving any operation. When we capture the method of individual operators working for the same operations, we can see the difference among their respective methods. The practice of method improvement requires all operators, whether they are new or skilled, to follow the same standardized process.

To achieve such consistency, it is necessary to capture, based on the principles of method study, the methods used by every operator. Method study is carried out based on the body movements of the operators, elements used for doing the specific operation, and workstation layout used for doing the operation. By eliminating unwanted, extra movements from the operation, reduction in time required to complete the operation can be achieved, which results in enhanced productivity for the individual operators.

Resources/preconditions required

- Team of industrial engineers and/or work-study officers working towards the method improvement;
- Full commitment of the top management to promote better methods;
- Willingness of middle management to change and develop the new methods;
- Good coordination and synergy between industrial engineers team and production team.

Implementation steps

Step 1	Find three or more operators for a single operation who are performing well in that given operation
Step 2	Analyse all the three individual operators' methods using method study steps; analyse their workstation layout, number of elements in the operation and kind of movements
Step 3	Find the best operator out of the three, based on the method of work; even the best operator may need to improve their standard working method
Step 4	Find opportunities for improving the working method; guides, attachments and facilitating aids can be used to reduce the time and simplify the operation
Step 5	Have the best operator practice the right method and right workstation layout on a few pieces; after that, compare the improved method with the old practice; once the benefit of the new method is established, record the new method of work in terms of workstation layout, elements and movements; create a document for the standardized method of work
Step 6	Record videos of the improved method for future reference; all other operators need to be trained on the new standardized method
Step 7	Documented method of that operation should be implemented across the factory; in this way, every operation can be standardized and documented, leading to the creation of standard procedures for all operations and improvement in the performance of the operators' productivity and/or quality

Potential benefits/Return on investment

Investment is required to train the team and for sourcing folders and attachments. These investments are outweighed easily by their advantages. Significant improvement in productivity can be observed by making small changes to the methods followed by any operator to carry out the operation.

Key performance indicators

- Hourly production data
- Productivity of individual operator or line
- Cost of the operation or garment
- Defect rate

Case Study 7: Changes to sewing operation methods increases productivity

Company background

Name	A manufacturing unit
Location	Tirupur, India
Number of employees	450
Monthly capacity	100,000
Major articles	Kid's wear, undergarments, children's undergarments, men's wear knits, ladies wear knits
Major customers	Disney, Mothercare

Problem description

The factory had an experienced production team comprising members mostly from the sewing operator level. The newly created IE Department was developing time standards for the factory. Due to short order quantity and high style changeover in the sewing lines, the industrial engineers' team struggled to develop the standard methods, which resulted in variations in the methods used by the operators. As a result, many operators failed to meet standard-minute-value-based production standards.

Non-standard methods resulted in low productivity levels, high defect rates and low morale of employees. The factory was unable to meet the desired output and extra production lines had to be added to meet the target delivery date. All of these factors increased the cost of the garments for the factory.

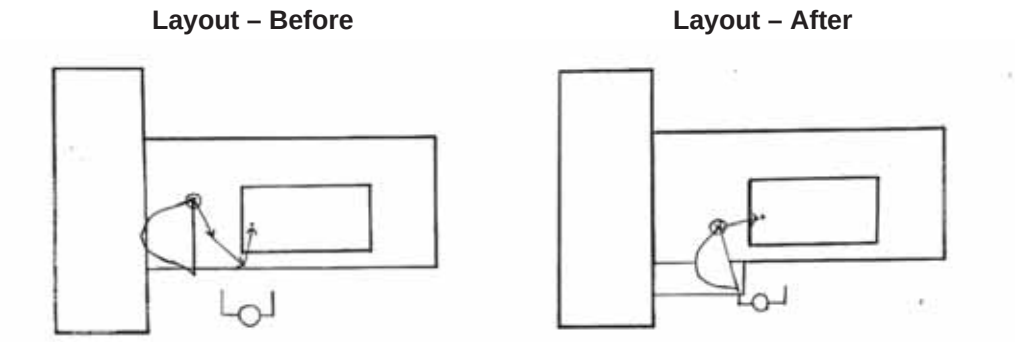
Process followed

1. A team of trainers was trained in method improvement and standardization. They analysed operations that were critical and caused bottlenecks.
2. For every critical operation, the team identified three operators whose skill levels were moderate to good. They analysed the method of all three individuals for these operations.
3. Based on their observations, they identified the best method out of the three.
4. Analysis of possible use of work aids, movements and change in pick-up points was carried out to define what could improve the method of even the best operator.
5. These improved methods helped the operators to reach the target performance level.
6. The identified best method was recorded and documented. The documented methods were verified and approved by the middle and top management. They were then approved for implementation.
7. The implementation process for the revised and improved method was carried out throughout the factory, which led to improvement in productivity of the operators as well as the line.
8. This motivated other line operators to implement the same methodology in their respective lines.

Results achieved

- One example of method improvement achieved in the factory is demonstrated below in figure 11. In the existing layout, the operator was facing difficulty in picking up the pieces and moving them to the presser foot. An extension table was added, which helped the operator to pick up the piece and smoothly put it to the presser foot;
- This resulted in reduction of cycle time of the operation by 23.6% and improved the capacity of the operator by 32%; seen in table 6;
- Results of method improvement in critical operations are explained in table 7;
- The method improvement activities in the critical operations resulted in productivity improvement in line 7 and line 9;
- The result of the improvement for the week is represented in the figures 12 and 13. A total of 10 operations were improved.

Figure 11 Change in layout



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Before and after images: Change in layout (© Rajesh Bheda Consulting Pvt. Ltd)

Table 6 Results achieved – method improvement

Parameter	Before	After	Improvement
Cycle time of the operation	7.6 sec.	5.8 sec.	23.6%
Capacity in pieces per hour	470	620	32%

Note Source: Rajesh Bheda Consulting Pvt. Ltd

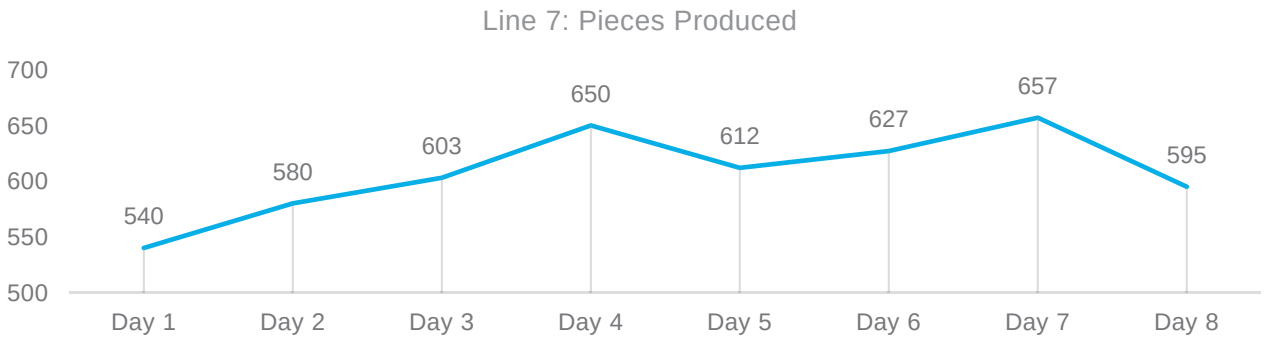
Table 7 Detailed analysis of improvement

Line: Line 7 and Line 9
Style: Dress baby wear

S.no	Operation	Operator	Cycle Time in Sec		Capacity in Pcs		Improvement in Capacity
			Before	After	Before	After	
1	Front and bottom attach	Vasanthi	98.4	65.2	37	55	51%
	Front and bottom attach	Selvi	162	115	22	31	41%
	Front and bottom attach	Thamilarisi	107	78	34	46	37%
	Front and bottom attach	Geetha	134	100.3	27	36	34%
	Front and bottom attach	Manoj	114	73	32	49	56%
	Front and bottom attach	Shankar	171	83	21	43	106%
2	Waist band attach	Vennila	198	112	18	32	77%
	Waist band attach	Jayanthi	123	102	29	35	21%
3	Side seam	Sathya	83	35	43	103	137%
	Side seam	Saraswathi	42	30	86	120	40%
			Average Improvement				**60%**

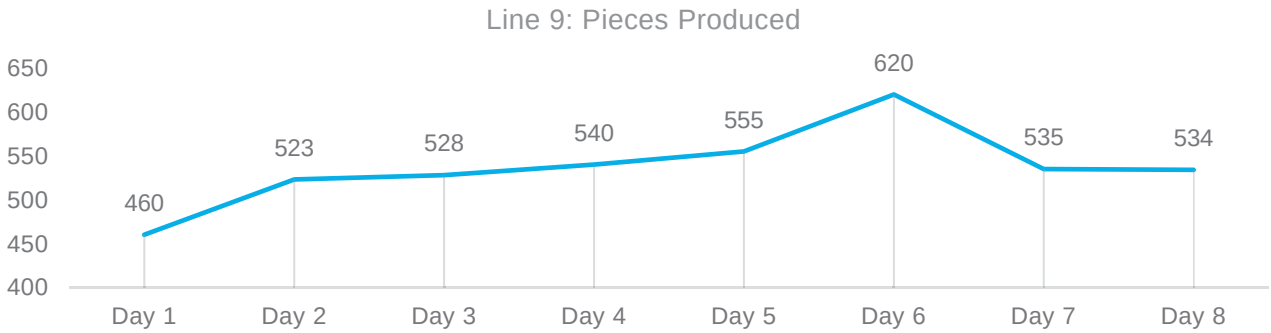
Note Source: Rajesh Bheda Consulting Pvt. Ltd

Figure 12 Production data – line 7



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Figure 13 Production data – line 9



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Benefits for the company

- Improvement in individual performance and capacity of the selected operations;
- Line productivity improved by more than 10%;
- Method standardization was achieved for 10 operations.

Return on investment

The investment in method improvement training capacity building was $1,000 for a two-day programme. The two lines started producing 1,100 pieces per day on a baseline production of 1,000 pieces. The additional cost of manufacturing earned per day was $35 per day per line (FOB cost was $3.5 per piece). This means a monthly savings per line of $910 (26 days working), providing an impressive payback period of just over one month.

Lessons learned

- Factory management should encourage the teams to standardize the methods for all operations, which would lead to a systematic process flow;
- Improvement in methods to carry out any operation can result in significant cost savings and improvement in efficiency;
- Accepting non-scientific practices can be a deterrent to high performance in an enterprise.

Reducing costs by deskilling/reducing indirect workers

Reducing manufacturing costs is critical for apparel manufacturers. Manufacturers should inculcate a culture where team members work consistently to reduce manufacturing costs.

Deskilling of operations reduces the requirement of a skilled operator for a specific operation. In deskilling, the workstation is equipped with additional attachments so that a part of the operation is handled by the machine and dependence on the operator is reduced. Various types of standard folders and attachments are available and used for deskilling an operation.

While performing an operation, jobs such as of holding, aligning, folding, maintaining even width and shape are taken care of by fixing a suitable attachment or folder in the machine. This ensures that the operator is focused mainly on feeding the machine and monitoring the output from machine.

Key benefits of deskilling are as follows:

- It reduces the standard minute value of operations, which in turn reduces the manpower requirement for specific operations;
- It helps workers to improve quality of operation;
- It ensures that all the output is the same and there is no variation between different garments;
- It reduces the rework level;
- It reduces the skill level required for a specific operation.

Resource/preconditions required

For various standard operations, ready-made attachments and folders are readily available on the market. However, certain attachments and folders need to be developed based on operation-specific requirements. Some of the resources that are required for fabricating the attachments and folders are:

- Metal sheet (stainless steel and tin sheet);
- Thick steel wires and rods of diameters ranging from 1 mm to 8 mm;
- Soldering gun and wire;
- Exact measurements of folder input and folder output;
- Information about machine type on which the folder must be mounted;
- Grinding, buffing and other tools used by mechanics;
- Trained mechanic/technician who can develop attachments and work aids.

Implementation steps

Potential benefits/Return on investment

The investment made on folders and attachments is quite minimal as compared to their advantages. These folders and attachments help factories to improve quantitative and qualitative performance. On the quantitative side, the factory reduces the manpower required for a specific operation; on the qualitative side, folders and attachments help the factory enhance product quality. These simple folders and attachments can contribute to a productivity increase of 20% to 100% depending upon the scope of automating the process.[2]

[2] See *Managing Productivity In The Apparel Industry* by Rajesh Bheda

Key performance indicators

- Reduction in standard minute value
- Reduction in required manpower
- Cost of manufacturing for the operation

Case Study 8: Reducing labour costs by deskilling the operation

Company background

Name	A large pants manufacturing factory
Location	Gazipur, Bangladesh
Number of employees	2,100
Monthly capacity	450,000 pieces
Major articles	five-pocket cargo, chino, jogging, shorts
Major customers	UK-based large format discount stores

Problem description

One of the men's chino pants styles under production had a metal tab that was attached manually above the back welt pocket. Each worker took 62 seconds to attach one metal tab and produced 50 pieces every hour. Three workers were engaged for this process to manage an hourly output of 150 pieces per hour.

Each tab required a specific number of manual stitches to ensure a uniform look in all the pieces. Workers doing this operation manually, using a hand needle, found it challenging to ensure an even thickness of the attaching seam.

The maintenance team, with the help of industrial engineering team, developed an attachment that was fixed on a bar-tack machine to attach the metal tab.

Process followed

1. Industrial engineering team analysed the operation and proposed automating the metal tab attaching process; the required attachment was to be customized for this operation.
2. Specifications were shared with two external contractors, and they were asked to submit the quotation mentioning price, lead time and payment terms.
3. After reviewing the quotation, work was awarded to the contractor whose lead time was 50% less but whose prices and payment terms were similar.
4. Three sets of attachments were received and, after confirmation by the maintenance team, the attachments were fixed on the bar-tack machine; parameters of bar-tack machine were set to ensure stitch quality and appearance as per customers' specifications.
5. A few trial pieces were made using the attachment and approval was sought from the quality department.
6. Quality department analysed the output using the attachment with the buyer-approved sample and gave the go-ahead to use the attachment.
7. Bulk production started using this attachment and the factory was able to reduce by six workers, at the rate of two workers per line.

Results achieved

- The use of the attachment resulted in an increase in the output/hour per person per line from 50 pieces to 150 pieces, which is a threefold increase;
- The factory was able to reduce by six workers at the rate of two workers per line;
- The quality level improved significantly, and repair rate reduced from 4.5% to 0.5%.

Return on investment

- Cost of one attachment was $4.00; for three attachments, the cost is $12.00;
- The daily wage cost of a worker at the company was $7.00;
- Rental cost for one bar-tack machine was $2.75 per day;
- Payback period for the developed attachment was less than seven days.

Lessons learned

- Deskilling operations reduce the number of workers, thereby reducing costs;
- For certain operations, innovative use of attachments for deskilling can mean a payback period of less than a month while improving quality substantially;
- Factory management should encourage teams to identify and develop attachments and folders to reduce costs and improve efficiency.

Reducing SAM (standard allowed minutes) enhances cost competitiveness

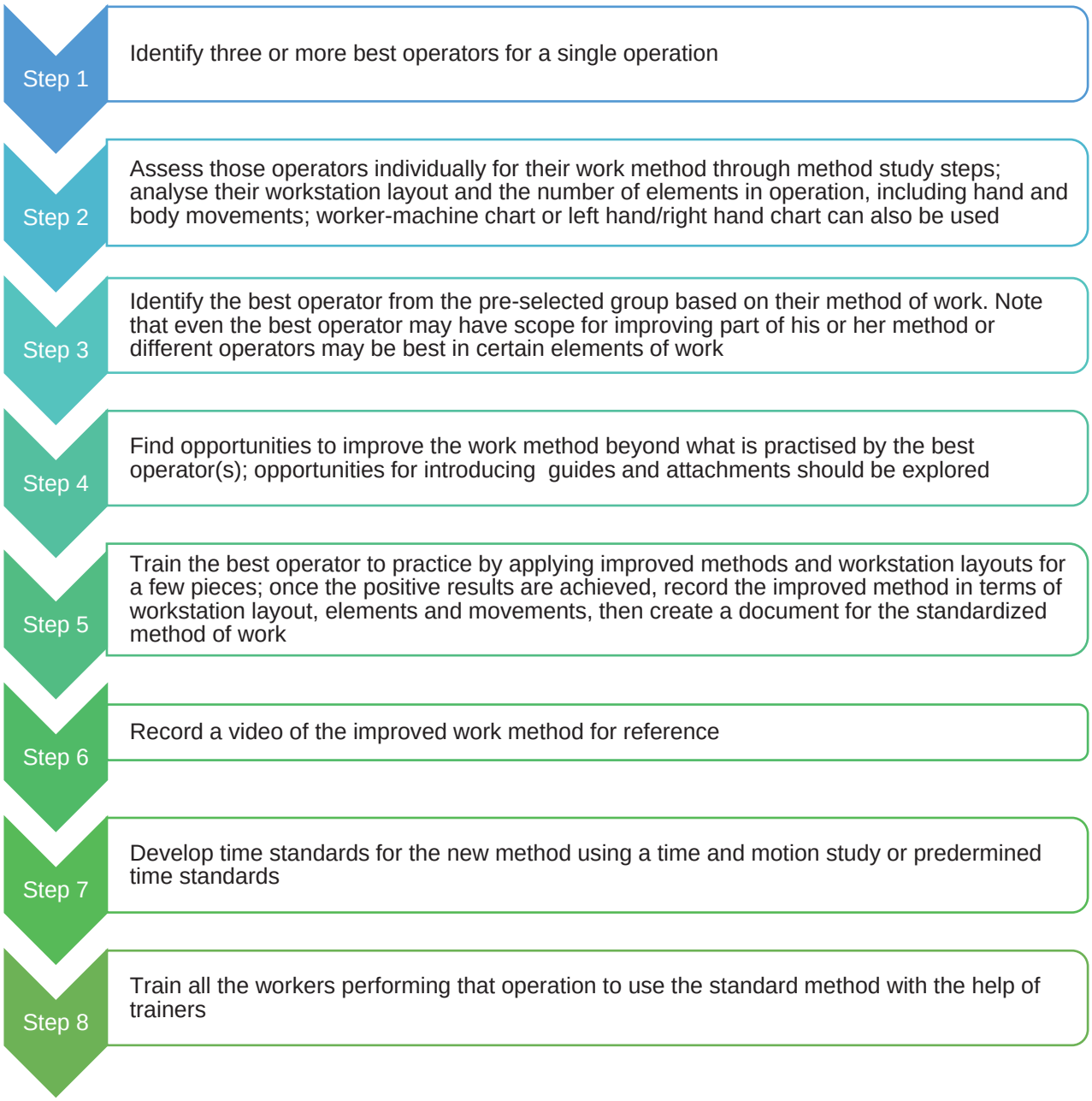
SAM, or standard allowed minutes, is the universal measurement of time allowed to a qualified worker to carry out a specified task under specified conditions and defined level of work performance or standard performance. The SAM value is crucial for key business processes, such as production targets, line balancing, production planning, incentive schemes, quantification of operator performance and factory efficiency.

Method improvement, technology upgrades, and use of work aids can reduce the work content of a garment. SAM reduction aims to identify the simplest and most effective methods to reduce work content, improve efficiency and cut down on costs, thus providing a competitive edge to the factory.

Resources/preconditions required

- Full commitment from top management to implement the necessary changes to improve the working method of an operation;
- Willingness to change and adopt the new method of work by middle management through proper training;
- Regular practice of the method analysis and improvement techniques;
- Good coordination and synergy between production and the industrial engineering team;
- Good engagement with workers so they understand the need for improving methods, standard time and cost competitiveness;
- Availability of qualified trainers who can train workers on the improved methods.

Implementation steps



Potential benefits/Return on investment

The investment required to train the team and for potential sourcing of folders and attachments is easily outweighed by the advantages it brings:

- Increased labour productivity;
- Reduced cost of manufacturing;
- Identifying the best suitable method of work by establishing standard working methods.

Key performance indicators

- Hourly production data
- Productivity of individual operator/line
- Efficiency of the individual operator/the line
- Cost of manufacturing of a garment

Case Study 9: Implementing SAM reduction on the sewing floor

Company background

Name	A knit garments manufacturing unit
Location	Tirupur, India
Number of employees	1,000
Monthly capacity	720,000
Major articles	Kids wear, undergarments, kids' undergarments, men's wear knits, ladies wear knits
Major customers	H&M

Problem description

The factory used to run with an experienced production team developed from the level of a sewing operator. The industrial engineering team was gradually picking up pace and starting to work towards the development of standards for the factory. However, due to short order quantity and frequent style changeovers in the lines, the team struggled to follow standard working conditions. This resulted in adoption of poor methods of working by operators.

The SAM values had a wide range and, due to the inconsistency, the factory struggled to get the desired efficiency levels, faced problems of low productivity and increased labour costs, and had poor cost-of-making standards. These conditions further led to poor utilization of the industrial engineering team.

Process followed

1. A cross-functional team with wide experience in different domains, such as industrial engineering, quality and production, was formed.
2. The industrial engineering team was trained on method improvement concepts to document and analyse methods, identify scope for improvement using the principles of motion economy and the ways of improving various elements of the method, and thus developing an improved method. The one-week training also involved various industrial engineering tools and line balancing techniques.
3. A team of skills trainers was identified to support the skills training process to implement the improved method.
4. Workers were explained the need to develop effective and efficient methods.
5. Garment styles were selected, and teams split to study different styles.
6. The team analysed every individual operation in all the styles for method standardization.

7. Work method videos of the identified standard operators were captured for analysis.
8. Timings were observed for each operation by conducting time studies for the standard operator.
9. Methods were improved using the methodology for SAM reduction explained in the good practice. This involved using qualified trainers to support the operators in developing proficiency in using the new improved methods.
10. New SAM was calculated for the improved methods implemented.
11. Revised SAM was then used for the costing and operational standards.

Results achieved

Some of the results achieved are shown in Table 8.

Table 8 Results of SAM reduction by style

S. No.	Style	Operation	M/C	Basic Time (Minutes)	Revised SAM	Existing SAM	Percentage Improvement
1	Long Legging	Front & Back Rise	OL	0.4	0.44	0.85	48%
2	Long Legging	Waist elastic join	SNLS	0.11	0.12	0.35	66%
3	Long Legging	Waist elastic attach	OL	0.35	0.39	0.6	35%
4	Long Legging	Waist close	FL	0.22	0.25	0.6	59%
5	Long Legging	Inseam	OL	0.92	1.01	1.35	25%
6	Long Legging	Long hem	FL	0.25	0.27	0.7	61%
7	Long Legging	Crotch Tack and Label Attach	SNLS	0.33	0.36	0.75	52%
8	Moa Tank Top	1st Shoulder Join	OL	0.17	0.19	0.25	23%
9	Moa Tank Top	Neck binding + trimming	OL	0.36	0.4	0.65	39%
10	Moa Tank Top	2nd Shoulder Attach	OL	0.22	0.24	0.3	18%
11	Moa Tank Top	Neck binding cover seam	FL	0.17	0.19	0.55	65%
12	Moa Tank Top	Arm hole binding	FL	0.26	0.28	0.7	60%
13	Moa Tank Top	Arm hole cover seam + trimming	FL	0.36	0.4	0.65	38%
14	Moa Tank Top	Neck tape folding	FL	0.17	0.18	0.4	54%
15	Moa Tank Top	Neck tape close stitch with label	SNLS	0.41	0.45	0.7	35%
16	Moa Tank Top	Side seam	OL	0.35	0.38	0.85	55%
17	Moa Tank Top	Bottom hem	FL	0.23	0.26	0.55	53%
18	Moa Tank Top	Armhole and Neck Close Tack	SNLS	0.2	0.22	0.4	46%
19	Bob V Neck	Sleeve open hem	FL	0.25	0.27	0.4	31%
20	Bob V Neck	Shoulder join 1	OL	0.17	0.19	0.2	7%

Note Source: Rajesh Bheda Consulting Pvt. Ltd

Benefits for the company

The industrial engineering team and work-study officers continued the method improvement activities and established revised SAM for the remaining styles. This resulted in SAM revision of five important styles of garments by 35% on average;

The 20-member industrial engineering and trainer team were upskilled, and capacity was built for improving methods and revising SAM. The result of the revised SAM for the products are show in table 9.

Table 9 Results achieved using revised SAM

S. No.	Style/Garment	Previous SAM	Revised SAM
1	Fancy Leggings	4.5	2.52
2	Bob V Neck	6	4.5
3	Freeja	5.5	3.16
4	Long Leggings	5.2	2.84
5	Pettit Top	6.38	5

Note Source: Rajesh Bheda Consulting Pvt. Ltd

Return on investment

With the application of revised SAM, the factory was able to improve productivity 15% to 25% across the sewing lines. The investment of approximately $15,000 in consultancy fees and staff time for the SAM standardization initiative had a significant return. The payback period for the investment was less than two months and helped the factory gain significant cost savings.

Lessons learned

- Improvement in methods used for any operation can result in significant cost savings and improvement in efficiency;
- A well-qualified and motivated trainer team can make the method improvement and SAM reduction project technically possible;
- Management and trainer team have to motivate and be supportive of the workers so that the adoption of new methods is smooth.

Implementing SMED techniques reduces changeover time

In this era of globalization, market conditions evolve constantly. To survive in such a competitive environment, apart from management practices, manufacturers must find ways to minimize costs and production runtime to optimize profitability.

Setup time or changeover time is the total time elapsed between the last unit of production of the previous run, and the first unit of good production of the succeeding run. Setup time is a non-value-added activity. These are activities which do not convert the input into an output. For example, transportation, setup time, defects, etc. can be classified as non-value-added activities. Removal of these activities does not affect the process as they generate zero or negative return on investment on resources. Customers do not pay factories for non-value-added activities, therefore, it is important to minimize these to improve the profitability of a company.

Various tools are available for reduction in setup time. SMED is a lean manufacturing technique introduced by Shigeo Shingo, a Japanese industrial engineer considered a leading expert on manufacturing practices. SMED is one of the techniques that helps to reduce the setup time by segregating internal and external activities with greater flexibility. It is also referred to as quick changeover.

SMED emphasizes reducing the setup to less than 10 minutes or, more specifically, in a single digit time unit of minutes. Internal activity is related to changeover that is performed in the line after the machine stops producing the style that is completed. External activity is related to changeover that can be performed in advance without stopping the machines engaged in production.

Resources/preconditions required

- Dedicated SMED team;
- Organized SMED area to arrange tools, kitsets, set up machines and the layout;
- A few spare machines.

Implementation steps

Step 1 Understanding the current changeover processes: During this stage, all the activities are observed at the place of work and video recording of the same is done for future reference; in this stage, no effort is invested in differentiating external and internal setup

Step 2 Separation of internal and external activities: Identify the activities that are carried out internally (in the line) and those undertaken externally

Step 3 Conversion of internal activities into external activities: In this stage, two significant actions are undertaken: Detailed analysis of internal activities to determine if there are wasteful activities that can be eliminated, which will reduce setup time; and analysis of the internal setup activities to see which activities can be transformed into the external setup to reduce the setup time further

Step 4 Streamlining of all operations: This process emphasizes optimizing all activities with the help of the above stages; streamlining of operations is necessary to reduce internal work time and improve the productivity of the desired operation. Also, the third and fourth stage can be done in parallel

Potential benefits

Enterprises are likely to benefit from overall productivity improvement due to reduced changeover time and faster production build-up after style change. Another benefit is reduced sewing lead time. This makes it possible to accept short lead time orders. These benefits, when measured in financial terms, are substantial.

Key performance indicators

- Setup time
- Reduction of manufacturing lead time
- Work in progress (cut parts)
- Learning curve or time of reaching peak productivity

Case Study 10: Implementing SMED to reduce changeover time in an innerwear factory

Company background

Name	A knit garments manufacturing unit
Location	Surin, Thailand
Number of employees	2,300
Monthly capacity	12,000,000 pieces
Major articles	Women's and men's underwear
Major customers	Hanes

Problem description

Enterprises must compete based on product price, product quality, product differentiation and delivery time. To improve production processes, it is important to analyse the value added by each activity and eliminate all those activities that do not add value to the product.

In this case, many times, the unit had to produce multiple orders in a single day. This called for higher flexibility in terms of volume and style changeover. Over a period, there was a huge loss of time and manpower during changeover of styles in the production lines. This loss is also referred to as the 'start-up loss' in the garment industry.

Process followed

1. Analyse the existing process: The first step was to study and thoroughly analyse the present process. This exercise helped to identify and separate the non-value-added activities in the process that could lead to areas of improvement.

2. Document elements and micro elements of batch setting of the existing process: This involved observing, mapping and documenting the process of batch setting. Also under observation was whether the sequence of work with elements and micro elements were well defined with time taken. Then, the operators and their movements were noted to segregate necessary and unnecessary movement in the setup time with the purpose to eliminate the unnecessary ones.

3. Analysis of the elements and micro elements: The machine setup elements and micro elements were analysed to distinguish between external and internal elements. Internal elements were those where manufacturing must come to a halt. External elements were those that can be carried out externally without interfering with the working of the machine.

4. Separation of machine setup elements into external and internal elements: This was done by video recording the processes and observing them again and again. Then, the elements were differentiated into sub elements, such as external and internal processes and the wasted time as well as the idle time.

5. A changeover team was formed with the help of mechanics, technicians, and industrial engineer.

6. Training on SMED concepts was provided to the team and afterwards, everyone's role was described to implement the system.

Table 10 Status of factory changeover process after implementing SMED

Activity	Before SMED	After SMED
Layout Planning	Internal/External	External
Layout Change	Internal	Internal
Machine Movement	Internal/External	Internal/External
Machine Maintenance	Internal/External	Internal/External
Machine Setting	Internal	Internal/External
Demonstration	Internal	Internal/External
Style Analysis	Internal	External
WIP Planning	Internal	External
Trims Status	Internal	External
Operator Allocation	Internal	External
Buffer Allocation	Internal	External

Note Source: Ram Chandra Das, who worked as a consultant for the factory

Table 11 Activities were converted from internal to external

Before Implementation	After Implementation
Identification of machine was done during setup time	Identification of machine is done during run-down time. Action is carried out by line in-charge
Repair and fine tuning of the idle or spare machines were done during the setup time	Repair and fine tuning of the idle or spare machines are done during the run-down period. Action is carried out by mechanic/technician
Gauge setting, needle plate setting and machine oiling were done during setup time	Gauge setting, needle plate setting and machine oiling are done during run-down time
Attachments and folders were set up only during setup time	Attachments and folders are attached to the idle machine during run-down period
Machine cleaning was done during setup time	Machine cleaning starts from the run-down period
Fine tuning of the machine such as stitches-per-inch adjustment, thread tension, pressure foot setting, etc. were done during runup time	Fine tuning of the machine such as stitches-per-inch adjustment, thread tension, pressure foot setting, etc. are done during run-down time
Changing needle and threading was done only during the setup time	Changing needle and threading is done during run-down time
Style analysis was done during setup time	Style analysis is done much before the setup time and critical operations are identified for special attention and demonstration
Layout planning and machine planning was done during setup time	Layout plan and machine plan are done much before the setup time
Operators were allotted randomly on the spot to the new style during setup time	Operator list is prepared as per the skill matrix for the new style during the run-down time
Preparation of mock samples was done during setup time	Preparation of mock samples is completed much before setup time
Ensuring sealed sample, work in progress **(cut parts), trims, measurement charts were done only during setup time**	Ensuring sealed sample, work in progress, trims, measurement chart continue to be done during setup time
Templates are made during setup time	Templates are made much before setup time

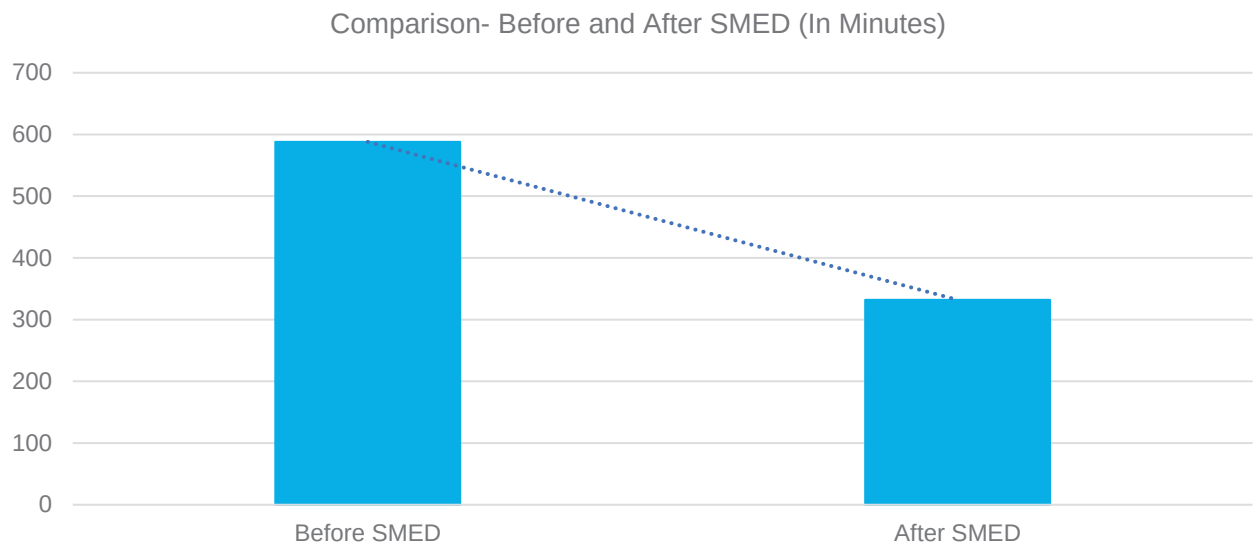
Note: summarizes the changes that were carried out.

Source: Ram Chandra Das, who worked as a consultant for the factory.

Results achieved

As a result of implementing SMED technique, style changeover time reduced from an average of 588 minutes to 332 minutes, a 43% reduction.

Figure 14 Style changeover time was reduced by 43%



Note Source: Ram Chandra Das, who worked for the factory

Benefits for the company

- Fewer errors during changeover
- Reduction of changeover time
- Improvement in product quality
- Improvement in productivity

Return on investment

The estimated impact of the total changeover time after the application of the new procedures is presented in Figure 15. In total, 43% changeover time was saved with this process. With the reduction of changeover time, idle production reduced drastically, which created better flow of production and led to an increase in plant efficiency from 2% to 10%. The overall savings from the project investment was more than $1.5 million and the payback period was about three months.

Lessons learned

- Practice of close follow-up of the key performance indicators and progress review with the management team plays a vital role in keeping the initiative on track and its linkage with the overall continuous improvement journey of the organization;
- Setting up standards helps to ensure success – without standard work there is no continuous improvement.

Applying a problem-solving approach improves quality

Problem-solving methodologies are part of quality management and are extensively used when an organization seeks to improve quality. A systematic approach to problem solving makes the process robust and helps achieve the desired results.

The Toyota automotive company outlined eight steps related to problem solving:

1. Define the problem;
2. Break down the problem into more detailed and specific issues;
3. Set the target for what is needed to complete the project and how long it will take to finish;
4. Analyse the root cause to identify the factor(s) that triggered the issue;
5. Develop countermeasures to remove the root causes;
6. See countermeasures through;
7. Evaluate the process and the results;
8. Standardize success and learn from failures;

The '5 Why' methodology is also used to determine the root cause of any issue during problem solving. Some of the features of this technique are:

- By repeatedly asking 'Why?', one can peel away the layers of symptoms to reveal the root cause of a problem;
- The technique can be learned quickly and does not require statistical analysis.

