

VOLUME XVI, No.05

TEXTILE

CITI

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TIMES

TEXTILE



IS THE INDIAN TEXTILE INDUSTRY READY?

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I am glad to inform you that recently the Government has made some historic announcements like Comprehensive Scheme for the Development of Knitting & Knitwear Sector with various components under PowerTex India by the Hon'ble Union Minister of Textiles, Scheme for Rebate of State and Central Embedded Taxes and Levies (ROSTL) on Exports of Garments and Made-ups by the Union Cabinet chaired by the Hon'ble Prime Minister of India, reduction of Hank Yarn Obligation (HYO) from 40% to 30% by the Hon'ble Union Minister of Textiles and the new Textile Policy by the Hon'ble Chief Minister of Tamil Nadu. Hence, it can be fairly said that the first half of March 2019 has been very fruitful for the Indian Textile Industry!



The Comprehensive Scheme for the Development of Knitting & Knitwear Sector will enhance the sector's contribution to the nation building, as Knitting and Knitwear Sector is one of the major segments of the textile value chain and contributes about 27% of the total cloth production and about 15% of knitted fabric is being exported besides export of knitted apparel. The share of knitted apparel in value terms is about 38% in overall export of clothing. The main clusters to benefit from this announcement are Tirupur, Kolkata, Ludhiana, Kanpur and NCR.

The ROSTL Scheme for Garments and Made-ups was the long pending demand of the textile & clothing industry. However, the announcement fell slightly short of expectations as Government did not include - Yarn and Fabrics which are critical sub-sectors of the growth engine of the textile industry. While welcoming the decision, we have again pointed out that Exports of Yarn and Fabric may be included in the above Scheme to make them competitive in the international market.

CITI had been pursuing with the Government for reducing HYO from the current level of 40% to 10% and if not possible at least to 25% in the first phase. I am happy that the Government has reduced the same to 30%. This step would remove the anomaly of excessive obligation of hank yarn and save the ailing spinning industry from the extra burden.

The Government of Tamil Nadu has announced the long-awaited State Textile Policy. The Policy has given importance to the Technical Textiles, Skill Development, Textile Processing and Weaving Segments and the incentives to the textile effluent treatment plants, mini textile park, up-skilling, infrastructure development, and assistance to build workers' hostel. This unique textile policy would help the state's textile industry to further strengthen its competitiveness.

However, as there is a famous saying that life is not a bed of roses, the textile industry is facing a new challenge as the Insurance Sector has recently announced fresh directive to increase fire insurance premium exorbitantly for many sectors including textiles effective from 1st March 2019. The directive will have an adverse impact on the textile industry, which is already reeling under severe financial crisis. CITI in its representation to various Ministries pinpointed that the fresh directive from the Insurance Sector will further affect the ailing textile industry, which is already facing high cost of production and low demand from the international market.

We have been continuously raising textile related GST issues such as reduction of GST rates for MMF and its raw materials from 18% to 12%, withdrawal of ITC O4 return for Job working, refund of excess ITC due to inverted duty structure of goods & supplies due to preferential adjustment of excess ITC due to inverted duty structure against output liability, and continuation of IGST exemption on imports of Capital Goods Under EPCG Scheme and Import of Inputs Under Advance Authorization Scheme, amongst others. I am happy to inform you that the IGST and Compensation Cess exemption under Advance Authorisation, EPCG and EOU Scheme have been extended up to 31.03.2020, which will be a big relief to the textile industry.

The theme of the current edition of Textile Times is 'Textile 4.0', which is highly relevant considering the increasing application of Industry 4.0 technologies in economic activities from agriculture to manufacturing and services. The textile and clothing world is beginning to adopt Industry 4.0, for example, Tianyuan Garments, China's largest vendor for Adidas and Reebok, is setting up a US\$ 20 million garment factory with 330 robots that will have a capacity of 26 million T-shirts per annum. Indian Textile Industry needs to catch up fast on the same, so that we are not a follower of 'Industry 4.0'. CITI plans to play a key role in introducing the same to the Textile Industry and making them aware of the same.

Application of the Fourth Generation industrial technologies seems to provide plenty of benefits to textile and clothing industry such as mass production at low costs and in less time, improvement in productivity, higher levels of revenue, delivery of newer products through innovation, etc. However, it is posing some challenges also, such as increasing chances of job losses, insufficient availability of skilled manpower to operate new generation technologies, and lack of funds to procure these technologies, etc. Nobody can deny the benefits of Industry 4.0, however, to realise them, all stakeholders need to work collaboratively with efficient planning to build an efficient, innovative and productive textile value chain that will benefit all.

Sanjay K. Jain

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Published and Edited by:

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Place of Publication:

**Confederation of
Indian Textile Industry (CITI)**

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Barakhamba Road, New Delhi - 110001

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Fax: +91-11-41519602 Web: www.citiindia.com

Compilation & Design:
Sapphire

Printed by:
Kaizen Offset
3, DSIDC Complex
Okhla Phase 1, New Delhi

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Industry is going through a paradigm shift, popularly referred to as the “Fourth Industrial Revolution” or “Industry 4.0”. Industry 4.0 represents the embeddedness of digital technologies in societies, economic activities, and even humans. The new industrial wave is expected to revolutionize manufacturing processes through bringing together the cyber-physical systems. It seems to provide a range of benefits to manufacturers such as mass production at low costs and in less time, improvement in productivity, higher levels of revenue, and delivery of newer products through innovation.

The ultimate goal of “Industry 4.0” is to build a parallel virtual world that will control and run the physical world. The future of the industry is characterised by Artificial Intelligence, Internet of Things (IoT), cloud computing and cognitive computing, along with advanced automation and robotics, 3D printing, wearables and gentle engineering, nanotechnology, advanced materials, biotechnology and others. These components create together what is being called as a “Smart Factory”. The enhanced technology, digital systems and automated processes will make it optimum for manufacturing of quality standard as well as personalized products.

Following the footprints of the global manufacturing industry, textile industry is also growing leaps and bounds in terms of technological innovations and upgradation. Some of the key trends that are driving the change are scarcity of skilled labour, rising wage cost, shorter product cycle, automation and efficiency in production, gaining scale in advanced material, and robotics & nanotechnology. Moreover, growing population and changes in lifestyle require development of new technologies that will be able to reduce the consumption of resources (water, material, energy) for generating same or even higher level of output.

The key levers of Industry 4.0 that will shape up the textile industry are big data analysis, artificial intelligence, advance/autonomous robotics, 3D printing, smart/ wearable textile and IoT. Collection and analysis of large sets of data is the layman’s explanation of big data analytics. It plays a very important role in making informed strategic and operational decisions through autonomous robots. Artificial intelligence can be used for consumer trend predictions. Advanced robotics can help in automation in business operations. It can be extensively used in cut and sew operations. 3-D printing is expected to bring a huge shift by bringing flexibility in the manufacturing process by catering to customized demands. It is generally used in high-end fashion products. Smart/wearable textile, which can sense and react to environmental conditions, will be used in textile for health, military, defense, and sports. IoT allows machine to machine interaction and exchange of data through the internet. It can be used for automated monitoring of factory operations and predictive maintenance.

Textile 4.0 can thus appropriately address the needs of all the stakeholders through better flow of information across the value chain, increased efficiency, reduced lead times, higher productivity, improved quality levels, reduced cost and better service.

Global textile industry has started using technologies of Industry 4.0 and Indian textile industry is also required to keep pace with the world to remain competitive. However, it poses some challenges also. Presently, unorganized sector dominates the Indian textiles and clothing (T&C) industry and there exists an IT gap. The small units do not have adequate funds or technical expertise to handle Fourth Generation Technology. In contrast, scale of textile enterprises in countries like China, is comparatively large and they are in a better position to adopt Industry 4.0. This will further reduce competitiveness of Indian textile enterprises in global market. Majority of the existing labour/staff in Indian textile industry is low skilled or semi-skilled for whom it is difficult to handle operations run on Industry 4.0 technologies. Moreover, it is perceived that with implementation of Textile 4.0, there may be an adverse impact on employment as automation may replace labour with machine.

The revival of manufacturing in the textile sector can be led by the consolidation of the unorganized manufacturing by bringing them under one umbrella. Through effective strategies and skill development, the Textile 4.0 can generate new employment opportunities for the textile sector also. It is noteworthy that the implementation of smart factory will lead to more output per machinery. With better output, India's share in the global trade will also increase significantly and there will be requirement of more skilled labour. Hence continuous focus on skilling will play an extremely important role to keep up with Textile 4.0. Also, the supply chain must be able to process real-time data and immediately serve the customers accordingly.

Application of Industry 4.0 technologies in an appropriate manner will enable India to become a global power in the textile world. But in order to grab the opportunities arising from Industry 4.0, India needs to prepare itself well in time through strengthening its existing capabilities along with developing new ones. All the stakeholders (the Government, enterprises, and the textile associations) need to work in tandem to build innovative and long-term sustainable production systems that can bring inclusive growth in the economy.

TEXTILE

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IS THE INDIAN TEXTILE INDUSTRY READY?



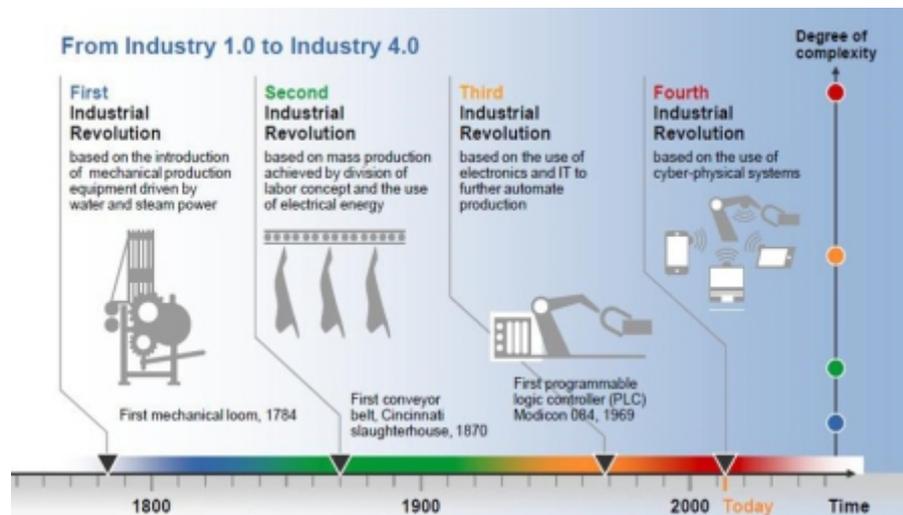
Mr. Gurudas V. Aras
 Director, Textile Engineering Group
 A.T.E. Enterprises Private Limited

Introduction

The industrialization of the world began in the late 18th century with the advent of steam engine and the invention of power loom. This has radically changed how goods were manufactured then. A century later, electricity and assembly lines made mass production possible. The 3rd industrial revolution began in 1970s, wherein computing-powered automation made it possible to programme machines and networks.

Today, a fourth industrial revolution, comprising of cyber-physical systems is transforming every part of manufacturing, supply chain and society in general. Under the title of Industry 4.0, many physical and digital technologies are converging through analytics, robotics, artificial intelligence, cognitive technologies, digitalization and internet of things. These technologies will create digital enterprises which can communicate, analyse and use data

to drive intelligent actions in the physical world. Such 'smart factories' can leverage use of these technologies in manufacturing, supply chain, decision making and communication and can create disruptive effects on the business in the coming years. The rise of new industrial digital technology, under industry 4.0, will



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gather and analyse data across machines enabling faster, more flexible and efficient processes, which will help in producing high quality goods at reduced costs. This manufacturing revolution will ultimately help in increasing productivity, improving economics resulting in fostering growth and changing the competitiveness of organisations.

Textile and clothing industry and Textile 4.0

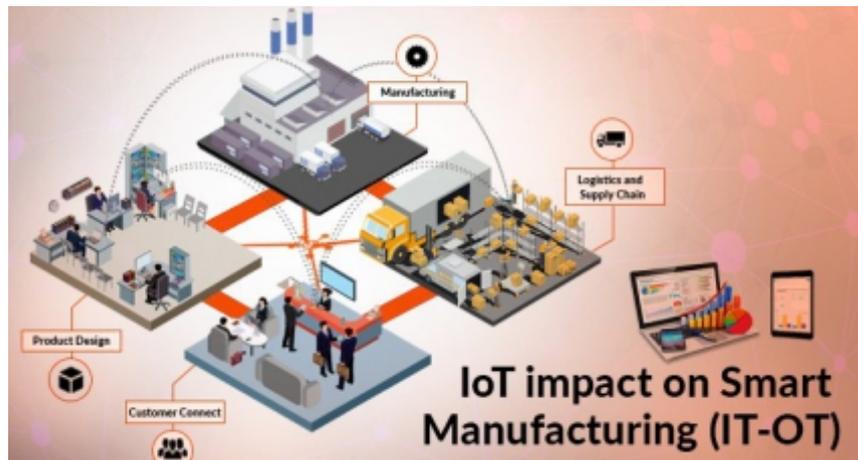
Due to use of intensive labour, lack of technology and rising costs the competitiveness of the textile industry in many countries is weakening. As a result of these constraints the level of productivity and efficiency as well as quality is getting affected. Since most of the textile manufacturing companies do not have flexible operational structure they are not adoptive to the changing outside world and to the change in the consumer demands. Also the new trend is to have customisation of the products with more variations requiring adjustment to market requirement in shortest possible time. Also the product life cycles are shortening with changing fashion trends as well as the global competition is increasing intensely. In this backdrop higher dependence on labour force with potential human errors in production, supply chain, etc. become an obstacle. Perhaps industry 4.0 may help the textile and clothing industry to solve these problems with possibility of flexible manufacturing, redesigning of industrial processes and technological advances. All the processes related to manufacturing and logistics may become more flexible and agile in textile value chain under Textile 4.0. This will help in giving quick and effective response to the market needs.

Application of Textile 4.0 by the textile machinery industry

Following the footprint of global manufacturing industry, textile industry is also trying to align itself for innovations and upgradations. While the textile machinery manufacturing industry, particularly in Europe, has already aligned itself fully towards industry 4.0, the textile goods manufacturing industry is somewhat slower in this regard. Most of the machines supplied by textile machinery makers have smart factory platforms built in so that they can collect, measure and analyse data through sensors, data loggers etc. and this information is used on user interface for taking actions or decisions. Many of the state of the art textile machines of today's generation are IoT enabled,

digitized and have ability towards artificial intelligence.

