

The event : FoodSafe 2016 – a national symposium on “Automation & Digital Transformation of Food & Beverage Industry” . 26th & 27th Feb.,2016 conducted in the spacious and comfortable settings of Sheraton Grand Bangalore Hotel.

Here’s a brief summary of what transpired inside the conference hall while various exhibitors outside catered to a decent number of footfalls from over 200 visitors and delegates. Spread over two action-packed days , ISA Bangalore served a sumptuous feast from a menu of speakers from manufacturers, solution providers, regulatory agencies, food technologists and innovators and consultants of the Food & Beverage industry.



Address by the Chief Guest – Mr.R V Deshpande ,*Minister for Large & Medium scale industries and Tourism, Govt. of Karnataka*

The Honourable minister started off the proceedings by noting that the focus and theme of this event was very relevant as it positively impacts the farm and agricultural sector .He said this sector is a major thrust area for the Govt. of Karnataka to develop the rural economy by helping farmers to earn more by moving up the value chain and also to create jobs in rural areas. Mr.Deshpande highlighted that , over many years , Karnataka has endeavoured to facilitate growth in this sector by creating zones, food parks and having very supportive policies .The result , he said ,is seen in the large number of food processing units existing in the state which generated over Re.1500 Crores worth of exports in 2015.. However , he stressed that , automation and digital transformation in agri-businesses is the need of the hour to make them competitive and fit for the current global scenario. He concluded by

announcing that his government actively encourages the business community to Invest ,invent and innovate in Karnataka which is recognised now as a tech. and start-up leader.



Keynote speaker no.1 – Mr.D.Shivakumar , Chairman & CEO of PepsiCo India Holdings Pvt Ltd.

In a brief but content-packed speech , Mr.Shivakumar gave a superb end-user perspective of the main drivers of the processed foods business and future trends . He first made clear the key role and major share of the F&B sector in the GDP and workforce. One of the many interesting ideas he shared was that processed foods are the “edge of the plate” components of a family’s entire food basket and that this portion is subject to dynamically changing trends as compared the more stable “centre of the plate” traditional items ,like cereals .

He predicted that automation and digitalisation is the next revolution to transform this sector and it’s applicability is over the entire chain , from Farm to Fork ,as he put it. In broad brush strokes he listed that It is applicable in digital inclusion and technology for marginalised farmers in the supply chain, in crop management, harvesting, storage and transport ; in understanding and adapting to the local nuances of the consumers ; in managing supermarket and retail vending operations and in ensuring consumer safety.

Keynote speaker no.2 – Prof. Ram Rajasekharan , *Dir.General CSIR-CFTRI*

brought a food technologist view of how automation can play a major role. He engaged the attention of the audience straightaway by posing the basic question of why now ,after centuries of civilisation ,are we raising the issue of food safety. It is of importance now, he said , as much of the food consumed by humanity is no longer home made . So regulations and guidelines are in place now for ensuring the hygiene and safety till final use. He expressed the key role for automation in not only achieving high standards in preparation but also in developing innovative solutions .A few examples ,he mentioned, were of oil in powdered form for blending better with other ingredients and creation of healthier forms of sugar from bran. He expects digital transformation to facilitate in passing more data to consumers on the food package about the most scientific and healthy way to prepare and use the product.

Mr.G. Ganapathiraman, *GM & VP, India & SE Asia,ARC Advisory Group*

Speaking from a global perspective on ‘Automation & Enterprise Trends - F&B Industry’, Mr.G Ganapathiraman presented on a broad diversity of issues ranging from F&B industry overview; the key questions that F&B manufacturers are trying to answer ; major trends ; drivers and inhibitors of automation in the F&B Industry and strategies for success. He concluded with a listing of the main automation products & software for the F&B Industry.

Mr.Neville Dsouza, *Industry Manager- F&B /HPC,Rockwell Automation*

Spoke well on Automation Path for Operation Excellence . The Theme was on Digitisation and Interconnectivity by adopting a convergence of IT and OT into a unified Network architecture thus getting benefits of Innovative engineering to both improve Return on Assets and Improve Operation Flexibility.

He declared that Automation gives an ability to understand and control your business and the main steps involved are Monitor critical control points ; Verify process parameters and Provide quality reporting.

