QUALITY
MANUFACTURING

The motto of Regional Quality Conclaves is to promote Quality in all *products, services and processes* across all sectors

QUALITY INDIA
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QUALITY COUNCIL OF INDIA
QCI Creating an Ecosystem for Quality

Dear Friends

To achieve a 5 trillion economy by 2024, it is essential to focus on promoting QUALITY in all products, services, processes and people's skills across all sectors.

Manufacturing remains a focus area which has the potential to technologically transform raw materials into a useful product. Thus, one can recognize the significance of such activity in overall growth of economy of a country and quality of life. Unfortunately manufacturing has yet to contribute significantly to the economy.

The demand for low cost, energy efficient, environment friendly manufacturing technology giving even better products not only on conventional materials but also on advanced materials is growing very fast and need for more rapid technological innovation is strongly felt by the industry. It was with this objective that QCI focussed Regional Quality Conclaves on manufacturing.

During this quarter we hosted three Regional Quality Conclaves (5th, 6th and 7th) on different themes namely, "Excellence through Smart Manufacturing," "Creating and Sustaining a Quality Culture" and "Gaining Competitive Edge through Best Quality Practices" jointly with PHD Chamber of Commerce and Industry (PHDCCI) at Chandigarh, Ranchi and Lucknow respectively.

Some of the best minds engaged in creating a Quality Culture, Product Innovations, Industry 4.0 and Predictive Maintenance congregated at the Conclaves to lead the discussion and evolve the road map for the next engineering revolution in India. These Conclaves were important steps to sensitize Industry in the states of Punjab, Jharkhand and Uttar Pradesh on the aspects of quality consciousness of production process and importance of quality through adoption of a quality culture.

We have also used our online platform eQuest, which has currently 40 active courses in categories like Quality, Manufacturing, Healthcare, Education, Agriculture, Environment, and Laboratories to disseminate the message about competitiveness through quality. We have prepared a course on Blockchain which went live in the month of September.

Our course on "Continuous Quality Improvement: Tools and Techniques" vetted by IIM Bangalore has completed its 1st batch on SWAYAM , e-Learning platform of MHRD with total of 1905 enrolled learners whereas another course on "Manufacturing Competitiveness," completed its 3rd batch. Further, we have received a confirmation from SWAYAM that they will be running the 4th batch in 2020. It's a 4-credit program under the management category. We would encourage students and professionals to undergo this training on eQuest.

Our efforts in making the Quality Movement a 'Mass Movement' is quite encouraging and we believe that the impetus that has been created in the last few years has made and will continue to make vast changes in the sphere of quality in our country. Thanks!

Dr. Ravi P. Singh
Secretary General
Quality Council of India

5th
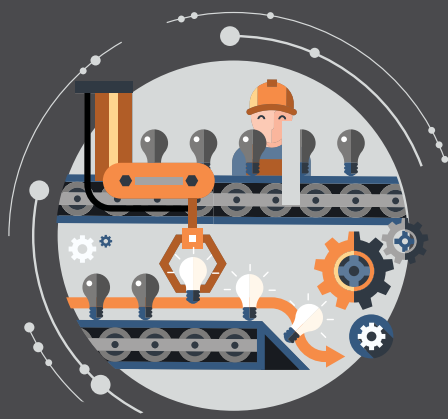
Regional Quality Conclave
Excellence Through Smart Manufacturing

31st July 2019 at Hotel Taj, Chandigarh

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6th

Regional Quality Conclave
Creating & Sustaining- A Quality Culture

30th August 2019 at Hotel Le Lac Sarovar Portico, Ranchi

#RegionalQualityConclave

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7th

Regional Quality Conclave
Gaining Competitive Edge through Best Quality Practices

26th September 2019, at Hotel Hilton Garden Inn, Lucknow

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5th Regional Quality Conclave (RQC)

Excellence Through Smart Manufacturing

Quality Council of India and PHD Chamber of Commerce and Industry (PHDCCI) jointly organized 5th Regional Quality Conclave on the theme "Excellence Through smart Manufacturing" on 31st July 2019 at Hotel Taj, Chandigarh.

The objective of this Conclave was to sensitize industry on Quality Culture and bring awareness on Smart Manufacturing, share the technological advancement and best quality practices on process, products and maintenance in the manufacturing sector.

The Conclave showcased the next generation manufacturing i.e. Industry 4.0 and the quality control aspects associated with it through expert talks and case-presentations, and the challenges these bring to India in meeting the quality expectation of the global customer.

Some of the best minds engaged in Smart Manufacturing, Industry 4.0, Creating a Quality culture, product innovation, process automation, service and diagnostics and breakthrough improvements in product and service quality congregated at the Conclave to lead the discussion and deliberated on the steps for the next engineering revolution in India.

Inaugural Session

Mr. C. K. Biswas, CEO, National Board for Quality Promotion, QCI

- Make in India initiative led India on the path of becoming the hub for Hi-Tech manufacturing

- India is expected to rank amongst the top three growing economies and manufacturing destinations of the world by the year 2020

- Development of industrial corridors and smart cities will facilitate conducive environment for industrial development and promote advance practices in manufacturing

- Growth in manufacturing is crucial for Indian economic development. To capitalize on the demographic dividend, India must create nearly one million jobs per month and manufacturing has the potential to provide large-scale employment to the young Indian population

- Government of India has implemented Make in India as core policy initiative to encourage and accelerate growth of country's manufacturing sector

- Quality Control is emerging as a global challenge. The industry is primarily focusing on production and ignoring quality standards. Lack of quality is one of the reasons due to which the industry is losing orders

- Punjab has high standards of technology utilization, labour, investment power but needs to maintain a balance between pricing and quality