Many of the leading textile machinery makers have introduced complete production process monitoring systems through Internet of things (IoT), which can give various analytical reports on the real time basis and this is very useful in reorientation of the production and quality processes for better results. In case of some machinery makers, the data collected through operation of the machine is built into knowledge and is also used for predictive maintenance and predicting potential breakdowns (Machine Learning).



Textile 4.0: Rise of smart factories in textile manufacturing

The global textile manufacturing industry is gradually on its way to adopt to industry 4.0 due to which wide range of possibilities have emerged for using the above referred various technologies in their manufacturing and supply chain.

- By adopting IoT (internet of things), the decision making process for the management has shortened significantly in view of availability of lot of value through based information and analysis on real time basis. Initiatives of industry 4.0 through IoT are being driven by thousands of intelligent devices generating massive volume of data. However turning this data into value is a critical success factor.
- BMS Vision, SPIDERweb, T-data and Spinconnect are some of the production monitoring softwares used extensively by the textile companies for optimising the manufacturing processes and improving the productivity, efficiency and quality.
- KARL MAYER, leading supplier of warp preparation and warp knitting machinery, has a new concept of digital factory called KM.ON which helps



In 1875 India's first organized futures exchange was set-up.

It traded in cotton!

Need to protect against volatile cotton prices

In the 1860s, with the outbreak of the American Civil War, US cotton supplies to Britain's textile industry were replaced by cotton supplies from India, largely through the Mumbai port (formerly Bombay). With brisk cotton business and rising trade, the Bombay Cotton Association Ltd. was set up in 1875 to manage cotton price risks. Significantly, this took place barely a decade after the world's first modern futures trading platform was established at the Chicago Board of Trade.

Amidst an inherent volatility in cotton prices and robust domestic and export demand, MCX provides a cotton futures trading platform for stakeholders to manage their price risks. MCX cotton contract specification is well-tuned to the physical market best practices in terms of staple length, micronaire, tensile strength, etc. Given the highly volatile cotton prices, it is imperative for stakeholders to hedge price risks using exchange-traded futures contracts.

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Highly liquid contracts with low impact cost.

Cotton is compulsorily **deliverable**.



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Read the Risk Disclosure Document (RDD) carefully before transacting in commodity futures and options

customers in machine networking, data management, maintenance support etc. through an App, irrespective of the location.

- Artificial Intelligence is used in analysing large chunk of data collected from manufacturing, purchase, marketing and logistics etc. This is used by the textile companies for trend predictions and machine diagnosis.
- Robotics and automation is making faster inroads into the garment manufacturing. Sewbots (sewing robots) are extensively used in China in garment factories. Tianyuan Garments, China's largest vendor to Adidas and Reebok, has put up a factory to make 26 million T-shirts per annum with use of 300 Sewbots. Automation is fast getting into textile operations and with help of it the textile producers are able to improve productivity, quality and reduce wastage.



Technology convergence under Textile 4.0

As far as textile industry is concerned different technologies are converging resulting in major disruption in the textile manufacturing and also the products. The future of textiles lies on the potential of technology convergence which would result in development of smart and intelligent clothing.

- 3D printing is expected to bring in a huge shift in textile manufacturing in future by bringing

flexibility in the manufacturing process by catering to customized demands. Mostly it will enter into high end fashion products in textiles.

- Integrating the electronic functionality into textiles will open up a whole new world for its applications.
- Conductive fabrics with a possibility of using thermochromic ink (undergoing reversible change of colour when heated or cooled) for printing will give the fabric very special functional abilities.
- Usage of electroactive polymers into textiles will give light emitting abilities to the garment.
- Nano technology and plasma technology will be used more widely in the future textiles for specific applications.
- Modification in the fibre and filament properties can give multifunctional capabilities to textiles.
- Smart and wearable textiles or intelligent textiles will be making big inroads into our daily lives in future. These devices can sense, measure and react to the environmental or body conditions. These textiles are already being used for medical, defence and sports purposes.

Textile factories of future with application of Textile 4.0

The future of the textile manufacturing will have data driven smart manufacturing with convergence of different technologies and more adoptive machine-human interface.

With a right approach by the Indian textile industry towards adoption of Textile 4.0, following benefits can be accrued.

- Shorten time and cost to market by at least 20%
- Increase productivity and efficiency

- Seamless information flow across the value chain
- Enhance value addition by 10%
- Reduce cost by 5% every year
- Reduce rejection rate by 50% due to better control on quality
- Become globally competitive

For achieving the above objectives, the Indian textile companies need to realign themselves with the following steps

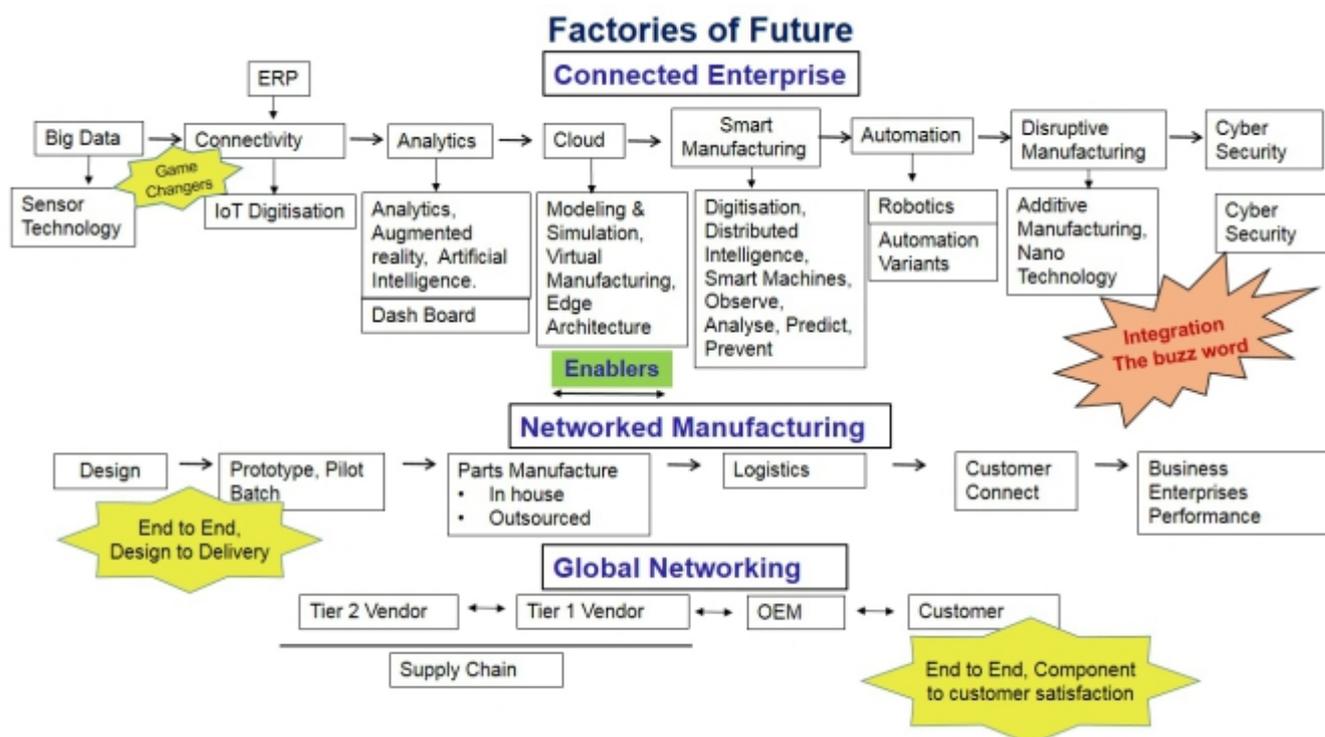
- Initiate experiments with technology through pilots
- Upgrade the present IT infrastructure and technology platforms
- Increase spend on R&D and innovation
- Shift towards compliant and environment-friendly manufacturing
- Create sustainable advantages in business leveraging the technology
- Re-train the work force with required skill sets for new technologies
- Keep in mind the social angle w.r.t. workforce and consumers

Textile 4.0: a way forward for the Indian textile industry

The ecosystem for industry 4.0 is supportive in India as more than 80% of the country has good coverage of 4G and 3G. India also is a superpower in information technology. When the whole world is moving towards industry 4.0 rapidly, our Indian textile industry cannot

be left behind. The good news is that many of our leading textile companies, although are not fully industry 4.0 compliant, are already using some of the applications via the latest textile machinery they have installed recently. Most of these state of the art machinery is IoT enabled, has automation, possibility of cloud computing, use digitization and get collected data analysed for decision making. Some Indian textile companies are already using 'Manufacturing Execution System (MES)' from BMS Vision, Belgium which help in optimizing the production processes across the textile production chain. Some of the mills are using the specialized software packages like T-Data (Truetzschler), Spiderweb (Rieter) and Spinconnect (LMW) on the respective suppliers' machinery for online monitoring of the production and quality. Many of the Indian spinning mills have installed spindle monitoring systems on their ring frame which give real time data that can be used for improving productivity and efficiency. In weaving as well many mills are using online monitoring systems like 'Loomdata' for monitoring the weaving shed performance. Many of the leading finishing technology suppliers from Europe already have machines which can interact intelligently with the human beings and help in optimising the process parameters, utilities consumption etc.

The Indian textile companies are also taking baby steps towards Textile 4.0 but the pace has been much slower since the required ecosystem including IT infrastructure and specially trained manpower is still



not up to the level. The Cobots (collaborative Robots) are being extensively used in China and Srilanka in garment making and now the garment innovation centres in Bangladesh are using them in jeans manufacturing. In this backdrop I expect the Cobots to soon enter India in garment manufacturing once big corporates put up sizeable capacities at one place. The automation and artificial intelligence is gradually making a backdoor entry in the textile industry and in the coming years more and more textile production centres will become smart factories. Indian textile industry will have no choice but to catch up with the rest of the world by converting the production centres into smart factories in view of rising labour costs, increasing manufacturing and energy costs and wastages in the processes. Only by getting into Textile 4.0 bandwagon now or later will Indian manufacturing become more competitive against major textile producing countries like China, Bangladesh, Vietnam and Srilanka. The Indian logistics sector is also fast adopting industry 4.0 and the supply chain of textile industry will get benefited due to the same in terms of proper production planning as well as fast movement of goods.

In view of the new challenges the textile industry will be posed with the advent of Textile 4.0, it is necessary that the business leaders and the managers understand its implications and prepare a roadmap to successfully integrate the manufacturing, supply chain, marketing towards achieving Textile 4.0 compliance. Textile 4.0 will also need a totally different skill set for the managers and the operators and a specialized training will be required for them to make them useful in the new era. With adoption to Textile 4.0 the traditional jobs are likely to be lost making way for new generation of IT and technology oriented employees.

Looking at the major paradigm shift required in the thinking of our textile industry, the Textile Association of India (Mumbai Unit) has organised 2 international conferences on the subject of Textile 4.0 in the last one year. More than 600 delegates, including some mill owners, got benefitted by participation. Indian textile industry has a long way to go before it becomes Textile 4.0 compliant and can compete strongly against the other nations. One thing is sure that for the Indian textile industry the preparation of roadmap to Textile 4.0 is inevitable, whether we like it or not.

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MARZOLI STEPS TOWARDS SMART FACTORY OPERATIONS



Mr. Sudhir Mehani
Chief Digitalization Officer (CDO), Marzoli India

Textile Industry is one of the conventional industries, which has continuously upgraded itself with the requirement of time and challenges. Not only the innovation has taken place in product development, it has covered development with specialized properties, environment friendly processes, machineries etc. Now a days, the major challenge of this Industry is its readiness to Industry 4.0 revolution. Industry 4.0 is emerging globally powerful force and is being flaunted as next industrial revolution. It is characterized by increasing the digitization and interconnection of products, value chains and business models. Industry 4.0 can be defined as the link between the physical and the digital worlds to turn conventional industry into a smart industry. Industry 4.0 facilitates - connects / merges production with information and communication technology, merges customer data with machine data, machine communicates with machine, components and Machines automatically manage production in a flexible, efficient and resource saving manner.

The profitability of a spinning mill relies on the performance of machines: only if they run smoothly, continuously, efficiently and produce great volume of high-quality yarn, the spinning mill thrive. Hence one of the major risks in a spinning mill is the rise of technical malfunctions which harm the profitability of a spinning mill before and after an eventual machine failure. Before a machine failure, there is a sharp increase of energy consumption, temperature and vibrations with a reduction of yarn quality and several problems related to the machine. After the machine failure, the problems are even worse: the customer must bear high repair costs and long downtimes, especially if technicians and repair materials are not promptly available.

Therefore, in order to maximize overall equipment effectiveness (OEE) and minimize the total cost of ownership (TCO), Marzoli has stepped into Industry 4.0 platform and ready with solution through **MRM – Maintenance Management and YarNet-Production Management Tools** towards “A whole

new operations philosophy for the textile Sector". These tools have been designed to provide end-to-end solution integrating overall maintenance monitoring, production monitoring and control needs for Marzoli and 3rd party machinery into one single platform, managing multiple spinning plants and multiple units across the textile value chain.

YarNet - End2end Production Management:

YarNet is Marzoli's highly innovative production management software. This product has been designed in order to make production management smart, easy and immediate:



Carrozzi Group - Proprietary and confidential

Key features of Tools:

MRM- Marzoli Remote Maintenance Platform:

1. **Monitoring of Machines:** like Machine Status, pressure/lubrication levels, temperatures, wearing level of critical components, alarms and energy consumption
2. **Monitoring of Machinery Components:** Inside the machines, there are measuring sensors that monitor the most significant physical parameters so that rotating components, transmission systems and electrical motors are constantly under control.
3. **Retrofitting or Installation of Third-Party Machinery:** Besides being available for all new Marzoli machines, Marzoli Remote Maintenance can be installed on older Marzoli and a third-party machine through Marzoli's retrofitting and revamping service.
4. **Automatic Reporting:** Marzoli Remote Maintenance automatically generates reports that are sent to the client on a regular basis. In these reports the customer can find all information concerning the trends of the monitored parameters with possible suggestions by Marzoli customer service team to optimize machine performances.