Resources/preconditions required

- Full commitment of the top and mid-level management to solve the problem and take necessary decisions in a timely manner;
- Willingness from the management to reward employees for their participation in the approach;
- Regular practice of capturing the defects generated in every process;
- Good coordination and synergy between the production and quality teams.

Implementation steps

Potential benefits/Return on investment

Problem-solving training does not require substantial investment. The cost of training and coaching changes from country to country and trainers engaged. This investment is likely to pay back significantly in terms of ROI with perhaps more than 100% per annum.

Key performance indicators

- Defects per hundred units (DHU)
- Percentage of defects
- Right first time (RFT)
- Cut-to-ship loss/rejection percentage

Case Study 11: Applying problem-solving techniques to improve quality

Company background

Name	A woven garments manufacturer
Location	Addis Ababa, Ethiopia
Number of employees	200
Monthly capacity	35,000 pieces
Major articles	Dress shirt
Major customers	US and local Ethiopian market

Problem description

Quality is defined as products and services that deliver intended performance. The factory was experiencing a lot of rework and high rejection levels. Due to the rejections, the shipments were delayed and the cut-to-ship ratio was 92%. This meant that the company was unable to ship almost 8% garments that were cut.

The factory was not maintaining data at the different stages of operations. It had only the data on short shipment against the order quantity. Nobody could identify the causes of the short shipment and rejections. The quality team had very few people and they needed orientation to the problem-solving approach. This prompted the company to initiate problem-solving training for overall quality improvement. The training was provided by international experts working with the Ethiopia Textile Industry Development Institute.

Process followed

1. A meeting was conducted with the management to make the team aware of the activities to be implemented to improve the right first time (RFT) quality level across processes and improve the cut-to-ship percentage.

2. A core team was formed that included quality checkers, a quality supervisor, a line supervisor, staff in charge of the sewing floor, HR executives, an industrial engineering executive and the factory manager.

3. The team was given training on quality topics such as RFT, DHU, clockwise inspection of garments, inspection formats, data summarization and eight-step problem-solving techniques.

4. The core team used the ‘5 Why’ methodology of root cause analysis for problem solving.

5. The initial problem identified was the lack of quality-related data. Quality checkers and operators were not clear on the actual rate of defects in various processes.

6. The quality data capturing formats were implemented to capture the DHU and RFT during in-line and end-line inspection to break down the problem with the help of the data.

7. End-line checking and in-line checking reports were introduced, which made the analysis much easier. The format for roving inspection (in-line random inspection) report is represented in Table 12. It requires output of the operators to be inspected every hour in a random order.

Table 12 Roving checking reports make analysis easier

	ABC Private Limited										OF/QC/11	R-0
	R O V I N G Q C R E P O R T										Page 1 of 1	
FACTORY				COLOR								
BUYER				STYLE DESCRIPTION:							DATE	
PO#				STYLE #							QC NAME	
SL#	OPERATOR	OPERATION	1	2	3	4	5	6	7	8	TOTAL DEFECTS	DEFECT %	CORRECTIVE ACTIONS
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
SIGNATURE		SUPERVISOR									TOTAL DEFECTS		
		QA									DEFECT %		
SL#	CHECKER	CHECK POINT	1	2	3	4	5	6	7	8	TOTAL DEFECTS	DEFECT %	CORRECTIVE ACTIONS
SIGNATURE		QA INCHARGE									TOTAL DEFECTS		
		QA									DEFECT %		
CORRECTIVE ACTIONS											TOP-3 POOR PERFORMING OPERATIONS		
											1) 2) 3)		

Note Source: Abhishek Gupta, who worked as a consultant for the factory

The checkers were trained on various parts of the garments, including how to check a garment and identify defect types, and on the protocol to fill quality formats;

Clockwise garment checking was introduced to ensure the production of good quality garments. Various parts of the garment were reviewed in a clockwise manner, starting with the front, top side to the back zone of top side, then inside checking at the back, and inside checking at the front was carried out;

The operators were also trained to understand the importance of quality and how rework and rejection reduce the productivity and profitability of the company;

With the availability of defect-related data, the quality supervisor and production line supervisor started analysing the inspection reports every hour to understand the problem areas and operations and plan the improvement targets;

Table 13 Defect analysis identifies root of the problem

Operation/ Defect Code	Skip Stitch	Broken Stitch	Loose Stitch	Down Stitch	Gathering	Roping	SPI Variation	S-Seam Joint High Low	Open Seam	Pleats	Total	Defect %	Ranking
Placket	11	14	0	9	0	8	6	0	0	0	48	16.96%	2nd
Arm Hole	9	10	0	10	0	2	4	0	13	0	48	16.96%	2nd
Side Seam	0	34	0	12	25	0	11	8	0	0	90	31.80%	1st
Cuff	8	0	0	7	4	0	0	0	0	0	19	6.71%	4th
Front	4	34	2	0	2	0	0	0	0	5	47	16.61%	3rd
Collar	5	0	0	2	9	0	0	0	0	0	16	5.65%	5th
Yoke	0	11	0	2	2	0	0	0	0	0	15	5.30%	6th
Total	37	103	2	42	42	10	21	8	13	5	283		

Note Source: Abhishek Gupta, who worked as a consultant for the factory

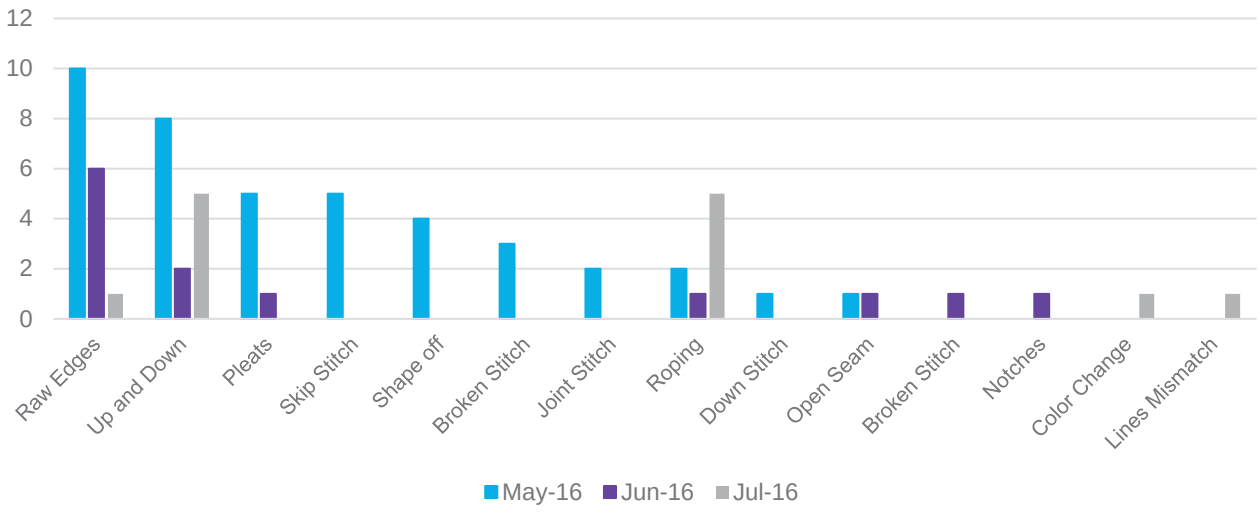
The root causes of key defects were identified using the '5 Why' analysis. As can be seen from the defect data in Table 13, the largest defect was broken stitch, followed by gathering and down stitch, followed by skip stitch. Skip stitch, broken stitch and gathering are generally caused by poor machine maintenance whereas down stich could be linked to operator skills;

The countermeasures developed were improving the machine setting and maintenance to eliminate machine-related defects. The second major countermeasure was to improve operator skills to address skills-related defects;

These remedial measures were implemented so the problem would not be repeated in the next hour(s). The results were monitored on an hourly basis and workers were encouraged for their efforts;

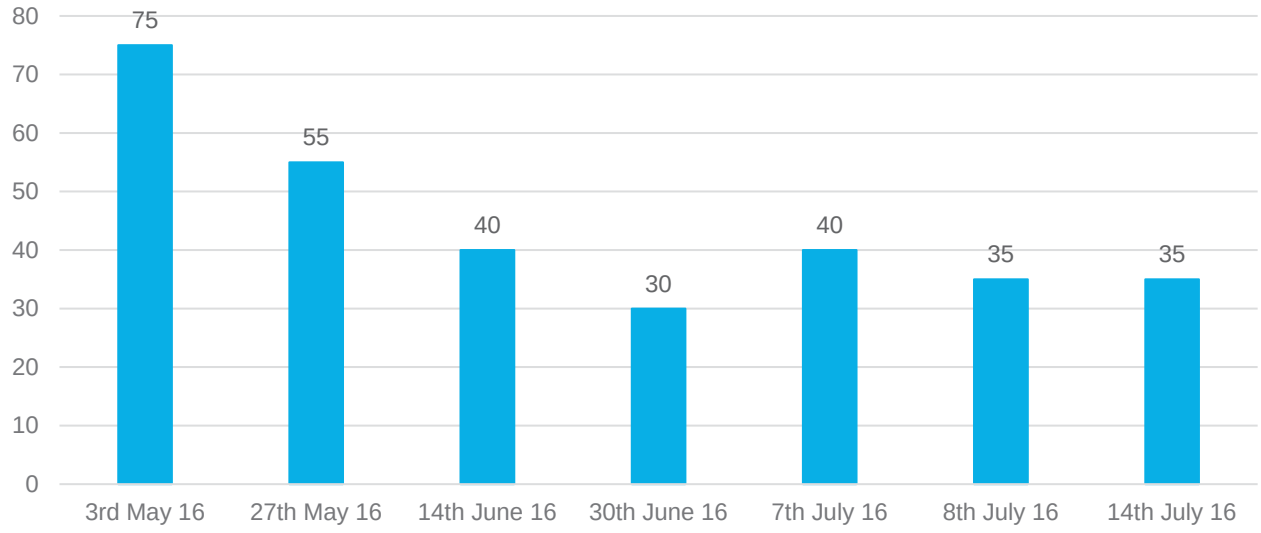
These measures improved the RFT percentage and reduced the DHU rate;

Figure 15 Comparative analysis over time shows changes in defects



Note Source: Abhishek Gupta, who worked as a consultant for the factory

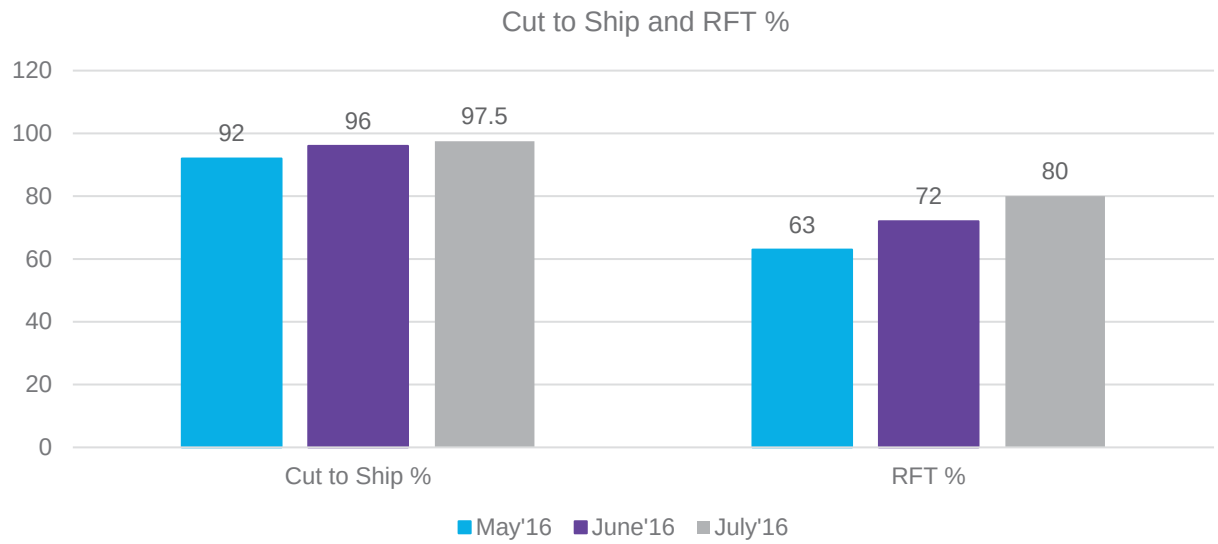
Figure 16 Reduction in DHU shows effectiveness of remedial measures



Note Source: Abhishek Gupta, who worked as a consultant for the factory

The cut-to-ship percentage increased from 92% to 97.5% and the RFT percentage showed some improvement from 63% to 80% (see Figure 17). This led to shipping of a greater number of goods;

Figure 17 Cut-to-ship and RFT improvements led to shipping more goods



Note Source: Abhishek Gupta, who worked as a consultant for the factory

Operation quality specification sheets were attached to each workstation to make the operators aware of the process they were supposed to follow.

Benefits for the company

- Increase in cut-to-ship ratio
- Reduction in losses due to rejection
- Better control over quality

Return on investment

The training cost for the team of eight people for two days on problem-solving was about $500, which included the training material and handouts

The average DHU improved from 75 to 35 in a month; the cut-to-ship percentage improved to 97.5%, up from 92% for an approximate production of 1,700 pieces per month. Considering $1 as the cost of manufacturing price, it saved approximately $1,700 per month, saving the factory approximately $20,400 in a year.

Lessons learned

- Even a small investment like $500 for training on quality can pay back significantly;
- At the time of team selection, staff closest to the problem should be selected for effective narration and solution finding, as they have the best view of the real and practical issues related to the problem.

Implementing a zero-defect operator programme improves quality

The concept of zero-defect operator (ZDO) refers to an operator who does not produce or pass any defect(s) from his or her operation to the next process. ZDO strengthens the right-first-time quality parameter of an enterprise. It aims to reduce defects through prevention of their occurrence.

ZDO was incorporated in the 1990s by eminent quality expert Philip Crosby as a quality parameter of performance in production. It can be applied to any production or service industry.

It is commonly believed believe that zero-defect level is achievable only in highly automated processes and not in the labour-intensive garment industry. However, in garment production lines there are several operators who do not produce any defects. They often go unrecognized as their status of producing not a single defect is neither noticed nor known to their seniors.

It is therefore imperative to train and motivate operators to reach the ZDO level for substantial defect reduction in various processes of garment manufacturing. The ZDO practice requires capturing defective data for operators using the Traffic Light system or a random inline inspection system. Based on the results, the operators who have not produced any defects are recognized as Zero-Defect Operators for the month. They are provided a badge in recognition and are publicly commended. The management works on training, motivating, and nurturing more workers as zero-defect operators as a part of their quality improvement programme.

Resources/preconditions required

- Full commitment of the top and middle management to implement the practice for improving right-first-time quality;
- Willingness to reward employees for their participation in the programme;
- Regular practice of capturing the defects generated at every operation and by each operator;
- Good coordination and synergy between the production and quality teams.

Implementation steps

Step 1	Form a cross-functional team for the implementation of ZDO programme
Step 2	Ensure that all team members understand the basic concepts of quality, such as defect and defective, basic data tabulation and problem solving
Step 3	Explain to the cross-functional team the benefits of the ZDO programme and the methodology of developing ZDO
Step 4	Select a pilot line for training the operators as zero-defect operators
Step 5	Explain the objective of the programme and methodology of the training to the operators in the pilot line
Step 6	Find volunteers who would like to undergo the training
Step 7	Train the operators on how to ensure defect-free production and how to self-inspect their output
Step 8	Implement a monthly inspection summary format like Traffic Light system, where every operator's output is inspected two to four times a day
Step 9	Visual display of the results of this inspection can be installed on the machine, with colour coding: Green for no defect; yellow for one defect; and red for more than one defect

The inspection format can be seen in Figure 18.

Figure 18 Traffic light inspections capture defective data

XZY Pvt. Ltd.

Traffic Light Format for in-line Inspection

Name of the operator: ____________

Date:	Operation	Audit Finding										Remarks
		1	2	3	4	5	6	7	8	9	10	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	
		○	○	○	○	○	○	○	○	○	○	

Controlled Document: www.rajeshbheda.com

Note Source: Rajesh Bheda Consulting Pvt. Ltd

Key aspects that need to be considered while implementing the inspection format and the overall ZDO programme are as follows:

- A format to be used for recording each operator's quality performance for a month's duration;
- The respective circle in the format is to be filled according to the colour code criteria;
- The bundle size/number of pieces to be checked and the frequency of inspection can vary from factory to factory;
- Encourage the operators to reduce defect generation and eventually achieve the ZDO status; make sure that the cause of defects that are beyond the control of operators are resolved by the management;
- Reward the workers on achieving ZDO status through badges, photos on the shop floor, notice boards and/or offer additional financial rewards or gifts;
- The status is renewed monthly so the momentum is maintained, and overall defect rates go down.

Traffic light system on the production floor and ZDO with badge (© Rajesh Bheda Consulting Pvt. Ltd)

Potential benefits/Return on investment

ZDO methodology is generally implemented under an overall quality improvement programme. The relatively small investment in training results in a very good ROI.

Key performance indicators

- Defects per hundred units (DHU)
- Percentage defective
- Rejection percentage

Case Study 12: Implementing a ZDO programme to improve quality

Company background

Name	A tops and bottoms manufacturer
Location	Dhaka, Bangladesh
Number of employees	1,600 (about 70% women)
Monthly capacity	340,000 pieces
Major articles	Tops and bottoms
Major customers	UK-based large format discount stores

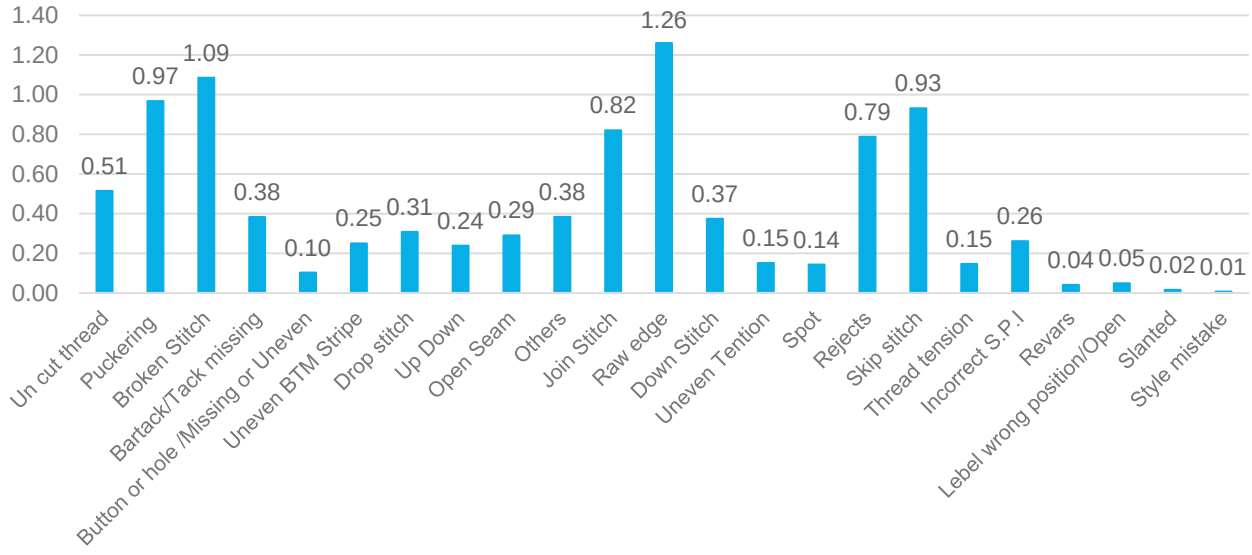
Problem description

A factory based in Bangladesh wanted to embark on a continual improvement journey and reduce the defect rate across its manufacturing processes. During the assessment and baseline survey, some key data was analysed to understand the status of the factory.

During the baseline survey, the monthly sewing inspection was recorded for a baseline month. The 'percentage defective' for the given month was 12.82%. The defects per hundred units (DHU) data was captured, and the sewing defects summary was generated (see Figure 19). A fishbone analysis was carried out to identify the root causes of the defects. Based on the observations, an action plan was formulated with the factory team. All end line inspectors were trained to capture and record all defects and DHU.

The ZDO programme was implemented in the pilot line.

Figure 19 Distribution of defects on the pilot line for the baseline month



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Process followed

Prior to implementing the ZDO programme, the operators were imparted basic knowledge of productivity and quality parameters. Benefits of the programme were explained to the participants. The instructions related to the formulation of a defect library were provided, comprising visual depiction of the major and minor defects. A pilot sewing line was identified and a format for capturing the data was introduced. The

process requires synergy between the quality and the production team and needs to be carried out in close collaboration of the team members selected from both the departments.

The process for implementation is as follows:

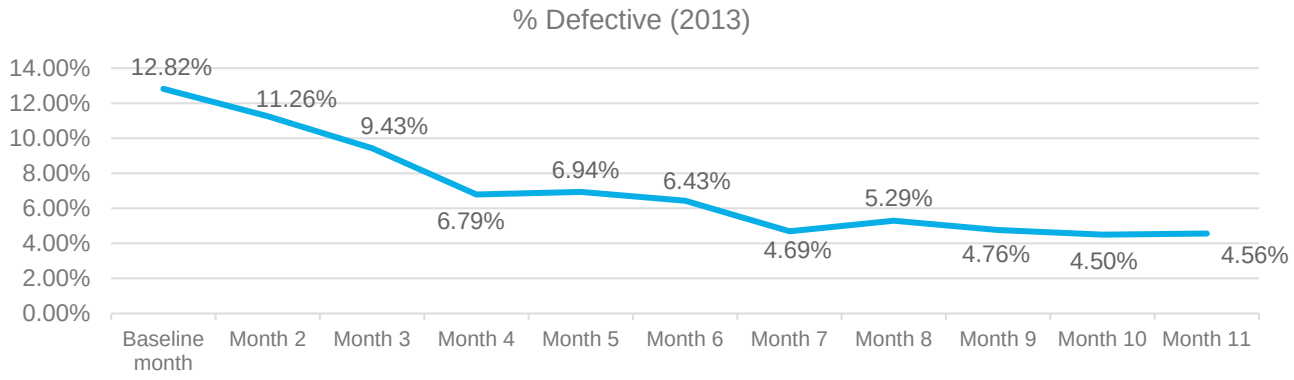
1. Formation of factory team for ZDO programme.
2. Selection of a pilot sewing line.
3. Implementation of a monthly inspection summary format and training of the team on how to fill it.
4. Training of operators on self-inspection as per quality specifications using the defect library.
5. Training of operators to check each operation and not to pass any defects.
6. Regular follow up with each operator based on individual defect data.
7. Social recognition of ZDOs by rewarding them with public recognition, badges, and special gifts.

Results achieved

The introduction of ZDO helped reduce the number of defects and defective pieces in the lines. After the successful implementation of the ZDO programme in the pilot sewing line, it was rolled out to other lines across the factory. The end-of-sewing-line quality check report showed significant improvement as the defect rate came down from 12.82% to 4.56% in 11 months (see detailed monthly analysis in Figure 20).

The reduction in sewing defects not only improved quality levels, but also reduced the sewing cost. This was done by increasing the productive time of operators, who were able to use the additional time to make fresh garments rather than opening and repairing defective pieces.

Figure 20 Percentage of defects was reduced after implementing the ZDO programme



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Benefits for the company

- It helped workers to improve their quality performance;
- It created pride in the operators for their good performance and instilled a sense of dignity and respect as social recognition and/or financial rewards were given for their achievement in producing quality products with no defects;
- The workers shared that, with this achievement and official recognition, they also received appreciation and respect in their community and family;

- Overall quality of the lines improved;
- The re-work level reduced substantially, and it supported the production line to perform at higher efficiency;
- Mutual trust and improved communication grew between the workers and management with the workers beginning to feel acknowledged and appreciated by management.

Return on investment

Implementing the ZDO programme led to financial benefits for the organization and built the morale of the employees. Reduced occurrence of defects, inspection, repair, and re-work levels led to savings due to right first-time production. Better quality led to higher output and less consumption of resources. Most importantly, it generated excitement and pride in work and created a highly motivated workforce. Since implementation of the ZDO programme was part of a larger continual improvement programme, separate ROI for this initiative was not calculated.

Lessons learned

- Top management commitment is crucial for successful improvement initiatives. The maturity level of management affects the acceptance of and enthusiasm for such programmes. The ZDO programme was highly successful in the enterprise as the director of the company was personally involved in motivating the cross-functional team and recognizing the workers. A factory wishing to implement a ZDO programme must have clearly visible top management commitment;
- Regular progress review is essential: Any company wishing to implement a ZDO approach needs to establish KPIs with the agreement of the cross-functional team;
- Practice of close follow-up of the KPIs and progress review with the management team play a vital role in keeping the programme on track and its linkage with the overall continuous improvement journey of the organization. Thus, there should be strong follow-up of monitoring through external or internal experts to develop the new system into a habit;
- Wide communication with all staff about the programme, its usefulness, and the implementation process is critical for its success. This will create buy-in from employees and encourage wider participation;
- Strong social recognition is essential for ZDO implementation. It helps motivate workers to participate in the programme and feel appreciated. Companies must ensure that the success needs to be celebrated, and employee participation is encouraged.

Reducing cut-to-ship losses increases profitability

The cut-to-ship ratio is the difference between the quantity cut and the quantity shipped. Since buyers pay only for the pieces shipped, the left-out pieces are a clear loss to the factory. Invariably, many factories are not able to ship the entire ordered quantity. This leads to loss of sales for buyers and affects the reputation of the manufacturer. Most buyers allow a certain percentage of extra shipment, in most cases 3%, over the ordered quantity. Such an opportunity must not be missed.

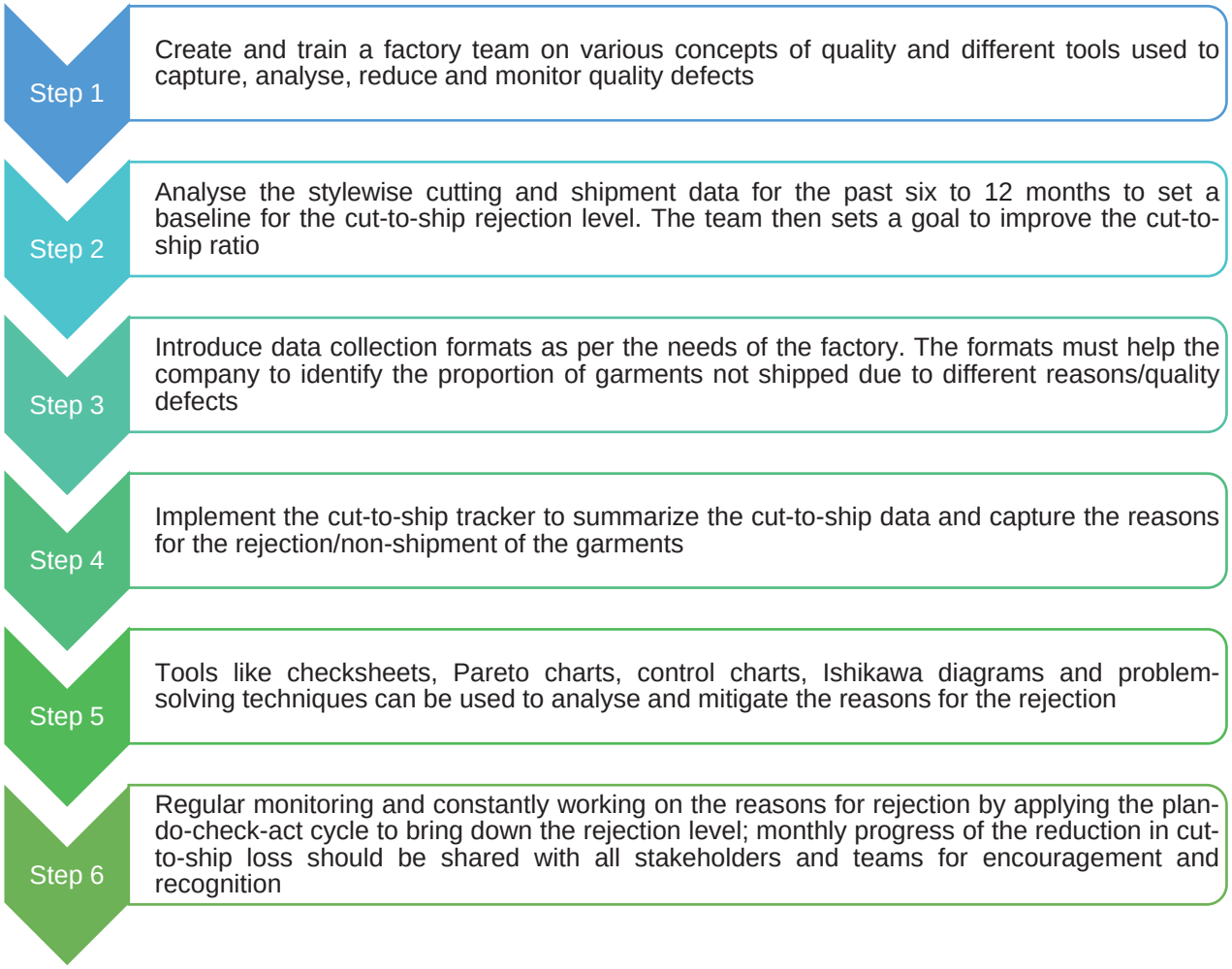
Reducing the cut-to-ship loss percentage ensures that more pieces are shipped with the same amount of inputs. This results in increased sales through shipping of extra pieces because of reduced rejection levels and thus increased profitability. If the manufacturer is already shipping the maximum permissible quantity to the customer, then reducing cut-to-ship loss would save costs equal to about 65% to 80% of the FOB value of the garments saved. There is strong evidence about the effectiveness of the cut-to-ship loss reduction in generating substantial financial savings for garment manufacturers.[3]

[3] Rajesh Bheda, Understanding Cost of Quality, Fibre2Fashion, December 2015

Resources/preconditions required

- Full commitment of the top and middle management to implement the practice;
- Willingness to reward employees for their participation in the programme;
- Regular practice of capturing the reasons for rejection;
- Regular monitoring of quality data to ensure accuracy of reporting;
- Good coordination and synergy between the production and quality teams.

Implementation steps



Potential benefits/Return on investment

Cut-to-ship loss reduction is generally implemented under an overall quality improvement programme. The relatively small investment in training and regular management review leads to reduction in garment rejection rates and thus significant savings for the factory.

Key performance indicators

- Cut-to-ship loss percentage
- Rejection rate due to specific defects

Case Study 13: Cut-to-ship ratio monitoring and analysis

Company background

Name	A casual outer wear manufacturer
Location	Haryana, India
Monthly capacity	833,333 pieces
Major articles	Outdoor wear, casual wear – across all categories
Major customers	Calvin Klein, Izod, Debenhams, Marks & Spencer, Next

Problem description

This large vertically integrated factory, with a shipment volume of 10 million pieces per annum, was experiencing high rates of garment rejection. The factory was keen to find a solution to this challenge.

The company embarked on a six-month factory improvement programme – Benefits for Business and Workers.[4] The programme had training components on productivity improvement, quality management and HR systems. The quality management intervention had a methodology to control the cut-to-ship rejection. The ZDO programme was implemented in the pilot line.

Process followed

1. A factory team was created comprising heads from the production, quality, industrial engineering and human resources departments and the pilot line supervisor.

2. The team was trained on production, quality and HR management concepts. The training also covered the procedure of tracking the cut-to-ship ratio.

3. Using past records, the baseline level of the cut-to-ship ratio of the factory was calculated.

4. Formats were introduced in all departments to capture the data with number of pieces rejected and the reason(s) for the rejection.

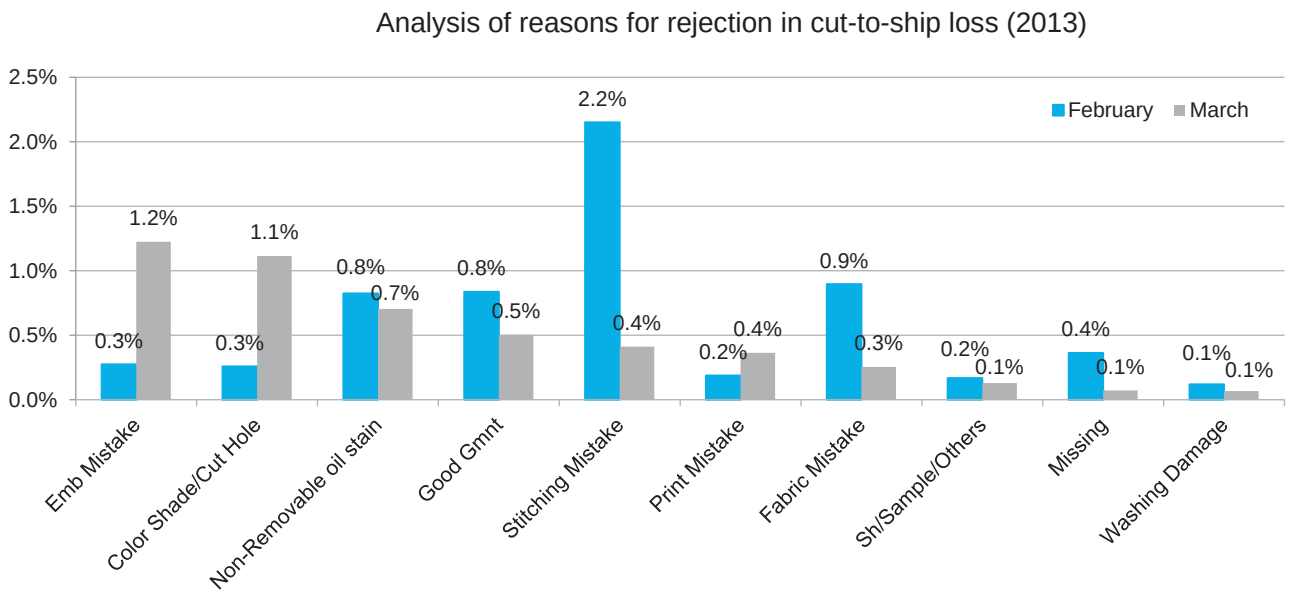
5. The reasons captured were analysed, remedial measures developed and processes put in place to ensure that the rejections were minimized. This included rejection analysis, defect capturing and analysis, implementation of problem-solving tools such as fishbone analysis, Pareto analysis and plan-do-check-act.

6. Monthly progress was reviewed with department heads and steps for the next month were planned.

7. The system was made part of manufacturing KPIs to ensure sustainability of the practice.

[4] Good Gmnt: Garments that are defect-free but could not be shipped because they were not ready on time or did not meet the size ratio.

Figure 21 Analysis of reasons for rejection in cut-to-ship loss



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Results achieved

The cut-to-ship ratio of the organization improved from a baseline of 92.03% to 95.12% within two months; this helped the company reduce the short shipment rate and increase sales realization due to shipping of more pieces;

In the following months, this figure went down further with greater strengthening of the quality systems.

Benefits for the company

- The workforce developed a greater understanding of the importance of quality and became more conscious of their role in ensuring lower defect rates;
- Better outgoing quality of the merchandise;
- As the company was now able to reduce the short shipment quality or ship the orders fully, customer satisfaction improved.

Return on investment

Cut-to-ship loss monitoring does not entail investment in infrastructure, machinery or software. In most cases, the implementation can be undertaken after training of a week's duration. However, it requires regular follow-up, review and participation by all the departments to achieve significant improvement. In the case of this company, the total investment of participation in the programme was about $15,000. Within two months of the system implementation, the organization saved $230,037 through increased shipment to customer through rejection reduction, without spending additional resources.