Mr. R S Sachdeva, Chairman, Punjab State Chapter, PHDCCI

- Government has set an ambitious target of making India $5 trillion economy by 2024 which can be possible through Smart Manufacturing aligned with quality control

- According to the Global Innovation Index, India has improved its ranking by five places, standing at 52nd position against 57th in 2018

- Manufacturers must maintain balance between smart technology and quality control to maintain this consistency

Dr. Ashok Khanna, Former President, PHDCCI

- Indian industry can have global competitiveness if it has quality parameters in place

- Evolution of quality tools in the industry is in sync with the global demands

Ms. Vini Mahajan, IAS, Additional Chief Secretary, Department of Industries & Commerce, Government of Punjab

- Manufacturers must ensure quality standards in order to get global recognition

- Taking the cue from the success of 'Make in India', Punjab State Government is also striving for the

'Make in Punjab,' by maintaining manufacturing quality control and standards

- Many Taiwanese and Japanese companies are foraying into Punjab market, and they expect the best of quality from local manufacturers

- Industry representatives must exhibit quality standards; it will help state government's upcoming industrial park near Rajpura bring massive success in the manufacturing arena

- Manufacturers from Punjab must adhere to quality standards, which will further support 'Make in India' program to be associated with quality

- Conscious and sincere efforts are required to marry innovation with quality

Mr. Pranav Gupta, Chairman, Haryana State Chapter, PHDCCI

- Smart manufacturing is changing the manufacturing landscape and is the need of the hour

- Its adoption is expected to result in operational efficiencies, cost control and revenue growth

Dr. Jatinder Singh, Director, PHDCCI

- Objective of nationwide series of conclave is to sensitize SMEs to adopt the facets of quality culture in manufacturing units in all sectors from automobiles, pharma, textiles, electronics, logistics & supply chain and others

- Currently, the manufacturing industry contributes 16% in total GDP which can be enhanced, if the industry abides by quality standards

Session 1
Smart Manufacturing & Industry 4.0

Discussion Agenda

Industry 4.0 is the convergence of the cyber-physical systems which is a shift from linear operations to an interconnected system with holistic integration through the entire value chain. Smart factory represents a transition from traditional automation to a connected system of data and production systems. Areas as advanced planning, scheduling using real-time production and inventory data, are some of the features of smart factory with multiple facets that manufacturers can leverage to remain competitive in the global marketplace.

Mr. Upinder Singh Dhingra, Manager, Advisory Services, Ernst Young LLP

- Industry 4.0 is no longer a 'future trend,' for many industrial companies, it is now a part of their strategy and research agenda

- Companies are combining advanced connectivity and advanced automation, cloud computing, sensors and 3D printing, connected capability, computer powered processes, intelligent algorithms and Internet of Things (IoT) services to transform their businesses

Mr. Sanjiv Singh, Managing Director, Gilard Electronics Pvt. Ltd.

- Gilard Electronics is supplying to Defence, Medical, Whiteline Appliances, Telecom, Power, Railway and Aerospace

- Gilard is a full service provider with product and process Design capabilities, development of processes and tools and mass production

- Gilard stands 1st in Punjab and 2nd in India in DIAMOND rating of ZED Certification scheme. They won ACMA Gold award for 'Excellence in Digitization'

- Gilard shared the steps taken by the company to transit to Industry 4.0, with details of automated business processes and benefits of value chain integration to achieve excellence in manufacturing

Mr. Vikas Gupta, Senior Delivery Manager - Internet of Things, Infosys Ltd.

- Infosys presented how manufacturing companies can build competitive advantage through implementing Industry 4.0

- Industry 4.0 technology helps organizations realize immense value with smart products, smart services, connected factory, and smart production to achieve business growth and efficiency

- Establishing an end-to-end 'digital thread' of the physical world, across the manufacturing value-chain enabled by the advent of Cyber-

Physical Systems (CPS) can drive efficiencies across value chain with engineering, supply chain, and service efficiency

- Globally, manufacturing companies are looking for a Single System Integrator that can manage the complexity of the implementations

Prof Harpreet Singh, Prof. & Dean ICSR, Indian Institute of Technology, Ropar

- Additive manufacturing or 3D printing is a transformative approach to industrial production that enables the creation of lighter, stronger parts and systems

- Additive manufacturing can bring digital flexibility and efficiency to manufacturing operations

- IIT Ropar has set up state-of-the-art capacity operating at pressure 50 bar and temperature 1000 degree centigrade, which industry can take advantage of

- There is lot of scope to develop 3D printers in India and ample opportunities for those who actively embrace additive manufacturing

Mr. Kunal Pruthi, Business Development Manager, WIN Automation Solutions

- Win Automation is able to automate everything from a single double click on desktop, up to the most complicated application like, MSOffice, SAP – ERP, Sales force, Java applications or other CRM applications

- Win Automation allows fully accessing all desktop applications and even extracting data of different types to the preferred output

- Desktop automation processes save time by automating repetitive tasks and allow focusing on what brings value to the business

- All manufacturing processes can be automated to simplify and optimize the workflows

- Digital factory phases include enterprise integration, business analytics, manufacturing operations, shop floor integration to achieve production, quality, and maintenance and energy efficiency

Risk of Unauthentic Certification in Manufacturing

Ms. Sona Sinha Sharma, Assessor & Trainer - Management System & Product Certification,

National Accreditation Board for Certification Body (NABCB)

- Countries are expected to impose 'Technical Regulations' on grounds like national security, environment, safety, health and deceptive trade practices. There sectors are driven by voluntary standards while some sectors are amenable to the regulations

- Indian industry has to comply with the domestic regulations as well as the international standards, which are more stringent than Indian regulations. There is a need for a system which is recognized by the importing countries to save huge compliance cost

- Voluntary standards are not legal mandates but there adoption is demanded by the buyers