- it registers and stores all production data, machines operating conditions, machine statuses and technological parameters;
- it allows to elaborate these data with useful functions and obtain valuable information in the form of tables, colors, charts and diagrams;
- it enables the customer to interact directly with the machine by downloading, editing and sending production recipes.

1. Production Monitoring Management

- Easy monitoring of the Spinning Mill clear overview of the whole plant immediate attention of Alarms and stops
- Through analysis for higher productivity & efficiency waits and stops analysis for effective maintenance

2. Simpler editing of production recipes

- Simple Management of Production recipes
- No machine downtime during the insertion of the recipe
- No mistakes in Production recipes
- Secure backup of the company know-how

3. Power Management- Always achieves the best trade-off between efficiency and productivity

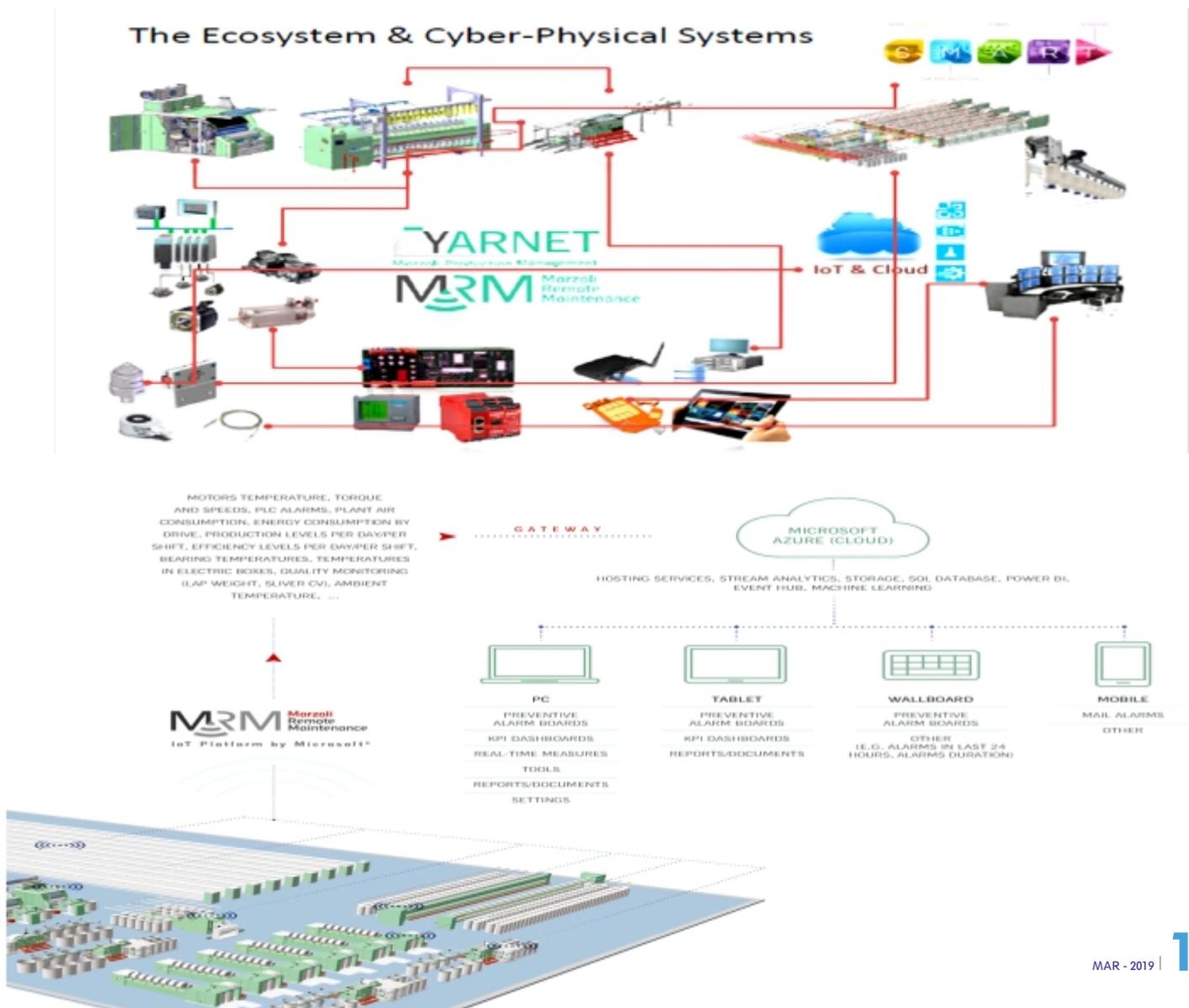
- Integrated power management function
- No additional sensors are in the machine
- Automatic calculation of relevant parameters

Service approach towards MRM & YarNet for Customers: Marzoli designs, creates, installs and maintains are tailored to the client's requests. MRM & YarNet fully embraces this business philosophy as its implementation follows a highly tailored engineering process that is articulated in the following steps:

1. Analysis of the plant and collection of requirements, specifications, maintenance procedures, maintenance problems, production processes and KPI management.
2. MRM & YarNet customization to the Customer plant and equipment.

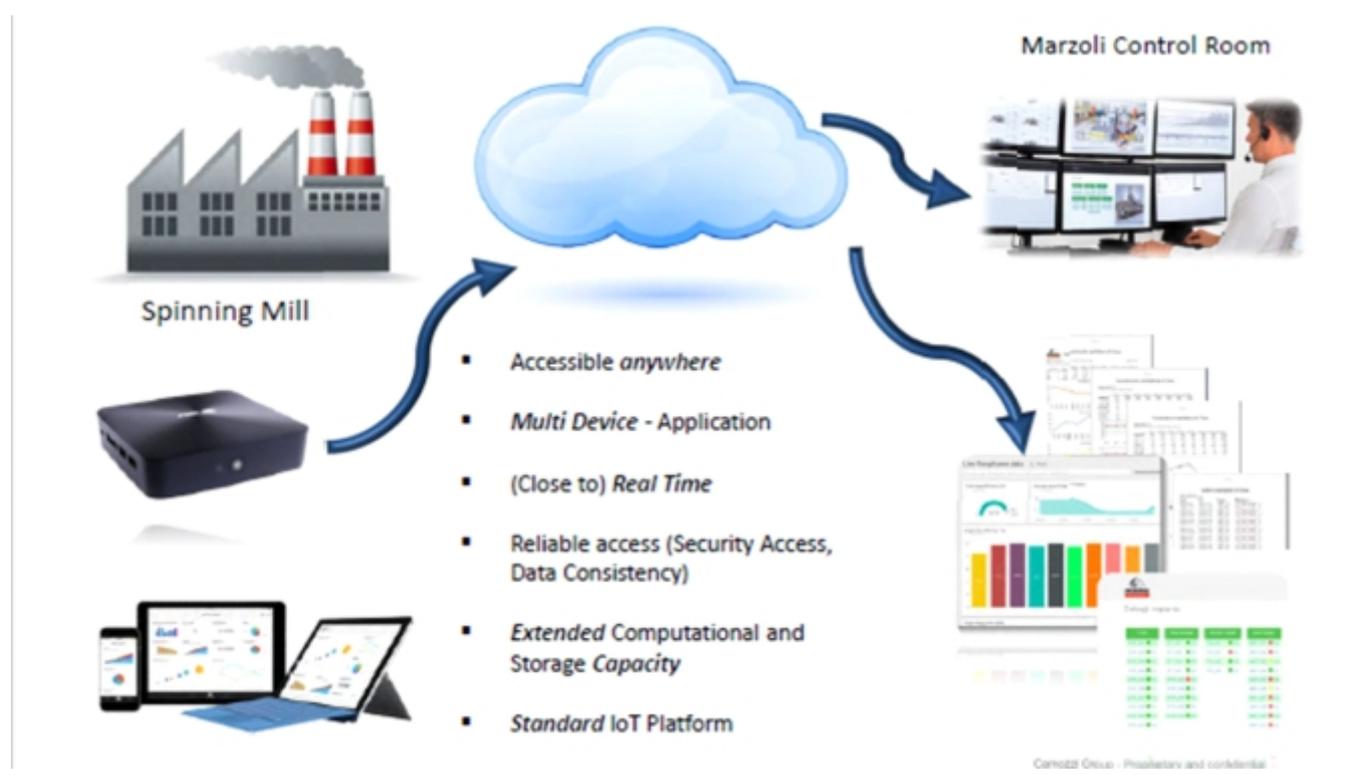
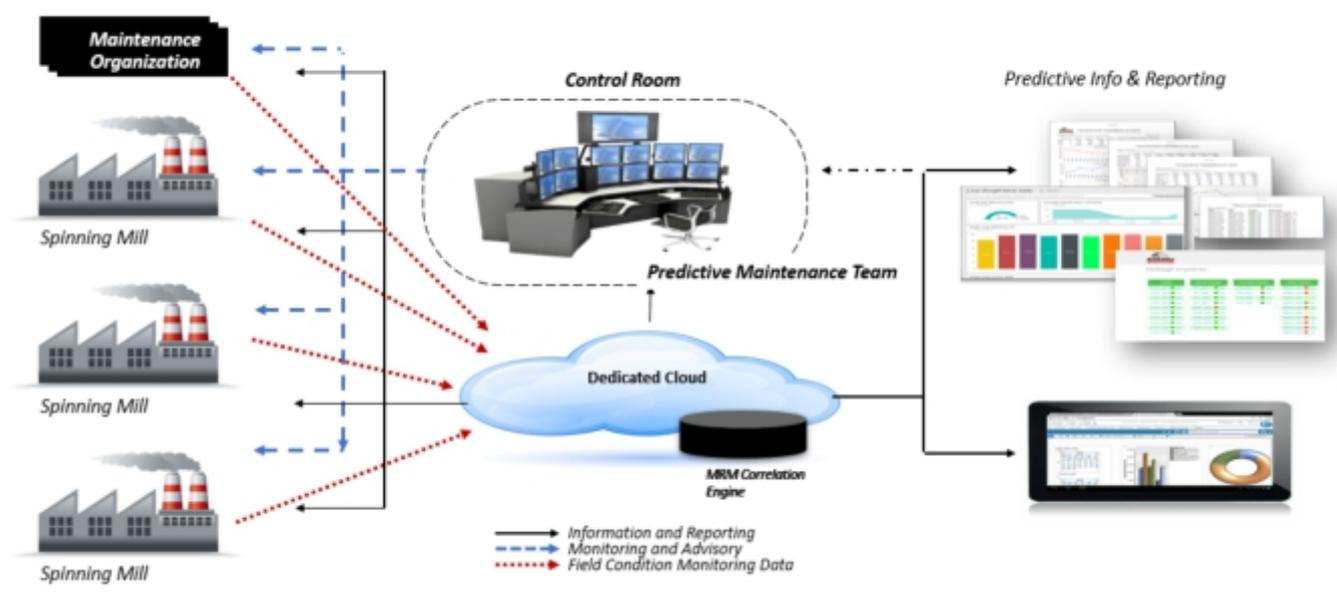
3. Installation of hardware, software, sensors, communication infrastructure and HMI
4. Performance verification and validation: SAT and assessment of the installed platform according to defined KPI.

System Architecture: MRM & YarNet has a base of solid system architecture for a thorough plant analysis. A distributed online system uses a remote data acquisition device to collect physical signals from the machines and transmit them back to a cloud service powered by Microsoft for online monitoring and analysis. The results from data analysis, physical-mathematical models' application, deep dive on incidents and critical cases are returned to maintenance engineers and operators by means of reports, Web Application and Dashboard. The architecture allows to accumulate large amount of information and data which can be processed in order to identify and analyze historical trends of the operating parameters and investigate correlation functionalities and prediction algorithms.



Dedicated Technical Team: In order to secure an outstanding service to customers and to guarantee all the advantages of preventive and predictive maintenance, has senior technical team to supervision of the client's machines through Marzoli Remote Maintenance and YarNet. **The control room operates through a senior technical team, fully trained on Remote Maintenance and Production Management technology,** that has one of the important missions: to continuously

monitor the parameters of every machine of the customers around the world so that if there is a technical malfunction, it contacts the client and provides live technical assistance. Moreover, the control room has direct connection with Marzoli's R&D and Customer service and support departments, thus ensuring a fast and reliable technical assistance with prompt delivery of the needed spare parts and immediate technical support.



TEXTILE SECTOR SKILL COUNCIL



Indian Textile Industry provides revenue which is 27% of the total foreign exchange, mainly through textile exports. It contributes nearly 14% of the total industrial production of the country. Indian textile industry is also the largest in the country in terms of employment generation and currently generates employment to more than 35 million people.

To remain competitive in the open market, it is essential that the industry gets skill labor. Govt has taken strong initiatives to support skilling of workforce.

TRAINING DATA UPDATE FOR FY 2018-2019

PARTICULARS	NUMBER CERTIFIED IN THE YEAR	NUMBER CERTIFIED IN FEB-19	Name of Training Provider	Total Certified
No. of Persons Certified	22,591	2,192		
Mill Sector:	5,529	50		
Fresh:	5,279	114		
RPL:	250	0		
Handloom Sector:	17,062	2,142		
Fresh:	2,114	418		
RPL:	14,948	1,724		
No. of Trainers Certified	501	145		
No. of Training Partners (Affiliated)	15	4		
No. of Assessors Certified	1,171	-		
			MILL SECTOR	
			RSWM LIMITED (Sutlej)	577
			Sona Yukti Private Limited	280
			Rajasthan Textile Mills	190
			Deepak Spinners	175
			Aruppukottai Shri Ramalinga Spinners Pvt Ltd	163
			Himatsingka Sedie Ltd.	147
			Ashok Finespun (A Unit of Mahima Fibres Pvt Ltd)	145
			NIFT TEA Knitwear Fashion Institute	145
			HANDLOOM SECTOR	
			Valeur Fabtex	4356
			Chanu Creations	4509
			Sreeja Educational and Welfare Society	1867
			Institute of Skill Crafts	1298
			K B Philanthropy	505
			Surabhi Skills	297
			Child & Youth Welfare Society	236
			Swargiya Annasahab Tatha Sudhar	2261
			Baburao Pethkar	

SNAPSHOT OF THE ACTIVITIES



NBCFDC Selection Committee Meeting at Assam



APSSDC Assessment at Andhra Pradesh



PMKVY Assessment at Manipur



NSFDC 18-19 Selection Committee meeting at Tamil Nadu



RPL Assessment at Malegaon



RPL Assessment at Assam



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TEXTILE SECTOR SKILL COUNCIL

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Benefits of Smart Factory Operations:

The client can draw on a great, relevant and reliable amount of information in order to effectively undertake maintenance operations and Production Management. Moreover, the advantages of using:

- MRM increases over time: as the customer learns how long the maintenance cycles of the machines should be, he can better plan maintenance activities, reduce operations costs and always obtain the highest machinery performances.
- YarNet user can easily control and manage from his/her computer the entire spinning mill. As Marzoli is a unique European supplier of the full line of machines for opening, preparation and spinning of short-staple fibres, its software platform can control every machine comprising the production process. Needless to say, the centralization and organization of all the messages coming from the entire production process in one intuitive and well-structured interface allows to have everything under control in any moment and to improve the speed of response in production operations. YarNet has been designed in order to make production control as easy and as immediate as possible: it has no useless or complicated function, it provides the user with all and only the desired data and makes the information

accessible by using tables, colours, charts and diagrams. Moreover, thanks to its modular design, YarNet can be easily tailored to any spinning mill, while the software structure allows to easily connect new machines.