Lessons learned

With correct implementation of tools and problem-solving techniques and guidance, there is scope for huge improvement in processes resulting in tangible business benefits. It is important to understand the reasons for rejection and work towards their elimination by understanding the root causes. Otherwise, the same causes of rejection may be repeated.

Using Poka Yoke principles to ensure workplace safety

Poka Yoke is a Japanese term that means ‘mistake-proofing’. It was coined by Shigeo Shingo, the acclaimed master of operational excellence and proponent of continuous improvement. Poka Yoke is a quality control tool to ensure zero defects and ensure safety measures. Shingo shaped the Toyota Production System at Toyota Motor Corporation, Japan, in the 1960s. He used Poka Yoke as a powerful technique for work standardization and as an important part of the Toyota Production System.

Poka Yoke helps an operator avoid mistakes and eliminate product defects by preventing, correcting or drawing attention to human errors as they occur. It can be implemented in any manufacturing or service industry. It works to prevent mistakes by ensuring that the right conditions prevail prior to initiation of any process step. It is also applicable for detecting and eliminating defects in the process as early as possible, ensuring that people and processes use the RFT approach.

Poka Yoke can be applied to simple processes and need not be expensive. Examples of Poka Yoke include child-proof electric sockets and washing machines that do not activate unless the door is properly closed. This automation prevents water overflow from the machine as well as any possible accident, ensuring both safety and error prevention.

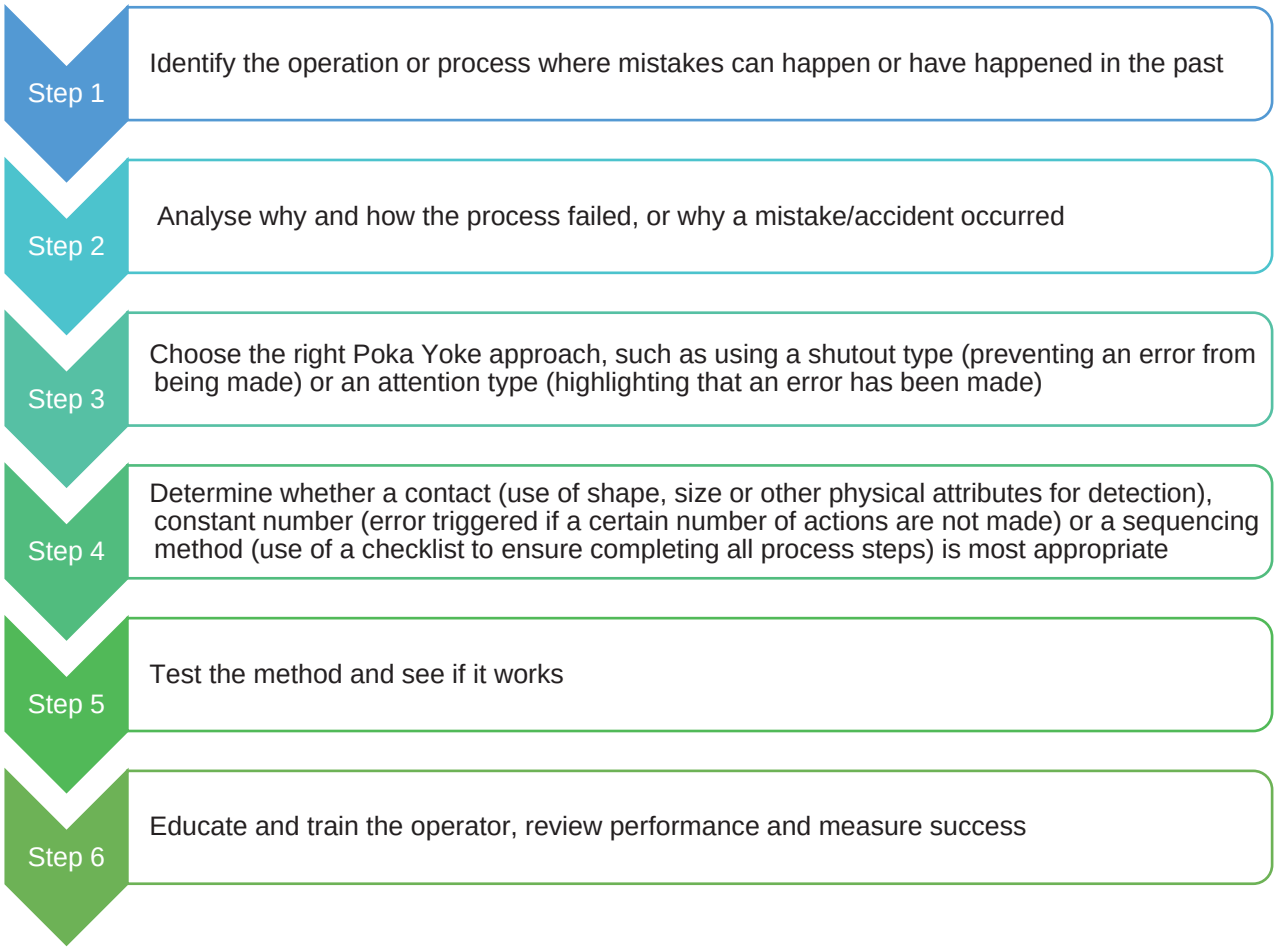
Failure Mode and Effects Analysis and Fault Tree Analysis are other tools that can be used for process analysis. These tools help in reaching the core of the problem and ensuring that a good quality product is manufactured.

Resources/preconditions required

- Management support to experiment on ideas
- Reward mechanism for innovative ideas

Implementation steps

Poka Yoke is implemented in organizations as part of continuous improvement programmes or adoption of lean management principles. Easy to implement because of its universal and rational approach, it encourages a solution-providing attitude that can be practised by all employees.



Potential benefits/Return on investment

Generally, the required investment is minimal, and the results are substantial in terms of reduction in accidents and resultant medical support costs as well as reduction of defects.

Key performance indicators

- Accident rate
- Defect rates of specific processes

Case Study 14: Using Poka Yoke to eliminate eye injuries among machine operators

Company background

Name	**Aditya Birla Fashion and Retail Ltd (ABFRL), part of Aditya Birla Group**
Location	Bangalore, India
Number of employees	5,000 (cumulative for five plants)
Major articles	Men's shirts, trousers
Major brands	Louis Philippe, Simon Carter, Allen Solly and Peter England

Problem description

Conventionally, button-stitching machines were fitted with an acrylic eye guard by the machine manufacturer to prevent injuries caused by a broken needle. Over time, due to scratches on the surface, visibility through these guards became poor. The operators opted to bypass the guard, resulting in serious damage and risk to the eyes. A ready, compatible alternative was not available on the market. Some observations from the factory floor:

1. Operators tend to bypass the safety attachment and remove the eye guard due to poor visibility.

2. Broken screws and clamps pushed the guard, causing disturbance to the operator.

Process followed

With the safety of workers of utmost importance, implementation of an error-proof solution for poor visibility through the needle guards was a priority. This challenged the team to develop a customized automatic eye guard. The process below was followed to develop the effective Poka Yoke solution.

1. A root cause analysis on tampering with the guards was carried out by the industrial engineering team. Why were workers removing the eye guard? What was the problem?

2. Industrial engineering and production teams explored ways to effectively modify the guard.

3. A prototype model of a pneumatic guard was made and fitted on a machine for testing.

4. The concerns and feedback from the workers operating the machine were captured and modifications made.

5. A phase-by-phase installation of pneumatic guards on all the buttonhole machines was carried out.

Pneumatic eye guard (© ABFRL)

A pneumatic eye guard was developed by the team. It automatically guards the point of operation of the buttonhole machine as soon as the machine pedal is pressed. Once this happens, the solenoid valve activates a pneumatic cylinder, which lowers the guard to the point of operation. When pressure on the pedal is removed, the valve deactivates and the air releases, pushing the cylinder and the guard back to their normal position.

Results achieved

This Poka Yoke implementation was very effective with not a single instance of injury reported in the year after installation of the pneumatic eye guards on the buttonhole machines. Previously, one or two incidents of operator injury were reported each year.

Seeing the success of this implementation, the guard was replicated across the bar-tack machines in the factory.

Benefits for the company

Implementation of Poka Yoke resulted in zero accidents on the buttonhole and bar-tack machines (see Figure 22). Any potential injury to a worker's eyes is a grave situation for any employer, and has an emotional impact and medical implications with a threat to vision. The company found this Poka Yoke implementation beneficial and was relieved to eliminate injuries to workers from the machine operations. The workers felt not only protected, but also that the company cared for them and thought of their well-being.

Figure 22 No accidents occurred after implementing the Poka Yoke solution

Note Source: ABFRL

Return on investment

With minimal investment required to set up the pneumatic eye guard (less than $100), the safety of the machine operator was ensured. For a world-class manufacturing facility, zero injury is a major objective, and this was successfully achieved. Envisaging possible accidents and preventing occurrence of an injury cannot be quantified monetarily; but it is an example of prevention cost for any possible loss and medical expenses in addition to the trauma.

Lessons learned

- Poka Yoke principles can be applied to several processes, and need not be expensive;
- Principles can be applied by all employees, encouraging them to develop ideas and be recognized as an important member of the team;
- Poka Yoke has a direct impact on the motivation level of employees as they feel happy that they are being cared for. The practice leads to development of a sense of mutual trust and improved communication between the workers and management.

Visual management raises safety awareness

Visual management (VM) is a tool that communicates important information in the workplace. VM tools serve the following purpose:

- Display of information;
- Communicate standards and thereby help enforcement;
- Spread awareness and/or warn of safety measures through labels and signs;
- Convey the appropriate steps to be taken in following standard operational procedures through colour coding.

As the name suggests, visual management boards help to communicate visually, making it instinctively easier for people to simply glance and understand. Information presented visually is also easier to process and retain.

- Use of shadow boards ensures that the right tools are in the right place, and calls attention if any tool is missing;

- Organizations rely on VM to detect abnormalities, reinforce standards and ensure stability of processes; the VM information displayed on the shop floor may broadly be categorized as expectation, performance, standard and/or warning;

Some other commonly used visual display boards used on the shop floor include:

- 5S
- Standard operating procedures

Resources/preconditions required

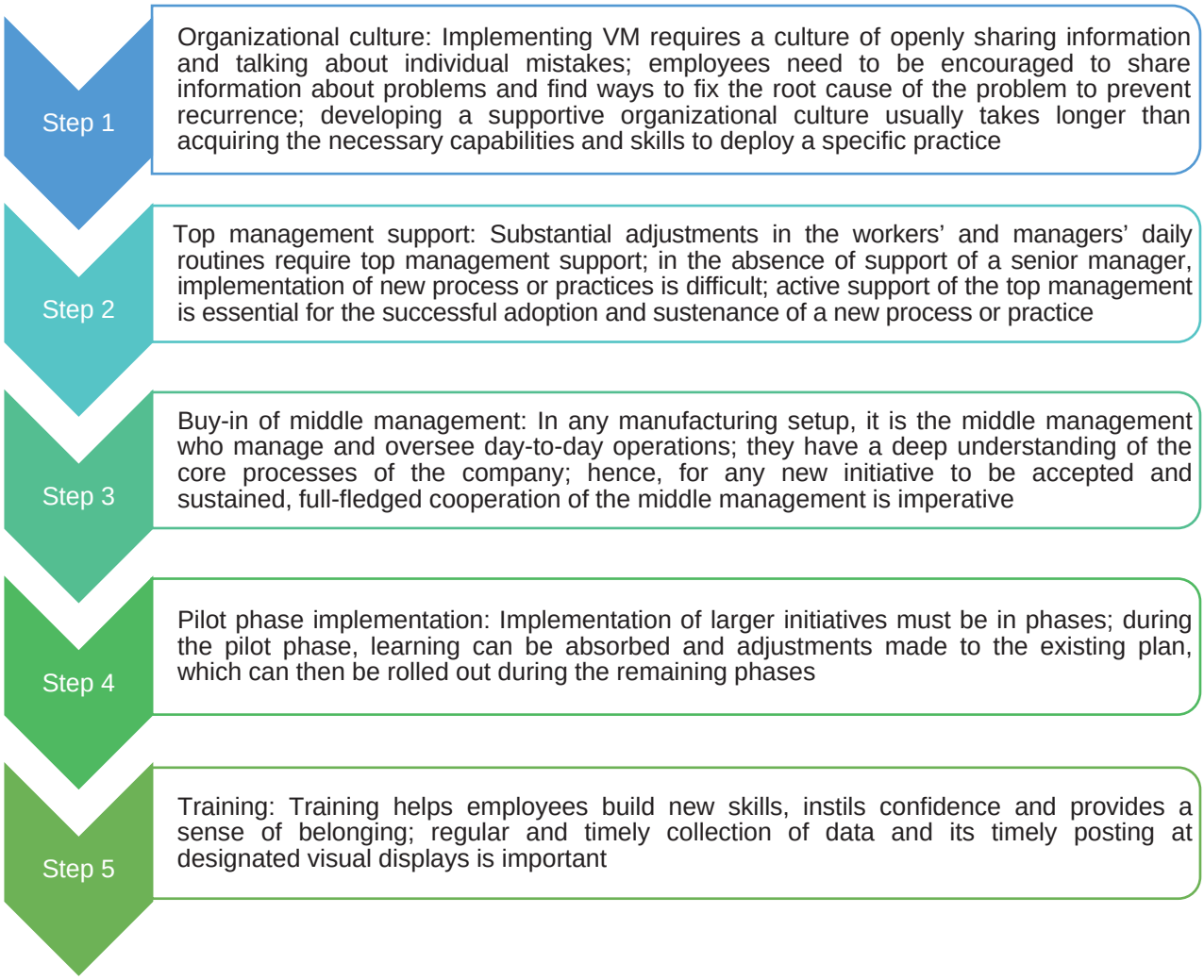
Implementation of VM across the shop floor is not resource-intensive. Initially, basic resources are needed to install visual displays on the shop floor:

- Paper charts in white or multiple colours
- White boards and white board markers
- Vinyl boards in multiple colours
- Vinyl stickers in multiple colours

As visual management standards evolve and the process finds greater acceptance within the company, LED display boards and smart digital boards can be installed.

Implementation steps

Implementation of VM in most cases is not a standalone project. Rather, VM most often complements a continuous improvement initiative undertaken by a company to improve or revamp its existing operations.



Potential benefits

- Visibility of the work in progress: Visual boards display KPIs, targets and scores, which makes it easier for the workers or supervisors to precisely gauge the progress of their work and identify gaps in performance, if any;
- The physical work environment 'speaks': Visual boards capture the status of work on the shop floor, telling a story about the progress of the work – or lack of it – forcing management to respond quickly and take corrective action, where needed;
- Motivated employees: Implementing VM in the workplace helps to embed a cultural change, gives a sense of empowerment to the employees and motivates them to make other positive changes;
- Improved safety: Visual displays related to health and safety increase awareness within the company and help to substantially reduce accidents;
- Company-wide alignment: Visual display is a powerful tool that enables alignment of the entire company towards its operational goals, thus helping people across hierarchies to work as one team;
- Essential part of a continuous improvement initiative: Visual managements, when implemented alongside a continuous improvement initiative, have proven to boost its success rate.

Key performance indicators

- Key metrics displayed for each process
- Periodic/regular update of displayed metrics

Case Study 15: Implementing visual management

Company background

Name	An infant wear manufacturer
Location	Tirupur, India
Number of employees	900
Number of machines	550
Major articles	Infant wear – sleep suits, body suits, hats and mittens
Major customers	UK-based children's speciality retailer

Problem description

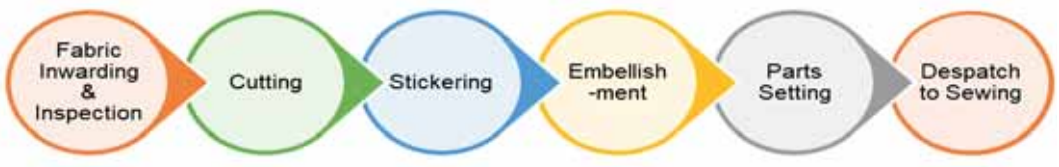
When the factory was implementing a continuous improvement initiative on the sewing floor, a major issue was the erratic feeding of the 'cut-parts inputs' into the sewing floor. This would render the sewing lines idle from time to time. Further investigation revealed that while the fabric, in most cases, was arriving on time, delays in fabric inspection, cutting, preparation and parts-setting was consuming an inordinate amount of lead time. The cutting department was thus the bottleneck impeding progress. The two major challenges that the cutting department was facing in its daily working were:

1. Around 80% of the purchase orders had embellishment, with either printing, or embroidery process at the cut-panel stage.

2. Of the embellishment work, 100% was subcontracted to external vendors, making it difficult for the cutting department to monitor and control the order progress.

Due to a mix-up in priorities and lack of an organized follow-through process, cutting, despatch of the cut-panels for embellishment, their return post-embellishment and parts-setting took seven to 10 days. This was much higher than the allocated four to five days and was a persistent cause of worry.

Figure 23 Process flow: Fabric receipt and cutting



Note Source: Rajesh Bheda Consulting Pvt. Ltd

Process followed

The existing process, from receiving the fabric to its inspection, cutting, embellishment, parts-setting and despatch to the sewing floor, was thoroughly reviewed. The process was streamlined and the lead time taken for cutting reduced. Additionally, in many cases, fabrics for the wrong purchase order would get inspected, delaying the inspection of the correct fabric. Steps were taken to correct this irregularity. The revised process steps were as follows:

1. A VM board was set up in the cutting department to show the status of the fabric received daily. This enabled the cutting department to have an daily view of all fabrics transferred to the warehouse.

Table 14 VM board showing the daily status of fabric received

S. No.	Style No.	Buyer	Colour	Fabric Type	GSM	Received Date	Location
1	223M	XYZ	Red	Cotton	120	02-06-2021	A1
2	173M	ABC	Green	Satin	160	03-06-2021	B3
3	333M	GHI	Blue	Cotton	180	04-06-2021	A2
4	112K	XYZ	Orange	Cotton	220	05-06-2021	B1
5	225M	GHI	Yellow	Denim	250	06-06-2021	C5

Note Source: Rajesh Bheda Consulting Pvt. Ltd

2. An end-to-end priority system based on customer delivery date was put into place. This gave clarity to all departments on their daily task priorities, from fabric inspection to cutting to despatch of cut parts for embellishment and follow-through of the entire process.

Table 15 VM board showing fabric inspection priority

Fabric Inspection Priority Board									Updated On: 20-06-2021		
S. No.	Style No.	PR	CK Date	BPR%	Fabric Colour	Fabric Weight	Fabric Rec. Date	Inspection Date	Inspection Report Date	Lot Card Making Date	Shrinkage Report Date
1	223M	3	25-05-2021	92%	Red	320	02-06-2021	05-06-2021	06-06-2021	07-06-2021	10-06-2021
2	173M	7	26-05-2021	95%	Green	420	03-06-2021	06-06-2021	07-06-2021	08-06-2021	11-06-2021
3	333M	9	27-05-2021	92%	Blue	200	04-06-2021	07-06-2021	08-06-2021	09-06-2021	12-06-2021
4	112K	12	28-05-2021	93%	Orange	330	05-06-2021	08-06-2021	09-06-2021	10-06-2021	13-06-2021
5	225M	11	29-05-2021	95%	Yellow	290	06-06-2021	09-06-2021	10-06-2021	11-06-2021	14-06-2021

Note Source: Rajesh Bheda Consulting Pvt. Ltd

3. During the cutting and ticketing stage, the sizes were often interchanged and wrong ticketing of the cut parts was done. To avoid this, ticketing tables were clearly partitioned by size. Two sizes placed alongside each other were often of contrasting sizes, e.g. one of small and the other of large, to make the difference in sizes visible to the naked eye.

4. Training was given to all cutting department personnel on the new process flow; clear job profiles were earmarked with hourly tasks to be followed. The daily task sheet in bold was clearly fixed at vantage points in the cutting department, enabling easy visibility and follow-through action.

Table 16 Standard operating procedure for cutting manager

S. No.	Instructions	Frequency	Time
1	Ensure all fabric taken for cutting is in complete kit	Daily	9:00 A.M.
2	Allocate work to spreading and stickering teams to work on one style at a time- By priority	Daily	8:40 A.M.
3	Ensure embellishment combo cut on 1st day covering all sizes	Daily	9:00 A.M.
4	Ensure to make delivery challan by size and ID. No two sizes and IDs to mix up	Daily	

5	Ensure follow-up with Printing and Emb Vendor	Daily-Twice in a Day	12 P.M. & 4:30 P.M.
6	Replacement and Rejection of non-embellishment combo, should send replacement in 4 hours	Daily	
7	Review of cut to input status board	Daily	9:30 A.M.
8	All cutting must follow order priority list	Daily	

Note Source: Rajesh Bheda Consulting Pvt. Ltd

5. The critical links in the cutting and post-cutting process were mapped on a whiteboard and a format created to update and follow through the entire process on a day-to-day basis, keeping the order priorities in focus.

A new metric for monitoring the lead-time performance of each purchase order was also created. This was 'Cut-2-Input Lead Time', called CILT.

Review meetings were held every morning in front of the status board, with progress of each purchase order reviewed by priority. The meeting included the cutting manager, the embellishment process supervisor and the supervisors for other processes such as laying, cutting, parts-setting, etc. Any exceptions or delays in the process were highlighted in the meeting and action taken to expedite and resolve them.

Table 17 Daily status board format

Daily status board cut input								Last updated:20-06-2021					
S.No	Style No.	Colour	Qty	PCD	BPR%	Cutting	Stickering	Em b sent	Print sent	Panel check	Parts set	Input	Total LT
1	223 M	Red	220	25/05/2021	92%	02/06/2021	05/06/2021	06/06/2021	07/06/2021	Yes	Yes	10/06/2021	21
2	173 M	Green	766	26/05/2021	95%	03/06/2021	06/06/2021	07/06/2021	08/06/2021	Yes	Yes	11/06/2021	21
3	333 M	Blue	555	27/05/2021	92%	04/06/2021	07/06/2021	08/06/2021	09/06/2021	Yes	Yes	12/06/2021	6
4	112 K	Orange	300	28/05/2021	93%	05/06/2021	08/06/2021	09/06/2021	10/06/2021	Yes	Yes	13/06/2021	5
5	225 M	Yellow	900	29/05/2021	95%	06/06/2021	09/06/2021	10/06/2021	11/06/2021	Yes	Yes	14/06/2021	14

Note Source: Rajesh Bheda Consulting Pvt. Ltd

Results achieved

- Dedicated follow-through of the above procedure and review meetings using the daily status board enabled the cutting department to consistently reduce the 'Cut-2-Input Lead Time' from double-digit days to a newer lead time of five to six days;
- VM enabled the cutting department to feed the sewing floor with a regular flow of cut-panel inputs and to build an input buffer stock for two to three days;
- With consistent feeding, the sewing department was able to substantially increase its productivity.

Benefits for the company

- The success of the VM programme led by the improvement initiative provided an impetus to teams in the other departments to set up their own VM boards and continually update and review progress;
- This, in turn, helped the respective departments to take ownership and helped to sustain the company's change management programme.

Return on investment

The implementation of VM in the cutting department was not a standalone initiative. Rather, it complemented many other simultaneous initiatives in the factory. VM played a critical role in communicating day-to-day process progress and anomalies, if any, on a daily basis. Since the VM boards were reviewed and updated by the respective process managers, it gave them a sense of process ownership setting the stage for long-term sustenance of the project.

Against an investment of $54,500 paid over a year in professional fees and related expenses, the returns amounted to $149,000 due to increased productivity and improved on-time shipments, providing the company a 180% return on their investment. This good practice was implemented as a part of a larger factory improvement project.

Lessons learned

- Establishing VM boards brings a sense of transparency to a change management programme in terms of progress, or the lack of it;
- VM boards play a critical role in the adoption and display of key metrics and performance standards for a job or process;
- VM boards enable the supervisors and middle management to assess the progress of a process – or the lack of it – at a glance, without digging into paper reports;
- Display and regular update of key metrics related to the progress of a particular process motivates the workers in the department to take ownership of the process, enabling its sustainability in the long term.

Chapter 3
Social and environmental sustainability practices

Welfare initiatives retain and motivate workers

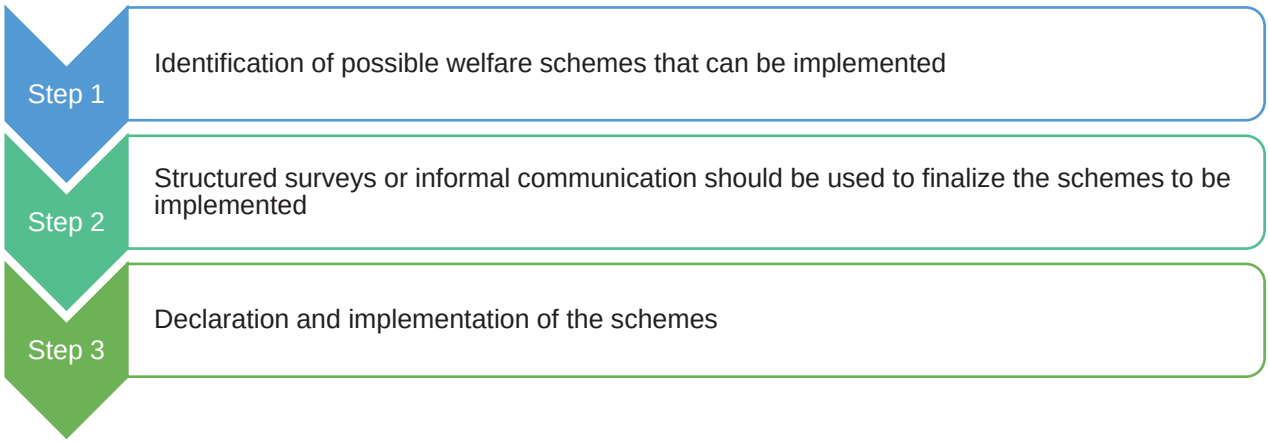
Many workers in the apparel sector come to work primarily to fulfil basic needs such as money, food, clothing and health. A majority of them are used to the unstructured lifestyle of the farming sector and are not exposed to the outside world or industrial working. Therefore, all welfare initiatives need to be tailor-made to suit their needs and aspirations. Welfare initiatives to take care of the various needs of workers ensure that they have fewer worries and feel cared for and thought of, thus nurturing a bond with the organization, making it a preferred employer. Such initiatives create an environment where the workforce is engaged and motivated to deliver its best.

Resource/preconditions required

- Top management commitment;
- Understanding of workers' expectations and needs from the factory.

Implementation steps

1. Form a welfare initiative committee or team; the committee members should be selected from the current mid-level and top management staff.
2. The team needs to study and find the needs of the workers and their pain points at the workplace; for this purpose, structured surveys or informal communication channels or both can be used.
3. After getting to know the pain areas and the welfare scheme ideas, the committee would need to formulate the welfare policies and propose them to the management. Once they receive the approvals as per company policy, sign off and implementation of the schemes should be initiated. The common welfare schemes for workers can include financial support or small loans and health check-ups at regular intervals. This should also include various fun activities to keep the workers happily engaged with the organization.



Potential benefits

Generally, the required investment can be kept under control with careful planning. The benefits can be substantial and far reaching in terms of reduction in absenteeism and attrition rate as well as the satisfaction and motivation level of the employees.

Key performance indicators

- Motivated workforce
- Reduced attrition rate
- Reduced absenteeism
- Increased productivity

Case Study 16: Welfare initiatives for workers and staff at Madura Clothing, Aditya Birla Fashion & Retail Limited (ABFRL), India

Company background

Name	Aditya Birla Fashion & Retail Limited (ABFRL)
Location	Bangalore, India
Number of employees	1,000 (in the specific factory)
Major articles	Shirt, trousers, chinos, jackets
Major customers/brands	Allen Solly, Louis Philippe, Peter England, Van Heusen

Problem description

High absenteeism and attrition rate are the most common problems that garment manufacturing units face, and these two issues can affect planning and business performance of any enterprise. ABFRL understood the need and significance of welfare systems to enhance the lives of their workers, raise motivation level, and reduce absenteeism and attrition rate, which led to improved productivity.

Due to a mix-up in priorities and lack of an organized follow-through process, cutting, despatch of the cut-panels for embellishment, their return post-embellishment and parts-setting took seven to 10 days. This was much higher than the allocated time of four to five days and was a persistent cause of worry.

Process followed

Driven by the strong values at ABFRL (Madura Clothing), the welfare committee designed the worker welfare schemes, keeping in mind the basic philosophy of care in the areas of financial assistance, health care and fun activities at regular intervals in the factory premises.

1. Financial care: A unique personal loan scheme through which a large number of employees benefited to support their children's education, medical care of relatives, marriage, and housing needs. This thoughtful and convenient scheme offered a helping hand to workers where standard bank loans and even micro-financing failed to help.

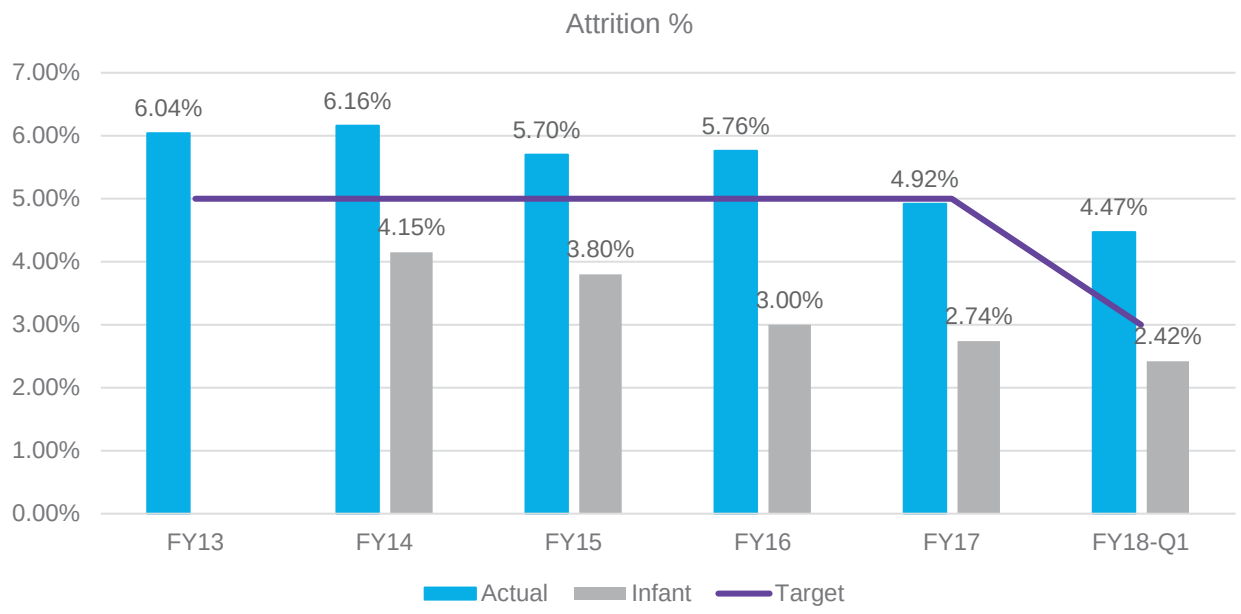
2. Health care: Every two years, a health check-up was done for all employees. Special care for pregnant women was provided, such as additional food supplements, work reallocation and awareness sessions about antenatal care. Art of living (spiritual well-being programmes) and ergonomics training were also organized to equip employees to manage daily life stress issues.

3. Fun at work: Various events like Women's Day, religious festivals (a day for workers to play games and win prizes) and the like were celebrated in the factory to rejuvenate employees and break the monotony of work. During these events, cultural competitions were organized. MC Cup is the sports event which promoted healthy competition among the employees of various factories.

Results achieved

Initiatives taken to keep people engaged and motivated proved to have a high impact, which was evident from Madura Clothing's business results (see Figures 24 and 25).

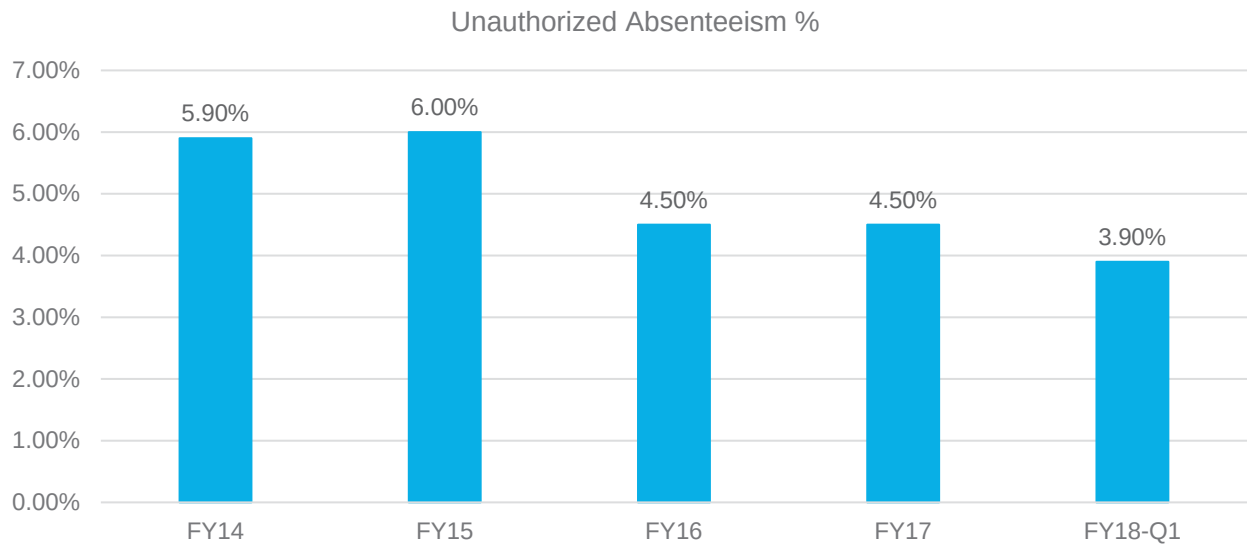
Figure 24 Attrition rates declined when workers were engaged and motivated



Source: ABFRL

***Infant attrition:** Early exits can be classified as 'infant attrition'

Figure 25 Unauthorized absenteeism diminished when initiatives motivated workers



Note Source: ABFRL

Return on investment

The company did not calculate the ROI of this initiative specifically as it looks at the welfare system as an integral part of the management system. However, looking at the results, particularly the attrition and absenteeism data, it is clear that the investment made by the company resulted in significant benefits to employees and the business.

Lessons learned

- Care and well-being of team members is a key aspect of good enterprises and can go a long way in instilling a strong sense of belonging to the organization;
- Celebrating events that matter to individual employees creates a highly motivated workforce;
- Financial care and health care are elements that establish security and comfort in the minds of the workers, helping them to focus on their work with the reassurance that they have a strong support mechanism in any hour of need.

Case Study 17: Improved working and living conditions instil higher loyalty

Company background

Name	DBL Group
Location	Bangladesh
Number of employees	35,000 (Overall DBL Group)
Monthly capacity	13 million pieces/month
Major articles	Knit garments
Major customers	H&M, Walmart-George, Puma, Esprit, G-Star

Problem description

One of the key strengths of a competitive garment factory is a happy and healthy workforce. DBL Group in Bangladesh is known for its proactive measures for employee engagement. The management realized that a significant part of worker earnings is spent on buying groceries from local vendors. Another major category of expenses is medical consultations and medical supplies. Many times, workers do not have sufficient funds to spend on these items and must borrow money.