Mr.Wolfgang Felber,*GroupVP, ABBAG,Switzerland,*and **Mr.TR Ravishankar, *VP,ABB Ltd,India***

jointly elaborated to a rapt audience on ‘Tighter Control to Achieve Food Safety with Process Control, Batch, and MES’ .They spoke about the evolution of technologies from a stand-alone PID controller to an integrated PLC/DCS system with ERP connectivity and having compliance to full ISA 88 and ISA 95 standards.

They showcased examples of implementations having one platform which integrated process control, batch control and MES (Manufacturing Execution Systems) which lead to competitive advantages by delivering optimum resource utilization, high throughput ,regulatory compliance and agility in adapting process to changes.

Dr. Ravi Kumar G. V. V. *AVP & Head of Advanced Engineering, Infosys*

spoke clearly on 'Leveraging Digital Technologies for Enhancing Productivity in F&B Industry'. Many other speakers had earlier highlighted the need for IT/OT convergence between Business ,ERP , MES and the manufacturing floor. In this session we got to hear about the implementation aspects , the challenges and the steps involved for this to be done effectively.

He stressed that first an IT-OT Enterprise Architecture (EA) needs to be formulated based on common definitions, policies, workflow, security models . Next , in order to seamlessly interconnect the industry/legacy protocols and IT systems, the communication Abstraction Layer based on something like OPC-UA/Industry Ethernet needs to be made ready.

Mr.Arjun Kumar Sahu, *Manager- Quality Assurance of Hindustan Coca-Cola Beverages Pvt Limited* gave a valuable end-user perspective titled 'Challenges and Expectations in Adopting Automation And Rolling out Digital Technologies in Beverage Industries' . The presentation was on the need of automation , the challenges in implementation and various examples from an actual user perspective in the beverage industry.

Dr. Alok Kumar Srivastava , *a top scientist from the Food Safety & Analytical Quality Control laboratory, CSIR-CFTRI, Mysore* ,enlightened the audience with an detailed overview about 'Challenges and Complexities in Quality, Hygiene, Compliance in Food and Beverage Industry' . He spoke about the vast and varied nature of present Food Chains ; The requirement to grade and enhance them in terms of quality, nutrition and safety ; The Food Safety Control Systems needed to ensure this like GHP (Good Hygeine practices) PRP (Pre-requisite programs) and HACCP (Hazard analysis & Critical control points) ; The need and areas for Automation in Food Safety Surveillance and concluded by enumerating the role for each of the three main pillars – the Government , the Industry/trade and the Consumer .

Mr.Rajesh Raina, *Head Product Management, Measurement & Analytics, ABB India Ltd.* focussed on 'Applications in Food & Beverage Industry - Measurement & Analytics'.

To meet the stringent needs of food safety and also to ensure a good return on investment for the producer, the key requirement is the appropriate technology. Measurement and Analytic devices are a crucial component here. Mr.Raina delivered a talk which put it across very clearly to the participants that advanced solutions are available for an industrial scale of operations. Be it in the handling of milk, alcohol, chocolate, edible oil , fruit concentrate and other fluids, he informed ,with case studies, about the instruments which are in use , with a high degree of

precision and hygiene , for measurement of flow, level, volume , mix concentration ,etc.

Mr.Krishnakumar Joshi , *Head Regulatory Affairs, ITC (Foods Division)* , a person with hands-on experience in ensuring compliance within industry, gave an enthusiastic presentation of the challenges therein on the theme ‘New Food Regulatory Regime in India - Compliance experience and challenges’

He spelt out the History & Evolution of Food Laws over more than 100 years – from FPO to FSSAI. He enumerated most of the reasons which makes ensuring compliance to be a very challenging endeavor – due to complexities in the Food itself, in the manufacturing systems and in the rules and implementation methodology of regulatory agencies. He offered valuable feedback from his implementation experience on the way Automation solutions and providers have to adapt to the needs of the industry.

Mr.Balaji Hiremagalur, *Mentor,Jack n Jill Lean Mfg. Solutions* shared his vast experience on the topic of ‘Developing Efficient Manufacturing Lines’. Before concluding with dramatic before/after video case studies, he championed the use of Lean manufacturing approach consisting of specific tools to enhance effective usage of machines, optimise processes by removing waste and continuously improving them with 5S and Value stream mapping techniques.