In nutshell, **Marzoli's Smart Factory Operations** discloses the following advantages:

- **Increased Productivity:** through the higher level of automations that reduces production time, enables better asset utilization and inventory management.
- **Increased Flexibility:** Manufacturing flexibility through machines that can execute the production steps for large number of products
- **Increased Quality:** the products via sensors and actuators that monitor the current production in real time and quickly intervene in case of errors
- **Increased Speed:** from the first product or factory idea to the finished product through consistent data and e.g. new simulation opportunities.

- Increased productivity,
- Reduction of machines unplanned downtimes,
- Prevention from major machine failures,
- Longer plant lifespan,
- Higher efficiency,
- Complete reliability,
- Trouble free spinning experience,
- Better maintenance planning.
- Power Savings
- Continuous & transparent Monitoring of Maintenance Costs



- 15 % Reduction of Total Hours for Maintenance (1.500 Hours / year)
- 2 % Reduction Power Consumption (480.000 kW / Year)
- 1 % Increase Plant Efficiency (75.000 kg/ Year)
- 15 % Increase Service Life of Electronic Devices
- 10 % Increase Service Life of Electric Motors
- 10 % Increase Service Life of Bearings

Thanks to Marzoli Remote Maintenance, the client can draw on a great, relevant and reliable amount of information in order to effectively undertake maintenance operations, reduce operating costs and always obtain the highest machinery performances.



INDIAN TEXTILE INDUSTRY IN THE ERA OF INDUSTRY 4.0

CITI Economist Desk

INTRODUCTION

Industrial revolution started in the 18th Century in Europe and North America has reached to its 04th stage which is popularly known as 'Industry 4.0'. During these four stages, the society has witnessed significant industrial inventions which have changed the industrial processes and human behaviour.

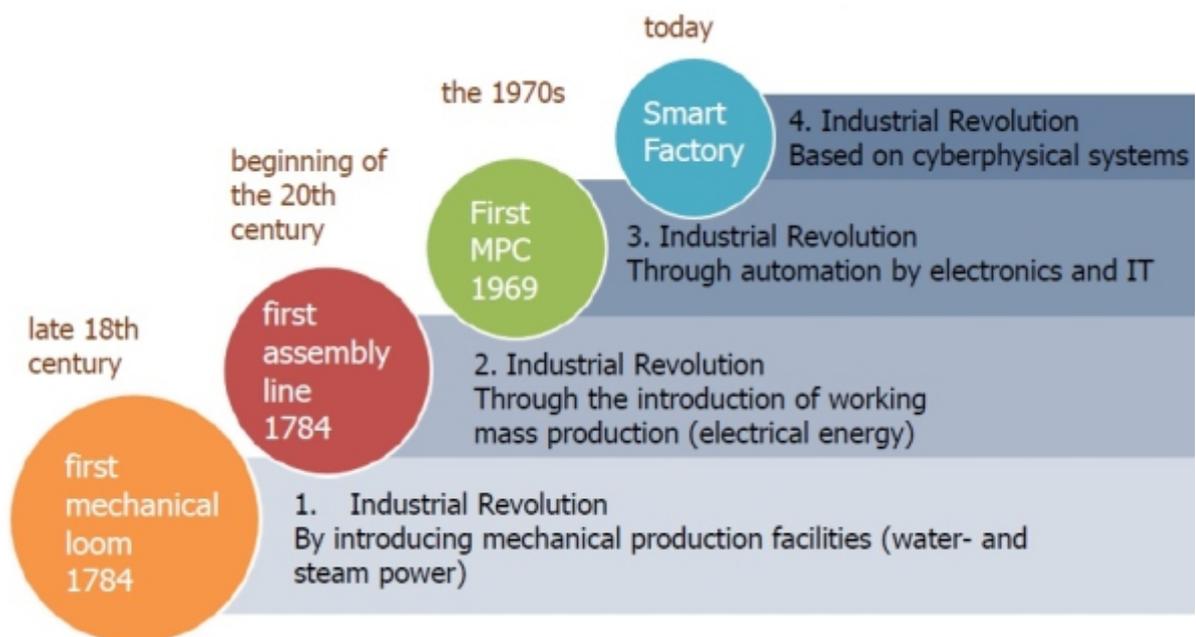
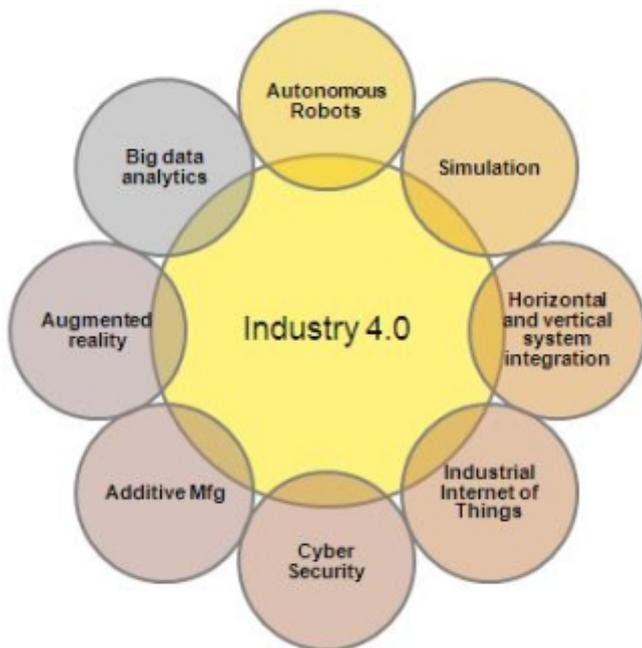


Figure 1: History of Industrial Revolutions Over 200 Years

Industry 4.0 represents the embeddedness of digital technologies into societies, economic activities, and even humans. It is marked by heavy use of data through emerging technologies such as robotics, artificial intelligence (AI), nanotechnology, Internet of Things (IoT), 3D printing etc. The new industrial wave is expected to revolutionize manufacturing processes through bringing together the cyber-physical systems; IoT; cloud computing and cognitive computing, along with advanced automation and robotics. This unique combination, backed by data explosion, will alter the machine-human equation in the manufacturing processes.

Industry 4.0 seems to provide a range of benefits to manufacturers such as mass production at low costs and in less time, improvement in productivity, higher levels of revenue, and delivery of newer products through innovation. However, at the same time, it is also posing some challenges such as job losses due to replacement of human labour by machineries/robots; arranging trainings for existing labour on new technologies of Industry 4.0; and availability of funds, specially to micro, small, and medium enterprises (MSMEs), for procuring new industrial technologies.

Figure 2: Building Blocks of Industry 4.0



APPLICATION OF INDUSTRY 4.0 IN TEXTILE

Technology upgradation has always benefited manufacturing sector with improvements in efficiency and productivity. Industry 4.0, as described above, is expected to leave behind all innovations of the past and completely turn the manufacturing processes with interaction of cyber and physical systems. Following the footprints of the global manufacturing industry, textiles and clothing (T&C) industry is also growing leaps and bounds in terms of technological innovations and upgradation. Despite of its labour intensive nature, T&C industry is also expected to adopt Industry 4.0 to satisfy fast changing customer demands.

The textiles and clothing world is beginning to adopt industry 4.0. Some of the key trends that are driving the change are scarcity of skilled labour, rising wage cost, shorter product cycle, automation and efficiency in production, gaining scale in advanced material, robotics & nanotechnology. There can be plenty of areas of Industry 4.0 which can be implemented in textile industry such as big data analytics, autonomous robots, horizontal and vertical integration, internet of things (IoT), and additive manufacturing etc.

Big data: The concept of big data includes analyzing capacious data to extract valuable information. In the textile world, big data is increasingly playing a part in trend estimation, analyzing consumer preferences etc. Modern manufacturing facilities are data-rich environments that support the transmission, sharing and analysis of information across ubiquitous networks to produce manufacturing intelligence.

Textile industry generates and creates various sources of data which come in different forms like words, images etc. Since consumer choices of T&C products are rapidly changing, therefore, this type and amount of data is changing. Application of this data is very important to predict future trends in T&C industry.

Autonomous robots: Robots are the important components of Industry 4.0 who are going to replace semi-skilled human labour and will be able to undertake dirty and difficult tasks easily and more efficiently. However, robotization is going to take place for other works also. Global players are soon employing robots for tailoring work, which will redesign the whole T&C value chain. This will have automated / autonomous sewing lines for various kinds of T&C products such as home goods, footwear, apparel, medical textile etc. Tianyuan Garments, China's largest vendor for Adidas and Reebok, is setting up a US\$ 20 million garment factory with 330 robots that will have a capacity of 26 million T-shirts per annum.

Internet of Things (IoT) can be defined as communication among devices, machines, and equipments with their virtual personalities and capabilities obtained as a result of technological advances. Disruptive technology is changing

conventional methods/products for example smart watches. Similar applications are going to be seen in textile and apparel soon with the help of IoT. For example, smart textile and compression fit, which will measure important body functions such as blood circulation, heart rate, breathing rate, walking steps, calorie counts etc.

Digital printing and finishing: Printing is an important step in T&C value chain. India is famous for its block printing with natural colours but future belong to 3D and digital printing. Further, it is going to be additive manufacturing with modern applications such as application of Digital Light Synthesis process which is 100 times faster than conventional polymer-based printers. Adidas intends to set up such highly automated factories in Germany and America.

Automated inspection system: Industry 4.0 will allow the automation of inspection system which will reduce dependence on human errors, save manpower and materials, provide quick response to queries, and be more reliable. This can be termed as digital eye supervising the whole manufacturing process.

Smart factories means when advanced technologies such as big data, intelligent robots, and virtual personal assistants work in an industrial production set up to conduct operational procedures. This creates an interaction between virtual and physical world which makes factories more intelligent. Several of the production processes are conducted by robots. Machines automatically receive commands and take actions which improves efficiency and reduces/eliminates the scope for errors.

INDUSTRY 4.0 AND INDIA'S TEXTILE INDUSTRY

Textiles and clothing (T&C) is one of the oldest industries of the world and India is one of the major players. According to Annual Report 2017-18, Ministry of Textile, Govt. of India, *"the textile industry contributes to 7% of industry output in value terms, 2%*

of India's GDP and to 15% of the country's export earnings. With over 45 million people employed directly, the textile industry is one of the largest sources of employment generation in the country". T&C is the second largest employment generating sector after agriculture in India.

In 2017-18, India's domestic T&C market valued at US\$ 90 billion. In terms of global ranking, India is ranked 2nd in textile export with 6% share and 5th in apparel export with 4% share. Overall, India holds second position with 5% share in global exports. India's textile and apparel exports were US\$ 37 billion in 2017-18 which have grown at 6% compound annual growth rate (CAGR) since 2005.

The unique feature of India's textile industry is that it has the presence of entire value chain from production of cotton and manmade fibre to fabrics, apparels and fashion. Over the years, Indian T&C industry has seen considerable improvements in manufacturing processes with increasing use of technology, however, still it is a labour intensive industry.

With the passage of time, textile have become much more than merely a basic requirement. Today, it is used in wide areas of human and industrial activities including medical, production, and logistics etc.

World is becoming more and more dynamic and consequently; production, distribution, and consumption functions are changing at a fast speed. Today, consumption function drives the production process and consumer behaviour is changing rapidly. The same has been experiencing by the textile industry. Today, markets including textile are facing demand for individually customized products. Customers do not like to buy standard products rather they prefer more personalized products and services. Some of the new driving trends of the textile are home textile, medial textile, technical textile etc. Production of all these modern textile segments require technology oriented production processes where Industry 4.0 is going to be a major player.