Poor nutrition and health also increase absenteeism and attrition of workers. To address these challenges, the company decided to set up a fair price grocery shop and a pharmacy, and look at other measures that will make them an employer of choice among workers.

- Fair prices for a higher real income: On the factory site, the group established the Bandhan Fair Price Shop, where employees could buy, among other things, food, cooking oil, tea and beverages, everyday goods for housekeeping and toiletries at wholesale prices, which were about 15% lower than regular prices. As a result, the shop effectively increased the disposable income of workers. The offers of the shop were not only open to employees in the ready-made garment units, but also to those working in the other units of the group;

Fair Price Shop on the factory site (© DBL)

- Providing medical services for a healthier workforce: Provision was made to enable employees to purchase medicines at the factory site. A medical centre provided basic medical care, including vaccinations and pregnancy health checks at affordable charges that are adjusted against the salary of employees;

- Additional incentives to stay: Due to the high proportion of female workers at the DBL factories, the company opened a day care centre where the women could leave their children without any worry. Providing this day care facility gave women the opportunity to work who did not have a family support system to look after their young ones. DBL also established a cultural club in 2005 where employees could spend some free time together and enjoy themselves with recreational support. For instance, the club offered music lessons with a professional music instructor twice a week and got the students to participate in industry-wide contests for music, song, dance, play and prose. These steps helped in creating high satisfaction in the employees.

Day care facilities for the factory workers (© DBL)

Results achieved

- Worker spends on medical consultations and medicines reduced by almost 55%. This, along with availability of groceries at about 15% lower rate, improved their disposable income. Since the grocery and medical facilities charges are adjusted for the salary, the workers did not have to borrow money;

- Reduction in absenteeism rate from 3.35% to 1.09%;

- Reduction in average monthly staff turnover from 3.90% to 2.72%.

Return on investment

The assessment by the company shows that starting the Fair Price Shop and medical store did not add any financial burden on the company. Instead, there was a huge benefit as those steps resulted in lower rates of worker absenteeism and attrition, and higher employee satisfaction rate.

Lessons learned

- The creation of economy of scale makes it viable to operate Fair Price Shops for companies, while workers can save significantly and are assured of quality grocery as per convenience at the factory premises;
- A medical facility and medicine shop on the premises take care of procuring the required medicines. Very often, the doctor gives a prescription and people are unable to purchase medicine in factory/industrial area. Timely medication leads to fewer people reporting sick;
- On-site child care facility ensures no or little stress for women, leading to less absenteeism; it also encourages more women to seek employment in factories that have good childcare facilities.

Promoting women supervisors improves industry gender balance

Women play a major role in the global economy, and yet they face obstacles in comparison to men in most spheres of the industrial environment. Globally, the largest employers of women workers are in the apparel industry, affecting the lives of millions of women workers in developing countries.

Yet, in the garment sector in most developing countries, women tend to be engaged only at the base levels and their share as middle managers and supervisors is limited. The apparel sector has the potential to positively impact the lives of women workers through empowerment and career progression. This will also promote gender balance in the industry. Greater participation of women in supervisory and managerial roles also creates working conditions that are friendly and safer for women and the workforce overall. This good practice is based on the ILO-IFC GEAR programme.

Resources/preconditions required

- Top management commitment to train women workers and promote their career progression;
- Dedicated training area with necessary training kit and tools.

Implementation steps

Women sewing operators need to be trained to become effective supervisors by building their confidence and capabilities. They should be trained on both human resource management as well as technical skills, such as organizing workflow and improving productivity.

The training structure should cover the following areas:

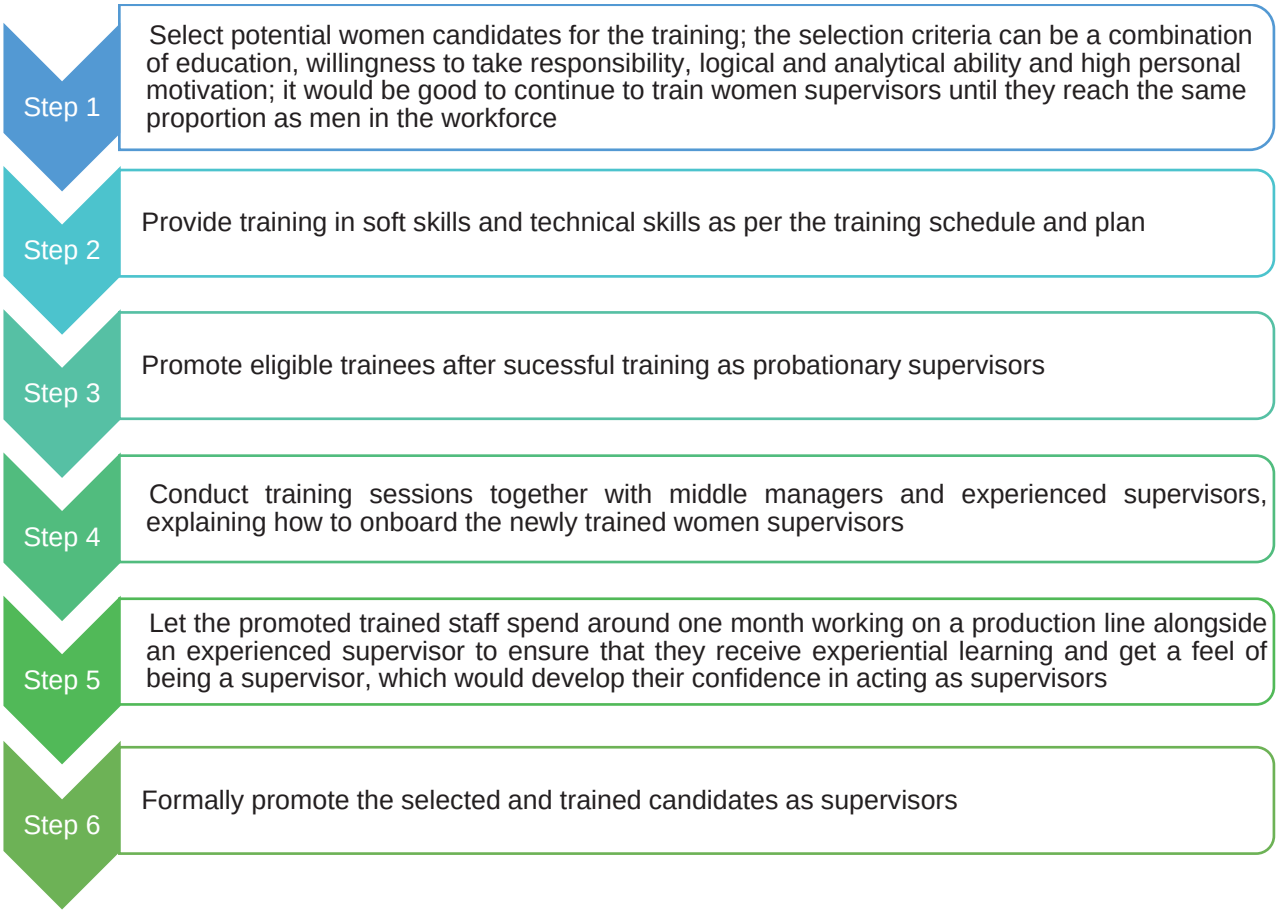
Soft skills training

- Confidence-building
- Effective communication
- Leadership skills
- Management styles
- Teamwork

Technical skills training

- Production processes
- Solving bottlenecks
- Line-balancing
- Method study and work study
- Types of sewing machines and their upkeep
- Introduction to work aid and attachments

Implementation steps



Potential benefits

The investment in training depends on the duration of the programme and resources used. Experience shows that such investment will show good returns in terms of reduced costs for hiring supervisors from external agencies and improved working conditions. Some key benefits:

- Increase in number of women supervisors leading to improved gender balance in mid-level management;
- Improved worker-management communication and satisfaction rate.

Key performance indicators

- Reduction in supervisor hiring cost
- Improved worker satisfaction rate
- Gender balance and inclusiveness

Case Study 18: Female supervisor leadership programme that promotes gender balance

Company background

Name	DBL Group
Location	Bangladesh
Number of employees	35,000 (Overall DBL Group)
Monthly capacity	13 million pieces/month
Major articles	Knit garments
Major customers	H&M, Walmart-George, Puma, Esprit, G-Star

Problem description

The ready-made garments (RMG) industry in Bangladesh is the greatest contributor to female employment in Bangladesh with over 3.2 million employees living at the bottom of the economic pyramid. The percentage of female workers in the garment manufacturing units of DBL Group was only 35% in 2012.

Focused recruitment of female workers improved this imbalance and, by 2018, DBL had in its employment about 49% female workers. Due to the higher proportion of female workers in the workplace, DBL sought to increase the percentage of women in middle management positions. This helped the female workforce to feel empowered as they realized that it was possible to further their careers within the company.

Process followed

The following steps were taken by the DBL group to ensure that more women reach middle management positions:

1. DBL designed an in-house training programme for its female supervisors that integrated the learning and experiences from different programmes.
2. To support the women to excel in supervisory roles, DBL provided a 165-hour comprehensive training programme, known as the Female Supervisors Leadership Programme, to build both soft skills and technical skills essential for leadership positions. The training addressed multiple topics, including counselling, housekeeping, safety, self-analysis and development, self-motivation and motivating others, communication, along with the company code of conduct, and production and quality modules.
3. Over a period of two months training was provided to potential in-house female workers who worked in sewing or quality departments within DBL.
4. After successful completion of the training programme, they were promoted as supervisors. DBL had 164 garment sewing lines, which were led only by male supervisors. From the first and second training batches, 22 female supervisors were promoted, covering 12% of the sewing lines.

Classroom training in progress (© DBL)

Results achieved

- There was a decline in the number of problems faced by female workers as female supervisors could better understand and address their issues;
- Earnings of female workers increased by 108% after being promoted;
- The supervisor position allowed further career progress as the women moved up the ladder as line chiefs, floor-in-charge, and even production managers; as of 2021, the company has 64 female supervisors;
- Female employee annual attrition rate came down from 6% in 2011 to only 2% by 2018-2019;
- Absenteeism reduced from 8% in 2011 to 3.6% by 2018-2019;
- Sewing lines led by female supervisors were 3% more efficient than male-led lines, which translated to an added production worth up to $624,000 every year.

Benefits for the company

- Reduced inequalities and better gender equality;
- External supervisor hiring cost savings;
- Development and capacity building of existing workers;
- Capacity building among female workers;
- Improvement in living standards of promoted female workers;
- Increased productivity and motivation in the workers for career progression.

Return on investment

Separate ROI calculations were not done, but the results clearly show that there were significant returns in terms of reduced absenteeism, migration and improved productivity. The improvement of 3% in productivity more than paid back the investment in the programme in terms of time of trainees, time of trainers, training facility costs and in-house training programme development.

Lessons learned

Women empowerment programmes, when implemented well, can provide significant business results across various KPIs.

Business benefits of social dialogue

For factories, social dialogue equals sound and structured talks between management and people who represent the workforce. The worker representative(s) should be democratically elected by and from the workforce. This means that each worker gets one vote; workers give their vote to their favourite candidate anonymously; and management does not interfere in the elections.

Management should play a facilitating and supporting role in the election preparation process. However, some managers may feel that the workers will only become more demanding; that profit margins are already squeezed; and that the company cannot afford social dialogue.

While low profit margins are a challenge for suppliers/producers in global supply chains, they are also a reason to consider social dialogue in the company. It is well known that, across sectors and company sizes, a sound and structured dialogue with people who represent the workforce is beneficial to business.

Resource/preconditions required

Implementing social dialogue requires relatively few resources – both to prepare and execute. Regular dialogue with a handful of people who represent the workforce adds up to less time spent than relating to every worker individually.

Democratic elections by and from the workforce are a precondition for social dialogue. Management can show their support to democratic elections, for example, by gathering workers in a meeting where they state their consent, support a format where the workforce decides who will represent them, and ensure that management will not interfere in or influence the elections. If trade unions already exist and have elected their representative(s) by and from the workforce, this step is already in place.

Implementation steps

Step 1	Training is provided on roles and responsibilities for management and worker representatives
Step 2	Training is provided by an external expert/facilitator who knows the subject and can train worker representatives and management – both separately and jointly
Step 3	Management and worker representatives identify trainers together as a first step in cooperation
Step 4	Clarity in requesting training that not only covers laws and regulations, but also strengthens social dialogue working methods (i.e. processes and procedures)
Step 5	If the enterprise supplies to international buyers with CSR policies, they could request the buyers to (partly) cover social dialogue training expenses; international buyers are increasingly concerned about sub-suppliers across their supply chain, and such proactive requests are also possible for other than first-tier suppliers
Step 6	Regularity and structure are key for social dialogue; management must set aside time for regular meetings
Step 7	Worker representatives should have access to a meeting room and a locked storage space
Step 8	Management should agree with worker representatives on the monthly hours they can devote to work on social dialogue and without salary deduction
Step 9	Training, collecting worker input through surveys and group meetings, and preparing for meetings with management are examples of activities that can be undertaken; each social dialogue meeting must have a prepared agenda; and the minutes of the meetings should be signed by both parties
Step 10	All social dialogue must be documented and maintained in a separate file that can be shown to buyers and other stakeholders

Potential benefits

Staff turnover can be costly for a company. Social dialogue can reduce turnover by engaging worker representatives who understand workers' issues and use their knowledge to resolve them. Effective social dialogue can enhance worker satisfaction rate; it can also be used to investigate work-related accidents and injuries and initiate steps to avoid them in the future.

Workers' legal rights are of concern for buyers, many of whom have a list of preferred suppliers. Documented regular social dialogue is the best way to ensure workers' rights, and thereby enhance a company's chance of being on preferred supplier lists. Actively communicating the social dialogue in the sales material can also attract new clients.

Key performance indicators

- Staff turnover
- Absenteeism
- Accidents and injuries
- Retaining and attracting clients

Case Study 19: Social dialogue strengthens business KPIs, leading to quicker problem-solving

Company background

Name	A factory producing sports goods for European and North American clients
Location	Outskirt of Ho Chi Minh City in Viet Nam
Number of employees	1,441 (80% women)
Major articles	Sports bags and backpacks
Major customers	European and North American sports brands

Problem description

Workforce attrition and absenteeism are major challenges for garment manufacturing units. Like many factories in Viet Nam, the workforce of this factory was relatively young, with most in their 20s. Factory work is often a first step into the job market for young people, but many soon aim for other jobs. Like other factories, this factory faced staff turnover. Absenteeism was also quite high.

Process followed

1. The factory's structured work with social dialogue started with training for management to learn about their roles and responsibilities as a support system in democratic election of workers.
2. A conventional way of conducting elections was to give and collect ballots from the workforce at their respective working places. One success factor in this factory was that information was disseminated about the elections to all functional sections, to each production line and production team, after which the workforce participated in the elections to select their representatives.
3. The entire workforce of 1,441 voted for 105 participants in the in-factory elections.
4. On the day of election, the director general gave opening remarks and a report, followed by a Q&A session facilitated by the human resources manager.

5. Management emphasized that it is the workers themselves who should elect their representatives, that management would not interfere, and that they look forward to constructive social dialogue. Following this, management withdrew to allow workers to vote in a free manner.

6. The factory organized local federations of labour to observe the elections, thus ensuring that the worker representatives are legally recognized.

7. Six workers were elected to represent the workforce.

8. After the elections, the elected worker representatives were trained by external trainers on their roles and responsibilities, laws, regulations, and negotiation skills. To build team spirit, a joint training with management and worker representatives was conducted.

9. The parties (i.e. management and worker representatives) mutually agreed that the first social dialogue meeting was to agree on roles, responsibilities and procedures:

   - Meeting frequency: the parties agreed to meet every second month;

   - Meeting agenda: the parties agreed that both would send the other party a draft agenda two weeks before the social dialogue meeting. The human resources manager and one of the worker representatives would finalize the agenda one week before the scheduled meeting. It was made clear to and by both parties that the preparation meeting was only to agree on the agenda, not to discuss the topics. Either party could only reject a topic if there was not sufficient time to prepare for discussion. In such cases, the topic would automatically be on the agenda in the following meeting;

   - Meeting minutes: the parties agreed that each meeting would start by appointing one person (from either party) to write the minutes. To sort out possible misunderstandings, the minute takers would orally outline the minutes at the end of the meeting.

Results achieved

- The factory found that social dialogue contributed to reduced staff turnover, absenteeism, and accidents. Below are figures comparing the same period before and after implementing social dialogue:

	Before	After
Absenteeism (in total days)	465	359
Turnover (in numbers)	120	98
Accidents	2	1

- The factory reported several non-quantifiable positive results, such as increased trust from international customers and quicker problem-solving through smooth communication with worker representatives;

- Factory management also claimed conflicts had been avoided.

Benefits for the company

- Both management and worker representatives emphasized the need for continuous training, especially for worker representatives;

- Social dialogue led to new working methods, thinking and knowledge;

- Social dialogue enhanced negotiation skills, and issues were resolved more quickly.

Return on investment

The management invested:

- Half a day to prepare for the democratic elections;
- Half a day for democratic election by and from the workforce;
- Six days training for newly elected worker representatives (conducted as 3+2+1);
- Three days training for top manager and HR manager (conducted as 1+1+1);
- One day best practice seminar to share their experience and get inspirational tips from other factories.

The social dialogue investments led to nearly 30% reduced absenteeism, 22% reduced staff turnover and a 50% reduction in number of accidents. The ROI was not calculated in financial terms but compared to the investments; this is a significant return/benefit.

Lessons learned

The factory had only positive experience with social dialogue and has since continued with it. The two lessons learned:

1. Worker representatives should receive regular (annual) training;
2. A written agreement between management and worker representatives about time off for worker representatives to carry out their duties should have been formalized. This is based on claims from worker representatives that the time to engage with workers and prepare for social dialogue meetings was too short. A written agreement would have made the time available clearer to all parties.

Integrating sustainability into textile and apparel manufacturing

Apparel and textile manufacturing pose significant threats to sustainability due to environmental issues caused by huge energy demands, release of toxic chemicals in wastewater, emission of greenhouse gases into the air and solid waste accumulation. Sustainable practices involve reduction in water, energy and chemical footprints, waste generation, ethical practices, and health and safety.

In an apparel-manufacturing unit, the major contributor to the final ecological footprint is resource utilization, followed by energy consumption and waste generation. Integrating sustainability into apparel manufacturing focuses on the processes that identify and eliminates waste in various operations involved, through various techniques, including technology implementation, continuous improvement and process optimization. For example, identifying energy-efficient technologies and managing different forms of waste by adopting a lean culture can help in reducing the impact on the environment.

Resources/preconditions required

- Management commitment to environmental conservation;
- Knowledge of meeting sustainable production standards;
- Access to appropriate technology;
- Team with technical know-how of green manufacturing.

Implementation steps

Potential benefits

Integrating sustainability into apparel manufacturing benefits the organization and its employees, and most importantly, safeguards the environment. The benefits include:

- Water conservation
- Energy savings
- Reduced consumption of fossil fuels
- Health and well-being of staff and workers through adequate ventilation and daylight, and minimizing indoor air pollutants
- Competitive edge in the market

Key performance indicators

- Water and energy consumption
- Waste generation
- Conformance to environmental standards

Case Study 20: No Water, No Life: Water-saving practices of DBL Group

Company background

Name	DBL Group
Location	Dhaka, Bangladesh
Number of employees	38,000 (about 34% women)
Monthly capacity	Dyeing: 3,380 tons; Apparel: 13 million pieces
Major customers	H&M, Walmart-George, Puma, Esprit, C&A and G-Star

Problem description

The textile and apparel industry consumes substantial amounts of water, particularly in the fabric dyeing and finishing operations. The International Finance Corporation of the World Bank Group reports that the Bangladesh textile and apparel industry consumes about 1,500 billion litres of groundwater annually and discharges this as wastewater. It is estimated that to dye one kilogram of cotton jersey fabric, up to 200 litres of water is required. Hence, for a dyeing facility which has 90 tons per day capacity, up to 18 million litres of water is required every day.

DBL group is known for adapting good management practices. As a part of its sustainability drive, management decided to focus on reducing water consumption in its dyeing plants.

DBL Group's Dyeing Plant (© DBL)

Process followed

As early as 2010, DBL Group used about 120 litres of water for dyeing 1 kilogram of cotton jersey fabric instead of 200 litres generally used by its peers in the Bangladesh industry.

1. An initial analysis identified several water-saving opportunities.

2. Implementation was carried out at the fabric dyeing factories. Along with the pre-existing practices of DBL Group, some of the actions taken included:

    - Using efficient machineries, which consume up to 50% less water;
    - Using chemicals that required less water reduced water consumption to 55 litres per kilogram of fabric from 120 litres;
    - Repairing leaking taps and educating staff to turn off water after use;
    - Replacing single flush systems with dual flush systems;
    - Reusing hot water from boilers.

3. Proper moisture management was conducted to further reduce water consumption.

The action plan of DBL, benefited from advice of experts of the Partnership for Cleaner Textile (PaCT) programme. The identified initiatives along with a cost benefit analysis guided top management decision making effectively.

The duration of the respective investments depended on the ease and availability of resources for implementation. For instance, initiatives that required little investment and were quicker to implement, such as fixing leaking taps, took less than a year for implementation, while the ones requiring higher capital investments, such as reducing the fabric-to-water ratio and the construction of rainwater harvesting plant, took two or more years.

Results achieved

- Resource saving and reduced emissions: Comparing the before and after between 2010 and 2016, DBL Group was able to save not only water but also dyes and chemicals, even with production growing by 74.44% (see Table 18);

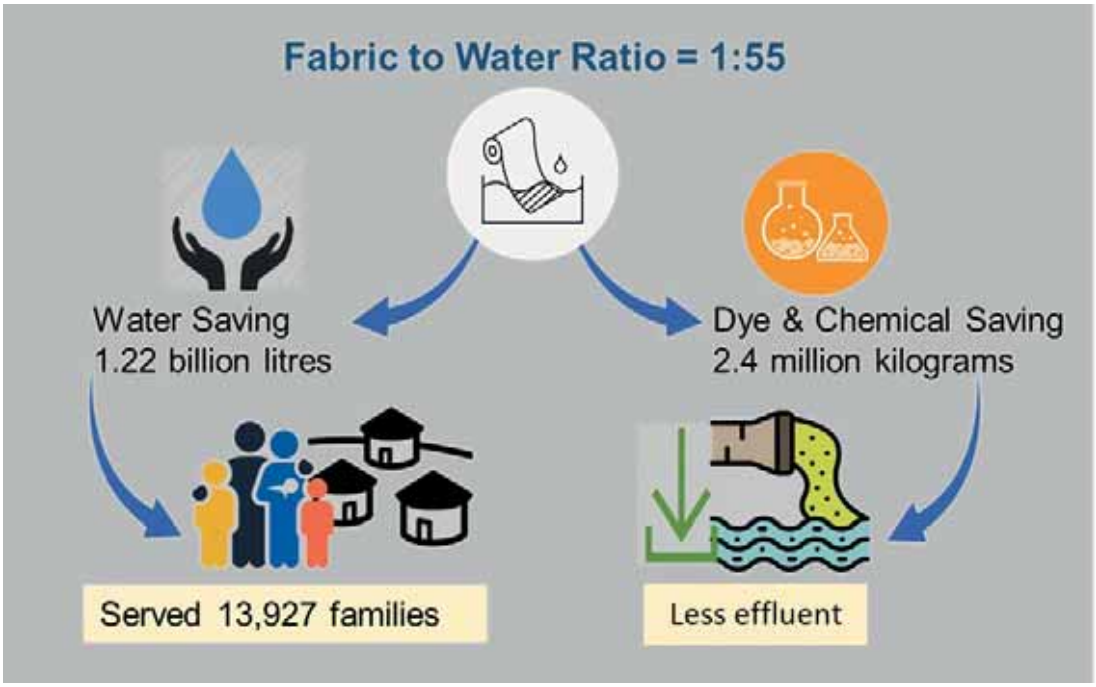
- Community impact: Improvements continued throughout the years after the initial phase. This resulted in DBL having a fabric-to-water ratio of 1:55 as compared to the previous ratio of 1:120. DBL was able to save 1.22 billion litres of water and 2.4 million kilograms of dyes and chemicals in 2016 alone, compared to 2010 (see Figure 26). The water saving has catered to serving 13,927 families in Kashimpur, assuming a requirement of 240 litres of water per family per day. The dyes and chemicals saved means that there were fewer effluents and less wastewater discharged into the environment.

Table 18 DBL Group's dyeing plant drastically reduced consumption

Consumption for per kilogram of fabric processed	2010	2016	Savings
Water	120 litres	55 litres	65 litres
Dyes and chemicals used	540 grams	417 grams	123 grams

Note Source: DBL Group

Figure 26 Savings translated into less effluent and water for 13,927 families



Note Source: DBL Group

DBL believes 'sharing is caring' and that collective goodness is better than individual goodness; therefore, DBL creates awareness among other factories in the Konabari local cluster of preventing groundwater depletion and saving for the next generation. Best practices are discussed among the factories so that a collective positive impact on the community can take place.

Benefits for the company

- DBL Group has been able to save not only water but also dyes and chemicals;
- There are savings in energy and carbon emissions;
- The lower water requirement means less energy is required for extracting groundwater and, hence, the associated carbon emissions are reduced.

Return on investment

Investments were made in two phases, i.e. in 2011-2013 and 2014-2016. The cumulative investment in these two phases was about $2,475,140. The cumulative return from both the phases is estimated at $6,647,594.

Lessons learned

Saving resources helped the group not only to reduce the environmental footprint, which has become an import market entry requirement, but it also to provide scope for business expansion with less investment.

The group greatly benefited by using the existing effluent treatment plant (ETP) when they expanded their operations. The first ETP installed had the capacity of 4,000 cubic metres/day. At that time, the group was using 120 litres of water to dye 1 kilogram of fabric. DBL installed a second ETP in 2013 with a capacity of 7,500 cubic metres/day as they expanded their operations. However, by that time, the dyeing operations used 60 litres of water. Hence, there was unused capacity in the second ETP. This helped the group in expanding for the yarn dyeing plant. Approximately, 50% of the ETP cost, which was approximately $1.5 million, has been saved.

Case Study 21: Deploying sustainability practices in apparel manufacturing facilities

Company background

Name	Aditya Birla Fashion and Retail Limited (Madura Clothing)
Location	Bengaluru, India
Number of employees	13,000 (86% of are women)
Major articles	Men's, women's, kid's wear

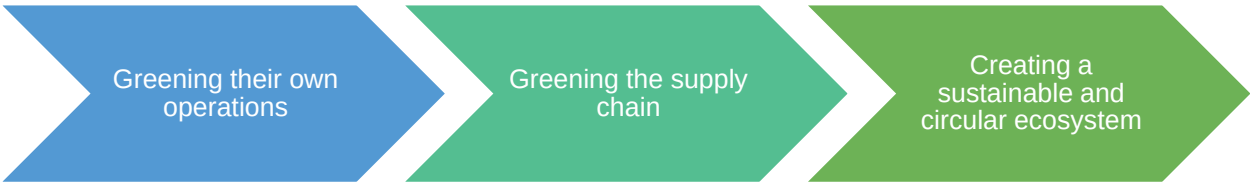
Problem description

ABFRL, with its strong commitment to social responsibility, decided to embrace sustainability in its supply chain, including its own factories. The company wanted to demonstrate that significant improvements could be achieved, and environmental impact of apparel manufacturing could be minimized. The company embarked on its sustainability journey in 2013 and has made significant progress. While the company's sustainability initiatives span its manufacturing facilities, supplier factories and retail network, this case study focuses on the initiatives undertaken at the apparel manufacturing factories owned by the company.

Process followed

The organization's sustainability journey included three main steps to create a sustainable ecosystem (see Figure 27).

Figure 27 Main steps in the sustainability journey



Note Source: ABFRL

This case study covers the process followed by the organization for implementing sustainable resource-efficiency practices in their own manufacturing facilities. The organization implemented these practices in eight of their manufacturing units – Crafted Clothing (CCL), Fashion Craft (FCL), Europa Garments (EGL), Classical Men's Wear (CML), English Apparels (EAL), Haritha Apparels (HAL), Alpha Garments (AGL), and Little England Apparels (LEA).

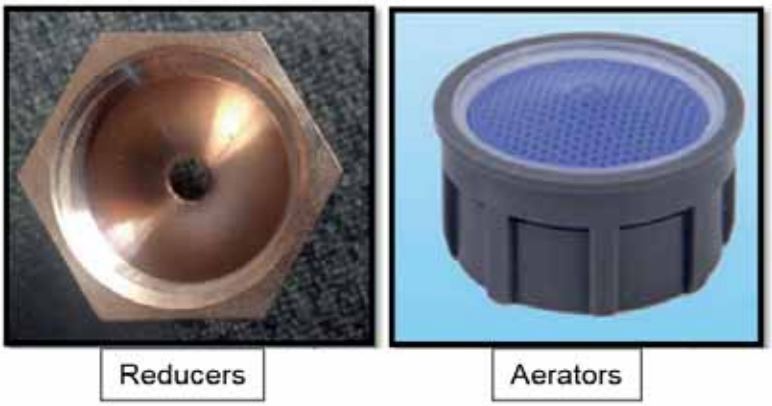
First, ABFRL formed a sustainability team comprising employees across departments. They adopted the Aditya Birla Group (ABG) Sustainability Framework, based on which it created a sustainability programme – ReEarth – with objectives defined for energy use, carbon footprint, green building, water, waste, WASH Pledge, safety, CSR, packaging and sustainable products.

They partnered with global sustainability forums to exchange insight and gain knowledge on best practices towards sustainability and became a key member of the Sustainable Apparel Coalition to adopt the Higg Index, a suite of tools to accurately measure their sustainability performance.

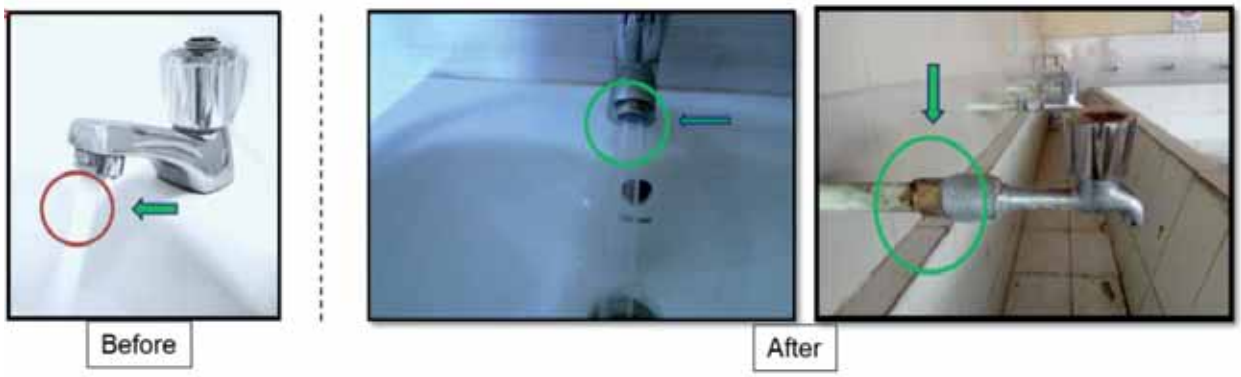
The organization first considered greening of its own operations to improve resource efficiency, emphasizing energy, carbon, water, waste and green building. Based on the mission of the ReEarth programme, the targets for greening operations were set to reduce purchase of grid electricity, reduce carbon emissions, minimize environmental impact from the construction and use of their buildings, recycle/reuse water, and ensure no waste generated in the premises was sent to landfills. Projects aimed at reducing freshwater consumption, sending zero waste to landfill, and reduction in energy consumption were implemented.

1. Water consumption

- Rooftop rainwater collection: This technique captures rainwater from roof catchments and stores it in reservoirs. Harvested rainwater can be stored in underground reservoirs to meet the factory's domestic and process needs;
- Water-efficient fixtures like reducers and aerators were introduced to reduce the water flow in taps;



Water efficient fixtures – reducers and aerators (©ABFRL)



Before and after usage of water efficient fixtures (©ABFRL)

- Sewage-treatment-plant treated water was used for back flushing and gardening, reducing the groundwater withdrawal through bore well.

2. Energy consumption: Energy efficiency measures, such as adopting innovative technologies and processes and installing efficient equipment, was implemented at the manufacturing facilities to reduce the purchase of grid electricity and the power intake from other energy sourcing utilities, and to reduce carbon emissions. Solar rooftops were installed in four plants, with a combined capacity of 1.85 MW. In addition, the company converted all diesel boilers to biomass-based briquettes in the boilers and LED solar street lighting was installed in one plant each.

   - Solar power panels installed aimed at attaining 60% power from solar;

Solar panel installations at the manufacturing facilities (©ABFRL)

   - Biomass briquette boilers: The diesel-based boiler that was earlier being used for steam generation emitted carbon dioxide; all diesel-based boilers of capacities from one to four tons were replaced by biomass briquette boilers (500 kg tonnage), helping to reduce carbon dioxide emissions and avoiding usage of diesel.

Biomass briquette boiler installed at AGL in FY 2019 (©ABFRL)

3. Waste management: To send zero waste to landfill across all the manufacturing facilities, waste management practices were implemented involving:

   - Waste handling: Authorized waste handlers were identified for the disposal of hazardous and non-hazardous waste; audits were conducted at the vendor sites to establish traceability of non-hazardous waste's end destination;

   - Food waste management: Digesters were installed at all factories to convert the food waste into compost to achieve zero landfill for biodegradable waste (organic food waste);

A food waste digester (©ABFRL)

   - Eliminating the use of corrugated carton boxes for transferring finished garments (shirts and trousers from factory to warehouse);

   - Reusable, durable, recyclable plastic crates were introduced for trouser and shirt delivery;

   - Metal trolleys were introduced for suit delivery to central warehouse through specially designed trolleys and vehicles.

Plastic crates for trouser delivery and suit trolleys (©ABFRL)

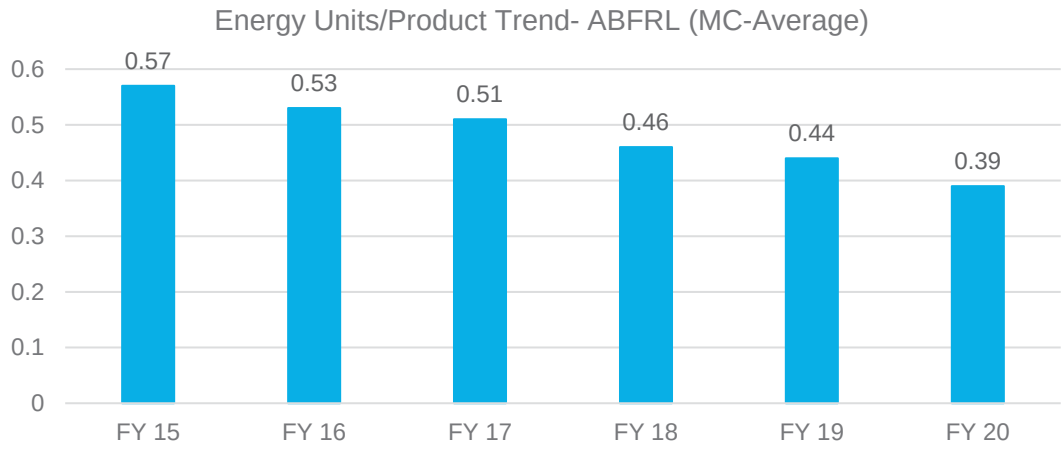
After implementation, the facilities were assessed for their sustainability performance using the Higg Index tool, and ratings were calculated by a third-party certified verifier during the assessment.