Mr. Kanchan Chakraborty *GM Technology & Engineering ITC Limited, Foods Division* gave a practical end user perspective on ‘Achieving excellence in Automation and Enterprise convergence’ . Clarifying on why and where and how automation is critical to FMCG industry , he said it increases productivity by reducing manpower while delivering higher output in complex and varying situations. He went on to present about the enhancing of value from automation by generating useful reports tailored for the enterprise technocrats using appropriate IT tools. He concluded with the key expectations of manufacturers from the vendors of automation projects.

Mr.S Prasad Narasimha *DGM – Product Engineering , Lapp Group* addressed on ‘Food and Beverage Industry Challenges and Solutions’ . In a very informative talk he elaborated on the zone concept in an F&B plant based on varying levels of contact of machinery and people with the food being processed. He then presented that specialised cables and accessories are available which conform to the needs of different zones in terms of hygienic capability and also resistance to oils, chemicals and extreme temperatures.

Mr.Arvind Mangarsi *Business Head-Products & Projects B&R Industrial Automation Pvt. Ltd* spoke on ‘Scaling industrial control technologies for food & beverage industry’ . A typical plant in an F&B industry is built based on Machines, Lines and Processes. He emphasised that a control ,monitoring and data management system which has comprehensive features for every level ,from machine to plant managers,

and which can also be scaled up even as the plant needs change and increase - would be just the right solution for the needs of the F&B industry.

The panel discussion at the end of Day 1



Nuggets of experience from the panellists in response to specific questions from the moderator Rajesh Rathi.

Balaji Hiremagalur / Jack n Jill LM – Standards set by the top 3 biscuit manufacturers have become a benchmark to aim for by others. New technology is percolating everywhere and productivity has increased 7-fold.

Kanchan Chakravarthy / ITC – Automation solutions directly imported can work in India only when suitable adaptation and innovation is done. Some local tech providers are catching up fast but ITC is yet to get comprehensive solutions from them. Can ISA integrate providers to fill this gap ?

Veerendra Deshpande / Omron – Hi-tech products ,even though available, are not being used much by Indian customers. They say their end-users and regulators are not so demanding as is the situation in developed economies like Japan.

Anand Naik / Endress & Hauser – A Flow meter based “filling” system technology is superior vis-à-vis the commonly used Piston type. However as regulators do not insist on it , the clients do not want to invest in change.

Abhijeet / Siemens – A single ‘solution’ meeting multi-pronged requirements of the

F&B industry is a challenge to deliver in view of short time to market and demands of 'first-time-right' . Integration needs to be done, going forward , of modern instrumentation and new process technologies to meet this demand.

Babu Padmanabhan / Steer – Automation is not just a productivity tool. It can shift operations from being operator dependant to system dependant provided this principle is aimed at from the beginning.

T R Ravishankar / ABB - What is Automation , What is Enterprise solution in the context of driving growth in the F&B industry . Talk focussed on Automation would be addressing technology issues like DCS, smart sensors, Cloud. But we must move to address the questions like “What value shall we deliver “ and search out , listen and sell to the person (the 'fox') who really matters . It could be the IT guy who is close to the decision maker.

Suresh Krishna / Rockwell – It is not really true that only MNC end-users coming to India are bringing in new technology. Many Indian customers are also embracing new technology to create , for example, multiple plants on one network and more tightly integrated operations within one plant.

Shivaram / B&R Automation – Yes, going forward there could be a problem of too much data collection and nothing really useful coming out of it. We need structured ,collated and annotated data for analysis as well as prediction before issues flare up. Analytics ,high-end software has to be coupled with standard-based uniform processing of data.

Sandesh / Lapp India – To insure against disruption of communication/data failures we need to minimise variety of protocols used .Standardisation has to happen. Industry 4.0 protocol is one standard to adopt.

Dr.Ravi Kumar GVV / Infosys – Can we develop enterprise digital solutions fast enough by synching process tech and enterprise tech – Yes change can be fast. Different bodies needed to drive this. Standards, Security, Inter-operability will need to be enhanced. “Best way to predict the future is to invent it “ .

Suhail / KMF – Cow-to-consumer Automation in Dairy industry - KMF experience: Use of Milking machines is 10 % . Use of mass collection units is more widespread. Automatic milk testing units minimise human touch and at the same time give a quick status report as well as billing data to farmer. Only one fully automated dairy exists where reception, processing and packing are all automated.