SWOT Analysis of Industry 4.0 in Indian Textile Industry

Strengths

- Presence of complete value chain thus adoption of Industry 4.0 is possible at various stages
- Existence of developed IT sector to build software etc.
- Increasing skilled workforce
- Govt. of support for technology up-gradation through TUFs scheme
- Presence of fast growing e-commerce sector

Weaknesses

- High dependence on imports for textile machineries and equipments required for Industry 4.0 (like robots etc.)
- Low R&D expenses and facilities to develop models of Industry 4.0
- Labour intensive nature of the India's T&C industry
- Small size T&C enterprises that increases cost of technology adoption
- Less proportion of technologically skilled workforce in total employment
- Workers, SMEs, industries, and national economies lacking the awareness and/or means to adapt to Industry 4.0

Opportunities

- Opportunity to strengthen manufacturing base and create technology based jobs
- Opportunity to produce new generation T&C products such as smart apparels, medical textile etc.
- Develop new lead markets for conventional as well as new innovative products
- Chance for MSMEs to increase their scale of production and increase their involvement in complete value chain
- Change in nature of jobs
- Increase in productivity and efficiency
- Growth in high-skilled and well- paid jobs
- Improved customer satisfaction through providing innovative products at low prices
- Helpful in reducing cost of production
- Production flexibility and control
- Possibility to increase share in world trade

Threats

- Cyber security, intellectual property, data privacy
- Indian T&C industry may lag behind from competing countries like China as their rate of technology adoption is much faster
- Vulnerability to and volatility of global value chains
- Loss of semi-skilled jobs
- Need to import Industry 4.0 skilled labour

CHALLENGES BEFORE INDIAN TEXTILE INDUSTRY REGARDING INDUSTRY 4.0

Textile is one of the highly labour intensive industries with a significant large value chain. Different stakeholders of this industry from farmers to manufacturers and traders as well as different segments from fibres to retailing have different requirements with respect to labour and technology. Some of the significant challenges before Indian textile industry in adopting Industry 4.0 are:

- It is perceived that with implementation of Industry 4.0 technology equipments such as robots may have an adverse impact on employment.
- The scale of production of Indian textile enterprises is small in size. Due to their small size, it is difficult for them to easily adopt Industry 4.0. Additionally, they are not having sufficient funds to procure these costly high end technologies.
- In contrast, scale of textile enterprises in countries like China, is comparatively large and they are in a better position to adopt Industry 4.0. This will further reduce competitiveness of Indian textile enterprises in the global market and Indian MSMEs will have to face a tough competition from them on both price and quality fronts.
- Majority of the Indian textile industry is unorganized, and their operational processes are not streamlined. Therefore, it will be difficult for them to adopt high end technology oriented operational processes equipped with Industry 4.0.

- Majority of the existing labour/staff in Indian textile industry is low skilled or semi-skilled. The textile enterprises do not have sufficient staff to handles operations run on Industry 4.0 technologies.
- There is a lack of sufficient information with Indian textile enterprises regarding various facets of Industry 4.0.
- Indian textile enterprises are dependent on imports for procuring textile and other technology equipments, which will further increase cost to Indian enterprises for adopting Industry 4.0.

CONCLUSION AND RECOMMENDATIONS

The whole world has received plenty of benefits from technological innovations over time, and manufacturing sector is one of the recipients. The latest incarnated Industry 4.0 seems to completely overturn manufacturing processes with fastest ever speed and efficiency. It is likely to improve enterprise productivity.

Currently, India is fast adopting Industry 4.0. Govt. targets to increase contribution of manufacturing in gross domestic product (GDP) to 25% by 2025, from current level of 16%. India's 'Digital India' and 'Make in India' programs greatly support smart manufacturing to face global competition. India's first smart factory is being set up at Bengaluru, which is powered by data exchange in manufacturing IoT. Similarly, other State Governments are also making their efforts to adopt Industry 4.0, for example, Andhra Pradesh aims to turn the state into an IoT hub by 2020.



It is universally accepted that Industry 4.0 is going to be the future of manufacturing and to remain globally competitive, enterprises have to adopt these modern high end technology oriented processes. In future, Indian textile industry will also have to review their production systems in light of the approaches relating to smart factories and Industry 4.0 to remain competitive in the global market. The new textile production systems should be flexible enough to take care of the varying and fast changing needs of the customers. The new smart factories should be intelligent enough to automatically take directions from the data generated and respond to new requirements.

Simultaneously, both the industry and the Government will have to consider the challenges as mentioned above as well as the likely job loss due to getting work done through robots. It is not possible to avoid the involvement of Industry 4.0, therefore, to receive maximum benefits of the new industry wave, India needs to prepare itself. Some of the major concerns towards this journey are cyber security, lack of required technical skilled workforce, inclusive availability of high speed internet, lack of sufficient funds to procure modern technology and machines etc.

The revival of manufacturing in the sector can be led by the consolidation of the unorganized manufacturing by bringing them under one umbrella. The sector is labor intensive and such reforms will lead to the generation of employment. Following are some of the recommendations for Indian textile industry to keep pace with new industrial processes equipped with Industry 4.0:

- There is a need to educate and train the existing staff to adopt smart manufacturing processes supported by Industry 4.0. Here, Textile Sector Skill Council can play an important role by identifying the skills gaps and arrange training programs pan India.

- There is need to build efficient infrastructure by the Government to support new mechanism of smart manufacturing such as high speed internet and technology networks, etc.
- There is a great opportunity for India to manufacture Industry 4.0 equipments at home under its various programs promoting industrial manufacturing.
- Indian textile enterprises need government support to adopt Industry 4.0. The existing Amended Technology Up-gradation Fund Scheme (ATUFS) can be broadened covering all segments of the industry. Further, the Government may consider to increase the outlay under this scheme to cover maximum number of enterprises.

There is a need for special attention for MSMEs as they are not in good position to procure Industry 4.0 equipments and its technologies due to their small size and lack of funds. The Government may consider offering special packages/incentives for small enterprises.

- The Government may plan to modernize Indian textile enterprises through public-private-partnership (PPP) model through studying technology and funds requirements to equip Indian textile enterprises with Industry 4.0. Then, the required funds can be arranged through PPP model.
- There will be a bigger role for textile research associations (such as ATIRA, BTRA, SITRA, and NITRA), textile export promotion councils (such as TEXPROCIL, AEPC, SRTEPC, WOOLTEXPRO, ISEPC, CEPC, EPCH, PDEXCIL, HEPC, and JPDEPC), and textile industry associations (such as CITI, SIMA, and TAI etc.) for helping Indian textile enterprises to walk along the new industrial wave. They can support Indian enterprises in identifying and implementing best practices of Industry 4.0 through a collaborated efforts with the Government.

In a nutshell, the world of manufacturing is experiencing a paradigm shift as industry 4.0's digital technologies are re-shaping what is possible. Textile 4.0 can appropriately address the needs of all the stakeholders through better flow of information across the value chain, increased efficiency, reduced lead times, higher productivity, improved quality levels, reduced cost and better service. Application of Industry 4.0 technologies will position India a global power in the textile world, however, to grab opportunities arising from Industry 4.0, India needs to prepare itself well in time through strengthening its existing capabilities along with developing new ones. All the stakeholders (the Government, enterprises, and the textile associations) need to work collaboratively to build sustainable production systems that will benefit all.



TEXTILE 4.0

EMERGENCE OF NEW ERA



Mr. Amir Sheikh
Senior Consultant, Gherzi India

Today, we are living in a whole new world with drastic change in the power structure. The internet, which brought connectivity and transparency to our lives, has largely been responsible for these power shifts – from brands to consumers.

We are also seeing how a vertical power structure has been diluted by a more horizontal force through social media. Twitter is one of the great examples. The power lies not with individuals but with social groups. They are now more vocal. They love to share stories, good and bad, about brands – putting pressure on the industry to match ever increasing demands of global netizens.

All these fast-changing trends are leading to the emergence new industrial revolution which is more connected, transparent and automated.

Industry 4.0

The rise of new digital industrial technology, known as Industry 4.0, is a transformation that makes it possible to gather and analyze data across machines, enabling faster, more flexible, and more efficient processes to produce higher-quality goods at reduced costs.

The evolution of manufacturing industry has its own history started in early 1700s leading to four distinct revolutions and continues to evolve:

The First Industrial Revolution took place in late 1700s with the invention of steam powered engines and machines tools, replacing manual work performed by

people and animal, which has drastically changed the movements of goods and people across the world.

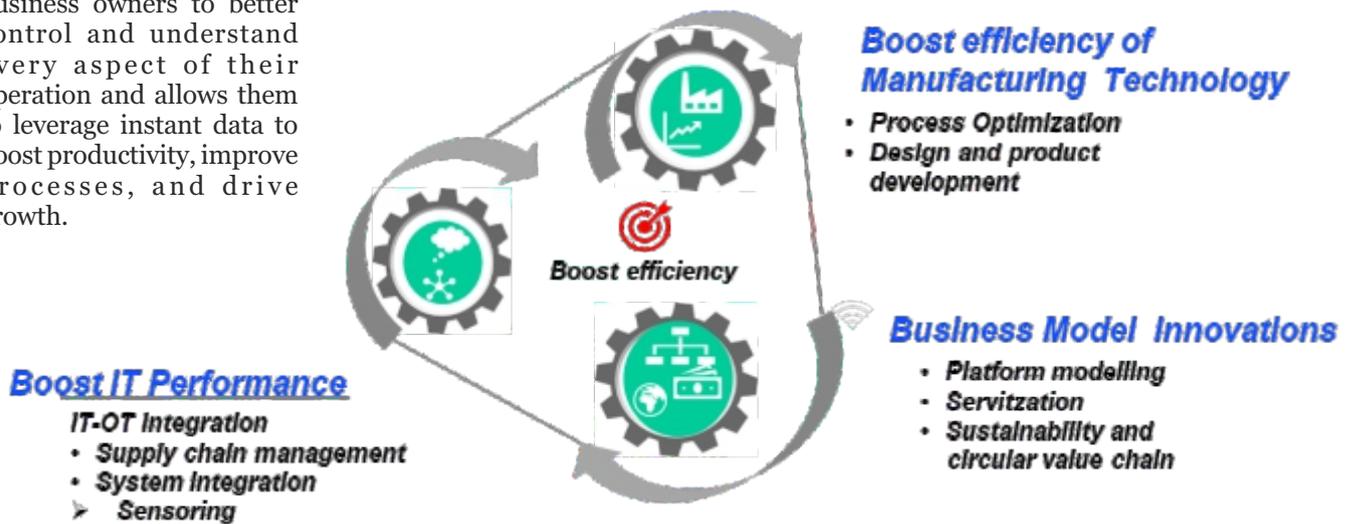
The Second Industrial Revolution happened in early 20th century with the use of electricity and steel in factories, enabling manufacturers to increase efficiency and productivity. This leads to the concept of mass production.

The Third Industrial Revolution slowly emerged in late 1950s as manufacturers began incorporating more electronic and eventually computer technology into their factories. During this period, manufacturers began experiencing a shift that put less emphasis on analog and mechanical technology and more on digital technology and automation software.

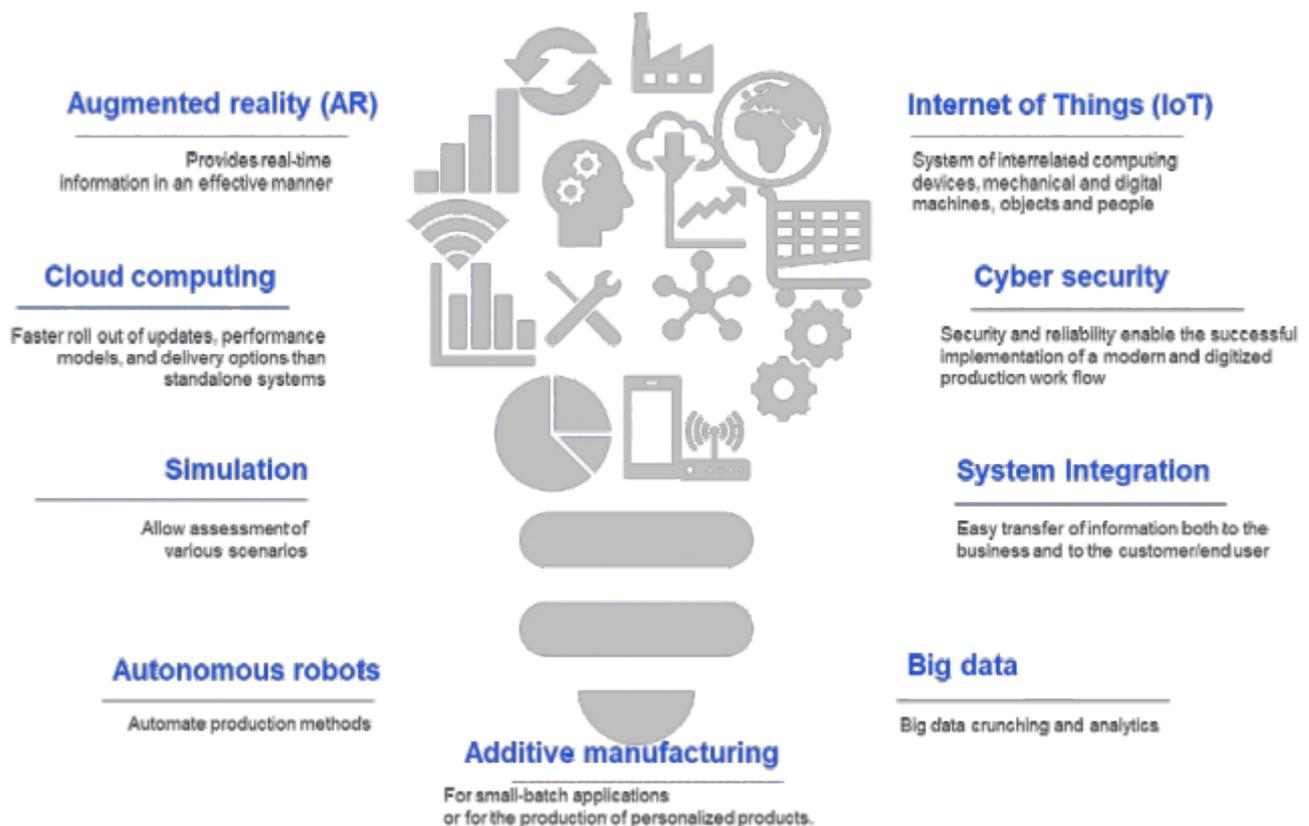
The Fourth Industrial Revolution, or Industry 4.0 has emerged in last few years with much emphasis on digital technology from recent decades to a whole new level with the help of interconnectivity through the Internet of Things (IoT), access to real-time data, and the introduction of cyber-physical systems.

Industry 4.0 offers a more comprehensive, interlinked, and holistic approach to manufacturing. It connects physical with digital, and allows for better collaboration and access across departments, partners, vendors, product, and people. This manufacturing revolution will increase productivity, shift economics, foster industrial growth, and modify the profile of the workforce - ultimately changing the competitiveness of companies and regions.

Industry 4.0 empowers business owners to better control and understand every aspect of their operation and allows them to leverage instant data to boost productivity, improve processes, and drive growth.



Advanced digital technology is already used in the manufacturing, but with Industry 4.0, it is transforming production, leading to greater efficiencies and change traditional production relationships among suppliers, producers, and customers as well as between human and machine. The technology trends which form the building blocks of Industry 4.0 are highlight in the below figure.