- Private standards are made by private players and are endorsed by the stakeholders. Industry driven standards are often based on market demand. Private standards are not always participatory or transparent

- Conformity assessment demonstrates that specified requirements relating to a product, process, system, person or body are fulfilled. Conformity assessment activities include testing, certification and inspection

- Product Certification (ISI mark, Agmark), Process Certification (Organic, GMP), Systems Certification (ISO 90001, ISO 27001) and Personnel Certification (Defines competence in terms of knowledge and skills)

- Third-party attestation related to a conformity assessment body

conveying formal demonstration of its competence to carry out specific conformity assessment tasks (ISO 17000)

Session 2
Quality Culture to Enhance Performance

Discussion Agenda

Progressive organizations continuously improve the competence of their personnel and the quality of their products & services to stay ahead in an increasingly competitive business world. The foundation of quality improvement is developing a quality culture that not only triggers enhancement in the quality of goods and services of the organization but also creates an ecosystem of structured skilling of its personnel. Quality culture starts with leadership that recognizes this need for continuous improvement in its processes and personnel and proactively brings about this positive change in the system.

Dr Manish Kumar Jindal, CEO, NABET, moderating the session said: " NABET is implementing agency of Government Schemes like Lean Manufacturing Competitiveness Scheme of MoMSME, and Accreditation of EIA Consultant Organisations mandated by MoEFCC."

Mr. Somenath Ghosh, Asst. Director, Indian Institute of Welding

- There is a need to encourage standardization in the certification process and initiate a process of creating a registry of skills, employable skill training, skill up-gradation and establishment of International standards of quality for the Indian fabrication industry

- NABET is the authorized body for Accreditation Certification as per ISO/IEC 17024: 2012. The Indian Institute of Welding is the Conformity Assessment Body operating for Certification of Persons based on above standard

Mr. Virat Dhebar, Assistant Vice President – Academy, TÜV SÜD South Asia

- The Certification Body of Persons (CBoP) of TÜV SÜD South Asia is one of the leading providers for qualification and certification of persons

- CBoP offers certification in Quality Management, Safety and Environment Management, Process Improvement Tools, Information Technology, Project Management and Global Best Practices

- Functional Safety Certification Scheme: To avoid catastrophic functional safety incidents like Bhopal Gas Tragedy and Texas City Harbor Explosion. The oil and gas industry, nuclear plants, the manufacturing sector, automobile sector, medical devices, transportation all rely heavily on Functional Safety. Electrical, electronic or programmable electronic systems (E/E/PE) carry out a multitude of safety functions. It is impossible in practice to fully determine every potential failure, but testing is nevertheless essential to rule out as many as possible

- The competency requirement in the standards have resulted in several personnel functional safety certification programs to be created

- Having people that are competent in functional safety is required by the international functional safety standards IEC 61508 and IEC 61511 / ISA-84. These standards contain requirements for having trained and certified as competent personnel to carry out the safety life-cycle activities (design, installation & commissioning, operation, and maintenance) that are documented in them. These standards are widely recognized as good engineering practice, and they have become the benchmarks by which governments now measure a company's behavior in the event of an incident

- Functional Safety Certification benefits to companies: Certificate gives proof of competence required by the regulators. It develops and demonstrates safety culture within the organization. Through certification, organization saves money by ensuring regulatory compliance, reducing engineering costs, preventing unplanned down time, ensuring safety systems are neither over-designed nor under-designed

Mr. Vikas Chhabra, Director, Aman Skills Programming Society

- ASPS is first Conformity Assessment Body for Providing Certification to basic electricians for ISO/IEC 17024:2012 under NABET- Quality Council of India. ASPS have 10 testing centers to conduct Assessments for ISO/IEC 17024:2012 standards and providing quality students to industries as per these standards. The society had conducted 100,000 plus assessments across India since 2009. ASPS started certification for NABET QCI in 2016 for approval of ISO/IEC 17024:2012. The certified personnel are placed in different parts of the world

- ASPS has become leading Assessment body in skill development projects and conducting assessments for various leading sectors including Tourism and Hospitality, Power, Paints & Coatings, Furniture and Fitting, Sports and Fitness, Instrumentation Communication, & Surveillance and Capital goods

Mr. Vinod Sharma, Managing Director, Deki Electronics Limited

- Rapid change is required to stay competitive in global market. There is a need to foster the culture of quality in every organisation by continuous learning and adoption of change

- Certification is a continuous process to demonstrate continued competency to reflect the knowledge

- Certification is beneficial for individual professionals, organisations and society. Certification helps in benchmarking and gives better access to the job market

Dr. Indrajit Bhattacharya, Director, NABET

- LMCS is under implementation since 2009 by MoMSME

- QCI (since 2014) and NPC are the National Monitoring and Implementation Units (NMIUs), which are independent bodies under DPIIT

- About 500 Clusters have been allocated till date. 243 Clusters have been formed till date out of which 91 Clusters have been completed by QCI. During 2019–2020: 300 New Clusters have been allocated and total project cost is INR 218 crores. 80% of the Consultant Fee is borne by Govt of India

- Lean manufacturing is a philosophy which shortens the timeline between the customer order and the product shipment by eliminating waste

- Benefits of lean management include higher productivity, quality improvement, improved customer satisfaction, reduced costs, reduced wastages and reduced space requirements

Ms. Samira Saluja, Executive Director, Oriental Engineering Works Pvt. Ltd.

