

Session II - Part 2

4th February 2016

The title for this Session was “Intelligent Factory and Smart Supply Chain”

This Session was chaired by Mr Ricardo Guerra Sanchez from CIATEC, Mexico and Dr Bhabendra Nath Das from CSIR-CLRI, India

- The **First Speaker** in this Session was **Mr Prerak Mittal from Footwear Design and Development Institute (FDDI), India** and he spoke on “**Necessity of Services in the Footwear Sector**”



Shri Prerak Mittal stated that one of the essential needs of the Human life is a proper shoe and that a person is known by the shoe he/she wears. He added that in India the footwear industry had shown an average growth of 8.22% over the last five years and that this industry had invested significant efforts in improving the material efficiency and quality of footwear that it produced but said that no efforts had been directed towards the repairing and after sales service of shoes. He stated that this had resulted on the consumers being solely reliant on 'Cobblers' for repair of their footwear.

He presented therefore his research on the highly unorganized footwear services sector which aimed to introduce the repair, cleaning and customization of footwear services in an organized manner to the consumer. He added that in the present scenario there were no such provisions or services and stated that his research would benefit the footwear industry to tap the opportunities in the organized sector for footwear services. He further stated that his research posed interesting implications for the entrepreneurs who wanted to work in the footwear services sector and would ultimately also benefit the end consumers as they would receive quality services for their footwear and concluded that this work would benefit the unorganized footwear workforce at large.

Most of the footwear companies are product or industry driven, Shri Mittal said and added that they need to understand the current and future requirements of the market. He opined that providing

services are definitely looking forward and futuristic which will create its own 'niche' in the footwear industry. He stated that it was imperative to understand your Consumer as they are vigilant and are continuously looking beyond prices and offers and added that there was a huge gap between demand and supply of quality services (Cleaning, polishing, repairs, restorations and personalization) in footwear sector.

Shri Mittal stated that Cleaning and polishing services were always on the top list of consumers as no matter what is the price or quality of the footwear, it would require cleaning and polishing after use. He said that Worldwide large number of footwear were dumped without real use because of minor repairs and added that Consumers were also keen to restore their ages old beloved pair of footwear. He said that to counter this supply gap Footwear brands and stores (Online & offline) needed to take care of services on their own like mobile handset brands provide. He added that the services could be at their own service centre or through their chain of service centers and added there could also be an Online provision of services where consumers could send their shoes via courier or with pickup and drop facility from the servicing factory like pasqualeshoerepair.com or shoecareclinic.com

Speaking of the Challenges of providing services in footwear sector, Shri Mittal said that the Quality of services should satisfy the consumer's needs and expectations as well and added that this meant quality value added services for the consumers.

Shri Mittal stated that the inclusion of services would benefit the footwear manufacturer as it would instill a sense of Brand Loyalty and Consumers would see inclusion of services along with product as a solution to their problem. Brand reliability and loyalty would leap high and make the early mover a prominent player in industry, he opined.

- The **Second Speaker** in this Session was **Mr Klaus Freese from Kloeckner Desma Schuhmaschinen GmbH, Germany** and he spoke on **"Shoes Produced by Smart Robots"**



Mr Klaus Freese stated that the future would be made by networked machines around the globe, robots and humans side by side, single pair production at the cost of mass production, shoe rack, which places its order itself, personalization of the buyer in the shop for individual shoes (Personalization). He added that most aims exist theoretically, but some approaches have been already practiced and with the fourth industrial revolution "Industry 4.0" new paths have been trodden

in the footwear manufacturing, he said. He presented the technological achievements and the way to the future and spoke about two types of footwear production categories regarding placement of uppers onto soles namely 1. Traditional production with the manual setting of pre-made soles and a labor-intensive adhesive bond (CP = cementing process) and 2. Highly automated direct soling technology (DIP = direct injection process) and added that in both categories, automation was progressing. Describing the process, he said that the 'Lasts' were detected by means of RFID chips and uppers were scanned by barcode and that both were specified on the desired product by computer control. The accuracy of fitting and processing characteristics of the shoe uppers on the shoe lasts was registered by means of optical detection, he continued and stated that this formed the basis for quality assurance. Mr Freese added that Shoe uppers and shoe lasts passed through fully- automated production lines or production cells and that the processing steps such as roughing or adhesive spraying were applied by 6-axis robot. He informed that these robots worked quickly and accurately and stated that the required robot programs for individual processing of each shoe upper were digitized and transmitted automatically. He opined that Users were fully in agreement that Automation was the future.