This applies to textile and apparel industry however the transformation is slow and predominantly in its infancy. Essential technologies, tools and methods for digital transformation of the textile and apparel industry are identified as: predictive data analytics; smart connected devices; implementation of robotics and automated machinery; smart sensor integration for capturing manufacturing data; and connected enterprise and production software. Used cases of these technologies in textile and apparel industry are highlighted in the following section.

Textile and Apparel Industry:

At US\$ 1500 billion of estimated annual revenue at retail level, the global textiles and clothing industry, would be ranked as the 11th largest economy in the world, had it been a country. With such massive scale, the emerging trends will impact the way business is done in textile and apparel industry, leading to new business models.

Ecommerce & changing retail scope

Internet commerce is having a huge impact on the retailing of clothes. Traditional brick and mortar stores are facing a tough challenge from their online rivals as fashion is becoming less important in physical stores due to changing lifestyles and consumer tastes. A host of new technologies ranging from robots to RFID are becoming an integral part of the retail landscape.

As a business model, Amazon has emerged as the largest retailer of apparel in the US. It accounted for 8 percent share of US apparel sales in 2016 forecast to expand to 16 percent. 7 percent of Inditex sales are estimated to be ordered online and predicted to reach 12 percent by 2020.

Mass customization

Customers and their needs are becoming increasingly diverse as they seek a fulfilling experience while shopping on or offline. Fashion industry has recognized this societal trend and is responding by highly innovative ways to attract the time-strapped millennial shopper. Modern retailers are providing highly curated offerings at low unit costs associated with mass production. Assorted examples of fashion brands and retailers which are practicing the new business model based on mass customization include US based Stitch Fix, Trunk Club, Adidas, startups like Suit Supply and True & Co, and Delhi based Pernia's Pop-Up Shop, etc.

Sustainability

In the 21st century, the sustainability movement is nudging fashion brands into adopting green strategies and using them as a competitive weapon. This is apparently in response to consumer concerns about environment and factory working conditions. Sustainability footprint overlaps the entire textile value chain starting with design and development till end of use.

Gherzi, Zurich based consulting firm serving the fashion industry since 1929, recently partnered with TU Chemnitz, Germany to establish the Sustainable Textile School to propagate sustainable fashion and capacity building for future textile practitioners.

The textile and apparel industry of the future is expected to be centered around more agile

manufacturing, complete with an evolved supply chain that meets consumer demands for sustainable, personalized and functional apparel. But how do we get there? And where do we find the industry in 2019, on its digital transformation journey?

Disruptive Technologies:

Intelligent technologies are increasingly accessible, new business models are emerging, and key players from other sectors are entering the market. With this digital transformation, manufacturers are seeking higher productivity, reduced labour costs and environmental sustainability, among other business improvements, catalysing the demand for a more automated and connected industry.

Several disruptive technologies are transforming the textile production chain. Trends in manufacturing are moving towards convergence of real and virtual worlds in order to enable rapid integration, feedback and control loops through disaggregated manufacturing supply chain. OEM's are responding to the trends.

Automation in spinning and weaving is already absorbed in the primary textile industry. Additive manufacturing and digital printing and finishing have also joined the mainstream. Sewing, considered the final frontier in automation, is also witnessing the incursion of robotic manufacturing. Ultrasonic seaming aka no-sew technology with bonded seams and stretch recovery, is being used in typical applications such as protective garments. This technique eliminates the need for needle, thread and adhesives.

Automated Sewing:

Two American technology startups SoftWear and Sewbo are on the verge of disrupting the sweatshop by autonomous garment production lines.

A US-based textile manufacturing, SoftWear Automation - based in Atlanta, Georgia, US has commercialized its first autonomous sewing line equipped with 21 production lines to produce 23 million T-Shirts for Adidas by a Chinese company in USA. A sports apparel vendor for Reebok and Adidas has reportedly placed a \$ 20 mn order for a garment factory with 330 robots from Sewbot (capacity 26 mn T shirts p.a.). Sewbo's technology will allow manufacturers to create basic garments at lower costs and shorten supply chains.

Recently it has announced SEWBOTS-as-a-Service, a rental lease offering that allows manufacturers, brands and retailers to source and manufacture in the US at a lower cost than outsourcing and with greater predictability and quality. While this will not be just Made in America, it will offer US textile manufacturing more control, greater margins, faster turnaround times and less inventory.

Digital & 3D Printing:

This is being aided by the fashion industry's shift towards multiple mini-seasons within one traditional season. The latest generation “Single-pass” digital textile printers enable high volumes to be produced at low running costs.

Rapid advances in additive manufacturing aka 3D printing are also changing the technology landscape. Adidas intends to use the 3-D printed soles to make trainers at two new highly automated factories in Germany and America. The 'factory of the future' will have a capacity of 500,000 pairs/year and deliver orders with a lead time of one week. Adidas uses Carbon's Digital Light Synthesis process which is 100 times faster than conventional polymer-based printers.

Artificial Intelligence & Big Data

Artificial Intelligence (Ai) and Big Data analytics are being extensively used across the textile value chain ranging from fabric inspection to cutting and analyzing consumer behavior patterns.

Threadsol, a budding technology start up founded in Singapore in 2013, pioneered the application of technology like Big Data, AI and Mobility for the global apparel industry to help garment firms save millions by reducing fabric wastage. It delivers operational benefits in cost, speed and compliance.

USTER acquired Elbit Vision Systems Ltd. (EVS), a world-leading high-technology supplier for automated vision inspection for textile fabrics and web. Equipped with automated, self-learning camera-based systems EVS's products are used to automatically locate, label and trace defects of fabric and web products, and ultimately to grade the quality and determine the value of the produced goods.

Karl Mayer set up a new company “Karl Mayer Digital Factory” with its main aim being “a fast and flexible development of new digital solutions, offering perceptible added value for the customers”. Artificial Intelligence (AI) and Big Data analytics are being extensively used across the textile value chain ranging from fabric inspection to cutting and analyzing consumer behavior patterns.

The Micro Factory

The Digital Textile Micro Factory, coordinated by DITF, showcases a “networked and integrated” production chain from design to finishing. This seamless digital and integrated process is a particularly important milestone for the fashion industry on the way to Industry 4.0. According to DITF, “Our new technology approach directly links virtual simulation with production and thereby points out the way to the future of manufacturing clothes. The Micro Factory saves time, reduces material consumption and increases the quality of design, especially with complex fabric designs”.



German Institutes of Textile and Fibre Research Denkendorf (DITF) form the largest textile research centre in Europe and worldwide since 1921. Gherzi Textil Organisation, Switzerland is forging a strategic alliance with DITF to showcase a production line (or module) serving as a prototypical factory for digital production (Industry 4.0).

From the foregoing, it is apparent that the stimulus for the Micro factory arises from an interplay of market dynamics such as re-shoring, fast fashion, mass customization and sustainability.

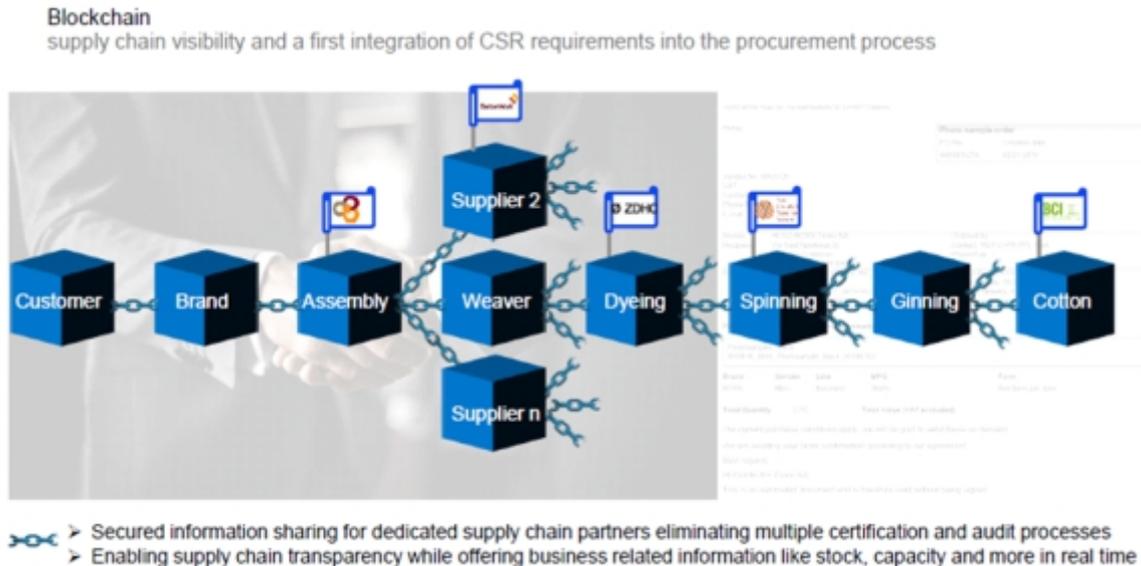
Digital Twin:

Digital twin is the convergence of the virtual world with the physical world, creating a near real-time digital image of a physical object or process. These virtual representations help organizations predict problems in advance and helps them strategise on its working. Incorporating concepts like Big Data, Artificial Intelligence (AI), Machine Learning (ML) and Internet of Things (IoT), digital twins are now explorative of Industry 4.0 or the digital world. Right from product development, these virtual copies give control over the product or process from the design phase to the deployment phase.

Gherzi in collaboration with a start-up is creating Digital Twin model for textile machine OEMs which will be help users in their learning and training process.



Blockchain Technology: Transparency in the Apparel Value Chain



Source: HUGO BOSS ©

Transparency in the supply chain is a persistent issue for the textile and apparel value chain which has relied partly on automation, but lately, it has started discovering possibilities of Industry 4.0 concepts – Blockchain. With a blockchain technology, end users, regulators and supply chain participants can drill down and obtain greater levels of detail on the origins, purity and authenticity of the product.

There are retailers who are using this technology to view each and every step of the production in a factory where they place orders. Provenance, a blockchain software company is helping fashion labels to get a grip on their raw materials. It collaborated with London-based designer Martine Jarlgaard to create the world's first tracked garment using blockchain. That whole journey was made available to consumers when they scanned the clothing label in store, allowing them to explore the history of a product and ensure the raw materials came from sustainable sources. Hugo Boss is another example who has adopted the blockchain technology to bring in transparency in its supply chain.

Industry 4.0 in Textile Industry: Textile 4.0

A digitally-integrated and intelligent value chain offers almost limitless possibilities in the future of real-time, circular and sustainable business models and economies. Industry 4.0 solutions improve operations efficiency, productivity, product quality, inventory Management, asset utilization, time to market, agility, workplace safety and environmental sustainability.

The increasing need for implementing Industry 4.0 is being driven by several factors including need for quick response in supply chain, changing demand dynamics, seamless communication and decision making, rising factor cost challenges, increasing sustainability etc.

Adoption of Textile 4.0 Technologies

Adoption of Industry 4.0 Tools and Technologies in Textiles would result in increased efficiency, reduced lead time, improved production quality and giving best price to the buyers thereby impacting the Global Textile Landscape. Manufacturers moving ahead on Industry 4.0 journey will see the impact in the following areas of the value chain:

- **Shop Floor Management:** It is the shop floor where the impact of digitalization is most visible and prominent and is the main driving force behind the operational improvement.
- **Connected Enterprise:** Once the digital infrastructure is in place the shop floor must be connected to the rest of the organization creating a connected enterprise.
- **Smart Supply Chain:** Because of digitalization, supply chains of today are transforming into interconnected, dynamic systems that are agile, efficient and customer focused. Smart supply chains enabled by technologies such as IOT, RFID, AI, ML, Deep Learning, AR/VR/MR, blockchain integrate information from multiple sources and diminish the gap between manufacturing and customer ecosystems.

The success of any integrated solution lies in the collaboration between the different segments of the industry including the OEMs, end users, service organizations, consultants etc. While various organizations have accepted IOT with open arms the level of adoption, in different industries and businesses are different as highlighted below:

1. **Basic Level:** A minimal level of automation with focus on data capturing which may not be utilized further to trigger any automated action.
 2. **Automation Level:** The information received in the above level has been sift out for interpretation. Based on the results, business processes are executed.
 3. **Business Innovation Level:** Organizations are able to take their business to the next level by integrating IOT in their products or offerings. This often requires cooperation and planning among different people and organizations that have an interest in the data and the intelligence coming from it, for example product manufacturers, retailers and their suppliers.
 4. **Anytime Anywhere Level:** Organizations make cloud computing an enabler of the IOT. Here, data and services reside in a massively scalable cloud and can be assessed easily from any connected device over the internet.
- **These are the IOT Adoption stages from “Nowhere” to “Anytime Anywhere”.**
 - **It's important to know “where are we” and “where we would like to be”**

New business model

To be successful, the contemporary textile industry requires the espousal of an integrated, systems approach to harmonize several dynamics encompassing resources, design, production, distribution and consumption to be sustainable. The industry will have to invest in the human capital to impart digital literacy to the workforce. The future textile industry should be based on transparency and consider the interests of all stakeholders.

Steps towards Digitalization



Expand your tech ecosystem - Digitalize your supply chain to achieve enterprise wide transparency

Invest in solutions that give you flexibility and agility – Invest in solutions that are modular and scalable, so you can adapt easily to change

Educate your staff – Your staff needs to know how to manage new assets. They can upgrade their skills through training sessions led by industry and tech experts

Keep an open mind – The technology industry is constantly evolving, and companies should choose solutions that best fit their needs.



CITI-CDRA's ENDEAVOURS TO GIVE IMPETUS TO PRODUCTION OF EXTRA LONG STAPLE COTTON



Mr. P.D. Patodia

Convenor, CITI Sub Committee on CDRA,
Past Chairman, CITI

Introduction:-

The Confederation of Indian Textile Industry's Cotton Development and Research Association (CITI-CDRA) encouraged by its success in implementing Cotton Collaborative Project during the past decade in Rajasthan contributing to improvement in cotton yield and production from 415 kg of lint/ha and 9 lakhs bales in 2007-08 respectively to 692 kgs of lint and 22 lakhs bales in 2017-18 respectively, decided to take up cotton project in Public Private Partnership mode, in Ratlam, Dhar & Jhabua Districts of M.P. for enhancing production and improving quality of ELS cotton in those tribal Districts, having regard to the following:-

- (I) Against the Textiles industry's requirement of about 10 lakh bales of ELS cotton per annum, local production is around 5 lakh bales;
- (II) The short fall of about 5 lakh bales is met by imports, mostly from USA (Pima), Egypt (Giza), some quantities of CIS and Sudan Cotton, at very high prices.
- (III) The quality of ELS cotton produced in the country suffers from low micronnre and lower strength beside high trash content.
- (IV) Requirement of ELS cotton is likely to grow substantially in the country due to growing demand for finer high value texliles both for domestic and export market.