Two factories, FCL and HAL, were Gold Certified under the US Green Building Council and CCL; and LEA factories are Silver Certified under the Existing Building category through the Indian Green Building Council.

Results achieved

1. Energy savings
    - Overall reduction in units consumed per garment (see Figure 28);

Figure 28 Energy units (kWh) per garment reduced overall



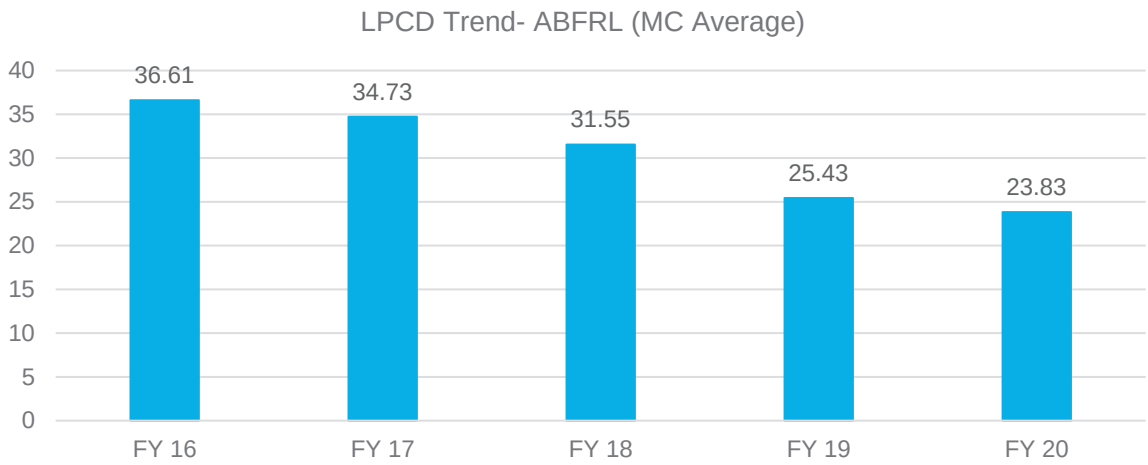
Note Source: ABFRL

    - Achieved 58% reduction in purchase of grid electricity by means of solar rooftop installations in four factories (CCL, FCL, EGL, HAL).

2. Reduction in carbon emissions
    - An overall reduction of 11% in Scope 1 emissions, which covers direct emissions from owned or controlled sources, and Scope 2 emissions, which covers indirect emissions from generation of purchased electricity;
    - Biomass briquette boiler helped reduce 30 tons of carbon dioxide emissions per year at AGL.

3. Reduction in water consumption
    - Attained 12.78 LPCD (average) reduction in per capita/day consumption from FY 2016 to FY 2020 (see Figure 29).

Figure 29 Reduction in water consumption over the years



Note Source: ABFRL

4. Zero waste to landfill
    - All the manufacturing facilities achieved 'Zero Waste to Landfill' status;
    - Eliminated corrugated box use, which would lead to savings of at least 1275 trees/year, 3975 KL water and 4077 Kilowatt/hour of energy (required for paper manufacturing);
    - Factories achieved a 7-ton reduction in packaging consumption and $45,000 in cost savings.

Benefits for the company

For its sustainability journey, ABFRL has received awards and appreciation. Owing to the various green initiatives taken, the facilities have achieved a high score in sustainability assessments.

- The organization has been unanimously chosen as a winner of the sixth IGBC Green Champion Award under the category of 'Pioneer in large-scale adoption of green buildings in Industrial Sector';
- 'Sustainable Corporate of the Year 2019' in Frost & Sullivan and TERI – Sustainability 4.0 Assessment;
- ABFRL ranked eighth globally in the Dow Jones Sustainable Indices in Textile, Apparel & Luxury Good Sector in the Robeco SAM Corporate Sustainability Assessment.

Return on investment

All the projects had a payback period of less than 3.4 years, with three projects reporting an impressive payback period of less than one year (see Table 19).

Table 19 Water consumption has been reduced over the years

S. No.	Project Name	Project Implementation Year	Investment ($)	Cost Saving/Year ($)	Payback Period (Years)
1	Briquette Boiler - AGL	2019	44,444	13,354	3.3
2	LED Shop floor Lighting	2019	27,582	21,935	1.3
3	LED Street Lighting	2019	30,996	9,209	3.4
4	PV Solar	2019	97,222	34,722	2.8
5	Plastic Crates - Shirt Transport	2020	1,09,375	301,425	0.4
6	Plastic Crates - Trouser Transport	2016-2018	36,458	52,324	0.7
7	Metal Trolley - Suit Transport	2018	31,250	79,712	0.4

Note Source: ABFRL

Table 20 Pure sustainability initiatives without ROI working

S. No.	Project Name	Project Implementation Year	Investment ($)	Remarks
1	Rainwater Harvesting	2017	2,77,778	Water savings is calculated in terms of reduction in LPCD (litres/capita/day) and bore well water withdrawal LPCD reduction: From baseline (FY 2016) to FY 2021, there is a reduction of 10.11 LPCD Bore well reduction: L2L comparison from the baseline year FY 2016 to FY 2021, there is 32% reduction
2	Sewage Treatment Plant	2016-2018	2,15,278	

Note Source: ABFRL

Lessons learned

As can be seen from the results and ROI, the investments in sustainability have a strong business case with payback period between one and four years.

The clear leadership achieved through sustainability initiatives rewards the company with improved customer loyalty.

Community engagement enhances economic, social, and cultural well-being

Community engagement or involvement is an integral part of CSR. It is the direct involvement of the local community in various processes of the organization, which may include working in partnership for CSR policy formulation, administrative tasks, operational tasks, sustainability programmes, and the like. The practice may also involve activities of the organization, such as volunteering in community activities, providing sanitation facilities, housing initiatives, funding and organizing medical camps. Through community engagement programmes, there is an exchange of knowledge, resources and services.

The garment industry has realized the significance of community engagement. Factories are increasingly conscious of their responsibility to improve the communities within which they operate. They understand that to thrive, factories need to bring about positive changes in society.

More and more enterprises, including textile and clothing companies, have started adopting the triple-bottom-line approach of 'People, Planet and Profit' where companies commit to focusing as much on social and environmental concerns as they do on profits. This approach seeks to gauge a corporation's level of commitment to corporate social responsibility and its impact on the environment over time. Organizations thus play an important role in modernizing and uplifting the community's economic, social and cultural well-being.

A meta-analysis of several research studies has concluded that corporate responsibility initiatives also have tangible value for businesses.[5] The studies show that these initiatives can result in enhanced market performance, reduced cost of capital, sales and branding, and an improvement in employee engagement and retention.

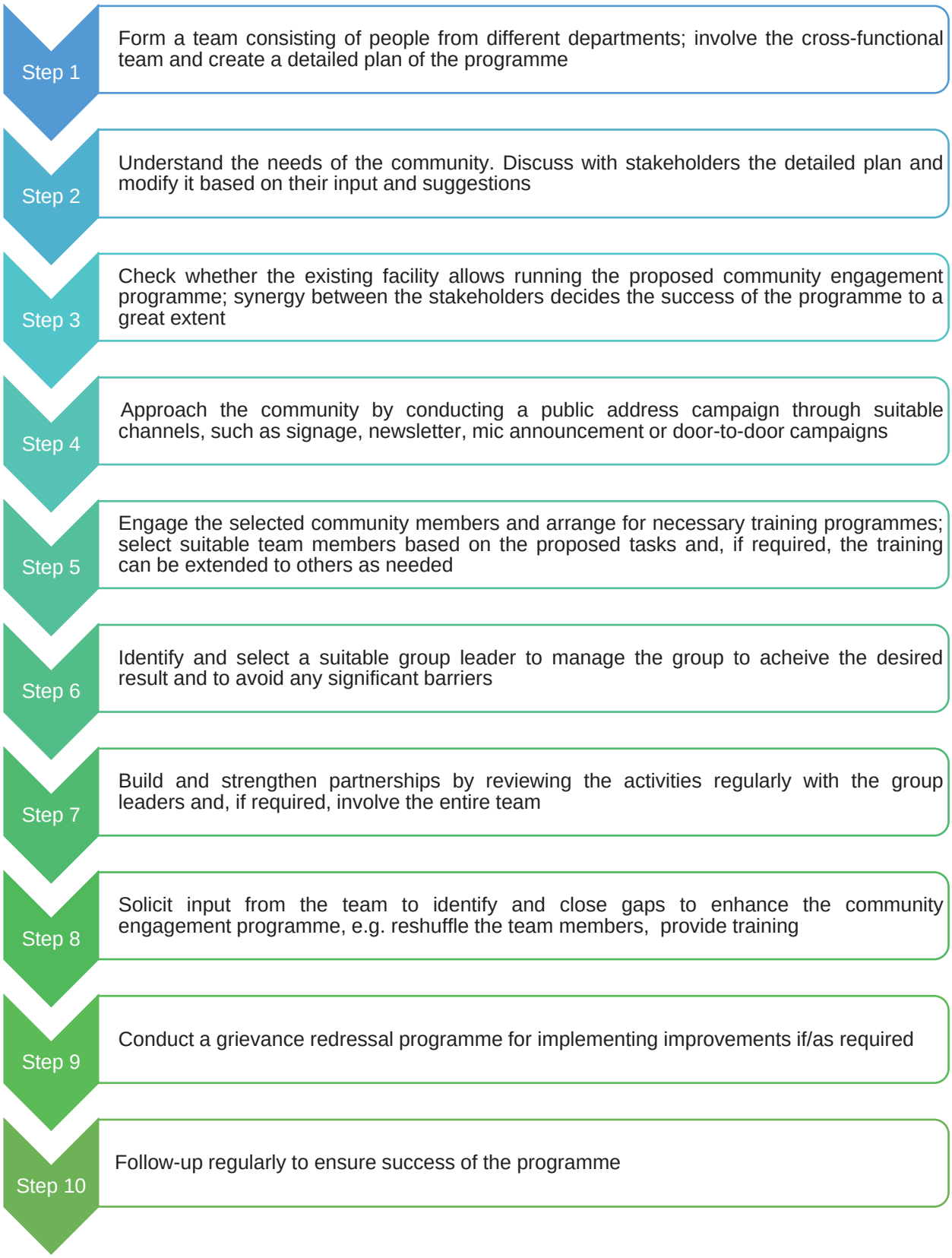
Resource/preconditions required

- Commitment of top management to community engagement and a strong desire to adopt the triple-bottom-line approach;
- Key staff who understand the importance of community engagement and are experienced in designing and implementing engagement programmes.

Implementation steps

The steps to engage a community may vary depending on the task or programme planned. The implementation should be designed in collaboration with the local governing body, which needs to consider the problem it is addressing, the desired objectives and the available resources. The following steps suggest how they can be involved directly in the setup to engage the community.

[5] Melissa Lin, 'Are Corporate responsibility efforts profitable?', https://www.toptal.com/finance/profitability-analysis/corporate-responsibility, accessed on 18 April 2021


Step 1
Form a team consisting of people from different departments; involve the cross-functional team and create a detailed plan of the programme
Step 2
Understand the needs of the community. Discuss with stakeholders the detailed plan and modify it based on their input and suggestions
Step 3
Check whether the existing facility allows running the proposed community engagement programme; synergy between the stakeholders decides the success of the programme to a great extent
Step 4
Approach the community by conducting a public address campaign through suitable channels, such as signage, newsletter, mic announcement or door-to-door campaigns
Step 5
Engage the selected community members and arrange for necessary training programmes; select suitable team members based on the proposed tasks and, if required, the training can be extended to others as needed
Step 6
Identify and select a suitable group leader to manage the group to acheive the desired result and to avoid any significant barriers
Step 7
Build and strengthen partnerships by reviewing the activities regularly with the group leaders and, if required, involve the entire team
Step 8
Solicit input from the team to identify and close gaps to enhance the community engagement programme, e.g. reshuffle the team members, provide training
Step 9
Conduct a grievance redressal programme for implementing improvements if/as required
Step 10
Follow-up regularly to ensure success of the programme

Potential benefits

The benefits for the community are:

- Facilitates community empowerment
- Secures the livelihood of the people
- Economic, social and cultural well-being
- Improved communication between the firm and the community

The benefits for the company are:

- Improved reputation for social responsibility
- Increased customer confidence and loyalty
- Enhanced investor interest in the company
- Cultivates a feel-good factor that has positive implications for employee retention, recruitment and loyalty

Key performance indicators

- Retention of community members
- Percentage increase in number of new community members trained
- Reduction in absenteeism

Case Study 22: Roundtable group strengthens management of migrant workforce hiring and retention

Company background

Name	Classic Fashion
Location	Jordan
Number of employees	30,000
Daily capacity	450,000 pieces
Major articles	Activewear, sports knit tops, bottoms, jackets, lifestyle knit tops, golf wear, woven tops and bottoms, denims, swimwear
Major customers	UK-based large format discount stores

Problem description

The workforce from Bangladesh accounts for more than 55% of the total manpower in the garment industry in Jordan. As with any growing and developing manpower-dependent industry worldwide, this industry has been subject to critical analysis by several well-meaning stakeholders who, by default, associate migrant workforce with human trafficking, bad living conditions, and the like. Thus, there was a need to address these concerns and improve the management system for hiring migrant workers. This meant working with multiple stakeholders in Jordan and Bangladesh.

Process followed

1. As a proactive measure, Classic Fashion proposed a collaboration to establish a multistakeholder working group with Bangladesh Overseas Employment and Services Limited (BOESL), which is a government-owned manpower export company that supplies 100% of the Bangladeshi manpower needed for the garment industry in Jordan.

2. A roundtable group was formed in January 2018 in Dhaka, Bangladesh, which has held five meetings so far. Participants in the roundtable include the International Labour Organization, International Organization for Migration, Government of Bangladesh (Ministry of Labour), NGOs, brands and retailers sourcing out of Jordan, and manufacturers from Jordan.

3. The objective of this group is to collectively work to define and create definitive systems that allow controlling and monitoring the process for deploying migrant workforce from Bangladesh in the garment industry in Jordan.

4. A similar roundtable was established in Jordan during July 2018 at the demand end. As in the supply end (Dhaka), Classic Fashion took the lead in establishing the group in Jordan.

5. The Jordan roundtable group was organized in collaboration with JGATE (the garment manufacturers association) and with the support of Better Work Jordan and the trade union.

6. Participants in the roundtable included the International Labour Organization, International Organization for Migration, trade unions, NGOs, government, embassies of Bangladesh, India and Sri Lanka, brands and retailers, manufacturers and, most importantly, recruitment agencies from India, Sri Lanka and Nepal, and BOESL.

Results achieved

- Previously, information of the passport holder was handwritten; now 100% of the passports of the Bangladesh workforce are digitally printed;

- Clear understanding of challenges faced by each of the stakeholders in the process of hiring and retaining migrant workforce;

- Defined framework for engagement of all stakeholders in Bangladesh; this framework specifies the roles and responsibilities of each stakeholder in supporting the migrant workforce hiring process.

Benefits for the company

- The roundtables gave the buyers the assurance and confidence that the sensitive topic of migrant workforce management was being addressed and that they were part of the process;

- Classic Fashion could articulate its commitment to be a preferred employer and strategic vendor to its customers;

- The company was able to make a strong and clear statement that it is committed to following robust management systems in migrant workforce hiring;

- The roundtable built stakeholder engagement and sent a clear message that it is not only the manufacturers' responsibility to ensure fair hiring practices, but also that other players need to take responsibility for their actions.

Return on investment

The motive for the programme was to address the hiring of migrant workers and develop a structured format to be followed for the overall benefit of the industry. In addition, intangible advantages have been achieved that have led to a more transparent environment between the manufacturer, workers and buyers. It has built greater trust between the stakeholders, which will help the business in different ways.

Lessons learned

- These efforts are a clear indication that companies need not wait for the government or international agencies to lead such forums; companies can also take the initiative to address larger issues;
- It is possible for private-sector players to bring all stakeholders together to address critical issues with a clear agenda and public good in mind.

Case Study 23: Friends from Syria project works on skill development and rehabilitation of Syrian refugees in Jordan

Company background

Name	Classic Fashion
Location	Jordan
Number of employees	30,000
Daily capacity	450,000 pieces
Major articles	Activewear, sports knit tops, bottoms, jackets, lifestyle knit tops, golf wear, woven tops and bottoms, denims, swimwear
Major customers	UK-based large format discount stores

Problem description

Classic Fashion, the largest garment manufacturing company and employer of human resources in the textile and clothing industry in the Middle East and North Africa region, is always looking to attract the best workers to meet the demands of their factory. As there are many Syrian refugees in Jordan, the company decided to establish a systematic and structured approach to attract, train and provide employment opportunities to the refugees. It developed and implemented the Friends from Syria programme in October 2017 to engage with residents of the Zaatri camp for Syrian refugees.

Process followed

1. Friends from Syria was set up in October 2017 for residents of the Zaatri camp for Syrian refugees.
2. Each quarter, professionals from the company's HR, welfare and training teams visited the camp, interacted with more than 100 residents, and discussed career opportunities available with Classic Fashion. These meetings were organized with the help of United Nations Human Rights Council and the International Labour Organization.
3. Classic Fashion organized a day tour where 70-80 of those who had attended the orientation at the camp visited the company's Al Hasan factory, including the training centre, kitchen and dormitory.
4. The residents of the camp also interacted with Syrians who were already part of the Classic Fashion family.
5. Those refugees keen on exploring employment in the garment industry joined the company's training centre and underwent a month-long intensive training. On successful completion of the training and assessment, they were offered jobs at Classic Fashion.
6. Each trainee was paid the legal minimum wage and provided free transportation and lunch by Classic Fashion during the training period.

Results achieved

- More than 500 Syrian refugees from the Zaatri camp underwent training;
- Over 400 of them continue to be employed at Classic Fashion factories in Al Hasan industrial estate; others could not continue due mainly to personal reasons;
- Two production supervisors, one technical trainer and one welfare officer have been developed at the training centre from the Syrian trainees.

Benefits for the company

Classic Fashion demonstrated its commitment to rehabilitating refugees. The initiative also helped to strengthen ties with the objective of creating sufficient local manpower for the industry**.**

Skill development programme for Syrian refugees in Jordan (©Classic Fashion, Jordan)

Return on investment

Quantitative results in terms of ROI have not been calculated yet. The company wanted to recruit at least 1,000 new workers through this initiative and then work on such calculations. However, the results shown by the initiative were motivating enough to carry it forward.

Lessons learned

Understanding the living conditions in the camps is especially important as residents are under severe stress due to reasons beyond their control. Thus, the process requires patience and empathy. Rather than just focusing on the numbers, it is important to understand the impact created in the lives of refugees.

Operational health and safety profiling and risk assessment flags electrical and structural safety issues

Fires, often with origins in electrical systems, and building collapse, pose grave risks to the lives of thousands of workers and managers, and affect the credibility and sustainability of factories and brands. The factory safety initiative aims to protect lives, ensure business continuity, and build internal capacity for managing emergencies. It is important to involve management and workers to instil a culture of safety that can be sustained internally, rather than taking the compliance route. This good practice emphasizes creating a culture of safety.

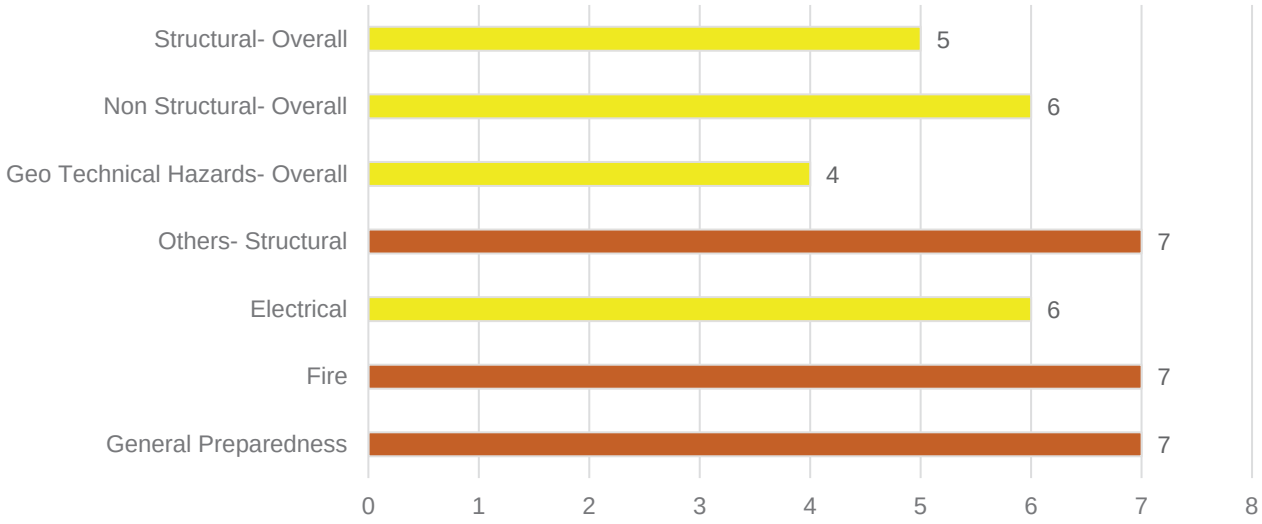
Resources/preconditions required

- Conviction of factory management to invest efforts in risk reduction beyond compliance systems;
- Handholding by a technical agency for initial phase of risk assessment, planning and training;
- Engagement of workers as stakeholders in the process rather than as mere recipients.

Implementation steps

Step 1	Review documentation to understand electrical fire, structural, non-structural, occupational and behavioural risk levels in the factory premises and how to assess them;form a core team to address safety concerns
Step 2	Rapid visual screening of building premises by electrical, fire, structural and emergency response experts
Step 3	Prepare risk matrix and carry out rating based on indicators across categories covering structural, electrical, fire and emergency response assessment of factory (see Figure 30); this is important for identification of high-risk priority areas
Step 4	Formulate roadmap that prioritizes risks, and then formulate a strategy to deploy resources for risk reduction and business continuity
Step 5	Fix immediate problems that require fewer resources and can be managed internally; track progress through a summary risk assessment chart
Step 6	Prepare a multi-hazard, comprehensive disaster management plan for the factory in consultation with technical experts; coverage can be based on the circle of factory safety (see Figure 31)
Step 7	Create an emergency control room/centre that has emergency response plans, SOPs, CCTV controls, emergency communication systems and staff it with a responsible person to manage emergency response
Step 8	Sensitize factory management on safety principles; formation and training of task forces with managers and key personnel to manage emergencies; carry out regular drills to embed emergeincy response habits, such as evacuation and first response
Step 9	Integrate safety initiatives with productivity improvements so that the culture of safety becomes deep-rooted and people understand the importance of safety and its relation to improved productivity
Step 10	Establish systems for continued review and update plans and capacity building measures

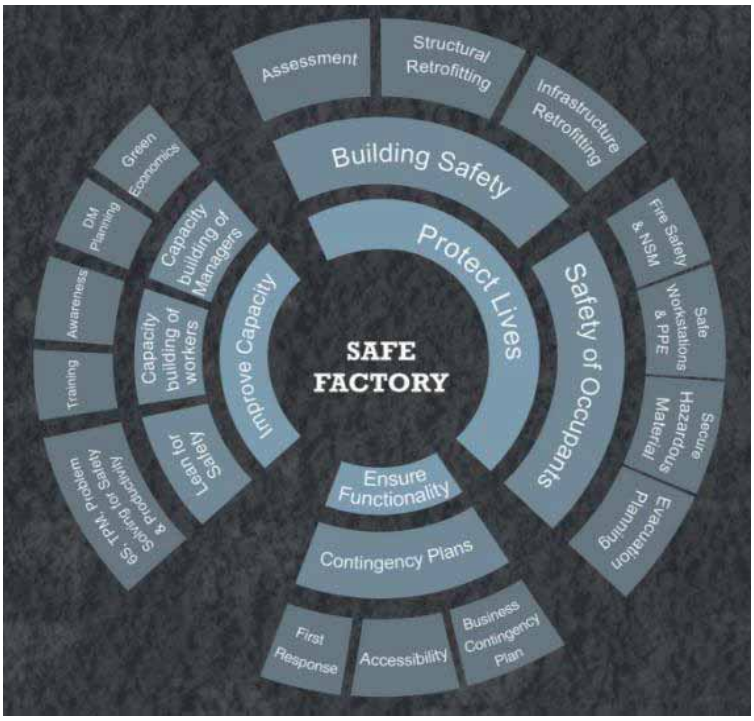
Figure 30 Example of summary risk rating of a factory



09 to 10	Very Severe
07 to 09	Severe
04 to 06	Moderate- High
02 to 03	Moderate- Low
Up to 1	Minor
0	None

Note Source: SEEDS and RBC

Figure 31 Circle of factory safety



Note Source: SEEDS and RBC

Potential benefits/Return on investment

The safety parameters, once made robust through a safety programme, make an enterprise safer and better prepared to handle any potential risk to lives, goods and structures. They lead to customer and brand confidence in the enterprise as a responsible organization and potentially help it gain the status of a preferred supplier. The safety parameters also prevent accidents and instil a sense of security in the employees and workforce. This enriches the bond between management and workers. One cannot quantify direct financial benefits as the prevention of any threat to life and merchandise is a non-quantifiable gain.

Key performance indicators

- Number of accidents reduced;
- Increased knowledge of local and factory-specific risks;
- Better preparedness of management and workers to face an emergency;
- Reduced risk based on identified risk indicator sets.

Case Study 24: A proactive approach to worker safety in a garment manufacturing unit

Company background

Name	A knitwear manufacturer
Location	Dhaka, Bangladesh
Number of employees	1,500
Monthly capacity	1,000,000 pieces
Major articles	Knits, T-shirts, leggings, kid's wear
Major customers	European retailers

Problem description

An international buying house was concerned about the safety of workers and infrastructure in factories from which it sourced garments. Some leading supplier factories shared this concern. They were feeling overwhelmed with the string of compliance pressures after a major accident in a Bangladesh factory. Post Rana Plaza collapse, building safety, electrical safety, fire safety audits and requirements were seen as separate heads and there was tremendous pressure on their account. Some risks, like floods and civil strife, were still not being covered. The alternative adopted by the brand and its technical experts[6] was based on a culture of safety that treated workers as stakeholders, was multi-hazard in approach, empowered factories to act themselves, and linked safety with productivity. The factory decided to join the initiative.

Process followed

The process followed by the factory for the implementation of a safety culture under guidance from technical experts included the following steps:

1. The expert team carried out rapid visual assessment of building structures, electrical installations and potential threats at the factory.

2. Risks were assessed by studying documents like building plans, electrical layouts, and emergency response plans.

[6] Sustainable Environmental & Ecological Development Society and Rajesh Bheda Consulting

3. Based on the findings, the risk assessment matrix was developed and initial recommended improvements for the safety standards were shared with the factory management team.

4. This was followed by training of different management teams to understand and act on potential threats.

5. An emergency control room was created with all critical information and SOPs defined and displayed, using visual communication posters and signage.

6. Based on the recommendations, structural rectification as well as repairs or changes in electrical wiring, etc. were made. For example, splicing joints, if poorly maintained, and with fibre and lint collection from garments, become potent electrical hazards. The process of maintaining them was defined and implemented.

7. Factory teams were trained in safety management through simple, practical steps and preparedness knowledge was disseminated.

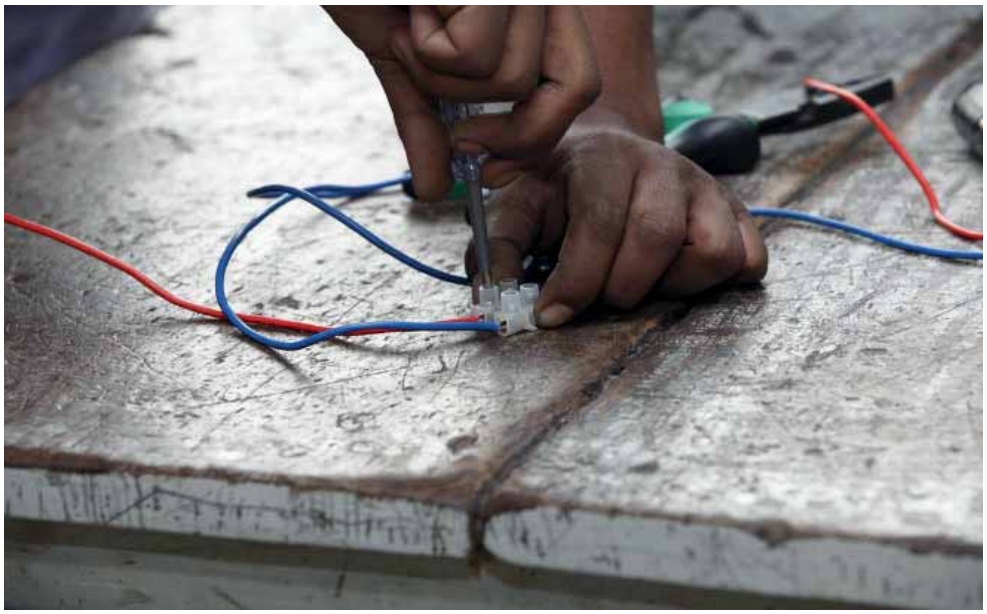
8. A rapid visual assessment was again carried out to understand the progress made.

Results achieved

The participatory risk assessment put the factory team in greater charge of their safety process. The establishment of an emergency control room provided the management much needed confidence in the SOPs and preparedness in case of emergency.

With a comprehensive emergency management plan, there was a better understanding of risks, the steps needed to minimize the risks and how each worker can play a role in spotting a risk and minimizing it through safe behaviour. Several risks related to electrical and structural safety were mitigated on priority. With this, the teams felt confident in making and keeping the factory safe from disasters of any kind.

Emergency management team conduct mock drill at the emergency control room (©Sarika Gulati, SEEDS)



Replacement of splice joints with wire connectors significantly reduces electrical-fire risk (©Sarika Gulati, SEEDS)

Standardized signage for effective communication of safety infrastructure (©Sarika Gulati, SEEDS)

Benefits for the company

Participation in the safety programme improved the factory's safety parameters. It also mapped the process of improving its safety preparedness and understanding of potential threats to the factory. It helped the factory take specific initiatives and ensure better preparedness for potential risks. It improved credibility of the factory as an enterprise that takes safety as a priority.

Return on investment

The investment in immediate improvements in terms of fixing electrical safety risks, management training, creating SOPs and setting up of emergency control room was about $50,000. This did not include medium-term recommendations on structural safety. Although such investments do not pay back directly, they are essential in promising conduct of business in a safe environment, and winning the faith of its customers. This investment was paid back through improvement in quality in less than six months.

Lessons learned

- Positioning the worker at the core of the initiative makes the whole enterprise inclusive;
- If workers think of their own safety, the circle of safety expands to cover all areas around them, including the workplace and community;
- Simple, clear instructions are critical for any safety initiative.

Chapter 4
Branding and marketing practices

Branding helps a manufacturer move up the value ladder

Apparel manufacturing for the export market is a challenging business. Apparel brands and retailers have a lot of expectations from their manufacturer partners or suppliers. These include environmental, social standards and quality standards, speed to market, product development capabilities, investment in new technologies, flexible to accommodate last-minute changes to orders and, most importantly, competitive pricing.

Most of the added value in the fashion business is achieved through branding and retail. Unless manufacturers can perform at a high efficiency level, the profitability of the apparel manufacturing business tends to be low. However, if a manufacturer can offer excellent product and service, the volume of business can grow and the company can improve its scale of operation.

To improve the added value of the business, manufacturers can consider investing in development of a brand, where they can leverage their manufacturing strengths and know-how and offer international quality product for the domestic market. After establishing the brand and gaining success in the domestic market, they can look at taking the brand overseas. In most cases this would require creation of a dedicated arm or division for development of the brand and ensuring its sustained growth.

Resources/preconditions required

- A strong product design and development team that can research the market and proactively develop product solutions for buyers from different markets;
- Willingness to make long-term investments to develop the brand; brand development takes time and nurturing: there are no shortcuts;
- There should be no agreements with existing buyers that bar the company from launching its own brand;
- Willingness to hire the right resources and expertise to develop the new vertical; the core competencies needed for developing a brand and making it grow are different from managing manufacturing operations.

Implementation steps

Step 1	Identify the challenge/gaps in the market that should be addressed, such as something that is bothering a set of customers: How can that challenge be solved?
Step 2	Identify the core strengths that will help to develop a strong and viable product that has a good market
Step 3	Clearly define the target market that is most likely to buy the product; it should be a sizable chunk, but need not be everyone; research this segment well as the success of the product launch depends on it; consider hiring services of a specialist adviser
Step 4	Identify the brand positioning strategy; define how it differs from similar brands in the industry; develop a communication strategy to support brand positioning as well as distribution channels, which are critical to ensuring that the product reaches the target customers
Step 5	Plan a marketing budget for the entire strategy, and then once the above process is complete, allocate a budget for all activities
Step 6	Develop a brand identity that strikes a chord with the target audience; this includes a brand name, logo, tagline and, ideally, a brand manual
Step 7	Develop communication channels and use them effectively; plan all marketing channels through which the target audience will be reached, including social media, email marketing, content marketing, website, paid media strategy, referral marketing and participation in trade shows and conferences
Step 8	Ensure the product experience is great through product and service; and that the early customers feel ‘wowed’ or delighted for having chosen the product
Step 9	Manage the post-purchase consumer experience and stay in touch: every business receives some negative feedback but the difference between an average brand and a great one is how they handle it; the right response to negative feedback could win customers or channel partners for a lifetime

Potential benefits

- Opportunity to learn and develop expertise from branding to distribution; this first-hand experience can help the existing contract manufacturing business as well as the new brand;
- Ability to leverage the manufacturing facility and related know-how for higher value-added business; the existing manufacturing setup would provide an advantage to the business compared to a new brand that will need to invest in the manufacturing setup, thus improving competitiveness over new entrants;
- In the long term, the brand could grow and improve the overall profitability of the business.

Key performance indicators

- Profitability of the business
- New products

Case Study 25: Creating the 'Alcis' sportswear brand

Company background

Name	Paragon Apparels Pvt. Ltd
Location	Noida, India
Number of employees	5,000 (40% are women)
Production	9 million units per year
Key markets	India, US and Europe, GCC
Key customers	Kappa, Adidas, Hummel, Levi's, Pepe Jeans, Reebok, Alcis
Major articles	Athleisure and sportswear (T-shirts, joggers, shorts, hoodies, jackets etc.)

Problem description

Paragon Apparels, a sportswear company, was established by Roshan Baid in 1997 with a small investment of about $10,000. With 10 sewing machines, he started subcontracting sewing orders for a few exporters. In the first year, the company achieved sales of $100,000. In 2001, the company started producing sportswear for Reebok using performance fabrics. As it started producing for Adidas too, the business grew, and sales turnover touched $13.62 million in 2009.

Over the years, it has become one of India's largest sportswear manufacturing companies, supplying to some of the biggest international sportswear brands.

To improve its response to market needs, Paragon decided in 2011 to invest in knitting and dyeing facilities for synthetic fabrics needed for active sportswear. It also invested further in capabilities to produce high-performance sportswear fabrics in 2012 in collaboration with a Korean company to reduce imports of expensive speciality fabrics.

The company realized opportunities that the rapidly growing Indian market offered for an affordable active sportswear brand. Baid decided to introduce his own brand and provide consumers high-performance active wear products at affordable price points.