- Lean basically means doing more with less. It is a continuous and never-ending process. Lean manufacturing entails constant self improvement and adaptation. Cost cutting does not mean compromising on quality aspects

- Waste can be from transportation of material, too much stock, unnecessary movement of man or machine, too much wait time, performing too many operations and having too many rejections

- VSM or Value Stream Mapping helps understand the organisation. If one knows the flow of material and information, one can map the interconnected paths that are the circulatory and nervous system of the factory. Once VSM is in place, one can know where to start and what to except without getting lost in the scale of things

- **Productivity:** Lean improves productivity by increasing efficiency and reducing wait time

- **Quality:** Through regular inspection, low cost automation and standardisation quality can be improved

- **Cost:** The most direct benefit is cost reduction. By using less materials the cost to make a product goes down: Delivery: making production more efficient also reduces delivery times

- **Morale:** people like working in clean spaces; Environment: everything is to be sorted and disposed of properly; Safety: if everything is in its place, equipment is maintained, nothing is over-processed or over produced there are less chances of accidents

Session 3
Predictive & Preventive Maintenance

Discussion Agenda

Organizations need strategies to maintain plant assets and increase their life spans. Strong maintenance plans in place keep plant operations running smoothly. With increasing industrial demands to get more output and decrease operating costs, investing in predictive maintenance and condition monitoring tools is the mainstay. Predictive and Preventive Maintenance provide a framework to take correct decisions for predicting the deterioration of devices and steps needed to restore the inherent reliability of a device. Appropriate balance of maintenance approaches is a key to minimize asset downtime and repair costs while maintaining safe environment for workers.

Col Rajiv Bhargav (Retd.), Associate Director, Munjal Institute of Global Manufacturing, Indian School of Business

- Predictive maintenance predicts time of equipment failure and prevents it with minimum human involvement

- People in India are not well aware of this concept. However, in countries like Germany, China, US and Japan the concept is quite prevalent and Industry has adopted the concept leading to planned down time of the industrial unit rather than unplanned break down of the industrial unit

Mr. Sudhir Gupta, General Manager, Manufacturing, Claas India

- Ageing of machine is the natural deterioration process which can be prevented by timely maintenance of machines but human error can happen anytime leading to accidents and the way out is to have minimal human intervention

- Robotics and Automation is the way forward

- Energy saving compressors are

used in most of the manufacturing Industry, MSME must also adopt it, and it is cost effective as well

Mr. Rahul Thakur, Technology Consultant, Ceyone Consultants LLP

- Nano technology helps plug in the pilferage of energy consumption

- The increased use of robotics and electronic sensors are part of smart manufacturing and their quality can be improved with the help of nano technology

- Statistical results from one of the live industrial case study show that nano technology sensors helped that manufacturing unit save INR 700 per hour by saving on energy consumption

- The concept is suitable from small to big manufacturing units

Prof. Naresh Chawla, Certified Six Sigma Master Black Belt

- Preventive maintenance is performed on switched off machines while predictive maintenance is performed on running machines

- Smart maintenance and data driven maintenance are performed in smart factories, it helps in predicting forthcoming break down on the basis of data analysis

- Case study of Indigo airlines: airlines grounded three A320 aircrafts, on the basis of data analysis, which indicated forthcoming snag in the engines of the aircrafts thus avoided fatal accidents

Dr. Ranjeet Mehta, Principal Director, PHDCCI

- As per one study, it is evident that an engaged customer gives 23% more business than the other, which is a substantial business and no company can afford to lose, thus Industry today needs to introspect the ways and means of engaging customers

Mr. SPS Bhalla, Management Consultant

- Customer is the King in today's time. It is difficult to acquire new customers and retain them. The organizations should think from buyer's perspective rather than seller's perspective

- Business is like riding a bicycle, you are on track as long as you are

Session 4
Improving Customer Engagement through Effective Technologies

Discussion Agenda

Effective technologies help to identify the value creation opportunities through customer engagement and develop the strategies, processes to maximize the product/services value. Smart Technologies in a variety of manufacturing industries, can be segmented and customized for businesses from various touch points to enrich the customer's experience.

Mr. Param Kalra, Co-Founder, Starthub Nation & Founder, Satnam Infosys

- Every industry is dependent on customers and should give best service to retain them

- Technology can play a pivotal role in customer satisfaction. For example, PayTM has big customer support call centre but one extra feature in the app could do away with the call centre, saving a lot of money for the startup

- Emotional engagement with the customer is required to retain them

moving forward and the moment you stop, you fall down, and in business customers keep you moving forward

- Conglomerates like TATA have been successful in establishing the trust amongst customers through good business practices over a long period of time, companies should also learn their customer oriented policy

- One of the recent studies stated that 68% of customers shifts to other companies because of non customer centric approach of the company

Mr. JPS Sibia, Consultant, Strategic Marketing

- 4Cs - Customer, Cost, Convenience and Communication have replaced 4Ps - Product, Price, Place and Promotion of marketing

- Customer is looking for a solution to his problems and not any product, product is basically a solution to his problem; today, organizations should not focus on product but the solution customer is seeking

- If the customer is engaged with organization, the organization will be able to offer the better solution as per his needs and the customer will remain loyal to the company

Glimpses of
5th Regional Quality Conclave (RQC)

#RegionalQualityConclave

6th Regional Quality Conclave (RQC)

Creating & Sustaining- A Quality Culture

"Quality Council of India (QCI) and PHD Chamber of Commerce and Industry (PHDCCI) jointly organized 6th Regional Quality Conclave on the theme "Creating and Sustaining a Quality Culture" on 30th August 2019 at Hotel Le Lac Sarovar Portico, Ranchi.

The objective of this Conclave was to create awareness about significance of quality culture in businesses, deliberate on how organizations can continuously improve and innovate and share the technological advancement like Industry 4.0 and predictive maintenance. Some of the best minds engaged in Creating a Quality Culture, Product Innovations, Industry 4.0 and Predictive Maintenance congregated at the Conclave to lead the discussion and evolve the next steps for the next engineering revolution in India. The Conclave was attended by over 150 delegates from top organizations mainly from Jharkhand region.