Mr Freese said that Automation resulted in Improvement in quality as the Robots operated in a constant standard process which was Precise, robust and fast and stated that it also led to a reduction of production costs both in labor costs and material costs. He also underlined that it resulted in Higher productivity as the Robots worked 24/7 and delivered a Constant output in heavy as well as difficult work. He highlighted that there was considerable Risk reduction as it released and protect humans.

Talking in detail of the **Direct Soling (Direct Injection Process – DIP)** he informed that it led to an Increase of productivity, Standardized manufacturing processes, Reduced labour costs, there were no transportation and storage of soles, it resulted in a Flexible working process, it was preferred for large production figures and also No or less adhesive were needed.

He envisaged the situation tomorrow and opined that Human & robots would work side by side, there would be more sensorics, use of Integrated software would increase, there would be High speed data transmission with More data-space, shoes would have memory and the end result would be Smart factories & smart shoes!

- The **Third Speaker** in this Session was **Ms Li Shu from Shaanxi University of Science and Technology, China** and she spoke on **“The Establishment of Foot Model based on CT images”**
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Ms Li Shu commenced her presentation by stating that the Foot structure was complex with irregular shape, its modeling data was hardly obtained by direct measurement and added that medical

measures and three dimensional software could be used to obtain its modeling data. She informed that the male person with normal foot in middle size 41 was enrolled in their research and the scanning data of his foot was obtained by CT. The modeling data was processed by threshold segmentation and rendering in Mimics, then imported into Solidworks where every foot structure model was obtained by compressing other ones, she elaborated. Continuing, she said that every foot structure model was segmented by different reference planes, then imported into Design Modeler of Ansys Workbench to compress part of the segmented foot structure model. Then, she added, in Solidworks, the outline of every cross section of the segmented foot structure model was drawn and then the new foot structure model was obtained by sweeping these outlines. She explained that after all the foot structure models were obtained in this method, they were assembled through the correlation between parts in Solidworks and thus the new foot model was obtained ,but there were interferences between different foot structures and that these interferences were eliminated by Boolean operation. She stated that at last the whole foot model was built and said that this laid a foundation for the finite element analysis of the foot.

Ms Li described the foot Ankle structure and elaborated on the Data acquisition for modelling which she said was done by Scanning the right foot of the volunteer by CT to get the Standard DICOM format file with a Scan thickness is 0.67mm. She then described in detail the **Establishment of foot solid model which was then analysed using the Finite element Analysis.**

- The **Fourth Speaker** in this Session was **Mr Samy Vaikundamani from NIKE, India** and he spoke on **“Future Footwear Manufacturing- Complexities and Opportunities”**



Shri Samy Vaikundamani stated that the Footwear market was rapidly expanding and the production tools had to adapt to the needs. He described how NIKE had set up a new way of Management to improve the Productivity, the Development of Products and the Response time. He presented a precise example as well as the results in his presentation.

Shri Vaikundamani traced the footwear market growth trajectory and discussed what it meant for Manufacturing. He opined that **More New Products meant More FACTORIES and More PEOPLE which would result in the Complex becoming MORE complex. He then dwelt on the Challenges in**

“Manufacturing” and according to him it meant Increase in Changeovers, Productivity Challenges, Consistent Quality, Slow response, Sustainability challenges and this he said led to the Complex becoming MORE complex.

He stated that to Manage this we had to invest in Product Technology and New Material development and gave the example of NIKE's FLYKNIT which he informed was relatively simpler to manufacture. He also urged to Leverage Information Technology and added that if one wanted to make Improvements one should know where one was NOW! He opined that DATA was VITAL and that the flow of DATA was critical and stressed that ERP would play a strong role in transforming factory operations

He emphasized that LEAN Manufacturing was the way forward and gave the analogy of “TIMWOODS” i.e. Transportation, Inventory, Motion, Waiting, Over production, Over processing, Defects and Skills. He concluded by stating that “Banishing Waste” with empowered workforce was much needed.