Process followed

1. After deciding to create a brand, the company was clear that the existing team that handled the export business did not possess the expertise to develop a brand. Hence, dedicated teams to support the new brand were formed, one for product design and development, and another for marketing (brand creation and sales).

2. In 2017, the brand was launched online and received encouraging response.

3. The company uses latest technologies such as Dry-Tech (moisture management), Anti-Odour, Anti-Static, Anti-UV and Light X; the products are designed keeping Indian lifestyles and weather conditions in mind.

4. The product range consists of clothes that can be worn while running, training, practising yoga, playing football or racquet sports and other athletic and leisure activities.

5. The T-shirts are made from environment-friendly material and come in vibrant colours instead of the dark and muted tones of international brands; they are germ-resistant and suitable for the Indian environment.

6. In 2017 – the same year of the brand launch – RB Investments, a Singapore-based company, invested $4 million in the company and took a 25% stake in it. The company engaged Shikhar Dhawan, a celebrated Indian cricketer, as a brand ambassador.

Alcis design team (©Paragon Apparels Pvt. Ltd)

7. When the FIFA U-17 World Cup took place in India, Alcis launched its first TV commercial, featuring TV stars Lauren Gottlieb and Karan Tacker.

8. By the end of 2017, the company started offline sales by introducing the spring/summer 2018 collection through trade shows and established distribution networks across the country.

9. Alcis caters to the middle segment of the Indian sportswear market, which has remained largely untapped, targeting the 16-to-35-year age population; it is also building presence in tier 2, tier 3 and tier 4 cities.

10. The company has signed a long-term contract with Indian Kabaddi League (Kabaddi is an indigenous sport).

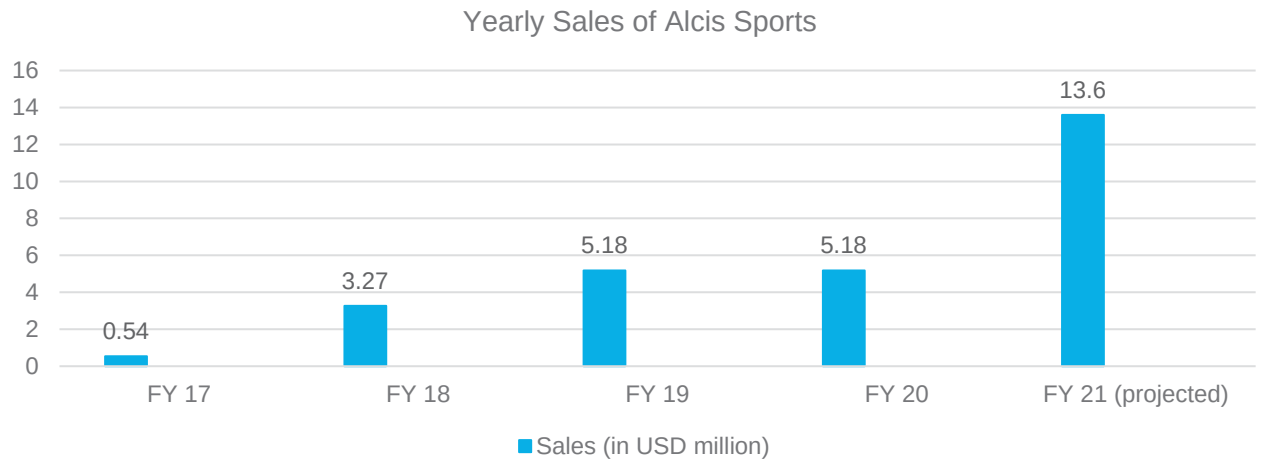
Inside an exclusive Alcis store (©Paragon Apparels Pvt. Ltd)

11. In 2019, the company started its first exclusive brand outlet in Kochi, South India.
12. Alcis Nari Collection, launched in February 2019, included women's gym wear, casual work wear, and yoga/outdoor wear – all made of sustainable fabrics like wool, organic cotton and recycled polyester.
13. In March 2019, the brand became the official multi-year kit and merchandise partner of Rajasthan Royals (a team in the domestic cricket tournament, Indian Premier League) and launched a collection named Rajasthan Royals.
14. Alcis Family Run is a marathon conducted in cities of Gurugram, Lucknow and Panchkula. The company also presents itself during college festivals.

Results achieved

- Alcis prides itself on being the first Indian brand with the production capability to manufacture technologically advanced sportswear at affordable price points;
- Alcis is retailed in Dubai and Scandinavia and plans to expand its international reach;
- As of early 2021, the company has 700 outlets for Alcis, with kiosks at leading Indian malls like Central Mall, Shoppers Stop and similar retail spaces across the country. It has 22 exclusive retail stores in large cities and sells online;
- The brand has seen a robust 10-fold growth in sales in three years (see Figure 32).

Figure 32 Annual sales figures show 10-fold growth of the brand



Note Source: Alcis Sports

Benefits for the company

- The company draws tremendous satisfaction from the fact that it not only produces for global brands, but also has its own brand that is growing at a rapid pace;
- Heavy dependence on international customers has been reduced with the growth of Alcis;
- The company is recognized for its pioneering effort to create an active sportswear brand that offers international quality products to Indian consumers and can compete with global brands;
- The company retains its leadership position in exports for its key customers and is steadily growing.

Return on investment

Since the third year of operations, the company has been making operating profits from its own brand, Alcis.

Lessons learned

- Without a specialized and dedicated team, a pure manufacturing company will not be able to create and nurture a brand;
- For a brand to succeed, finding a clear niche and product differentiation are the keys;
- Management of inventory and cash flow are critical for profitability of the business.

Using the D2C model to develop a brand and move up the value chain

The internet and digital technologies have transformed evolving consumer needs into new business models. These new models have enabled manufacturers to diversify and expand their footprint in ways that would not have been feasible earlier. Among others, this trend has led to the emergence of direct-to-consumer (D2C) companies. Adding D2C business can be a valuable way for manufacturers that supply to wholesalers or international brands/retailers to move up the value chain. However, D2C business is quite different in nature and organizations keen to venture into it need to prepare well.

A company leveraging the D2C model designs, manufactures and sells its products directly to consumers. This allows it to bypass retailers, wholesalers and agents. Businesses taking the D2C route need to build an emotional connection with their consumers and offer a clear value proposition. The D2C form of doing business is characterized by agility, innovative ideas, efficient market intelligence and effective use of technology. With access to customer data, D2C companies can leverage consumption insight, work on a feedback-led model and rapidly develop products to ensure that the evolving customer needs are addressed.

D2C has many advantages, such as competitive pricing for consumers; and, for manufacturers, direct contact with consumers to better understand them and to freely experiment with new product releases. Developing D2C business can also help companies leverage their existing manufacturing assets, use spare capacity and generate additional revenue.

Resource/preconditions required

- Companies must be willing to invest in training employees and evolving processes, and communicate the need for the D2C model to the employees for better buy-in;
- The company should check whether existing contracts with their customers prohibit them from starting a brand or selling directly to customers; communicating with key customers about the company's plan to start the D2C business will avert possible future misunderstanding;
- Willingness to create a dedicated team to service the D2C business.

Implementation steps

Step 1	Find the rationale for adopting a D2C model and communicate it to the employees
Step 2	Carry out a market survey to find consumers' pain points; existing exporters can start with consumers in their domestic market as this information is relatively available and servicing domestic consumers first will be less difficult
Step 3	Let partners and associates know of the idea so there are no conflicts of interest
Step 4	Take the services of an expert to chart a roadmap for D2C journey
Step 5	Identify the products (existing or new) that would be sold through D2C and build a unique sales proposition
Step 6	Marketing makes or breaks the D2C model; formulate a future-proof marketing strategy
Step 7	Develop a model to retain customers; and offer easy and no-fee returns
Step 8	Make use of social media influencers and encourage customers to articulate their love for the brand through social media so that marketing goes viral
Step 9	Hire an expert to prepare a social media marketing policy
Step 10	Create/use a robust online platform that scores high on usability
Step 11	Build the consumer insight data collection process into the logistics process so the entire chain is in sync

Potential benefits

- Being able to sell directly to consumers is the single biggest advantage; traditional routes ensure that there is no interaction with a customer, thereby minimizing or eliminating the possibility of customer feedback;
- A direct link with customers ensures that the company is directly involved in brand building;
- The D2C model enables a company to offer better prices to consumers since intermediaries are cut out from the segment; this allows companies to strategically offer better promotions to customers;
- Improved utilization of manufacturing capacity and additional revenue stream.

Case Study 26: Starting a D2C brand to leverage manufacturing infrastructure

Company background

Name	A women's wear and kid's wear manufacturer
Location	Noida, India
% women employees	38%
Manufacturing capacity	70,000 pieces/month
Key markets	US and European markets, key export locations Market segment for D2C brand: India and the US
Major articles	Women's wear and kid's wear (girls) for exports, women's western wear for new D2C brand
Major customers	Target, Superdry, Okaidi, Zara

Problem description

The company in question, which is involved in garment manufacturing for exports, experienced high seasonality in its business as it produced prolifically only for the spring/summer orders. This resulted in idle capacity during the lean months for the rest of the year. Also, since the selling price in the export markets continued to fall over the years, this resulted in reduced profitability. The company, therefore, was looking for a solution to these twin challenges.

The company realized that direct-to-consumer (D2C) brands in the e-commerce sector were disrupting the current market balance. D2C was transforming the way people shop and was expected to reach a $200 billion market size by 2025 in India alone. With this in mind, the company approached D2C brand architect Zashed Fashiontech to support them in developing a D2C brand.

Since the company was used to traditional ways of operating due to the decades-old practices, the challenge at the outset was to attune the mindset of the management and key staff to the dynamics of a digitally driven industry. Transforming their psyche to make the transition to a D2C brand was also challenging.

Process followed

1. The brand architect worked with the company to build an initial roadmap, which included elements like what to make and how much to make. The company decided to create a women's western wear brand.

2. The process started with conducting data research focused on the industry and competitors.

3. Niche products were conceptualized as per trend forecasts, market data analytics, current trends, and customer requirements, leading to an initial business plan that detailed what to make and how to eventually sell, and cash flow requirements to ensure higher sell-through rate.

4. The brand name, logo and tagline were created that could quickly connect with the right target customer base.

5. Special attention was given to sourcing to ensure that there would be no major challenges and that the supply chain would work efficiently.

6. Each product was developed from tech packs to costing, and from meeting price points to creating the product market fit.

7. The company worked on a low inventory model to avoid an inventory pile up. This ensured a high and fast rotation of the inventory by leveraging the in-house manufacturing capabilities.

8. Data analysis tools were used to provide the design team with the buying patterns of consumers on the internet and to respond in time.

9. The design and manufacturing teams were explained their responsibilities at different stages of brand creation so they could work together to achieve a common goal.

10. Elements like brand launch, placement, promotion and two to three key milestones were earmarked.

11. The brand was launched on its own D2C channel, beside other big fashion marketplaces.

12. The brand was positioned to cater to women in the 18-35 age group, which comprised the highest buying customer in the targeted segment.

13. The concept of the brand was based on 'sheets to streets' as it comprised comfortable home wear, work wear and products for house parties.

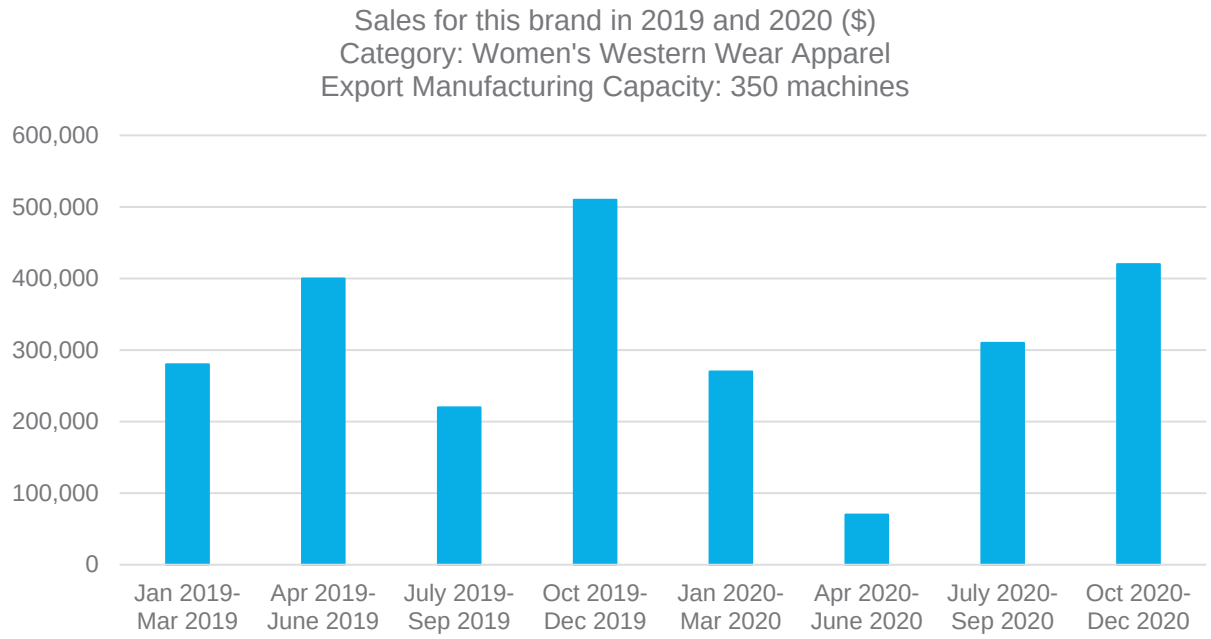
14. All digital platforms were used strategically through influencer marketing to regular Insta-feed to attract views, which led to high conversion in terms of sales and quick recall value for the brand.

15. Within the first two quarters, the brand gained more than 10,000 followers on social media.

Results achieved

Sales reached $274,000 in the first quarter of the launch year (2019), reaching an all-time high of $512,000 in October–December that year. Due to the global COVID-19 pandemic, sales declined to less than $70,000 in April 2020. As the lockdown began to be lifted, the market started recovering and sales reached $425,000 in October–December 2020.

Figure 33 Revenue of the brand in 2019-2020



Note Source: Zashed Fashiontech Pvt. Ltd

Benefits for the company

- From being a buyer-dependent exporter to becoming a customer-focused D2C brand, the company's plans yielded rich dividends; the company now plans to enter the international market;
- Broadly, the company was able to use the spare capacity of its export-oriented manufacturing unit to support manufacturing for its D2C brand, thus ensuring cost efficiencies.

Return on investment

Overall, the brand achieved 50% gross profit for the new D2C business and return on investment was as per the target.

Lessons learned

- There are many ways an apparel exporter can stop being dependent on a buyer for its existence. This case study shows that, although the D2C route is not widely prevalent, it can enable a manufacturer to make productive use of its facilities and create a brand that can co-exist with the existing export requirements;
- A direct connect with the end customer can create an effective transition in the internal management of the organization, thereby making the operations cost-efficient. In this case, the (partial) shift not only helped them sustain the backend during the pandemic, but also taught them the importance of going digital.

Innovating the business model creates new opportunities

For many apparel manufacturers, business tends to be seasonal because they specialize in winter or summer wear. This could be due to limited availability of high-quality raw material for both seasons or lack of expertise in producing products for both seasons. The seasonal nature of the business affects cost competitiveness as the companies are unable to recover the overhead costs across the year. This affects the profitability and growth of the companies and may result in idle capacity in certain departments or processes from time to time.

If looked at with a fresh perspective, there could be opportunities to innovate the business model for using the idle capacity and improving sales and profitability by leveraging a firm's strengths in non-conventional ways.

Firms must first analyse their unique strengths or identify areas where they have surplus capacity. This surplus capacity could be in its infrastructure, such as CAD systems, specialized embroidery machines or printing facilities, or in areas like product design or high-quality product development capabilities. SMEs or manufacturers in virtually all manufacturing hubs lack some of these capabilities or infrastructure.

This good practice emphasizes leveraging the excess capabilities and unique strengths of an organization to offer services to other SMEs for mutual economic benefit. This would not only help the business generate additional revenue by offering these services, but also help other SMEs to access services like design development, pattern creation, computerized marker making or use of laundry facilities, and thus add value to their products and business without making capital investments. The availability of such services can be of great value for new SMEs or young designers who lack infrastructure or funds for investment.

Based on the response of the market, the firm can finalize the business model or create a small business cell that would offer services to other SMEs in the ecosystem and offer mutually beneficial solutions.

Resources/preconditions required

- The openness to look at the business with a fresh perspective on the part of the management, without which the opportunities may not be visible;
- Service orientation, willingness and ability to understand the needs of the other players in the ecosystem that can be satisfied while generating value for both organizations;
- Established spare capacity so that its use as a service offering to other SMEs won't adversely affect the existing business.

Implementation steps

Step 1 Bring together the management team for brainstorming with the data of monthly production and sales at hand and ready for analysis

Step 2 Identify whether the organization has spare capacity or expertise and the areas where it is available; evaluate whether this spare capacity can be used for the existing business/customers; if so, develop an action plan for the same

Step 3 Identify spare capacity that cannot be used for existing customers but could be of value to other SMEs in the ecosystem, e.g. spare capacity in digital printing, embroidery, CAD for pattern making or marker making or a laundry for garment wash; it could also include design development capacity in the lean season

Step 4 Assess and identify other businesses that may be in need of such capacity or services; in some cases, the seasons of export-oriented companies are different from companies that produce for domestic sales, which may provide opportunities to share capacity or offer services

Step 5 Develop a value proposition of your services and approach potential businesses that coulde avail of your services or spare capacity; gradually build trust and capabilities to develop this service portfolio to improve the revenue stream of your business

Step 6 Offer the best possible service so that other SMEs benefit and promote your services

Potential benefits

- Improved capacity use of certain processes or assets that remain unused;
- Improved revenue generation for the business by offering such services; since the company has already made the capital investment in the facilities and required staff, it is able to leverage the assets and generate extra cash without additional costs.

Key performance indicators

- Increase in revenue
- Increase in profitability

Case Study 27: Setting up a micro-factory to address the needs of designers, fashion brands and retailers

Company background

Name	Lefty Production Co.
Location	Los Angeles, California
Number of employees	40 (mostly women)
Major articles	Women's wear, men's wear, children's wear, maternity, swimwear, athletic and sportswear, home goods
Major customers	Fused Hawaii, Dos Gardenias, Beyond Yoga, Swoveralls, social media influencers

Problem description

Traditional supply chains, where garments are designed and consumed in destination countries but produced far away, require shipments across thousands of kilometres. This creates long lead times and the need for larger order quantities. Marta Miller, co-founder of Lefty Production Co, realized the drawbacks of the traditional manufacturing model and the difficulties faced by fashion brands and designers, especially younger brands, to identify and work with manufacturing facilities in third countries.

Miller and her partner Emily Roiff found it difficult to find reliable and transparent manufacturing partners and vendors in the local market as well as overseas. In addition, they wanted to develop an alternative to the traditional manufacturing model that was resulting in over-production and over-inventory at the retail level. They were also concerned about the working conditions and long lead times. This prompted Miller to set up a micro-factory that would provide a valuable service to new and established brands and designers in the US.

Prior to founding Lefty Production Co, Miller had co-founded Moody Mamas, a maternity clothing brand in 2007. Its merchandise was sold at Nordstrom, Target, Walmart and various boutiques throughout the US where she had experienced the shortcomings of the traditional supply chain.

Miller summarized the problems that Moody Mamas faced: 'It seemed like everybody we dealt with was trying to take advantage of us in some way. They would overpromise and underdeliver, or not deliver at all. They would take our stuff off their machines and put other bigger brands on instead. At one point […] contractors stole money, we were hit with unexpected tariffs and duties while trying to import the products, and on and on. The last straw for us was when our domestic production came back smelling like cigarettes.'

Miller realized that the problems that Moody Mamas had to deal with were true of virtually all such small-time production facilities and companies.

Process followed

The objective initially was to iron out the issues that had plagued Moody Mamas. Lefty was established in 2012. The main portfolio at that time was manufacturing services for private label brands for Zulily, Gilt Groupe and Urban Outfitters. By 2016, sensing the growing untapped demand for design, product development and manufacturing services for small brands and young designers, Lefty decided to focus on offering services for others. These services included:

- Sourcing and design
- Laser-cutting and cut-outs
- Pre-production
- Consulting
- Large and small batch production
- Web development
- Marketing

By this time, Lefty Production had built its own capacity to the extent that it could sort out the same problems that Moody Mamas had to deal with earlier.

Lefty allayed customers' sustainability concerns by offering organic cotton, hemp, bamboo and recycled materials. Lefty estimates that more than half of its clients prioritize sustainability in their products.

In its early days Lefty used numerous manual methods, including making and cutting patterns by hand. This was time consuming, expensive and reduced the speed of response. The company decided to use technology solutions to improve its services.

Lefty Production Co. now describes itself as 'A one-stop shop apparel and accessories design, development and production company.' For small entities, it provides end-to-end solutions.

Investment in technology

The company is heavily invested in technology, and from the beginning has worked on technological solutions in design, product development, cutting and sewing including virtual sampling (eliminating physical samples), cloud collaboration and asset management.

The technological innovations that were incorporated into the design-production process were a game-changer. They now cut using an automated laser and build all patterns on the software. They use the laser cutter for a variety of tasks, which saves the team hours of work and produces better products.

Technology has helped the company cut down on expenses – there has been a 50% reduction in overall fabric consumption. Moreover, especially with young and emerging designers, the virtual sampling technology has effectively eliminated physical samples, thereby cutting costs further.

Building a strong team

Miller also brought in people with the right skills and attitude. She realized that it was critical for the customer experience and business growth.

The company focuses on building long-lasting relationships with its clients and being their partner as they grow and flourish. Lefty helps designers to be creative, while taking care of the rest of the tasks. The company allocates account managers for clients to help them grow their brand. Most of the company's inquiries come from word-of-mouth publicity in addition to internet searches and public speaking at fashion industry trade shows and events.

When COVID-19 struck, Lefty quickly pivoted in March 2020 to produce masks and PPEs for local hospitals and frontline workers. This helped the company to play a crucial role in protecting frontline workers, increase its revenues and protect jobs.

Results achieved

- From servicing five to six brands in 2016, the company grew to having over 70 brands as clients in 2020. The brands themselves have grown – from a cumulative 100 units to about 1,000 units. The company reported a turnover of $2.24 million in the fiscal year ending February 2021;

- The Lefty Production success story has opened opportunities for brands concerned about their international supply chains to be responsive to demand and be assured of social and environmental standards. The company can produce products in as little as one-quarter of the time typically required when working with Asian suppliers, thereby making life easier for small-time brands and retailers. It also provides them more flexibility to accommodate changes at a short notice by delivering special requests in just a couple of days. For the clients, the experience is like owning their own facility since they no longer have to run around in a fruitless manner.

Benefits for the company

- Lefty Production Co. is seen as a success story that many want to emulate, especially in a pandemic-hit world where supply chains are increasingly fragile and unreliable;

- The company has developed an impressive portfolio of loyal customers who are keen to recommend it to others. It has been featured in several publications for its unique customer service and business model.

Return on investment

Lefty Production Co. has been growing at roughly 20% over the last five years or so. With smaller American brands and retailers cutting down supplies from faraway South and South-East Asian countries, the real returns will be tangible in the future.

Lessons learned

The success story of Lefty Production Co. can be replicated in many other parts of the world. In a sense, it is a microcosm of the entire Chinese textiles-apparel industry. The country as a whole has served as a one-stop shop for big brands and retailers. Lefty Production is exactly that for the US in its own way: it provides end-to-end solutions for all those who are not that big.

Overcoming crisis through quick management actions and innovation

Businesses face a variety of crises from time to time, such as natural events like COVID-19, and others caused by human action or inaction, like industrial accidents or a law-and-order situation. Such circumstance can affect business and people's livelihoods. While a situation may not be within human control, the reaction to the situation is. For example, the response to the COVID-19 pandemic by textiles and clothing businesses the world over has varied. Manufacturers were faced with huge order cancellations. In many cases, orders were put on hold or buyers demanded discounts. They also had to halt production due to lockdowns imposed by the authorities in their respective countries.

Many textiles and clothing manufacturers could not survive the pandemic and had to shut down business. While some SMEs operated at a much smaller capacity to navigate through the tough times, there were several textiles and clothing SMEs where the owners/management teams were quick to respond to the unprecedented situation and took steps to protect their business by identifying new opportunities. Many of them supported the local authorities by pivoting their production capacity to produce masks, personal protection equipment (PPE) and other safety products. They used the opportunity to innovate and develop products or solutions that could meet the immediate safety concerns.

The most widely adopted strategy of clothing manufacturers was to repurpose production lines to manufacture face masks and coveralls. The second strategy adopted by several companies was to strengthen their online presence and sell their products online. Both measures helped them recover some of the losses suffered due to loss of sales as a result of shop closures and reduced demand for regular products. It also helped the companies to cut down on job losses.

The companies that managed to successfully pivot their production had the following things in common:

- They did not lose hope when the crisis struck and assured the workers of their safety;
- They quickly brainstormed on how they could innovate and produce new products or solutions that were in short supply, e.g. face masks, face shields and coveralls;
- They learned new processes and developed technical capabilities to address the quality and standards needed for PPE;
- They worked closely with authorities to get necessary permissions to continue business during the lockdown period and found innovative ways to organize worker accommodation, food, and the like;
- They followed COVID safety protocols to mitigate the risks while operating the facilities;
- They promoted the products through social media and e-commerce platforms or through distribution channels.

Resources/preconditions required

- Ability of the management team not to be swayed by the crisis and quickly to assess the impact of the crisis and possible ways forward;
- A rational and confident management that can acknowledge that a crisis exists and yet communicates to all its stakeholders and workforce that, by working together, the organization can reduce the impact of the crisis and overcome the situation;
- A culture that promotes initiatives and innovative ideas.

Implementation steps

Potential benefits

The potential benefits of effectively managing a crisis as a result of an innovation-driven culture within the organization include:

- Reducing the risks to business and resultant financial losses;
- Employees gain confidence in the organization's ability to navigate the crisis, thus minimizing emotional stress;
- Gain good will in society for being a responsible business.

Key performance indicators

- Increase in business for the firms
- Increase in number of customers

Case Study 28: Responding to the COVID-19 crisis with product innovation

Company background

Name	Craft Village by Zephyr
Location	New Delhi
Number of employees	35 (35% women)
Product line	Apparel and craft products, new product development and design services, branding and digital media

Problem description

The outbreak of the COVID-19 pandemic has had major consequences around the world. The entire textile and apparel value chain suffered extreme hardship due to the decrease in export and domestic orders. Many stores closed, and fashion brands put their orders on hold or cancelled them. The disruptions caused by COVID-19 in factories included loss of orders, payments not being cleared and job losses, and the recovery remained uncertain.

Spread of COVID-19 infections created fear among the end consumers as well as people who needed to venture out to carry on their livelihoods. There was a dire need for products that protect people from potential infection and check the spread of the virus. The Craft Village (by Zephyr) team, headed by Somesh Singh and Iti Tyagi, decided to take up the challenge to develop innovative products that address the safety concerns of consumers.

Process followed

1. The ideation of a product to address COVID-19 safety concerns was discussed by Somesh Singh and Iti Tyagi with their team.
2. After rapid research and brainstorming on the virus and ways to check the spread of virus, safety protocols recommended by world agencies such as WHO and ICMR and the need to protect consumers, the company identified important safety concerns that needed to be addressed to break the chain of COVID-19.
3. The design process focused mainly on three aspects:
    - Safety protocols

      The following questions were asked during the design process:
        - How does one know whether others are well or not?
        - How to recognize if the minimum distance of two meters is maintained?
        - How does one sanitize belongings?
        - How does one dispose of masks and have a secure place without risk of contaminating other belongings?

- Material/Details

  Cement fabric was identified as the desired fabric, and offshoots of this idea resulted in a patent for Cemi-Flex fabric (see Figure 34). Other details that were developed/identified were copper threads for trims, silver-coated nano fabrics, special reflectors for UV sanitization, black out for UV containment, magic buttons (to operate electrical parts), ergonomic pockets for better comfort, ply-split conductive seams to build circuits, durable power option using recycled batteries/power bank.

Figure 34 Why cement fabric?

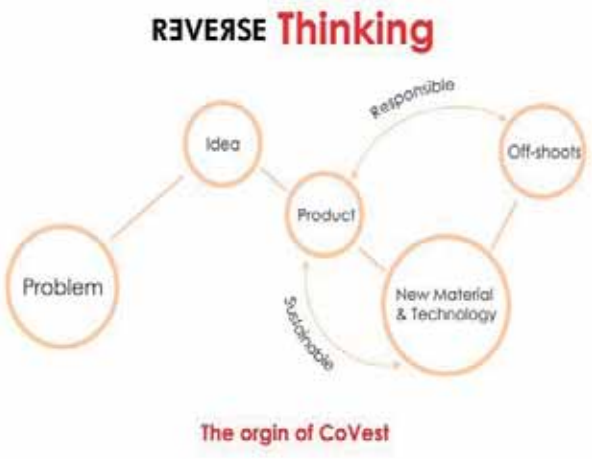
Note Source: Somesh Singh, Craft Village by Zephyr

- Linking craft and technology

  Circuit integration was done in the interlining through weaving, using handloom technology. This way, technology could be used along with creating a sustainable livelihood for the craftsperson. It was also a step to help the craft evolve and adapt within the changing landscape of apparel and textile technology.

  - The design process (see Figure 35) resulted in CoVest (a patented product), a smart suit/jacket that can be worn while venturing out for protection, and CoVer, safety armour for dry sanitization of the clothes and accessories; CoVest is equipped with built-in mask, a proximity sensor for maintaining the social distance, pocket for sanitization of small items made with fabric coated with antivirus finish ViroBan; CoVer is a suit cover and convertible travel bag that can dry-sanitize the clothes and small items in a matter of few minutes using ultraviolet rays (see Figure 36);
  - The trial was initiated by giving prototypes to the different types of wearers to see whether the technology, function or any other feature are easy to use; the feedback was reflected in modifications of the products;
  - These products were premiered during a talk show on design innovation followed by promotion on social media;
  - During this period, Craft Village trained and developed the manufacturing supply chain and then made the products available on Amazon's India portal as well as its brand website;
  - Within three months, encouraging demand emerged from the consumer as they became more aware of the product through numerous articles and the brand's website.

Figure 35 Craft Village-SOIN Innovation Model



Note Source: Somesh Singh, Craft Village by Zephyr

Figure 36 CoVest and CoVer

Note Source: Somesh Singh, Craft Village by Zephyr

Figure 37 Use of Ajrakh fabric

Note Source: Somesh Singh, Craft Village by Zephyr

Results achieved

- The result was a solution that was timely, helps protect consumers from COVID-19, and created jobs for people in the crafts and apparel sector who had little or no work during the pandemic;
- CoVest has been chosen for recognition at the 14th International Design Awards[7] and has won Business World - Future of Design Awards 2021.

Benefits for the company

- It not only created a new business vertical but also helped sow the seeds of SMART and Intelligent apparel products in India (see Figure 37);
- One of the most important perspectives was to look at 360-degree benefit to all stakeholders that CoVest and CoVer have been able to achieve by not only innovating a product, but also building an ecosystem that demands new thinking and innovation.

Return on investment

The pilot project of testing the product with limited quantity paid back in less than one year. Meanwhile, the company is developing more ideas on material and construction for producing related products.

Lessons learned

For innovation to succeed, it is important to look at diverse customer groups who could use the products. Connecting innovations to a larger picture helps to offer solutions not only for use at home, but also for use in public places like railways and airports. Regulatory norms must be kept in mind so that users can be more easily convinced.

[7] https://idesignawards.com/single-winner/9-31892-20/0/

In moving from concept to commercialization, one must develop the entire supply side, including components, adequate know-how and skills, and ways to protect intellectual property.

Case Study 29: COVID-19 crisis management and pivoting the business to produce masks

Company background

Name	IVillage Social Solutions
Location	Bulandshahr, India
Number of employees	150-200
Major articles	Suit covers, handbags and handicrafts
Major customers	Domestic apparel brands, direct sales through Amazon India and corporate orders

Problem description

IVillage Social Solutions is the economic empowerment wing of Pardada Pardadi Educational Society, located in Bulandshahr, Uttar Pradesh, India. It focuses primarily on women's empowerment through their education and economic independence. Their school provides free education to more than 1,600 girls. The IVillage production centre produces suit covers, bags and handicraft items, and is a source of income for women workers who constitute a part of the population living below the poverty line.

As COVID-19 started affecting the world, IVillage Social Solutions realized that smaller towns in India faced three key challenges:

1. Lack of information and awareness of the dangers of coronavirus and how to be prepared; and any information reaching the village population through the media was not taken seriously.

2. No personal protective equipment, such as masks, was available in the market or pharmacies around the villages.

3. Sustaining employment of IVillage workers was a challenge due to drop in demand for regular product lines with the onset of the pandemic; in addition, as cities went into lockdown, some workers returned home and, thus, migrant labour started arriving with no work or means of income.

During the lockdown, the school was closed as was the production centre, and the premises were given to the government agencies for setting up a temporary COVID-19 quarantine centre. The management team at IVillage decided to play their role in addressing the situation in any manner they could.

Process followed

1. As information on the coronavirus spread, the management at the IVillage decided in early March 2020 to halt ongoing production and make masks for the production centre workers, school staff and their families. Their focus was to address the need for masks at the community level. Consequently, production was steered to address it.

2. Around the same time, a nationwide lockdown was announced in India and special permission was needed to be classified as an 'essential service provider' for the IVillage teams to operate. Special passes with permission from the district administration were arranged.

3. These were also times of much debate on what kind of masks were effective. International advisories and WHO guidelines were studied and the domestic market was scanned to understand what could work best in the region and within given limitations.

4. A fabric shortage due to lockdown was addressed by contacting various suppliers and sending people that had received special passes to pick up the material from their houses or godowns (warehouses).

5. A makeshift production facility was created in the courtyard of the local temple. With growing demand, sewing machines, cut pieces and other material were supplied to houses of women who could not come out for work. Migrant workers who returned from cities were also engaged in these activities.

6. IVillage contributed to the community by donating masks for those in need. Recognizing IVillage's capabilities, the district administration also ordered masks to be supplied to local agencies and hospitals.

7. Simultaneously, regular campaigns on social media and word-of-mouth information from satisfied customers created unprecedented demand for the masks. IVillage also started selling the masks on Amazon.

8. Knowledge partners of IVillage, RBC, provided long-distance productivity enhancement training and such technical support helped IVillage improve its productivity by 300%. RBC's advice on product design and development resulted in herbal-dyed fabrics, hand embroidery designs and antiviral-finish certification for their products. Adding these new products helped IVillage expand their product range and cater to a wider customer network.

Results achieved

- As of January 2021, IVillage had produced and sold more than 675,000 three-ply cotton masks. The plans are to expand to other protective wear, such as coveralls and antiviral finish on apparel, to support back-to-school, back-to-work and back-to-travel requirements;

- At a time when medical masks were scarce and not available in good numbers, the three-layered fabric masks by IVillage were an option for the citizens and, in a small way, contributed to sparing medical masks for frontline personnel;

- IVillage was not affected by the economic slowdown as badly as it could have been if repurposing of operations for producing masks had not happened in time;

- The workforce livelihood was ensured even during complete lockdown;

- The necessity supported innovation and a wide new product range is being developed based on the mask-making experience.