Inaugural Session

Mr. C. K. Biswas, CEO, NBQP, QCI

- Main objective of organizing this Conclave in Ranchi was to reach tier 2 and tier 3 cities and sensitize the people from the industry about the importance of quality

- If an organization invests Rs 10 in quality, it will recover maximum of Rs 10 in one year. Organization should not think about return of investment as in the process the systems will become much better, will get better product quality and processes will get streamlined with all the manufacturing parameters

- There is a definite return by investing in quality. Otherwise there are problems like repair, re-work, reject, returns and the cost of poor quality which will be very high thereby causing business to be wiped out

- Online inspections are very expensive and now are out of fashion; therefore, organizations should go for self-certification for the vendors and also for the organization itself

Mr. Deo Shanker, ADG, UIDAI

- In today's highly competitive and rapidly changing world providing quality products and services that satisfy customers is crucial for ensuring long-term organizational success

- Creating and sustaining a quality culture is a must for ensuring a continuous flow of quality products and services. This is primarily because of two main factors: first -- organizational culture is significantly correlated with employees' behavior and attitude. Second, ultimate creator of quality products and services are people not technology or processes

- UIDAI is of the view that without quality, innovation and updating it is hard to survive. In 2009-10 when everyone was having two to three identity cards in their pockets, UIDAI wanted to insert one extra card. Finally Aadhar Act was passed in 2016 and UIDAI was confident that they are in a position which is supported by the constitution as well as Supreme Court. Now it has been widely accepted by each and every organization and people at large

- UIDAI had to innovate. Initially in 2010 UIDAI thought that later intimating the Aadhar number provided to the resident will be sufficient, but within two to three years they realised it's not sufficient, therefore they provided the support of e-aadhar services and uploaded all Aadhar numbers on the portal which can be downloaded by anyone. Later on during 2017-18 it was found that nothing is required to be carried in the pocket so M-aadhar was introduced and now Aadhar card can be shown anywhere in the mobile phone

- UIDAI does not receive any complaints of counterfeit transactions from any sectors

- In February 2016 revenue department Jharkhand, where land and house registries are done, introduced identification with the help of aadhar through finger-based biometric authentication

- Quality culture is the hallmark for any organization's sustenance and growth

Mr. M K Saxena, Chairman-cum-Managing Director, HEC Ltd.

- The launch platform, sliding doors, arms, crane of Chandrayaan 2 all were made by HECLtd.; considering the quality of HEC Ltd, ISRO has given order for the second platform to HEC Ltd.

- Quality is such an aspect that no one should compromise with and for this purpose industry 4.0 is a concept where right from scratch quality is required

- Either it is an industry, manufacturing unit or anywhere else, it must have a very good R&D setup. Research and development will have to be done, without it no organization can move ahead

- It is not possible to continue with old technology. Even now in India organizations are following Industry 2.0 and Industry 3.0, most of these technologies have become obsolete

- One cannot afford to compromise with quality because it might cost us more today to save the most in the future

Dr. Jatinder Singh, Director, PHDCCI

- Industries are facing many challenges; how to surmount the challenges in terms of quality and how we can improve the quality system in organization is the core objective of this conclave

- With the emergence of social media, with the customer generated profiles, at the click of the button we can read all the reviews for any product

- New approaches of quality have gone beyond the traditional total quality management. It is basically the total quality culture that has to be permeating to all the levels of the organization; we need to create a culture and ecosystem of this quality that basically integrates all the departments

- Quality is not only the sum game of the production manager or the people who are working in the production areas or people who are working in quality management. It has to permeate right from the Managing Director of the organization to the last employee of the lowest level of the hierarchy

- There has to be a total convergence model so that workforce in the organization is totally aligned to the quality of the organization and that is how we will be able to generate good quality products and services

- Quality culture has been there for ages, the only thing is that it needs to be evolved and reviewed and has to go to all levels in the organizations

Session 1

Quality Culture to Enhance Performance

Discussion Agenda

Progressive organizations continuously improve the competence of their personnel and the quality of their products & services to stay ahead in an increasingly competitive business world. The foundation of any quality improvement is developing a quality culture that not only triggers enhancement in the quality of goods and services of the organization but also creates an ecosystem of structured skilling of its personnel. Quality culture starts with leadership that recognizes this need for continuous improvement in its processes and personnel and proactively brings about this positive change in the system.

Dr. Manish Kumar Jindal, CEO, National Accreditation Board for Education and Training, QCI

- In all the manufacturing processes, Quality has to be integrated, ingrained, inclusive, and inseparable at all levels

- Quality adds value, improves efficiency, productivity

- Quality comprises of organization, its people, its manpower. The manpower needs competency (whether they are competent or not to do certain things)

- Quality has to be strategic decision making and not tactful decision making

- Value addition is required at all levels of an organization. For this purpose top, middle and down-the-line employee has to be engaged

Mr. Pankaj Rai, CEO, Quality Austria Central Asia

- Quality cannot be isolated, business and quality has to go together

- Number of organizations have excelled just because they have not differentiated between quality and business; they work hand-in-hand

- When quality system is designed, it has to be the part of business management system

- There cannot be any parameter in quality which cannot be adding value to the business

- Growth, customer complaint, outstanding, safety, rejections, maintenance all are part of quality

- The problem is that a lot of people do not understand the quality culture. In the ecosystem they keep quality separately. Quality has to be integrated at all levels of business. All the business reviews have to include quality

- There cannot be even one parameter in quality which does not add value to the business

- When we talk about quality, we are actually talking about quality of people; top management should ensure that people in the organizations work in this direction

- Quality has to be strategic decision of the organization for which role of top management is strategic