Gala Dinner
4th February 2016

Welcome by Shri M Rafeeqe Ahmed, Chairman, CLE



Shri M Rafeeqe Ahmed, Chairman of the 19th UITIC International Technical Footwear Congress and the Chairman, Council for Leather Exports, India was ecstatic at the proceedings of the first day of the 19th UITIC International Technical Footwear Congress. He recalled the days and months of planning and was very happy that the Congress being hosted by the Council for Leather Exports was being appreciated by one and all. He complimented the Team behind the event and expressed optimism that Day2 of the Congress would be equally exciting and rewarding.

He wished all the delegates present to enjoy the evening and savour a slice of Indian Culture that would be presented.

Brief Remarks by Mr Yves Morin and Shri PR Aqeel Ahmed



Mr Yves Morin, President, UITIC expressed his unbounded joy at the huge turnout at the 19th UITIC International Technical Footwear Congress and said that it was the biggest UITIC Congress in the annals of the history of the Congress. He complimented the organizers for putting up such a

spectacular display and added that the Congress would be remembered not only for its magnitude of scale but also for its content which was top class.

He traced the origins of the proposal to host this congress in India and thanked Shri M Rafeeqe Ahmed and Shri PR Aqeel Ahmed and their team for agreeing to host it here and for putting up such an impressive Congress. He also urged the delegates to have a nice time and get a taste of Indian culture, hospitality and food.



Shri PR Aqeel Ahmed, Convenor of the 19th UITIC International Technical Footwear Congress and the Regional Chairman - South, Council for Leather Exports, India marvelled at the overwhelming response to the Congress and fondly recalled the enormous efforts and promotional events at various locations around the world which had resulted in such a huge response. He added that the quality of deliberations at the Congress was of an exceptionally high order and he had found himself enriched. He wished that all the delegates enjoyed their stay in India and carried happy memories of their stay in India and also go back enlightened after imbibing the vast treasure trove of knowledge shared by the eminent speakers at the Congress.

Distribution of UITIC Awards

The UITIC Awards were then distributed by Mr Yves Morin, President UITIC and the prominent amongst them was the “UITIC Technical Award” to Dr Ferenc Schmel of TECHNORG, Hungary for his enormous contributions to the implementation of Technical Knowledge in footwear factories globally and for his steadfast support to UITIC.

UITIC also honoured Mr Andreas Tepest from Deichmann, Germany with the “UITIC Scientific Award” for Scientific Excellence.

Another highlight of this edition of UITIC was their decision to Award the ‘Best Poster’ presentation by a Student and this year UITIC awarded the “BEST Poster Presentation” to Shri T. Loganathan, a student of M.Tech (Footwear Science and Engineering, CSIR-CLRI, Anna University) for his work on “BIODEGRADABILITY STUDY OF FOOTWEAR SOLING MATERIALS.”



Presentation of Mementos to Partners and Sponsors

The Council for Leather Exports honoured its Technical Support partners and the Sponsors and presented them with Mementos, which were handed over by Shri M Rafeeqe Ahmed, Chairman of the 19th UITIC International Technical Footwear Congress and the Chairman, Council for Leather Exports, India and Shri PR Aqeel Ahmed, Convenor of the 19th UITIC International Technical Footwear Congress and the Regional Chairman - South, Council for Leather Exports, India.



Shri M Rafeeqe Ahmed also made a special mention of the enormous contribution of Ms Sunanda Santappa, Asst. Director, Council for Leather Exports and Co-ordinator of the 19th UITIC International Technical Footwear Congress and honoured her contributions by presenting her with a memento.



CLE presented 'NATRAJ STATUES' carved from STONE to Mr Morin and to Ms Nikolaus



Cultural programme

An excellent Cultural Programme featuring various Indian Dance forms namely Bharatanatyam, Garba, Odissi, Bhangra and 'Poi Kaal Kuthirai' was then presented. The vibrancy and dynamism with the rich play of colours was immensely appreciated by all the delegates present and they went back with a fine sense of the Indian culture.



Dinner

The first day of the 19th UITIC International Technical Footwear Congress concluded with Dinner which was enjoyed by all the participants.