Benefits for the company

- IVillage could sustain its business and employment of its women workers despite the lockdown; in addition, it was able to provide additional jobs to workers returning from cities and women who could work from home;

- IVillage achieved recognition for its contribution for social welfare; media coverage in newspapers and television and even the Textile Minister of India made reference to the initiative of IVillage; for the social enterprise, this was very prestigious; when the business world was facing order cancellation, production halt and economic challenges, the nimble-footed switching of product helped IVillage to maintain its revenue stream;

- Most importantly, when domestic abuse, financial worries and lack of food and essentials were being reported in many other villages, IVillage women reported fewer challenges.

Return on investment

Hardly any financial investment was required to undertake the repurposing exercise at the production centre. The only additional expenses related to shifting the production temporarily. In addition, some transport costs

were incurred for the distribution and collection of cut pieces and stitched products from workers' homes. IVillage sold 675,000 masks between March 2020 to January 2021, resulting in revenues of $150,000 and a peak employment for 227 persons.

Lessons learned

- Awareness and preparedness in times of calamity are of key importance. Had IVillage not started making masks well in time, lockdown would have made the same tasks very challenging;
- Social media and other platforms contribute to the success of social initiatives. Good, simple communication creates a buzz about such an initiative and contributes to its wider reach.

Chapter 5
Institutional and sector level good practices

Working together to succeed using a cluster approach

Clusters refer to sectoral and spatial agglomeration of interconnected industries and other entities that share common inputs and knowledge in a particular field. The members of a cluster are interlinked and face common challenges and opportunities. Along with manufacturing enterprises, a cluster includes governmental and other institutions such as universities, consultancy agencies, think tanks, vocational training providers and trade associations.

A cluster-based approach is the practice of established firms in a region coming together and being guided by a single body that takes the initiative to help the cluster members to improve their overall business environment, upgrade skills and provide training, provide access to finance and facilitate business partnerships, among others.

Since the businesses are usually located in proximity, they can acquire information, communicate and share their problems and solutions with one another through regular visits, meetings and collective participation in programmes. By fostering inter-enterprise linkages, small and medium-sized enterprises become more cooperative, and competitive.

Cooperation between SMEs is a key ingredient in overcoming some of the challenges they face when working in isolation. The challenges could be:

- Difficulties in achieving economies of scale in the purchase of inputs such as equipment, raw materials, finance and consulting services;
- Inability to take advantage of market opportunities that require large production quantities, homogenous standards and regular supply;
- Constraints to internalize functions such as training, market intelligence, logistics and technology innovation;
- Inability to achieve a specialized and effective internal division of labour due to their small size;
- Narrow profit margins do not allow them to introduce innovative improvements to products and processes.

The cluster approach helps to overcome these challenges by developing a strong network. The combined efforts, exchange of knowledge and resources improve the performance of the enterprises in terms of productivity, product quality and the like, and they are able to tap into larger and more profitable market segments.

A cluster is thus the representative body of apparel manufacturers and exporters in a region. Combining individual strengths, coming together to solve each other's problems, or jointly taking advantage of market opportunities while improving the process efficiencies, increases the competitiveness of each member. Collective training programmes can be organized to develop skills of top management, middle management, and frontline managers, and to implement improvement initiatives across all departments and processes.

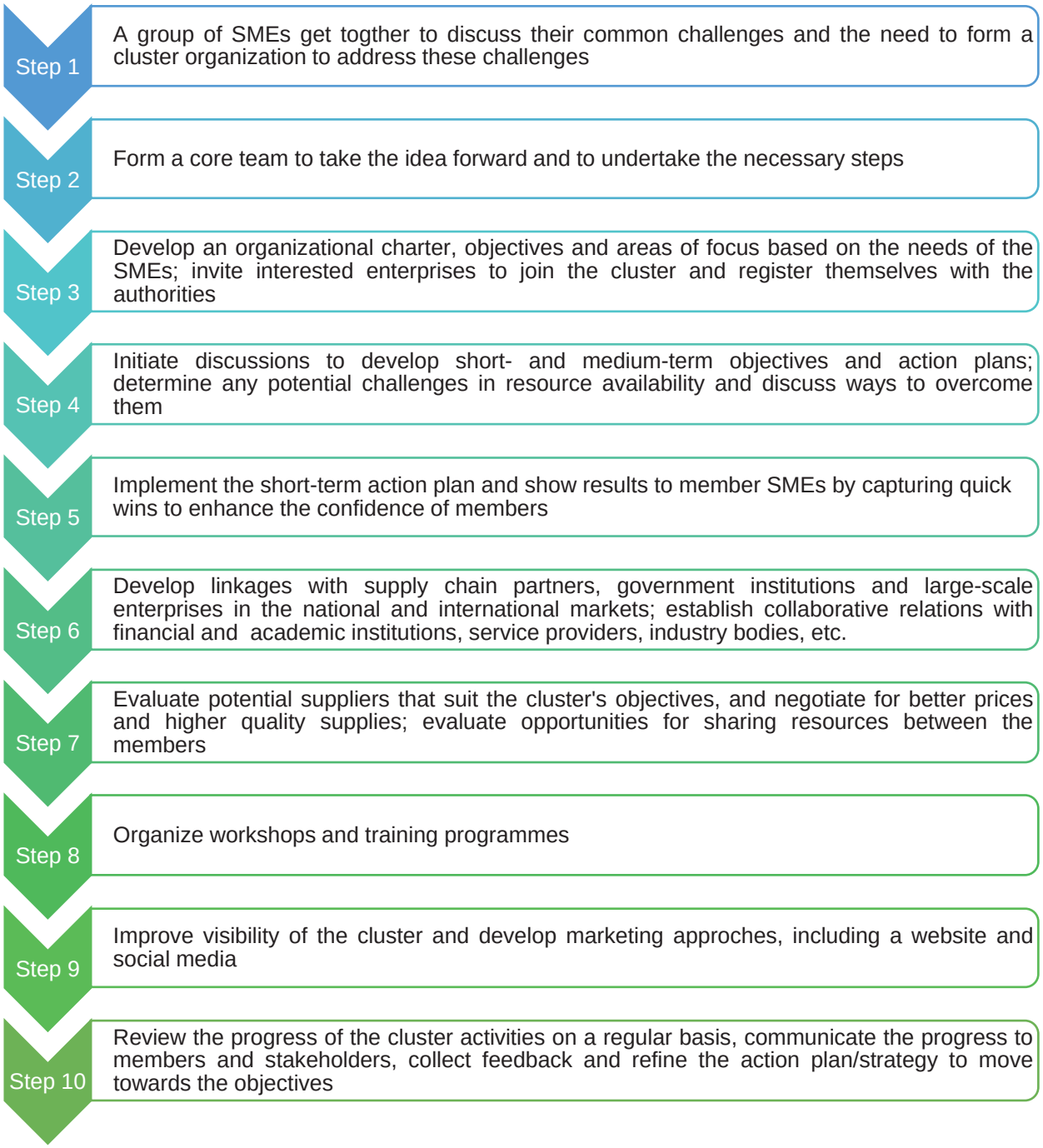
Resources/preconditions required

The transition from operating in isolation to joining a cluster with common goals requires:

- Willingness to invest time in reciprocating knowledge and cooperation;
- Long-term commitment on a joint development strategy;
- A vision to include developments beyond the daily routine;

- Developing and sustaining mutual trust;
- Refraining from conflicts and speaking with a common voice to collectively solve problems;
- Willingness to take joint initiatives;
- Ability to compromise and coordinate to reach a consensus among competing members.

Implementation steps



Potential benefits

- Proximity of like-minded enterprises and individuals fosters mutual trust, while information sharing increases capacity for learning and innovation;
- Sharing of good practices in areas such as productivity, product quality and ethical business behaviour;
- Ability to afford high-quality training and consulting services through cost sharing between members provides examples and incentives for change;
- Enterprises are linked to market opportunities and can take advantage of common opportunities;
- Achieve economies of scale and increased negotiation power for bulk purchase of inputs like machinery and raw materials;
- Improved usage of machines as production capacities could be pooled among members to meet large-quantity orders;
- Easier access to subcontracting relationships with large-scale enterprises and to stimulate innovative new partnerships that foster strategic projects;
- Enhanced strategic management reasoning as networks are in a better position to take strategic decisions since they can reduce factors of uncertainty.

Key performance indicators

- Increase in business for the firms
- Number of people trained
- Reduction in material and service sourcing cost through common sourcing
- Number of partnerships with institutions

Case Study 30: Cluster companies strengthen each member by complementing each other

Company background

Name	Okhla Garment and Textile Cluster (OGTC)
Location	New Delhi, India
Member companies	27
Number of factories	110
Number of employees	3 at the OGTC Secretariat; and about 100,000 employed by the member factories
Garments per annum	110 million
Total exports	$800 million

Problem description

The increasing competitive pressure faced by small-scale enterprises required an innovative approach that could help individual SMEs to navigate their challenges. By anticipating the challenges of a post-quota regime, few likeminded visionary companies sought to cooperate and combine their talents and abilities to achieve success as a cluster. Thus, Okhla Garment and Textile Cluster (www.ogtc.in) came into existence.

Process followed

1. Okhla Garment and Textile Cluster, a cluster for garment exporters, was conceived and set up in Delhi, India, in May 2004 by a few forward-looking and likeminded friends who anticipated the challenges of the post-quota regime.

2. OGTC was founded with the following aims:

   - Have a collective approach to being more competitive in the world market and seek government attention in a more authoritative and convincing manner;

   - Develop linkages between local industrial units, technological and research institutes;

   - Assist members to develop training and capacity building exercises to achieve economies of scale for their small and medium-sized enterprises;

   - Carry out common sourcing of critical inputs whenever possible;

   - Build mutual trust among members;

   - Work as a think tank for the apparel export industry.

3. The formation was facilitated by the Ministry of Micro, Small and Medium Enterprises (MSME) Development Institute, and Textile Committee, Ministry of Textiles of India.

4. The office space for the secretariat was provided by member organizations at no cost for a few years on a rotational basis.

5. Members meet every month in one of the member factories' premises and, after the meeting, a factory tour is organized to promote sharing of good practices and mutual learning.

6. Members of the cluster use OGTC as a platform to visit each other's factories, collectively discuss specific industry issues and provide help in resolving them. From the top management down, the culture of cooperation and mutual assistance flows to different levels of organizational hierarchy.

7. For the continuous growth of its members, OGTC has worked on various key areas, such as:

   - Women's empowerment: Poor women were trained by OGTC in batches of 10-15 for tailoring work. These trained women were later employed in OGTC member factories;

   - Good health for employees: Most workers in the garment industry in Northern India are migratory workers. OGTC in association with Apparel Export Promotion Council and the Indian Cancer Society and Lions Service Trust organize regular health camps on the factory premises with trained multi-speciality medical professionals;

Cancer detection camp jointly organized by OGTC and Indian Cancer Society (©OGTC)

- Fire safety: A comprehensive and exhaustive repeated training of employees of member factories is carried out in association with the MSME Development Institute and Ministry of MSME for fire safety.

8. OGTC ensured that members were updated about new initiatives and industry developments through regular meetings of the cluster members, such as Smart Manufacturing – Industry 4.0, Digital transformation, and Sustainability Fashion – Circular Apparel.

Results achieved

- OGTC has gained reputation as a benchmark cluster from which to take inspiration;
- The member companies achieved a much higher business performance than the industry average over the years because of adopting best industry practices from peer companies;
- Large companies are keen to join the membership of the cluster to gain from best practices;
- Government bodies consult OGTC on important policy matters related to the industry;
- OGTC has become a trusted partner for implementing government schemes for textile and clothing SMEs;
- OGTC skills upgrading programmes over the last 15 years have resulted in skilling of more than 50,000 employees of member companies.

Benefits for the companies

- Around 1,500,000 metres of viscose georgette fabric was procured by OGTC on behalf of its members through a common sourcing arrangement from Indian Rayon, resulting in a saving of nearly $70,000;
- Implementation of a lean manufacturing project has resulted in significant productivity gains of 20% to 90% where the members of the cluster coordinated in a systematic manner;
- Similarly, a quality improvement programme resulted in reduction of defect rates by more than 50%.

Return on investment

The members of OGTC feel this approach has paid good returns to each member, the apparel manufacturing community in the country, and the workforce associated with the member organizations. The tangible and effective services received by members makes being part of OGTC a privilege and great investment for them.

Lessons learned

The members of the cluster learned that collective initiatives aid in building competitiveness and are a part of the journey to successful and responsible business. Throughout the process, learning for the members of the cluster includes the following:

- Information and best practices sharing among the members contributed to improvement;
- Improvement is a continuous journey;
- Investment in upgrading of skills pays back well;
- Trust building with all stakeholders is crucial for long-term success;
- Ensuring that each company's engagement with society, buyers, vendors and employees rests on ethical principles of integrity, and the transparency helps the cluster organization gain recognition among members and beyond.

Industry-institute collaboration strengthens textile and clothing value chain

With the advent of technology, process automation and a changing working environment, the manufacturing sector is looking for talent that has relevant skills for the future. The fast-evolving working environment in the textile and apparel sector necessitates a sector-specific education model validated and led by the industry. An industry-academia collaboration that is responsive to industry requirements and upskills the existing workforce is the need of the hour.

The apparel sector is one of the most globalized industries, providing employment to millions across the globe. It is also one of the fastest-evolving sectors with a focus on innovation and adoption of technology. From the design stage to merchandising, retail and after-sales services, new techniques of operations are adopted at every level of the value chain. From using artificial intelligence for fashion forecasting to using robots to cut and sew, and now evolving to slow fashion, the global industry has seen several new trends across design to consumption stage.[8]

This requires academic and training institutes to be in sync with the latest developments in the sector, leading to early adoption and upgrading of existing teaching techniques. It is imperative for academic institutes to provide learners with curricula that are industry relevant and enhance better employability. Due to the fast-paced nature of the industry, it may be difficult for the industry to readily pull a job-ready workforce from academic institutes. Thus, it is important for both industry and academic institutes to work in partnership towards building curricula and pedagogy that will be appropriate for the future.

Building a strong and comprehensive collaboration model with the T&C industry has been a hallmark of top institutes worldwide and helps the institutes that wish to benefit from industry collaboration. The good practice to strengthen industry collaboration could involve the following:

Setting up an industry advisory committee to improve industry collaboration

The members of the committee should be eminent experts from the industry with diverse expertise areas like fashion, textiles, retail, branding, technology, media, international business, etc. The committee should provide guidance on various aspects, such as improving quality and effectiveness of curricula to identify applied research, getting endowment funds, scholarships for students and acting as a voice of the industry.

Industry-linked curricula and academic programmes

The institutes and the industry can work together to create industry-relevant academic programmes and curricula targeted at bridging the existing skills gap for students. The faculty of the institutes should work with industry experts to align curricula with in-the-field professional requirements. This enables the academic programmes and certification courses to be well recognized by industry partners and will yield both short- and long-term benefits of brand building and improved employment prospects for students.

[8] CBI Insights 2020

Strengthening internships and graduation projects with industry

Internships help students gain valuable practical exposure and provide an opportunity to work on problems/projects under the joint supervision of industry mentors. Leading institutes are also able to bring industrial projects to the classroom to ensure that students can contribute to problem solving in the field.

Attracting industry faculty and adjunct professors and professionals

The faculty is the key integration touch point between the industry and students, as they bring their exposure to industry to the students. Institutes should hire faculty with diverse backgrounds, which would enrich the learning process of the students.

To attract industry faculty as adjunct professors, flexibility in deciding on the minimum qualification requirements must be considered. For example, at the Fashion Institute of Technology, New York, faculty members are artists and designers, authors and consultants, researchers and entrepreneurs with robust industry experience. Adjunct teaching professionals at the institute form 75% of total faculty strength.[9]

Executive education

Short-term industry-specific upskilling programmes for executives have always been in demand. These continuing education programmes for the existing workforce must be of highest quality and in accordance with the skill requirements of industry partners. The academic institutes may design and develop these programmes by working along with the partner university and industry. This ensures the presence of industry professionals at the campus, which further improves industry collaboration.

Joint research and consulting services

Joint research can lead to accelerated research outcomes and reduced time to market for these outcomes. Under a joint research programme, the institutes usually set up centres of innovation and research to carry out research with industry support on technology, lab equipment, domain expertise, research funds, and the like. Key outcomes of the partnership aim to create co-owned IPs and patents, and work on solving industry challenges through consultancy projects and enhancing overall capabilities. The Indian Institute of Technology is a good example of such a joint research initiative.

Executive PhD programmes for industry

Many institutes have launched executive PhD programmes to allow executives from the T&C industry who are interested in an academic career to align themselves with the university. Many of the research scholars work as teaching assistants for some of the programmes, giving students an opportunity to interact with and learn from them.

For example, universities such as Florida Atlantic University, Duke University, George Washington University and University of South Carolina-Columbia offer an executive PhD in business administration for senior-level industry professionals. With these programmes, industry members can achieve the highest academic degrees while still managing professional commitments. Students can align and sometimes even work with these industry research scholars.

Resources/preconditions required

- Willingness on the part of institute leadership and the industry to understand and appreciate each other's needs, and value what both parties bring to the table for improvement;
- High level of format and curriculum autonomy to enable the institutes to offer customized diploma/degree/industry co-certified programmes to suit industry and/or academic needs;
- Flexibility in selecting faculty without rigid restrictions on minimum qualification or selection requirements for institute faculty, making it easier to attract international and industry members as part-time or visiting professors.

[9] www.fitnyc.edu

Implementation steps

Potential benefits

- Industry readiness and employability of students;
- Availability of students for the industry to undertake various studies under the internship/graduation projects;
- Need-based upskilling and capability development of the existing middle management through executive education programmes, seminars and workshops;
- Faculty members work on real issues facing the industry and contribute to relevant knowledge creation to improve competitiveness;
- Ability to generate additional revenues for the institute through executive education, sponsored research and consultancy projects;
- Access to cutting-edge infrastructure of industry leaders;
- Play a role in developing policies for the sector's development and improving competitiveness;
- Support the industry in developing and adopting technology and management best practices.

Key performance indicators

- Placement rate
- Salaries offered
- Internships offered to students

Case Study 31: Industry-institute collaboration – The NIFT way

About the institution

Name	National Institute of Fashion Technology[10]
Location	India (17 campuses across the country)
Number of employees	450+ teaching staff
Type of programme	Undergraduate programmes, master's programmes and PhD
Number of students admitted per year	4,500+
Size of alumni	30,000+

Problem description

Collectively, the Indian textiles and apparel industry is one of the largest manufacturers and exporters in the world. The industry is of vital importance to the Indian economy and the sector plays a critical role when it comes to employment. The share of textiles and apparel, including handicrafts, in India's total exports stood at a significant 12% in 2018-2019. As per the Ministry of Textiles, Government of India, the industry employs 45 million people directly and another 60 million people in allied sectors, including a large number of women and rural populations.[11]

In the 1980s, recognizing the need to strengthen the textiles and apparel sector, promote exports and create livelihood for millions, the Government of India decided to establish a national institute of international standards that could develop human resources to help the sector play a greater role in the global fashion business. The government invited the Fashion Institute of Technology, New York, a global leader in fashion education, as a collaborating institute for the creation of the National Institute of Fashion Technology (NIFT).

The institute was established in 1986 as an autonomous institution under the Ministry of Textiles, Government of India, with three founding departments – Fashion Design, Apparel Marketing and Merchandising, and Garment Manufacturing Technology – to address the needs of the industry in a holistic manner.

Over the years, the institute has played a pivotal role in the development of the fashion industry in the country and is recognized as a leading fashion institute across the globe. NIFT alumni have leadership roles in international brands, retailers, sourcing companies, design houses, technology providers and manufacturing companies. Several alumni designers showcase their work in international fashion events and have left an indelible mark on national and international markets.

One of the main reasons for the success of the institute is its strong industry focus and close collaboration with industry as a core value since its inception.

[10] http://www.nift.ac.in/

[11] http://texmin.nic.in/sites/default/files/AR_MoT_2019-20_English.pdf

Process followed

The brief history and process followed for over three and a half decades to strengthen the industry-institute collaboration are detailed below:

1. National Institute of Fashion Technology (NIFT) was established in 1986 under the aegis of the Ministry of Textiles, Government of India, as a premier institute of design, management and technology that trains professionals for taking up leadership positions in the fashion and textile industry.

2. The board of governors includes leading thinkers, designers, industrialists, educators, art historians, administrators and public figures. This ensures a strong industry connection with liberal global thinking.

3. Industry involvement has been a key focus for the institute. A symbiotic relationship for development was envisaged between the industry and evolution of the institute.

4. The founders of the institute encouraged leading industry professionals to join as members of faculty and, along with experienced academics, ensured integration of contemporary business context, management practices and strong industry linkages.

5. The institute also encouraged the faculty members to engage in consultancy services. This enabled a continued relationship with the industry and integrated new perspectives and real-life case studies into the classroom.

6. The institute offers numerous short training programmes for industry professionals through international experts and its own faculty members. This strengthens NIFT's associations and long-term relationships with industry houses and professionals.

7. The institute was a pioneer in envisioning and evolving fashion business education in India. With the success of the institute, wide popularity of the NIFT programmes and high demand for NIFT alumni in the industry, the institute added five campuses in different parts of the country in 1996 and has since steadily expanded its network to 17 campuses as of 2020.

8. The levels at which the institute interacts with industry is illustrated in Figure 38. Over the years as the institute grew, it added more specializations to the initial three diploma programmes.

Figure 38 Levels at which NIFT interacts with industry

Note Source: Based on input from NIFT

9. In 2006, NIFT was awarded Institute of Eminence status by an Act of the Indian Parliament with the President of India as 'Visitor'. The institute offers Bachelor of Design degree with specializations in accessory design, fashion communication, fashion design, knitwear design, leather design and textile design, while the Bachelor of Fashion Technology concentrates on apparel production. The two-year master's programme offers Master of Design, Master of Fashion Technology, and Master of Fashion Management. The institute also offers a PhD programme.

10. Academics and students build connections with the industry through multiple interfaces. Industry engagement is envisaged as a learning process, which, by providing exposure to the students in a real-life working environment as part of the academic curriculum, helps students to develop and enhance academic, personal and professional competencies. Some of the mechanisms used by the institute for strengthening the collaboration are as follows:

    - NIFT has an industry and alumni unit that engages with the industry and alumni on a continuous basis under the overall leadership of the academic dean. The unit is regionally active through its connection with the campuses spread across the country;

- Each of the 10 departments at the institute have an industry advisory committee. The department chairperson and department faculty engage with an industry advisory committee to update the curriculum to ensure synergy between academic input and industry needs;
- Certificate and continuing education programmes, which aim to update skills of people already working in the textile and fashion industry, are offered as short and long programmes;
- NIFT faculty stay abreast of the latest developments through provisions such as Faculty Industry Attachment, and visits to trade shows, conferences and seminars nationally and internationally. The faculty also undertakes consultancy and sponsored projects with the industry, individually, and with students;
- An internship programme of a duration ranging from two to three months is the norm in the institute. Most students also undertake a graduation project with the industry where they work on a brief assigned by the industry;
- Senior professionals, from India and abroad, are invited to interact with the institute and students through webinars and seminars. While the COVID-19 pandemic made this obligatory for most organizations, NIFT has been doing this for many years with updated IT infrastructure;
- Guest faculty teach courses in areas where expertise may be lacking or in areas that are constantly evolving. This also allows access to up-to-date industry resources, which may otherwise be expensive to obtain and thus trains students to meet the requirements of the garment and textile industry;
- NIFT is promoting the Indian fashion industry on international platforms;
- The industry sponsors have established chairs to promote industry-focused research at the institute in areas of industry 4.0 and fashion retail;
- Faculty members contribute significantly through research-based publications on themes related to improving the competitiveness of the industry.

Results achieved

- During its 31 years of existence, the institute has grown to 17 campuses across India; the institute has also become operationally self-sufficient with more than 90% of its budget coming from student fees, subscriptions, projects and other income; it receives a capital grant from the government while establishing new centres or campuses;
- It has a core strength of about 450 faculty and 11,500 students;
- More than 25,000 alumni work across the globe with leading players in the fashion value chain;
- The institute has contributed significantly to the growth of fashion industry in the country;
- International recognition, for example, *CEO World* magazine has rated NIFT, New Delhi, as the ninth Best Fashion School in the World for 2021.

Benefits of the collaboration

NIFT has played a key role in helping the industry to grow to its current stature with India having capacities in every area of the fashion value chain. NIFT alumni have been instrumental in the development of numerous fashion brands and have contributed to the growth of the fashion retail industry. The alumni have also contributed to the global value chain of textiles and apparel from design and product development to sourcing, branding, retail and technology solutions.

Lessons learned

- Curriculum should be close to industry needs and be agile enough to meet those needs;
- Since buying new machinery, etc. has always been difficult for institutes, new software and machinery can be taught in close association with the industry;
- When industry is not close to the campus (remote campuses), students have to be taken to industry for exposure; this also increases industry inputs, either online or time spent in the industry.

Leadership role in setting benchmarks and branding for the industry

Being employment intensive, the apparel industry contributes significantly to job creation in developing economies. At the same time, being price sensitive, as the economy prospers in apparel producing countries and costs rise, the industry tends to migrate to relatively lower-cost countries.

This migration of the industry can be countered if the industry is able to develop as a supplier of value-added products and gains reputation for quality, product development, speed to market, and social and environmental standards. Such a transition and building of reputation at the industry level can only be possible when a large group of players in the industry are motivated to make the transition and able to inspire others in the industry to follow the path. Proactive industry associations can play a crucial role in facilitating such a transition.

Having achieved significant progress, stakeholders need to communicate the industry's unique value proposition to the world to get the recognition and associated business benefits. Sector-level branding can be a valuable avenue in this regard. It can help a sector in a particular country gain a superior reputation in the minds of end consumers and/or business partners, thus attracting high-value customers and greater business. Successful examples of sector-level branding in the T&C sector are Wools of New Zealand[12] and Kaleen for floor coverings and carpets from India.[13] Being able to work for the collective good, ahead of individual goods or gains, is essential for leaders and institutions to create a successful sector-level brand.

Resources/preconditions required

- Willingness among stakeholders to work together towards a common good without preconditions: The 'clean slate' approach also works where multiple industry associations rally together under a minimum common agenda, and then take it forward;
- A strong need to unite to tackle a large challenge or capture a very large opportunity: If the threat or the opportunity is not large enough people may not come together. The participating entities must cover the entire value chain of the industry in the country. If there is a substantial or influential part of the industry that is missing, then such initiatives could fail. The industry associations or leaders must enjoy the trust of the members;

[12] https://www.woolsnz.com/

[13] https://www.kaleen.com/

Implementation steps

Step 1	Formulate a vision statement that can be summed up in a line or a sentence
Step 2	Set out the broader goal of the initiative; get the key stakeholders and thought leaders togther to disuss the value and the need for the initiative
Step 3	Develop consensus on the vision and broad way forward; identify a group of people who can drive the initiative, led by an undisputed leader; consider financing options for the initiative; and ensure that it is a beneficial proposition for all and no one loses out
Step 4	Interact with professional agencies that can support in developing/verifying the standards followed by the international market; meeting those standards would improve access to the market; develop a certification process; interact with branding professionals and develop a communication roadmap
Step 5	Present the roadmap to the key stakeholders for buy-in; allocate resources and start the implementation; ensure early adoption of the standards by the leaders in the industry to encourage others
Step 6	Monitor the initiative regularly with a transparant flow of information to key stakeholders; refine the approach based on the feedback and review the progress of branding
Step 7	Share early success stories with stakeholders and industry members to build confidence in the brand and grow the initiative
Step 8	Launch a branding campaign for the home-country target audience as well as the international market; oversee the campaign, ensuring momentum and sustainability

Potential benefits for the sector and the factories

- When an industry makes substantial improvement or takes a lead in implementing certain good practices that are desired or valued by the buyers and other stakeholders, it provides a much-needed visibility and recognition to the industry as a whole for being a progressive group and improves desirability in the minds of buyers to do greater business with the firms in the industry;
- When a sector or industry in a country is seen as a benchmark sector, it attracts high-end buyers to the country, thus helping the sector to move out of the low-cost, high-competition market segment;
- The improved image of the industry also helps the leading companies of the industry venture overseas for expanding their manufacturing base through joint ventures or foreign direct investment.

Case Study 32: Garments without Guilt, Sri Lankan manufacturers rebrand sector as eco- and labour-friendly producers of quality garments

Company background

Name	Joint Apparel Association Forum (JAAF)
Branding	Sri Lanka Apparel
Slogan	Garments without Guilt
Location	Sri Lanka
Number of member associations	Six
Major customers	Leading global fashion/apparel brands

Problem description

The possible negative effects of the quota regime in 2005 worried the apparel industry in Sri Lanka. International trade experts opined that only countries with a vertically integrated industry would gain substantially in a quota-free world. The industry saw two possible ways forward: to compete head-on with the bigger T&C supplier countries like China and India, as well as the upcoming cost-efficient producers of apparel Bangladesh and Viet Nam; or to position and brand the industry as a unique niche player with high social standards in the international market once the quota system came to an end.

To implement the second option – although it seemed the right thing to do – much work was needed. The industry already followed modern management practices introduced by international groups that has set up FDI or joint venture factories in the country. The industry leaders thus decided to work further on strengthening backward linkages, focus on international marketing, and aggressively communicate the high social standards and the industry's commitment to environmental sustainability. The idea was to convince international buyers and their customers that the Sri Lankan apparel industry was deeply committed to social and environmental standards and should be seen as a preferred sourcing destination.

Process followed

In 2002, six industry bodies from Sri Lanka decided to join hands for the sake of the country's apparel exports sector. These were:

1. Fabric Apparel Accessory Manufacturers' Association (FAAMA): Since September 2003, FAAMA had been promoting the interests of the fabrics and accessory manufacturers in Sri Lanka.

2. Free Trade Zone Manufacturers' Association (FTZMA), founded in 1981, three years after the first Free Trade Zone was established in Katunayake.

3. National Apparel Exporters Association 200 GFP (NAEA-GFP), established in 1993.

4. Sri Lanka Apparel Exporters' Association (SLAEA), which had served as an apparel exporters' platform since 1982.

5. Sri Lanka Chamber of Garment Exporters (SLCGE), a representative body of small and medium-sized apparel manufacturers in Sri Lanka.

6. Sri Lanka Apparel Sourcing Association (SLASA), which has been promoting the garment industry of the country through buying offices since 1993.

The new platform, the Joint Apparel Association Forum (JAAF), was created for promoting the interest of the industry. JAAF was (and is) predominantly financed by a few leading Sri Lankan T&C businesses that were committed to the overall development of the industry. A core group of 12 companies worked closely to shape the activities. JAAF developed a 5-year strategic plan for the garment industry that involved three areas: backward linkages in textile manufacturing, strengthening marketing and strengthening the image of the industry for global communication. Government agencies also participated in the strategic plan development.

The work on image building was carried out with the help of a professional advertising agency and resulted in the rebranding slogan, 'Garments without Guilt'. The primary branding exercise, however, was that of the country's industry itself as 'Sri Lanka Apparel'. This industry initiative was conceived by visionary leaders who thought of the common good of the industry and supported it with expertise as well as finance. All six associations ensured the communication with their members and overall buy-in for the initiative.

The campaign promoted positive and ethical working conditions in garment factories. Complying enterprises received a 'Garments without Guilt' certification provided they subscribed to the high environmental and labour standards set by an industrial charter. The charter included the following regulations by which a factory must abide:

- Free of child labour
- Free of forced labour
- Free of any form of discrimination
- Free of sweatshop practices
  - Providing limits on working hours within those prescribed by the law along with all legally recommended payments and incentives;
  - Guaranteeing workers their right to freedom of association;
  - Requiring that workers receive all legally required salaries and benefits;
  - Ensuring that workplaces are safe, with a specific requirement for the management of these issues;
  - Employing responsible environmental practices/ethics, including reducing carbon footprint and recycling industrial waste and water.

The campaign employed digital marketing techniques, such as social media platforms like Myspace, Facebook and YouTube, to reach out to its diverse target audience. Leveraging digital marketing techniques helped to influence global apparel-sourcing decision-makers, and engage consumers, social activist groups and the media.

JAAF appointed SGS, an independent third-party company and an international auditing committee, to provide assurance to retail buyers. SGS developed a tailor-made a 'Garments without Guilt' certification.[14]

To achieve compliance, companies needed to implement systems to manage the key requirements of the charter and ensure accurate records were maintained. JAAF and the member associations ensured dissemination of the benefits of the programme to the industry at large and encouraged participation. Over the years, the majority of the apparel-export sector has been accredited, and it is now a must-have for anyone in the country wanting to become an apparel exporter.

The entire initiative worked on a two-pronged strategy. First, promote the country's apparel industry as an ethical sourcing point for big brands and retailers under the brand 'Sri Lanka Apparel'. Second, improve environmental and social conditions within the industry itself and communicate 'Garments without Guilt' at the same time.

[14] https://www.sgs.com/en/sustainability/social-sustainability/social-responsibility-sr/garments-without-guilt

Results achieved

With the launch of the 'Garments without Guilt' campaign, nearly 80% of the local factories in Sri Lanka signed up to follow the regulations of the charter. As of 2020, more than 300 factory units have been complying with the set standards and their products are certified as 'Garments without Guilt'.

The campaign became the first Asian brand to win a Global Effie award. Some of the major industry players who are member enterprises of Sri Lanka Apparel won global recognition, as detailed below:

- American Apparel & Footwear Association Award for Excellence in Environment Protection 2006
- Energy Globe Award 2009
- Global Award for Sustainability Innovation 2010
- LEED Platinum and Gold Certifications by the United States Green Building Council 2008-2010

Benefits for the sector

The Sri Lankan apparel industry grew as a brand with the 'Made in Sri Lanka' label being recognized for high-quality social and environmental standards. The apparel industry also reinvented itself as a friendly industry that makes its workforce smile.

The benefits of the branding include:

- Leading retail brands like Victoria's Secret, GAP Inc., Nike, Tommy Hilfiger, Intimissimi and Next partnered with the local garment manufacturers to improve customer confidence owing to the ethical environment and labour practice followed by the apparel manufacturers;
- Steady increase in exports in the quota-free world as Sri Lanka could be positioned as the global ethical apparel manufacturing and sourcing destination;
- As a recognized ethical producer, the credibility of the Sri Lankan apparel industry improved in an increasingly competitive international marketplace;
- Sri Lanka has become a preferred destination for apparel sourcing in Asia for customers looking for high-quality garments produced with high social and environmental standards.

Return on investment

It is not feasible or practicable to quantify the ROI of this industry-wide initiative in financial terms. But the fact that the industry was able to improve overall sales post quota period shows that the investment was worth it.

Sri Lanka's apparel exports have grown from $2,685 million in 2004 to $4,155.99 million in 2020 (the year of the pandemic), touching a high of $5,307.80 million in 2019.[15] This is a compounded annual growth rate of 4.65%.

[15] https://www.srilankaapparel.com/data-center/yearly-performance/

Figure 39 Sri Lankan textile and apparel exports have steadily grown

Note Source: srilankaapparel.com

The initiative also helped the leading T&C companies from Sri Lanka to set up and strengthen international operations as their customers wanted them to add production capacity in countries like Viet Nam, Bangladesh, Jordan, India and other countries.

Lessons learned

- Leading businesses – which may be competitors – when working together for the common good of the industry, can generate unparalleled value for all.
- It is possible for an industry to develop standards and self-regulate its members for achieving the standards and image of the industry in global market.

How to effectively manage a textile sector association

Business membership organizations (BMO) or industry associations play an important role in representing the members of the association and the sector they represent. BMOs are effective when they add value to their member enterprises as well as meet their needs of representation, advocacy and service delivery. A textile sector association could comprise enterprises active in the textile and related industries that share a common vision of continued growth and interdependence.