The audience posed a few questions to the panel and the chief one was – how to make regulators accept and trust data sent online to them by manufacturers. Answers included – inevitability of need of human intelligence to verify, use of validation models from Life Sciences domain, use of methods which generate time-stamped, sequenced data which cannot be hacked or tampered, OEMs voluntarily getting validation (of, say, FDA) to establish their capability.

Dr.Sunil Shah, *Secretary ISA Bangalore Section and Founder, Communications, Diagnostics, and Control* – very lucidly gave an overview of ISA Standards, delving deep into ISA 88 for Batch Control systems and ISA 95 for Enterprise-Control System Integration. He gave a clarity on how use of these standards automatically means adopting of best engineering practices towards integration of IT and OT in an F&B enterprise. He ended his well received presentation with an invitation to the audience to be part of Standards Experts Team being set up at ISA Bangalore Section.

Mr.Pratish Sheth , *Business development Manager, Automation solutions Food & Beverage & CPG Industry, Siemens* – Spoke on the topic of 'Integrating Life-cycle Processes for Maximum Efficiency'. He gave an overview of technology and tools available for Integrating Life-cycle Processes for enhancing enterprise efficiency emphasising on integrated engineering workflow and plant and asset optimization.

An enhanced value which solution providers are offering now, he revealed , is to support manufacturing companies back at the design phase itself with industrial software for modeling and simulating the functional machine design. This software makes it possible to reduce time needed to freeze the requirements and also simplify the detailed engineering and implementation phases. Cloud services for post-implementation analytics is another new kind of support for users.,he said.

Dr Babu Padmanabhan, *Managing Director ,STEER-* discussed about 'Controlling undesirable changes during food processing with continuous manufacturing'

He explained that the attributes of the food material being processed needs to be rightly controlled at each step to have the desired values in the finished stage His innovative venture aims at offering advanced materials and material platforms so that the control equipment is able to follow processing dynamics adequately and ensure a timely corrective response to subtle deviations well before the end food product goes out of specification.

Mr.Rajiv Doshetty, *AGM – Marketing (Analysis) Endress + Hauser (India) Pvt. Ltd.* gave an excellent presentation on analytical instruments in the Food and Beverage industry , their importance and application and their evolution from stand alone products to integration with the Plant wide DCS providing benefits like

ease of sensor maintenance , help in reliable measurement and easy operation and maintenance efforts besides ensuring higher availability of measurement time , increased flexibility and reduced cost-of-ownership

Mr.Nitin Williams & Mr.Ravikumar Singadi of *ABB India Ltd.* presented on the use of 'Drives and Robotics for Productivity safety and efficiency improvement' . Looking at the whole gamut of applications in a typical Food process and the challenges faced by the end user in terms of packaging differentiation and sustainability and how these are addressed by modern technology

Mr.Virendra Deshpande, *Department Manager-Consumer Market* ,Omron Automation

Speaking on 'Automation Trends of Robotics and Vision in F&B Industry' ,it was the turn of Mr.Virendra Deshpande to impress the audience about the use of advanced robotic solutions .The F&B industry has to grapple with the challenges of high numbers of products ; varieties of packaging types ; high productivity with high quality standards ; maintaining operational flexibility and reducing losses. He showcased to the audience that there is an advanced replacement now to the classic approach of PLCs using Fieldbus networks and multiple sub-systems from different vendors. This solution is far more flexible to adapt to changing requirements and with higher performance capabilities. This is achieved by a seamless integration of robotic servo systems, motion controllers, vision systems, I/O modules and HMI on one platform.

Deepak Gaur, *Lead Design Thinker, Strategic & Design Consulting, Infosys* talked about 'How might we put the consumer at the center of extended Enterprise' by being sensitive to the changing demographic preferences.

KV Rehani, *Automation consultant* and renowned person in the Food and Beverage Industry speaking on 'Solutions for Adoption of Automation Technologies In the F&B Industry' highlighted the need and role of scalable control system especially in the light of manufacturing challenges with safety, ageing task force and for ensuring batch integrity and traceability.

Manjunath of *iD Fresh* gave an overview of the fresh food product portfolio and challenges faced by them. They are investigating solution for aeration, instant chilling of batter and packing for different types of batter. In the case of parota preparation iD fresh is looking for mechanism for creating thin sheets of parotas and automate spiral rolling of the parota.