- In the ecosystem of an organization there should be enough people trained in quality

- People in organizations must be encouraged for continual quality improvement. Continual improvement is not happening in Indian organizations at large

Mr. Srikanth R, Joint Director, National Accreditation Board for Testing and Calibration Laboratories (NABL)

- As technology change accelerates exponentially and new digital platforms are emerging, NABL aims to provide with an end-to-end solution to its stakeholders by developing online portal

- At present, NABL has MoUs with export inspection council, FSSAI, APEDA, Tea Board and Coffee Board

Mr. C. K. Biswas, CEO, National Board for Quality Promotion, QCI

- QCI is doing a project on Industry 4.0 gap assessment

- QCI gives quality awards, project-based awards and individual-based awards

Session 2
Continuous Improvement and Innovation Management

Discussion Agenda

All activities like coming up with ideas and developing, launching new products need a culture of identification of trends and future opportunities. This requires designing an organizational innovation roadmap for transforming idea into a successful innovation with conduits of prototyping, implementation and marketing. All these activities need to be integrated into all business areas.

Ms. Kamakshi Raman, Executive Director, SAIL

- For continuous improvement and for any innovation to happen, the organizations have to continuously invest in people. It is important for organizations to invest in people and while doing that it's important to understand what is expected from the individuals

- Quality is not just physical; it is an aspect of one's thinking

- Half the battle is won if it decides to visualize a process

- Continuous mindset will lead to innovative culture by actively shaping changes, by dedicated team work, by positive mindset and taking responsibility

Prof. (Dr.) Raman Kr Jha, Vice Chancellor, Amity University, Ranchi

- Continuous improvement and innovation has its essence in letting one understand that there are different ways of improvement

- Somebody who is working just for some number of hours in an organization also feels he is

contributing but the improvement does not exist, it's just a continuous routine type of work without any new addition

- Somebody learns with time and goes on to stepwise improvement in quality; there is incremental improvement in the performance

- There can be an eight-step model to actually get into continuous improvement and innovation - focus, exploration, selection, designing, action, assessment, creation and refocus

- One needs to understand what is the goal that is to be achieved and the goal must be smart; there should be critical success factors or key indicators for success and there should be a method of tracking whether that is being followed or not. This has to be the part of quality culture in an organization

Mr. Sundeep Sinha, DGM, HRD, MECON Ltd.

- Continuous improvement and innovation were going since time immortal

- If critical success factors and key performance indicators are not given importance, one will be standing in a queue at the last

- The foundation of any quality improvement is to develop a quality culture or mindset within the organization and integrate it throughout the company

- Quality culture starts with top leadership that understands and believes the implications of the systems, views and knows the

necessity of serving customers in order to succeed through quality processes

Mr. Rajesh Sharma, AGM, Quality Assurance, PVUN Ltd.

- In innovation management it is not necessary that innovative ideas should be generated in- house. One should also look for available technology outside and if it's implemented, it will help a lot

- If good training and facility is provided to the employees, it should be checked whether they are misusing it and one should have control over this

- To be quality conscious it is not necessary that one should have much training. Basic thing is if one is enjoying the work and is dedicated to the work, automatically quality will improve

- One should always start thinking from basics instead of going to higher level

- Top management needs to know that a culture geared toward quality is essential to long-term success and competitive advantage

Achieving "Zero Downtime" – Enabling Predictive Maintenance for Prescriptive Maintenance

Discussion Agenda

Organizations need strategies to maintain plant assets and increase their life spans. Strong maintenance plans in place keep plant operations running smoothly. With increasing industrial demands to get more output and decrease operating costs, investing in predictive maintenance and condition monitoring tools is the mainstay. Predictive and Preventive Maintenance provide a framework to take correct decisions for predicting the deterioration of devices and steps needed to restore the inherent reliability of a device. Appropriate balance of maintenance approaches is a key to minimize asset downtime and repair costs while maintaining safe environment for workers.

Emerging Trends in Industry 4.0

Discussion Agenda

Industry 4.0 is the convergence of the cyber-physical systems which is a shift from linear operations to an interconnected system with holistic integration through the entire value chain. Smart factory represents a transition from traditional automation to a connected system of data and production systems. Areas as advanced planning, scheduling using real-time production and inventory data are some of the features of smart factory with multiple facets that manufacturers can leverage to remain competitive in the global marketplace.

Mr. Anand Akhori, Founder, Experience Zone

- There are newer technologies that improve quality and control systems. The rate of change is faster than ever. Successful businesses will be those who can understand and take advantage of this change

- Market for virtual and augmented reality will increase in India in the next few years. Virtual and augmented reality helps in product design and production line development

- AR VR technologies offer a new layer that helps in training, connects silos and enables feedback loops across processes for quality manufacturing

- Quality operations produce more and better than their competitors while consuming fewer resources

Mr. Piyush Ranjan, Registrar, Jharkhand Rai University

- Industrial revolution has transformed from Industry 3.0 to Industry 4.0. It is high time that even in India we should adopt innovation to be in the race

- The goal of the manufacturing operation should be to optimize the value chain. Fundamental resources available to them are process design, training, and strategic investment in enabling technology.