Globally, the BMOs may be formed at a city or province level for a particular sector or across sectors like a chamber of commerce. Some BMOs have nationwide membership and act as a national association. For the BMOs to fulfil their role, effective management of the organization is vital.

The following points are of importance for creation and management of an effective BMO.

Clarity on the purpose of association

Many business associations face difficulties because they lack an understanding of why they exist. Regardless of the business association's age or size, clarity on the purpose of their existence is essential. It helps them to develop a strategy and align their strategy to their vision and goals. Well-managed textile sector associations can be a great asset to their members and the community as a whole.

Effective governance

Good governance strengthens the ability of associations to credibly represent their members' interests and positively impacts their ability to grow and develop. Sound governance in a BMO is generally achieved through:

- Establishment of democratic structures and procedures for decision making;
- Existence of adequate checks and balances on decision makers;
- Transparency in decision making, implementation and member communication;
- Elimination of inappropriate and undue influence on decisions.

The by-laws of the organization should clearly indicate the process by which the governing board members are nominated and elected. Most countries have guidelines or compliance requirements for creation of a BMO depending on its status as a not-for-profit company or society. These guidelines specify the governance structures and ways of election/nomination of the office bearers, such as members of the board, president, secretary or treasurer, the need for periodic meetings, maintenance of records, and so on. Based on such guidelines, the by-laws of the BMO need to be developed and followed.

Membership criteria

The eligibility requirements for membership in an association can vary from country to country and industry to industry. However, the regulations should explain clearly who may, and who may not, join the association. For example, a textile manufacturers' association may have a requirement that the members must be involved in textile manufacturing activities. However, the association may decide to offer associate membership to organizations that are not textile manufacturers but offer services to them, such as machinery suppliers or buying houses. Having associate members supports collaboration with a larger ecosystem and revenue generation.

Revenue building

Revenue building and finance management are critical for the sustenance of the BMOs. They must know:

- Where subscription revenues come from and how to maintain/grow them;
- The services that add value and are important to the members;
- Whether any charges levied cover the costs of services offered;
- Annual costs of running the organization.

As long as the members and other stakeholders see value in the services of the BMO, revenue generation and growth can be managed. BMOs have to be creative in keeping their expenses in check to remain revenue-positive.

Services

The textile sector associations need to engage in multiple activities that foster advancement for their members in order to strengthen the textile industry's reputation and competitiveness. Services that can be offered by an association include:

- Representing the members and interacting with stakeholders to create a favourable policy environment for the growth of the sector;
- Facilitating marketing events nationally and internationally;
- Collating and providing to the members information about business trends and opportunities;

- Understanding issues faced by the members and offering advice and guidance to address the issues;
- Creating common facility centres so members can access expensive technology solutions economically;
- Organizing workshops, seminars and conferences to improve awareness and introduce best practices in domains like product development, standardization, sustainability and competitiveness;
- Conducting education and training programmes;
- Offering benchmarking and audit services;
- Organizing award functions for innovations and developments that contribute to the industry;
- Carrying out marketing campaigns, arranging public relations activities, or advertising to spread awareness of the association.

Multiple activities involving stakeholders make effective management of the associations a crucial aspect for their sustainability. The associations need to manage the members, partners, collaborators, their activities and, most importantly, all the finances associated with them.

Resources/preconditions required

If there are important needs of the businesses in the sector that need to be fulfilled and have not been met by the existing BMO, creation of a new BMO may be needed. This may happen due to absence of a sector-specific association or existing association not meeting the needs of the businesses. There is a need for:

- A group of people who consider the growth of the sector as a whole, share a common vision and are willing to work together to build the BMO;
- Openness to learn from the best practices based on national and international evidence;
- Initial seed capital to fund the creation and initial work of the entity.

Implementation steps for improving the management of existing BMOs

Step 1	Establish the need for improving the management of the organization for improving its effectiveness; form a group that can revisit the vision, mission and goal of the organization
Step 2	Take into account members' feedback for areas of improvement, including service offerings, fees, governance, critical issues for the growth of the sector
Step 3	Review the organization structure and identify opportunities for improvement within the framework of its by-laws; create a plan for implementing the proposed changes and benefits derived from them; get these approved by the board or members for implementation
Step 4	Carry out a detailed financial analysis and identify the need for improvement in financial management, strengthening the revenue stream and managing expenses; prepare budget and financial projects for future; explore possible funding sources from government, international development agencies or industry players/sponsors
Step 5	Analyse existing services, their relevance and fees charged, add new/improved services that meet contemporary needs of the members, and find innovative ways to promote service and delivery
Step 6	Review the communication channels used by the organization, including newsletters, website and social media, assess the need for impovement and implement the plan
Step 7	List the types of companies in the value chain that can join the association, convey the membership benefits to prospective members and maintain a membership directory
Step 8	Study the priorities of the government, other trade bodies and development agencies; understand existing schemes and upcoming projects where the organization can play an important role in delivering the projects and where members can benefit from such schemes, and strengthen the role of organization in such initiatives; it improves visibility, provides cash flow and members benefit from the programmes
Step 9	Develop a composite plan for improvement and set smaller groups of members to implement the action areas, e.g. strengthening membership, designing new services and improving service delivery, communication, governance, financial management, government interface; create a review mechanism to oversee progress
Step 10	Regularly review the progress and communicate it to members to enhance their involvement in the affairs of the organization and its services; refine the plans to continue the improvement journey

Potential benefits

An effectively managed textile sector association can be extremely beneficial for its members, and the sector as a whole. It promotes employment creation and sustained growth of the sector.

The benefits for the members of the association are:

- Representation in government to create favourable policy environment and address policy-related bottlenecks, such as access to finance, markets and technology, and compliance with varied rules and regulations;
- Access to a platform for exchange of knowledge and resources;
- Access to training programmes for skills development and international best practices.

Special privileges are available to the members of BMOs, such as discounted rates for raw materials or services like insurance, legal advice or purchase of machines. These privileges lead to:

- Creating market opportunities and scope for building a large network and sharing capacities to handle large orders;
- Supporting members by carrying out regulatory analysis and proactively informing them about relevant legislation for the industry;
- Improved market access through participation in trade negotiations.

The good practice described in this section is expected to help the BMOs in:

- Harnessing the capacity of their members;
- Creating business opportunities for members through networking;
- Protecting the interests of member companies and their employees;
- Protecting the interests of members by representing them in government and with other stakeholders;
- Managing their affairs in an effective manner while remaining financially viable.

Case Study 33: Effective management of industry association: BGMEA, Bangladesh

Background of the association

Name	Bangladesh Garment Manufacturers and Exporters Association (BGMEA)
Location	Bangladesh
Number of members	4,500
Number of employees	357
Total exports	$28 billion in 2019-2020

Bangladesh's garment sector plays a vital role in the economy of the country. From a modest start in the mid-1980s, with initial exports of $31 million, the country has become the second-largest exporter of apparel to the world. The late Noorul Quader Khan, founder chairman of Bangladesh Parjatan Corporation, was the pioneer of the ready-made garment industry in Bangladesh. He had a vision of how to transform the country.

In 1978, he sent 130 trainees to South Korea where they learned how to produce ready-made garments. With those trainees, he set up the first organized export-oriented factory, Desh Garments.

Around the same time, a few other entrepreneurs came forward to set up some of the first garment factories in Bangladesh. Following their footsteps, other prudent and hardworking entrepreneurs started ready-made garment factories in the country. Bangladesh Garment Manufacturers and Exporters Association (BGMEA) was formed by 12 members in 1983. Over the years, the industry has steadily grown and the membership of BGMEA has grown to around 4,500 member factories.

Despite many difficulties faced by the sector over the decades, it has continued to grow. One of the major contributors to the success of the industry is the presence of a strong industry association, BGMEA. It has played a critical role in promoting the interests of its members and the garment industry as a whole with the Government of Bangladesh, international buyers, international institutions, development organizations and other stakeholders.

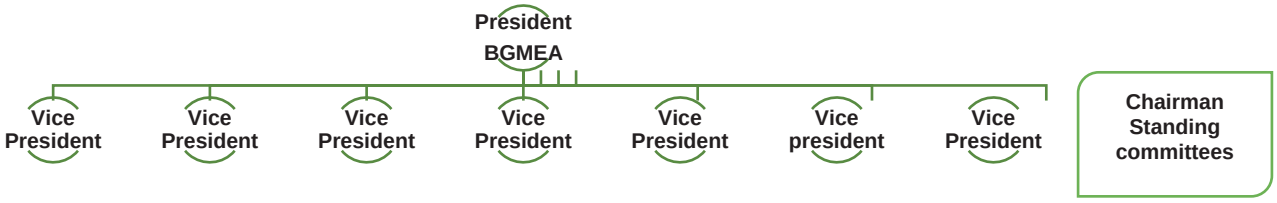
The role of BGMEA has been crucial for addressing several key challenges, like elimination of child labour from export-oriented garment industry around 1994-1995. It also played an important role in preparing the industry for Multi Fibre Agreement quota phase out. Despite the concerns and fear of a negative impact of the quota removal, Bangladesh managed remarkable progress in the quota-free world. As per the statistics of BGMEA, the ready-made garment export was $31.57 million in 1983-1984 and rose to $12347.77 million in 2008-2009. Ready-made garment export of Bangladesh was 3.89% of total export in 1983-1984, while in 2008-2009 it was about 80%.

This case study covers the work of BGMEA as an example of effective management of an industry association.

Organization structure

As an association, BGMEA has two streams in its governance structure. One is the elected body in the form of a board of directors, responsible for leading the organization and setting strategies for the sector. BGMEA is run by a 35-member board of directors elected for a two-year term. The second stream is the permanent staff, who manage the daily business of the association. Seven vice-presidents, who hold important portfolios, and a secretariat of experienced officials support the president in formulating and executing vital policies and programmes of the organization.

Figure 40 Elected body organogram

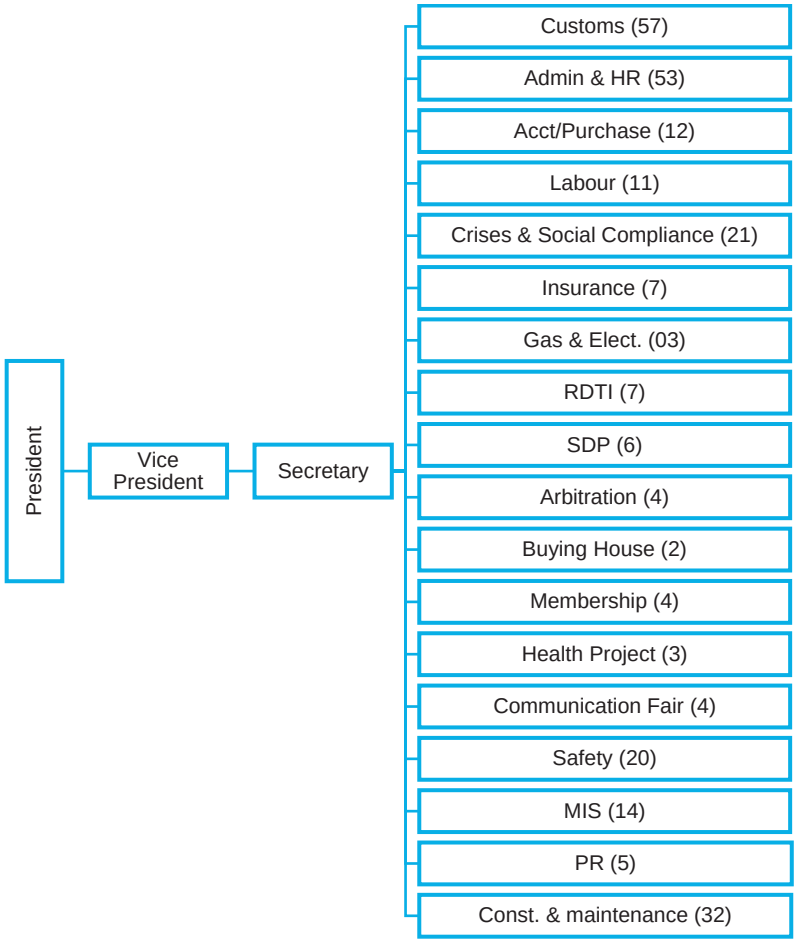


Note Source: BGMEA

The president is the highest executive authority of the association. The board of directors takes assistance from different standing committees headed by a chairperson and composed of members with vast experience in the related fields.[16] BGMEA's head office is situated in the BGMEA Complex, Dhaka, and it has a regional office in Chittagong, the port city. Figure 41 shows the organograms of the secretariat at Dhaka and number of employees responsible for various functions of the association.

[16] http://download.bgmea.com.bd/BGMEA%20Sustainability%20Report%202020.pdf

Figure 41 Organogram of BGMEA head office, Dhaka



Note Source: BGMEA Sustainability Report 2020

Over the decades of its existence, BGMEA has played a crucial role in representing the industry vis-à-vis the government and other stakeholders in the country and overseas. The key focus areas of the association include:

- Trade facilitation and promotion
  - Policy advocacy and dialogues for smooth functioning of trade and industries;
  - Issuing Utilization Declaration and Utilization Permission as entrusted by the government;
  - Playing a key role in maintaining a harmonious industrial relationship;
  - Keeping members abreast of global business trends;
  - Organizing trade missions to explore new markets and facilitate trade in existing markets;
  - Organizing seminars for making recommendations on key policies;
  - Taking part in bilateral and multilateral trade negotiations.
- Human resource development
  - Acting as implementing partner, in collaboration with government and international agencies, to provide skills training to meet the demand for a skilled workforce for the industry;
  - Training people living in distressed areas using the idle capacity of government's technical training institutes and addressing the skills shortage of the industry;
  - Providing job placement programmes for people with disabilities.

- Watchdog for workplace safety and social compliance
  - Regularly monitoring member factories to check compliance to the standards through its compliance cell;
  - Organizing training for member factories on social standards.
- Green and clean production
  - Facilitating green and clean production and conserving nature and its resources;
  - Motivating, guiding and supporting its members to become more responsive to the environment through energy-efficient production, sustainable use of natural resources and green building through various initiatives.
- Healthcare for the workers
  - Running 12 health centres for the garment workers and their families, providing medicine free of cost;
  - Running a full-fledged hospital for workers in Chittagong.

Services offered/Benefits for the member companies

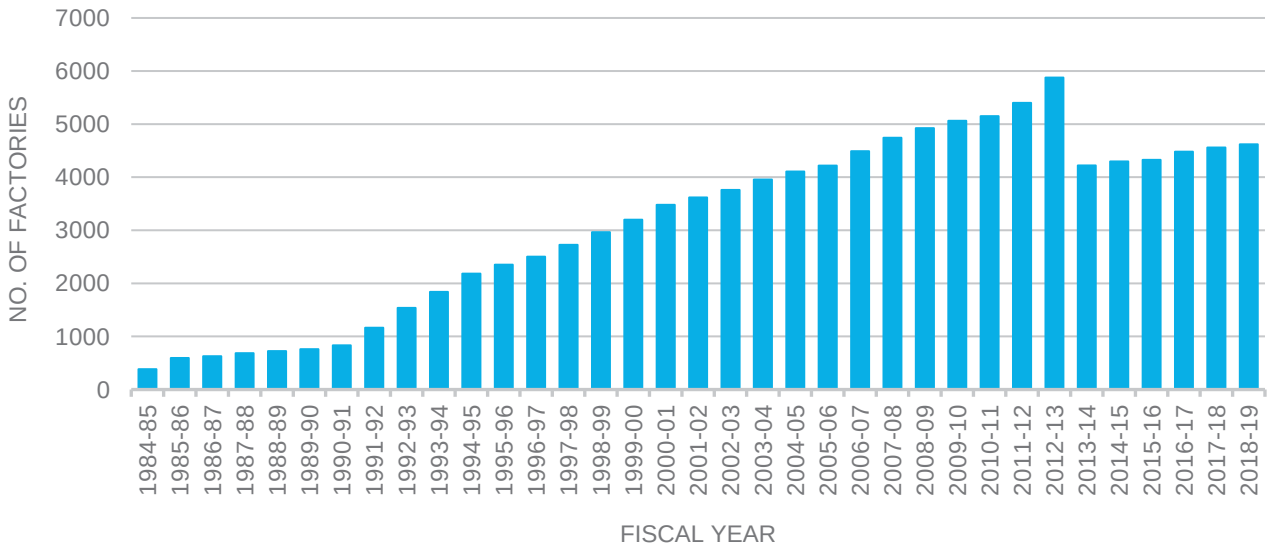
- Fostering relationships with international buyers by arranging fairs in Bangladesh, participating with its members in international fairs, and maintaining regular contact with key buyers;
- Effectively representing the members in communicating their demands to the Government of Bangladesh for creating a favourable policy environment;
- Provision of trade information through the website;
- Updates on contemporary global business trends;
- Endorsement of information communication technology solutions for better management of ready-made garment units;
- Management of B2B web portal directly linking ready-made garment exporters and buyers;
- Seminars and dialogues for recommending key policies for trade and industry;
- Advisory services to its members on improving environmental standards;
- Implementation of improvement projects with support from development agencies and donors to introduce good practices in the member factories;
- Newsletter about ready-made garment business news, events and activities in Bangladesh.

Process followed/Evolution and initiatives

Membership

BGMEA started with 12 members in early 1983. The membership increased rapidly starting 1991 and passed 5,000 in 2009-2010. It increased to almost 6,000, after which the industry witnessed consolidation. The current membership strength of the association is around 4,500.

Figure 42 Growth of BGMEA



Note Source: BGMEA Sustainability Report 2020

BGMEA offers two types of membership, i.e. buying house or a factory. In the case of a factory, BGMEA charges a differential fee on the basis of number of machines in the factory (see Table 21).

Table 21 Membership charges

Number of Machines	Charges (BD Taka)	$
52-100	40,500 Taka	$478 approx.
101-200	42,500 Taka	$502 approx.
200 and above	47,500 Taka	$560 approx.
Buying House (registration fees)	35,000 Taka	$412 approx.
Buying house (annual charges)	15,000 Taka	$176 approx.

Note Source: BGMEA

1. Quota phase out: During 1980s and 1990s, the Bangladesh garment industry benefited from generous allocation of quotas and low wages. To overcome post-Multi Fibre Agreement effects, governments and bodies like BGMEA worked on making policies that helped the country maintain its position and grow. The key interventions were as follows:

    - Post-Multi Fibre Agreement Action Programme: Ministry of Commerce with allied bodies designed programme Post-Multi Fibre Agreement in budget of 2004-2005 to support the ready-made garment sector and mitigate possible negative shocks flowing from quota abolition. Post-Multi Fibre Agreement was to be implemented in five years, at a cost of $40 million. The programme had six components:
        - Skill and Quality Development Programme
        - Displaced Workers Rehabilitation Programme
        - Support to Capacity Enhancement Programme
        - Assistance for the handloom sector
        - Assistance for forward linkage industries to enable them to provide better service to the ready-made garment sector

- Reduced lead time: To reduce the lead time of orders, BGMEA and another industry association, BKMEA, designed strategies to stand in competition with the international market. Maximum knit materials were sourced domestically, which helped the industry to meet the lead time requirement of the global market. They worked with government to establish central bonded warehouses where ready-made garment factories could stock duty-free imported inputs.
- Trade agreements: During quota phase out period (1994-2005), Bangladesh signed various trade agreements, which provided a boost to exports of ready-made garments. BGMEA played a key role in emphasizing the need for these agreements. Bangladesh now enjoys duty free access in 52 countries, which includes Australia, Canada, Chile, China, the EU, Iceland, India, Japan, New Zealand, Norway, Russia, South Korea, Switzerland and Turkey.[17]

The measures described above helped the industry to successfully transition from the quota system and increase its exports substantially.

2. Financial management: BGMEA is a non-profit organization. It receives most of its funds from member fees, charges for services and donations from other programmes or projects (see Table 22). It also provides 'Utilization Declaration' to the factories for importing raw material from any country without import tax, and charges fee for this service. This revenue stream contributes to the financial self-sufficiency of the association.

   Administrative overheads, service charges and expenses for ongoing programmes/projects are the major types of payment. Apart from these payments, BGMEA pays VAT and taxes to the government. Each year, BGMEA retains some funds from its surplus to invest into new projects and programmes to ensure environmental and social sustainability.[18]

Table 22 Statement of comprehension income (in $)

Description	2016-2017	2017-2018
RECIPTS		
Annual Subscription from Members	566,047	564,482
General Fees & Charges from Members	3,164,938	3,690,618
Service Charges from Members	59,787	88,993
Received from Programmes/Projects	5,755,620	6,353,129
Income from Bank Interest	322,944	469,025
Total Receipts	**9,869,336**	**11,166,247**
PAYMENTS		
Office and Administrative Overhead	2,032,130	2,199,056
Expenses for Service Payment	1,203,070	1,217,185
Contribution to Health Centres and Schools	355,082	361,657
Expenses for Ongoing Programmes/Projects	4,056,825	5,992,304
Other Expenses	4,113	3,448
Economic Value Distributed	**7,651,220**	**9,773,650**
Economic Value Retained before Tax	**2,218,117**	**1,392,597**
INCOME TAX		
Tax Paid (Deducted at Source)	(25,819)	(38,314)
Balance Provision for Tax	(87,212)	(125,845)
	(113,031)	**(164,159)**
Economic Value Retained after Tax	**2,105,086**	**1,228,438**

Note Source: BGMEA Sustainability Report 2020

[17] Bangladesh Investment Handbook, PMO Bangladesh

[18] BGMEA Sustainability Report 2020

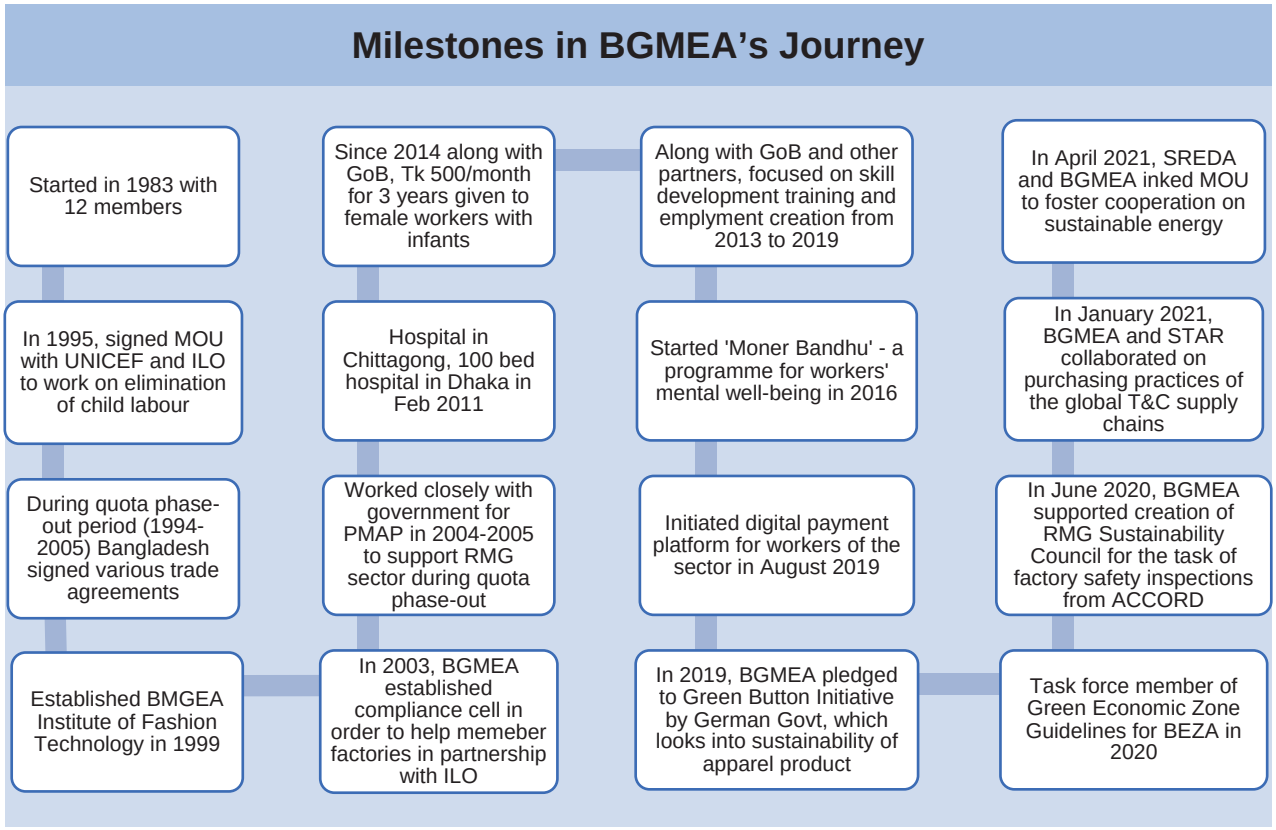
3. BGMEA interacts and collaborates with various stakeholders (see Figure 42) on a constant basis and has a strong social media presence that helps it communicate regularly.

Figure 43 Stakeholders of BGMEA

Note Source: Based on BGMEA Sustainability Report 2020

4. Milestones of BGMEAs journey (see Figure 44).

Figure 44 Key milestones in the journey of BGMEA



Note Source: Based on information provided by BGMEA and other public sources.

5. Key initiatives of BGMEA undertaken in collaboration with local and international stakeholders, including the Government of Bangladesh, brands and development partners to pave the way for development of the Bangladesh apparel industry include:

   - The BGMEA Institute of Fashion Technology was created in 1999 to support the development of human resources for the industry; in 2012, it became the BGMEA University of Fashion and Technology;
   - After Rana Plaza and Tazreen factory accidents, there was a need for the industry to show its commitment to improving safety and sustainability; BGMEA played a crucial facilitation role in the successful implementation of the Accord[19] and Alliance[20] programmes, aimed at improving safety and working conditions, involving international and national stakeholders; BGMEA also has its own factory safety audit cell;
   - With the support of the Government of Bangladesh and development partners, BGMEA has been implementing skill development programmes for garment employees and workers through several training centres across the country; the trained people are placed to jobs in garment factories;

[19] https://bangladeshaccord.org/

[20] https://www.bangladeshworkersafety.org/

Skills training programme in progress (©BGMEA)

- In June 2019, BGMEA signed an agreement with the Information and Communication Technology Division of the Ministry of Commerce to introduce the digital payment platform for the sector; the Bangladesh Bank, in coordination with related industries, contributed to this change; a successful pilot programme covered 150 workers from three factories;

Worker in one of the factories using the digital platform (©BGMEA)

- On the environmental front, BGMEA encourages its members to set up green factories; Bangladesh has 125 LEED green garment factories certified by the US Green Building Council (USGBC) and another 500 factories are in the process of getting LEED certification.

6. BGMEA organizes 'International Buyer Seller Meet' to exhibit/showcase the latest range of products from the manufacturers of Bangladesh and to meet new buyers; it also helps to identify new product categories for product diversification.

7. BGMEA worked with Ministry of Finance of Bangladesh and developed policies to provide benefits to new foreign investors in the ready-made garment sector, such as export subsidies and fiscal incentives in terms of reduced taxes and export incentives.

8. BGMEA has pledged to the Green Button Initiative of the German government. The Green Button Initiative[21] is the first-ever state-owned global seal on environmental sustainability. It considers all aspects of sustainability of the apparel product.

9. BGMEA has launched Go Human, Go Green with seven pledges (see Figure 45) to make a difference to the livelihood of garment workers, the community and the environment, thus aligning the apparel industry with critical aspects of the Sustainable Development Goals (SDGs).

Figure 45 BGMEA – The seven pledges

Note Source: BGMEA Sustainability Report 2020

10. Creation of the Readymade Garments Sustainability Council to take over the task of safety inspections in garment factories after the conclusion of the Accord and Alliance programmes is yet another significant initiative to assure international buyers about continued efforts and an institutional mechanism to improve safety standards.

[21] https://www.bgmea.com.bd/index.php/page/BGMEA_pledges_to_join_Green_Button_initiative

11. BGMEA has joined Sustainable Textiles of Asia Region (STAR) Network consisting of nine garment manufacturing associations from six Asian countries, namely Bangladesh, Cambodia, China, Myanmar, Pakistan and Viet Nam. The network promotes sustainability and works to demand better purchasing practices by international buyers to protect the interests of the manufacturers.

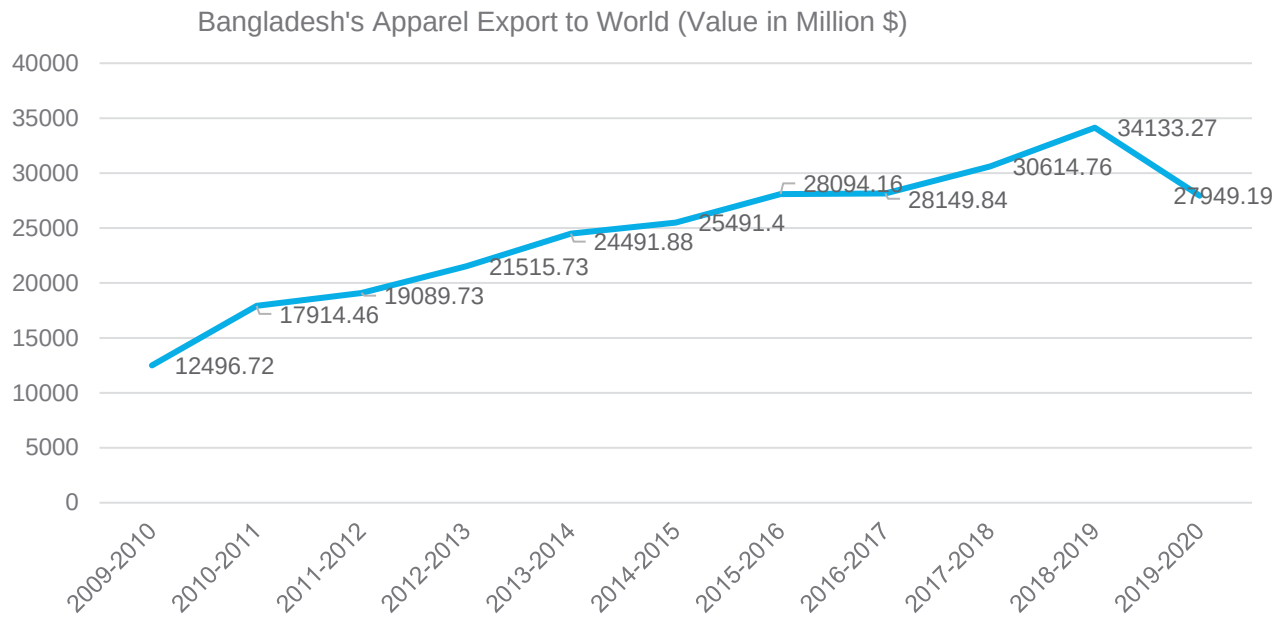
12. COVID-19 response: BGMEA has emerged as a proactive industry association by taking up the cause of the industry and millions of workers associated with it. BGMEA quickly assessed the value and volume of orders cancelled/suspended by their international customers during the pandemic and its possible impact on the industry and the workers. This data was available live on its website for everybody including media to see.

    BGMEA issued strong and effective appeals to international customers not to cancel the orders, proactively worked with the Government of Bangladesh to act with partner governments to urge buyers not to cancel their orders, and worked with media to explain the severe effects of order cancellations on the lives of millions of garment workers and factory owners. BGMEA officials took part in numerous webinars to highlight supply chain vulnerabilities and, at the same time, worked with key international customers to reconsider the cancellation of orders. These efforts resulted in reinstatement of almost 90% of the initially cancelled orders. BGMEA worked closely with the government on an economic support package for the industry, where the government provided soft loans to cover part of the workers' salaries for three months.

Results achieved

1. BGMEA, over the decades, has provided much-needed leadership to the industry as it propelled itself to the position of second-largest global exporter of apparel (see Figure 46).

Figure 46 Export performance of Bangladesh



Note Source: BGMEA

2. Since the Rana Plaza tragedy, with the active and deep partnership between BGMEA and the Government of Bangladesh, brands and civil society organizations, Bangladesh has been able to implement extensive factory safety programmes under the Accord, Alliance and other initiatives. This has substantially improved safety standards and the image of the industry.

3. The industry has made significant progress on the sustainability front. The country has more than 120 LEED-certified apparel factories as per 2019 data. This and several other initiatives, like PACT and

Green Button, put the Bangladesh apparel industry in a leadership position in sustainability. BGMEA has increasingly focused on the need to LEED-certify factories and has communicated this need to its member factories. Recognizing its role in promoting a green garment sector, BGMEA has been given the prestigious USGBC Leadership Award by the United States Green Building Council (USGBC) in June 2021.

4. The proactive role of BGMEA and its engagement with stakeholders, including the government, brands, international media, development agencies and labour unions, resulted in minimizing the adverse effects of the COVID-19 pandemic on the lives of garment workers.

Lessons learned

Other associations can keep the following lessons in their mind for developing their industry:

- Strong representation of members' interests with the government, effectively communicating the contribution of the sector and working in synergy helps an association gain favourable policy support;
- When members see that the association is actively promoting their interests and offering services they need or value, they start trusting the association and the membership grows, thus improving the revenue stream and financial viability of the association;
- Proactive engagement with diverse stakeholders, such as buyers, labour unions, civil society organizations, educational institutes and the national chamber of commerce, helps the association address and find solutions to complex problems through collaboration;
- An active and strong association with a strong programme implementation capability can be a trusted partner to the international development agencies for implementing development projects for the industry. It can also help the association to improve its cash flow;
- Through facilitation/arbitration, associations can proactively resolve potential issues to keep production and exports uninterrupted;
- Engaging with the embassies of important trading partner countries on a regular basis helps the association communicate the strength of the sector, promote trade and investments, and access development project assistance;
- Associations should try to resolve disputes that may arise between the owners and the employees of any factory to promote good industrial relations;
- It is possible for an industry to develop standards and self-regulate its members to achieve those standards and improve its image in the global market;
- BGMEA has demonstrated that, with a strong resolve, an effective communication mechanism and stakeholder engagement, associations can help the industry overcome large obstacles or challenges;
- Understanding customer interests, working in synergy and taking initiatives for improvement build trust with buyers and customer countries, which is critical for exponential business growth;
- Strong association with domestic and international publications and opinion makers contributes to strengthening the reputation of the industry.

References

Bangladesh Investment Handbook (2020). Available at http://bangladeshembassy.nl/bangladesh-investment-handbook/

BGMEA Export Performance Database (2021). Available at https://www.bgmea.com.bd/page/Export_Performance/

BGMEA Sustainability Report 2020 (2020). Available at http://download.bgmea.com.bd/BGMEA%20Sustainability%20Report%202020.pdf

Bheda, Rajesh, Michael T. Fralix (Foreword) (2006). *Managing Productivity In The Apparel Industry.* CBS Publishers & Distributors Pvt. Ltd

Bheda, Rajesh (2015). *Understanding the cost of quality.* Available from *https://www.fibre2fashion.com/industry-article/7671/understanding-the-cost-of-quality*

DBL Group. *No Water, No Life: Water saving practices of DBL Group*. Available at https://www.dbl-group.com/no-water-no-life-water-saving-practices-of-dbl-group/

Lin, Melissa. *Are Corporate Responsibility Efforts Profitable?* Available at https://www.toptal.com/finance/profitability-analysis/corporate-responsibility

Sri Lanka Apparel Database (2021). Available at https://www.srilankaapparel.com/data-center/yearly-performance/.

Printed by ITC Digital Printing Service.

A free pdf is available on ITC's website at:
www.intracen.org/publications.


International
Trade
Centre