Meeting with the State Govt. of Madhya Pradesh:-

Having regard to the above situation, the CITI-CDRA took up the matter with the State Govt. of Madhya Pradesh. The state govt. convened a meeting on 30.05.2018 to consider the CITI-CDRA's proposal for taking up cotton collaborative project for promoting ELS Cotton in Ratlam, Dhar & Jhabua Districts of M.P. and also to understand the functioning of the CITI-CDRA's Cotton projects in Rajasthan. Dr.Rajesh Rajora, Principal Secretary to Govt. of M.P., Department of Farmer Welfare and Agriculture Development presided over the meeting in which Director of Agriculuture, Vice- Chancellor, M.R.V.R.S. Agriculture University, Gwalior, KVKs Scientists and

Officers from State Scretariat, Dy. Director of Agriculture from the concerned districts, the CITI-CDRA team comprising of Shri.P.D.Patodia, Suresh Kotak, Shri.S.A.Ghorpade & Dr. R.S.Tripathi and Shri. Akhilesh Rathi, Chairman, M.P.Textles Mill Association participated. The CITI-CDRA team made a presentation on the turnaround in cotton production & yield in Rajasthan consequent upon the implementation the CITI-CDRA Cotton Collaborative Project during the past decade and the proposal plan to develop the above districts as integrated zone for give impetus to production & improvement of quality of ELS cotton. The State Govt. appreciated the CITI-CDRA's proposed plan and it allowed the CITI-CDRA to implement its proposal from 2018-19 onwards.

Infrastructure for implementing the Project:-

The CITI-CDRA, Bayer Crop Science and M.P. Textiles Mills Association finacially supported the infrastructure created in following a clusters for implementing the project:-

Sr.No.	Districts	Name of Clusters
01	Ratlam	1. Ratlam 2.Sailana 3. Bajna (I) & 4.Bajna(II)
02	Jhabua	1. Jhabua 2. Petlawad 3.Ranapur Rama and 4. Thandla
03	Dhar	1.Sardarpur

Project Area:-

The project is being implemented in 1423 Villages from the above three districts covering about 62500 hectares under cultivation of ELS Cotton, involving about 55735 cotton farmers as under.

Districts	No. of Cluster	No.of Villages	Area(ha)	No. of Farmers (Approximate)
Ratlam	04	658	27500	30835
Jhabua	04	576	31000	22700
Dhar	01	190	4000	2200
Total	09	1423	62500	55735

Front Line Demonstration Programmes:-

As the part of its cotton development activities, the CITI-CDRA laid out 62 FLDs on farmers' field 20 FLDs in Ratlam District and 42 FLDs in Jhabua Districts seeds of SP-904, Bt BG-II hybrid of ELS cotton was made available by Bayer Crop Science. All the Demonstrations have performed well and this BT Hybrid was found suitable for agroclimatic conditions of these districts.

Adoptive Trials on Farmers Fields:-

Apart from the above FLDs, the CITI-CDRA also took up 160 trials of various BT hybrids/varieties of ELS and LS cotton, the seeds of which were made available by SIMA-CDRA to access their suitability for agroclimatic conditions of the Ratlam & Jhabua districts as under.

District	SHB-III BT (ELS)	Mhashakti (ELS)	Shakti (LS)	SHT-I (LS)	Total
Ratlam	20	20	-	-	40
Jhabua	20	34	41	25	120
Total	40	54	41	25	160

Mass Awareness Programme:-

The CITI-CDRA in close coordination with Scientists from KVKs, Bayer Crop Science & Officers from Agriculture Department at various levels organised periodical training programmes for project farmers for the dissemination of latest technical knowledge on production, plant protection & nutrient management technologies among them.



Farmers participating in the training camp at Gaddi Kala Village, Bajna Cluster Banswara District.

Visit of CITI-CDRA team to project areas:-

The team of CITI Sub-Committee on CDRA, comprising of its convenor, Shri.P.D.Patodia, its advisor, Shri.Suresh Kotak and its Co-Convenor Shri.Prashant Mohota along with Shri.S.A.Ghorpade Advisor, CIT-CDRA paid a visit to project areas of M.P. with a view to get first hand feel of the ongoing project

activities through the interface with cotton farmers, officers of agriculture department & KVKs scientist from the districts. Besides, it also aimed at creating awareness among other Stake holders like input suppliers, cotton traders, G & P factories, etc regarding project activities & enlisting their support under the aegis of Ratlam Chamber of Commerce & Industry.

Interaction with project Farmers:-

During the interaction with project farmers at various places in these districts, farmers expressed their happiness and satisfaction about the overall cotton crop position and performance of cotton crop in FLD plots. It was revealed that the training imparted to them benefited in understanding latest production and plant protection technologies, encouraging them to adopt these technologies, various measures to reduce cost of cultivation, reducing dependence on chemical pesticides and instead to use bio pesticides. Satisfied with the performance of SP-904, SHB-III & Mahashakti seeds supplied under FLD programme the farmers' desire that institutional arrangement to supply the seeds next season may be made. Dr.Asha Rani, Scientist from SIMA-CDRA assured the project farmers to make some institutional arrangement for supply of the seeds. To redress the farmers' grievance in respect of kapas rates, they were better rates advised to set up Self Help Groups for starting collection centers in their locality/ villages where the Ginners/Mill buyers could directly purchase pooled kapas from such centers.

Interaction with trade, commerce & industry:-

Interaction with the representatives of trade, commerce & industry at Ratlam was helpful in understanding issues involved in ELS cotton cultivation and its marketing in these districts. The trade representatives estimated cotton crop at 3.11 lakh bales in these districts out of which about 80% was expected to be of ELS cotton. The representative of Ginning & Pressing factories from Ratlam & Jhabua districts favourably responded to the suggestion of preferring at least 200 bales each with least contamination and trash. The representatives assured support to the project in the districts for increasing production of ELS cotton.

Fiber properties of some of the leading ELS Hybrids/BT-Hybrids grown in project areas:-

The representative samples of leading ELS hybrids/ Bt-hybrids like VishwaKranti, Sainath, Kashinath, Adinath, DCH-32, Mahadev etc grown in the project areas along with SHB-III, Mahashakti, SP-904 grown in FLD/ Adoptive trials were got tested in CIRCOT, Mumbai and the results were as under:-

Sr. No.	District (Cluster)	Variety	2.5% SL mm	UR %	MIC ug/ inch	Tenacity g/tex	Ginning %
1	Ratlam	Kavita Gold	36.5	52	3.0	30.8	31.00
2	Ratlam	VishwaKranti	36.4	50	3.4	28.3	33.77
3	Ratlam	Sainath	37.5	51	3.2	30.3	31.83
4	Ratlam	Kashinath	38.1	54	3.1	31.2	30.23
5	Ratlam	Adinath	37.2	53	3.3	28.5	33.13
6	Ratlam	Mahashakti	33.2	49	3.5	24.1	32.87
7	Ratlam	SHB-III	36.3	50	3.3	26.9	32.40
8	Ratlam	Savariya	36.9	48	3.0	26.8	29.40
9	Ratlam	Mahadev US-4	37.6	53	3.4	30.2	26.37
10	Ratlam	DCH-32	35.0	53	3.5	25.1	34.40
11	Ratlam	SHB-III	37.6	47	2.8	28.6	27.43
12	Jhabua	KCHH-1049 DCH-32	34.7	49	3.4	27.2	30.50
13	Jhabua	Vardhman BG-II	37.6	50	3.4	29.3	25.97
14	Jhabua	SP-904 BG-II	39.1	52	3.0	31.7	26.87
15	Jhabua	Nava Bharat-II BG-II	35.6	52	3.2	27.4	29.83
16	Jhabua	Virat BG-II DCH-32	33.9	47	3.2	25.9	31.93
17	Dhar	Bhumi BG-II	37.8	53	3.3	32.1	30.47
18	Dhar	Kashikar Gold BG-II	35.3	48	3.0	22.7	30.17
19	Dhar	Tulsi DCH-32	38.5	52	3.1	26.3	30.27
20	Dhar	DCH-32 BG-II	35.3	50	3.5	19.2	30.33
21	Dhar	Shrinath DCH-32	36.9	53	3.6	21.9	28.10
22	Dhar	Kavishkar BG-II	35.2	50	3.2	19.8	31.30

Prospects of Increasing Cotton Production of ELS Cotton Many-fold in the Districts:-

The CITI-CDRA team after its wide spread interaction with various cotton interests in these districts is convinced that with their involvement and support to project activities, there is ample possibility for increasing ELS production many-fold. In fact, with that end in view, CITI-CDRA contemplates to continue FLDs programme on a large scale in the years to come and to take up experiment like promoting "One Variety One Village" concept for concentrated attention on avoiding admixture of varieties.

TEXTILE TRADE PROMOTION MEETING

between officials of
 "National Sectoral Partnership in Textile Industry of Ukraine"
 "Fashion Globus Ukraine"
 and
 "Confederation of Indian Textile Industry (CITI)"
 was held on 15th March 2019
 at CITI Office in New Delhi.



CITI PRESS RELEASES...

CITI WELCOMES THE NEW TEXTILE POLICY 2019 ANNOUNCED BY THE TAMIL NADU GOVERNMENT

New Delhi, Saturday, March 09, 2019: CITI welcomes the new Textile Policy 2019 announced by the Government of Tamil Nadu. Thiru. Edappadi Palanisamy, Hon'ble Chief Minister of Tamilnadu announced a comprehensive Textile Policy 2019 for the Tamil Nadu Textiles and Clothing Industry. The policy gives a slew of incentives for the new investments and also for modernising the existing spinning sector.

In the press release issued here today, Mr. T. Rajkumar, Chairman, Textile Sector Skill Council (TSC) and Deputy Chairman, Confederation of Indian Textile Industry (CITI) has welcomed the new policy and thanked the Government of Tamil Nadu for announcing a unique textile policy. Mr. T. Rajkumar has appreciated the Government for giving importance to the Technical Textile Sector, Skill Development, Textile Processing and Weaving Segments. He has also welcomed the incentives offered for the textile effluent treatment plants, mini textile park, up-skilling and infrastructure development.

Mr. T. Rajkumar also appreciated the Government for providing assistance to build workers' hostel. He stated that the unique textile policy would greatly help the state to further strengthen the competitiveness. He also stated that the new textile policy was a long overdue demand of the textile industry.

CITI HAILS REDUCTION IN HANK YARN OBLIGATION FROM 40% TO 30% AS HISTORICAL

New Delhi, Friday, 08 March 2019: Chairman CITI, Shri Sanjay Kumar Jain welcomes the Government's decision to reduce the Hank Yarn Obligation (HYO) from 40% to 30% of the total weaving yarn produced for domestic consumption. This step would remove the anomaly of excessive obligation of hank yarn and save the ailing spinning industry from the extra burden. He stated that this is an historical step, as the industry was facing this extra burden for more than a decade now. He specifically thanked the Hon'ble Union Minister of Textiles, Smt. Zubin Irani for this historic announcement.

Mr. Jain stated that HYO provision had compelled the textile mills to produce a minimum of 40% of the Weaving Yarn for domestic consumption as Hank Yarn, which was inhibiting the growth of the industry. The actual cotton hank yarn requirement by the handloom sector is less than 15% of the total as per the estimate based on the Handloom Census 2009-10 data. It is estimated that now the requirement for hank yarn would have fallen to about mere 10% of the total weaving yarn produced for domestic consumption. Mills were under severe stress to meet this obligation as there was not sufficient demand for hank yarn in the country.

Chairman-CITI further stated that he is very thankful to the Government for considering the long standing demand of the industry. This will help the spinners bring down the cost and improve their competitiveness, thereby enabling Ease of Doing Business for the entire cotton textile industry. Last time, this obligation was reduced was in 2003 from 50% to 40% and the industry had to wait for about 15 years for the next round of reduction despite actual requirement percentage reducing every year.

CITI HAILS THE SCHEME TO REBATE STATE AND CENTRAL EMBEDDED TAXES TO SUPPORT THE TEXTILE & CLOTHING INDUSTRY

New Delhi, 7 March 2019: Chairman CITI, Shri Sanjay Kumar Jain welcomed the Cabinet decision approving the Scheme to Rebate State and Central Embedded Taxes to Support the Textile Sector. CITI Chairman thanked the Union Cabinet chaired by Hon'ble Prime Minister, Shri Narendra Modi for approving the scheme as it will enable the Government to take various measures for making exports of apparel and made-ups free of any embedded Central and State levies.

Presently, apparel and made-ups segments are supported under the Scheme for Rebate of State Levies (RoSL). However, certain State as well as Central Taxes continued to be present in the cost of exports.

The Cabinet decision provides for a scheme to rebate all embedded State and Central Taxes/levies for apparel and made-ups which have a combined share of around 56% in India's textile export basket. Rebate of taxes /levies has been permitted through an IT-driven scrip system at notified rates.

The proposed measures will boost India's competitiveness in export markets and ensure equitable and inclusive growth of apparel and made-ups sector.

CITI Chairman pointed out that the new scheme only covers apparels and made-ups but does not cover other important sectors of fabric and cotton yarn. To ensure that no taxes are exported and to make Indian cotton yarn and fabric globally competitive, CITI request the Government to include cotton yarn and fabric in the new proposed scheme. It will not only help to boost cotton yarn and fabric exports but also increase the employment opportunities and inclusive growth in the entire textile value chain. It is estimated that there are many blocked/embedded taxes/levies/ surcharges of about 6-7% for spun yarn and fabric sector which are not reimbursed and adding to the cost of exports.

CITI Chairman pointed out that India's cotton yarn and fabric exports are also struggling because of the duty disadvantage faced by the Indian exporters in the major markets. CITI analysis reveals that there has been a continuous decline in exports of cotton yarn and fabric from 2013-14 to 2017-18. India's exports of cotton yarn declined by 25% from US\$ 4,570 mn in 2013-14 to US\$ 3,443 mn in 2017-18. In the same period fabric exports declined by 7% from US\$ 4,941 mn to US\$ 4,598 mn.

EXPORTS

India's Textile and Apparel Exports (In US Million)

Description	Jan'18	Jan'19	% change	Apr'17- Jan'18	Apr'18- Jan'19	% Change	% share of total Apr'17- Jan'18	% share of total Apr'18- Jan'19
Textiles and Made-ups								
Cotton								
COTTON RAW INCLD. WASTE	295	217	-27%	1338	1721	29%	4%	5%
COTTON YARN	276	278	1%	2746	3256	19%	9%	10%
COTTON FABRICS, MADEUPS ETC.	469	498	6%	4499	4898	9%	15%	16%
	1,040	993	-5%	8,583	9,875	15%	28%	31%
Jute								
JUTE, RAW	2	0	-82%	12	9	-25%	0%	0%
JUTE YARN	2	1	-30%	17	13	-22%	0%	0%
JUTE HESSIAN	11	9	-14%	121	96	-20%	0%	0%
OTHER JUTE MANUFACTURES	11	10	-10%	109	126	16%	0%	0%
FLOOR CVRNG OF JUTE	4	5	9%	38	43	14%	0%	0%
	30	26	-14%	297	288	-3%	1%	1%
Silk								
SILK,RAW	-	-					0%	0%
SILK WASTE	1	2	62%	12	16	35%	0%	0%
NATRL SILK YARN,FABRICS,MADEUP	4	5	25%	45	49	9%	0%	0%
SILK CARPET	0	1		2	14	751%	0%	0%
	5	7	44%	58	78	35%	0%	0%
Wool								
WOOL, RAW	0	0		0	1	133%	0%	0%
WOLLEN YARN,FABRICS,MADEUPSETC	15	19	21%	147	175	19%	0%	1%
	16	19	21%	148	176	19%	0%	1%
Manmade								
MANMADE STAPLE FIBRE	39	45	14%	496	476	-4%	2%	2%
MANMADE YARN,FABRICS,MADEUPS	404	420	4%	3960	4126	4%	13%	13%
	443	465	5%	4,456	4,602	3%	14%	15%
Others								
CARPET(EXCL. SILK) HANDMADE	111	124	12%	1188	1230	4%	4%	4%
COIR AND COIR MANUFACTURES	26	32	20%	264	254	-4%	1%	1%
HANDCRFS(EXCL.HANDMADE CRPTS)	139	162	17%	1481	1512	2%	5%	5%
HANDLOOM PRODUCTS	29	29	-0.03%	302	283	-6%	1%	1%
OTH TXTL YRN, FBRC MDUP ARTCL	35	40	16%	337	378	12%	1%	1%
	340	388	14%	3,573	3,657	2.3%	12%	12%
Total Textiles and Made-ups	1,875	1,897	1%	17,114	18,676	9%	55%	59%
Apparel								
RMG COTTON INCL ACCESSORIES	805	855	6%	6920	6914	-0.09%	22%	22%
RMG MANMADE FIBRES	336	356	6%	3976	3047	-23%	13%	10%
RMG OF OTHR TEXTLE MATRL	235	290	23%	2617	2612	-0.19%	8%	8%
RMG SILK	10	16	53%	117	132	14%	0%	0%
RMG WOOL	10	10	3%	145	171	18%	0%	1%
Total Apparel	1,397	1,527	9%	13,774	12,877	-7%	45%	41%
Grand Total	3,272	3,424	5%	30,889	31,553	2%	100%	100%

Data Source: CITI Analysis based on DGCI&S, As extracted on 14th March 2019

All figures are rounded off

IMPORTS

India's Textile and Apparel Imports (In US\$ Million)

Description	Jan'18	Jan'19	% change	Apr'17- Jan'18	Apr'18- Jan'19	% Change	% share of total Apr'17- Jan'18	% share of total Apr'18- Jan'19
Textiles and Made-ups								
Cotton								
COTTON RAW INCLD. WASTE	31	34	7%	883	541	-39%	14%	8%
COTTON YARN	3	1	-59%	28	18	-36%	0%	0%
COTTON FABRICS, MADEUPS ETC.	38	44	16%	400	422	6%	6%	7%
	73	79	9%	1,311	981	-25%	21%	15%
Jute								
JUTE, RAW	3	3	15%	36	29	-19%	1%	0%
JUTE YARN	5	4	-14%	40	35	-13%	1%	1%
JUTE HESSIAN	2	3	36%	15	20	32%	0%	0%
OTHER JUTE MANUFACTURES	8	7	-9%	53	52	-1%	1%	1%
FLOOR CVRNG OF JUTE	0	0	13981%	1	1	12%	0%	0%
	18	18	1%	145	138	-5%	2%	2%
Silk								
SILK,RAW	13	15	10%	164	128	-22%	3%	2%
SILK WASTE	0	0	-69%	2	2	44%	0%	0%
NATRL SILK YARN,FABRICS,MADEUP	7	4	-43%	52	42	-19%	1%	1%
SILK CARPET	0	0	0%	0	0		0%	0%
	20.9	19.0	-9%	216.9	172.4	-21%	4%	3%
Wool								
WOOL, RAW	22	21	-4%	255	278	9%	4%	4%
WOLLEN YARN,FABRICS,MADEUPSETC	8	11	34%	65	98	50%	1%	2%
	30	32	6%	321	376	17%	5%	6%
Manmade								
MANMADE STAPLE FIBRE	30	39	30%	302	395	31%	5%	6%
MANMADE YARN,FABRICS,MADEUPS	171	194	13%	1569	1859	19%	25%	29%
	201	233	16%	1,871	2,254	20%	30%	35%
Others								
CARPET(EXCL. SILK) HANDMADE	8	10	26%	76	86	14%	1%	1%
COIR AND COIR MANUFACTURES	1	0	-68%	7	3	-48%	0%	0%
HANDCRFS(EXCL.HANDMADE CRPTS)	180	70	-61%	792	663	-16%	13%	10%
HANDLOOM PRODUCTS	1	1	-12%	8	13	57%	0%	0%
OTH TXTL YRN, FBRC MDUP ARTCL	79	82	4%	809	779	-4%	13%	12%
	269	163	-40%	1,692	1,545	-9%	27%	24%
Total Textiles and Made-ups	612	544	-11%	5,557	5,467	-2%	90%	85%
Apparel								
RMG COTTON INCL ACCESSORIES	35	56	58%	270	458	70%	4%	7%
RMG MANMADE FIBRES	19	25	31%	193	277	43%	3%	4%
RMG OF OTHR TEXTLE MATRL	16	19	16%	140	175	25%	2%	3%
RMG SILK	0	0	0%	4	9	104%	0%	0%
RMG WOOL	1	2	82%	12	14	23%	0%	0%
	72	101	42%	619	933	51%	10%	15%
Total Apparel	72	101	42%	619	933	51%	10%	15%
Grand Total	683	645	-6%	6,175	6,399	4%	100%	100%

Data Source: CITI Analysis based on DGCI&S, As extracted on 14th March 2019

Percentage change figures are rounded off

All figures are rounded off

MONTHLY EXPORT UPDATE ON TEXTILE AND CLOTHING (FEBRUARY 2019)

- Exports data in US\$ reflects that there is a decline in exports of all textile products except the category of Cotton Yarn/Fabs./made-ups, Handloom Products etc. in February 2019 as compared to February 2018. This is in sync with decline in production (IIP) of textiles.
- Exports of apparels have registered a positive growth YoY in February 2019 which shows a positive correlation with increase in IIP of apparels.
- India's textile and clothing exports were up by 3% from US\$ **2992** mn. in February 2018 to US\$ **3,094** mn. in February 2019. However, all commodity exports of India were up by 2% in February 2019 over the same month of previous year. Also, the share of textile and clothing in India's total exports were up by 1% in February 2019 on YoY basis.
- Cumulative textile and clothing exports during April'18- February 2019 was to the tune of USD **32,418** mn. as against USD **32,062** mn. during April'17 – February 2018 indicating an increase of 1%. During April'18 - February' 2019 textile exports (YoY) were up by 7% while apparel declined by -5%.
- During April'18 – February 2019, the exports of two T&A subsectors have registered negative growth as compared to April'17–January 2018:
 - Apparel by **-5%**
 - Jute Mfg. including Floor Covering by **-3%**
- While export of other subsectors have increased:
 - Cotton Yarn/fabric/made-ups, Handloom Products etc by 10%
 - Man-made Yarn/fabric/made-ups etc. by 4%
 - Handicrafts excl. handmade carpet by 2 %
 - Carpets by 4%

Monthly Export Updates of Textile and Clothing (Value in USD Mn.)

Export category	Feb-18	Feb-19	% Change	Cumulative (Apr'17-Feb' 2018)	Cumulative (Apr'18-Feb' 2019)	% Change
<i>Cotton Yarn/Fabs./made-ups, Handloom Products etc.</i>	858	877	2%	9,237	10,161	10%
<i>Man-made Yarn/Fabs./made-ups etc.</i>	398	388	-2%	4,358	4,512	4%
<i>Jute Mfg. including Floor Covering</i>	26	23	-10%	310	302	-3%
<i>Carpet</i>	114	111	-3%	1,304	1,355	4%
<i>Handicrafts excl. handmade carpet</i>	156	151	-3%	1,637	1,667	2%
Sub-Total Textiles	1,551	1,550	0%	16,847	17,997	7%
Apparel	1,441	1,544	7%	15,215	14,422	-5%
Textile and Clothing	2,992	3,094	3%	32,062	32,418	1%
All Commodity	26,033	26,668	2%	2,74,210	2,98,472	9%
% of T&C in Total Exports	11%	12%		12%	11%	

MONTHLY EXPORT UPDATE ON TEXTILE AND CLOTHING (FEBRUARY 2019)

- Exports data in INR reflects that there is an increase in exports of all textile products except the category of Jute Mfg. including Floor Covering in February 2019 YoY. This is negatively correlated with decline in IIP of textiles. This increase in exports is due to appreciation of INR against USD in past one year.
- India's textile and clothing exports were up by 14% from Rs. **19263 crore** in February 2018 to Rs. **22038 crore** in February 2019. However, all commodity exports of India were up by 13% in February 2019 over the same month of previous year. Also, the share of textile and clothing in India's total exports were up by 1% in February 2019 on YoY basis.
- Cumulative textile and clothing exports during April'18- February 2019 was to the tune of Rs. **226660 Crore** as against Rs. **206434 Crore** during April'17 – February 2018 indicating an increase of 10%. During the April'18 - February 2019, textile exports were up by 16% while apparel were up by 3%
- During April'18 – February 2019, the exports of T&A subsectors have registered positive growth as compared to April'17–February 2018:
 - Jute Mfg. including Floor Covering by 6%
 - Cotton Yarn/fabric/made-ups, Handloom Products etc by 19%
 - Man-made Yarn/fabric/made-ups etc. by 12%
 - Handicrafts excl. handmade carpet by 11%
 - Carpets by 13%
 - Apparel by 3%

Monthly Export Updates of Textile and Clothing (Value in USD Mn.)

Export category	Feb-18	Feb-19	% Change	Cumulative (Apr'17-Feb' 2018)	Cumulative (Apr'18-Feb' 2019)	% Change
<i>Cotton Yarn/Fabs./made-ups, Handloom Products etc.</i>	5522	6247	13%	59490	71051	19%
<i>Man-made Yarn/Fabs./made-ups etc.</i>	2560	2764	8%	28060	31565	12%
<i>Jute Mfg. including Floor Covering</i>	166	164	-1%	1997	2112	6%
<i>Carpet</i>	735	789	7%	8398	9490	13%
<i>Handicrafts excl. handmade carpet</i>	1004	1075	7%	10544	11668	11%
Sub-Total Textiles	9987	11039	11%	108489	125886	16%
Apparel	9276	10999	19%	97945	100774	3%
Textile and Clothing	19263	22038	14%	206434	226660	10%
All Commodity	167584	189931	13%	1765895	2088290	18%
% of T&C in Total Exports	11%	12%		12%	11%	

Source: DGCI&S

QUICK ESTIMATES OF IIP FOR TEXTILE AND CLOTHING SECTOR (T&C): JANUARY 2019



T&C in Index of Industrial Production (IIP): Growth Rates (% , Y-o-Y)

Sector	January-18	January-19	April - January 2019
Textiles	1.95	-2.2	1.5
Wearing apparel	-12.79	16.4	11.1
T&C Sector*	-3.29	3.72	4.48

Source: CITI analysis based on Ministry of Statistics Planning & Implementation data

- The General Index for the month of January 2019 is **1.7** percent higher as compared to the level in the month of January 2018. The cumulative growth for the period April-January 2018-19 over the corresponding period of the previous year stands at **4.4** percent.
- Textiles (excluding apparels) were down by (-) **2.2** percent, Wearing Apparel was up by (+) **16.4** percent in January 2019 over the same month previous year.
- Cumulative change for April- January 2018-19 for textiles was up by (+) **1.5** percent and wearing apparel was up by (+) **11.1** percent over the same period previous year.
- Textile and clothing industry, as a whole, was up by **3.72** percent in January 2019 over the same month previous year while it is up by **4.48** percent during cumulative period April-January 2018-19 over the same period previous year.



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Reimbursement of Worker's Training Cost

IS YOUR TEXTILE MILL AFFILIATED TO TEXTILE SECTOR SKILL COUNCIL (TSC)

to get reimbursement of worker's training cost from state or central government skill development schemes

- Affiliated mills are entitled for reimbursement of Rs 15,096/- per trainee from the skill development schemes.
- Affiliated mills are also entitled to get Rs 1,700/- per worker to get their existing worker's skills certified (Recognition of Prior Learning, RPL).
- In addition, they would be eligible to participate in recently launched National Apprenticeships Promotion Scheme (NAPS). The scheme finances up to Rs 1,500/- towards stipend per month per apprentice for maximum one year. The maximum number of apprentices a mill can employ is 10% of total strength (including contract workers).

Till date, more than 350 textile mills are affiliated to TSC and availed benefits from the schemes.
For further details please visit www.texskill.in or write to info@texskill.in.



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