Mr. Manish Kumar, Regional Head, ICICI Bank

- Decrease in operating cost is important for all industries and if an organization is to be a profitable organization, decrease in operating cost is very important

- If all the work that is currently done by going to a bank is done from home or while travelling, banking will become very easy

- Manufacturing sector has to focus on supply chain management and supply quality management. Quality of manufacturing must be linked to the efficiency in the supply chain, then it can be manufactured quickly and effectively

- Integrating Culture of quality is the first step in correcting the problems

Prof. Jaimala Jindal, Associate Professor, PEC University of Technology

- Innovation is knocking the door of every industry and technology is changing the way we interact and work with others

- Machines, components, individuals, properties, ICD systems are all blended together to make Industry 4.0

- Nowadays buzz word has shifted from smart to AI, machine learning and data analytics

- By Industry 4.0 to the companies into manufacturing, supply chain, logistics, procurement can enhance their operating profits by 40% at less than 10% of the plan capital of expertise

Mr. Sanjeev Bajaj, Industry Relations, Sarla Birla University

- In India we have been very slow in adopting technology, especially in manufacturing and service industry

- In any sector, either it's manufacturing, service, hospital educational institute, production site we find people are not ready to invest in technology, safety, and comfort of people

- Advance analytics will rule the world; everything will be analyzed from different angle; digitization is the key to everything

- Quality culture helps an organization to grow. Quality culture should be integrated into every step of manufacturing process

Prof. S K Singh, Director, RKDF, University of Ranchi (EX GM HRD, Central Coal Fields Ltd.)

- Quality culture means that work is done right all the time. It requires attention to little things and ensuring that product does exactly what it was intended to do

- India has witnessed changes in almost all areas in the past few years. Globalization of market, changing economic scenario, diverse level work force has compelled organizations to redefine entire policies and programs to come up to the expectations of our workforce and society at large

- Business leaders understand the concept of creating quality culture to attract employees who in turn can drive business growth in the Industry 4.0 era

- Industry 4.0 models can be successful by establishing a companywide understanding of the importance of quality and making it a fundamental strategy of the company culture

7th Regional Quality Conclave

Gaining Competitive Edge through Best Quality Practices

Quality Council of India and PHDCCI organized 7th Regional Quality Conclave on the theme "Gaining Competitive Edge through Best Quality Practices" on 26th September 2019, Hotel Hilton Garden Inn, Lucknow.

The objective the Conclave was to create awareness about significance of quality culture in businesses, deliberate on how organizations could continuously improve and innovate and share the technological advancement like Industry 4.0 and predictive maintenance.

Some of the best minds engaged in Creating a Quality culture, Product innovations, Industry 4.0 and Predictive Maintenance congregated at the Conclave to lead the discussion and evolve the next steps for the next engineering revolution in India.

The Conclave was an important step to sensitize Industry in Uttar Pradesh on the aspects of quality consciousness of production process and importance of quality by adopting a quality culture.

The Conclave was attended by over 130 delegates from top organizations from Uttar Pradesh.

Inaugural Session

Shri Siddharth Nath Singh, Hon'ble Minister, MSME, Khadi & Village Industry, Textiles & NRI Department, Uttar Pradesh

- Highlighted on creating quality awareness in the MSME sector by educating them

- A draft is being prepared by the Government on the MSME Act, which will include that those MSMEs which will adapt the Quality Certified Process for their goods will get incentive from the Government

- Uttar Pradesh to achieve a 1 trillion $ economy by 2022

- Skilling and training is a part of Quality process and they go hand-in-hand

- Government has introduced Electrical Vehicle Act which aims at reducing pollution by 2030 where the conventional vehicle will be replaced by the electric vehicle

- In order to promote ODOP products, proper branding should be done

- Government is having several clusters of industry where the work of training, skilling the small industries is going to happen soon

- Discussed about Tax Policies on whom and where to levy Taxes

- Using social media to sensitize industry on creating a culture of quality within them

Mr. C. K. Biswas, CEO, NBQP

- Make in India initiative led India on the path of becoming the hub for Hi-Tech manufacturing

- India is expected to rank amongst the top three growing economies and manufacturing destinations of the world by the year 2020

- Government of India has implemented Make in India as core policy initiative to encourage and accelerate growth of India's manufacturing sector

- Quality Control is emerging as a global challenge. Industry is primarily focusing on production and ignoring quality standards. This is one of the reasons, due to lack of quality, the industry is losing orders

- UP, as a region, has a high sense of technology, labour, investment power but needs to maintain a balance between pricing and quality

- QCI focuses on Accreditation & leading up Quality campaign and aims at creating an Ecosystem for quality

Dr. Jatinder Singh, Director, PHDCCI

- Objective of nationwide series of conclave is to sensitize Industry to adopt the facets of quality in manufacturing sector covering domains from automobiles, pharma, textiles, electronics, logistics & supply chain and others

- Currently, manufacturing industry contributes 16% in total GDP which can be enhanced, if the industry abides by quality controls

- Over the last few decades quality and productivity have surfaced as a major area of concern for businesses

- Best Quality Practices is a system of shared values, beliefs and norms that focuses on continuously improving the quality of products and services

- Having the right set of skills in quality team is the foundation for building a strong quality department that allows to develop robust quality processes

Mr. Sunil Kumar, Joint Commissioner, Directorate of Industries, (ODOP), Government of Uttar Pradesh

- India has 7200 Startups and every year there is an addition of thousand startups. A recent study has shown that 90% of startups die in the first 5 years due to lack of innovation

- We are second to China as far as MSMEs are concerned. China has 8 Cr MSMEs while India has more than 6 Cr MSMEs. We are not able to compete with China because of lack of innovation, quality and unrecognized gap in the MSMSE ecosystem

- Mittelstand companies are small MSME units from Germany having innovative and constructive ideas which are making them successful

- Emphasised about the creating good quality in handicraft sectors

- Discussed about MSME being linked up with the online selling websites

- ODOP is being copied by different states so that the quality of MSME can be improvised

Ms. Kalpana Awasthi, Principal Secretary, Forests and Environment, Government of Uttar Pradesh

- A good responsible business enterprise should consider 3 folds in terms of Productivity and Quality Consciousness – Green Productivity, Circular/ Blue Economy and Green Jobs:

  Green Productivity – There should be an economic unit i.e. it should have an economic activity to generate job, business and to sustain itself in the competition. Secondly, it should have social impact which should be projected in the terms of environmental consciousness, by creating Green Jobs as well as by creating welfare for the country

  Circular Economy – This concept entails resource efficiency i.e. anything an industry do should not be a waste and whatever waste it will generate should be a raw material for another industry. Secondly, how different countries are using the waste that are isolated and segregated for production of new products that in return reducing a cost of production of using virgin raw

material. Third important aspect is how to extend the life cycle of the products

Green Jobs – It entails in improving energy and raw materials efficiency, minimizing waste and pollution, protecting and restoring ecosystems which also helps in upscaling the knowledge and skills in a particular sector

- Innovation Triple Helix - interaction between academia, industry and governments, to foster economic and social development

- National Productivity Council holds lots of training by providing the training on enhancement of productivity of MSMEs

Adopting & Maintaining a Role Model Quality Culture


Discussion Agenda

New-age organizations are adopting a new approach of quality culture, which moves beyond the traditional 'Total Quality Management' tools. Businesses can create Role Models that showcase quality in all their actions. Continuous Quality Improvements consist of incremental initiatives and innovations to achieve best practices. In an organization with a quality culture, quality is deeply embedded virtually in every aspect of organizational life, wherein employees not only follow Quality Guidelines, but also consistently guide others taking quality-focused actions.

Dr. R P Trivedi, GM – HRD & Admin, CP Group of Companies

- Presented a presentation on Role of HR in Organization Culture Building

- The key to a successful organization is to have a culture based on a strongly held and widely shared set of beliefs that are supported by strategy and structure

- When an organization has a strong culture, three things happen --- Employees know how top management wants them to respond to any situation, employees believe that the expected response is the proper one, and employees know that they will be rewarded for demonstrating the organization's values

Mr. Annkit Kummar, Director, Arch-En Design

- Methodology to ensure Quality as a special focus on pre-construction, construction and post construction stages – leading to value delivery across the entire life cycle of the project
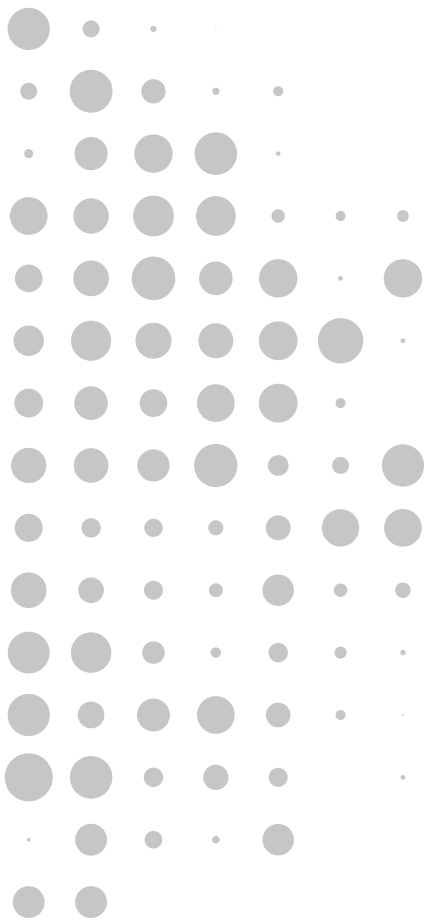
- He stated about the new technology used in construction of building i.e. BIM which is Building Information Modeling - an intelligent 3D model-based process that gives Architecture, Engineering, and Construction (AEC) professionals the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure

Dr. Anil K Srivastava, Director – IASQM

- Talked about about Creating & Sustaining a Quality Culture in Organization which may become a Role Model for others

- Focused on How to Make Quality a Way of Life

- Beginning with defining the concept of Organizational Culture, he explained its importance and deliberated on how it develops

- Defined Quality Culture and its Core Values and Beliefs that provide Quality Products and Services which is crucial for ensuring Long-term organizational success in today's highly competitive & rapidly changing world

Mr. Rakesh Misri, DGM, Tata Motors

- Talked about the foundation of Tata Motors' growth over the last 74 years which is a deep understanding of economic stimuli and customer needs, and the ability to translate them into customer-desired offerings through cutting-edge technologies

- Tata Motors has unleashed the future of mass public transportation by launching the Starbus Electric (9m and 12m) and the Starbus Hybrid 12m buses

- To meet the current and future passenger transportation needs in smart cities, they have rolled out a range of smart buses which are designed, developed and powered by alternative fuels. Developed indigenously, these buses are safe and comfortable and are economically viable 'Made in India' solutions

- The country's first "Fuel Cell Bus" is also being manufactured by Tata Motors Limited

- Focus on current and future auto technologies to enhance the look and feel of vehicles and to boost the overall driving experience of our customers

Session 2

Enhancing Skills for a New Quality Paradigm

Discussion Agenda

Contemporary organizations understand the importance of skill enhancement to face as well as thrive in the competitive times of today. True culture of quality manifests when employees showcase "quality in action." This requires employees to apply skills and make decisions in critical areas. To ensure excellence, cultural change efforts must focus on formulating a clear, compelling and shared vision for re-skilling or upskilling employees. Appropriate training at all levels to imbibe quality culture should be done periodically. This will embed cultural change in the organization's structure, systems and policies.

Mr. Kirti Kumar Pant, General Manager, UPTEC Computer Consultancy Ltd.

- Industry 4.0 is the subset of the fourth industrial revolution that concerns industry

- The fourth industrial revolution encompasses areas which are not normally classified as industry, such as smart cities for instance

- Industry 4.0 describes the trend towards automation and data exchange in manufacturing technologies and processes which include cyber-physical systems (CPS), the Internet of Things (IoT), Industrial Internet of Things (IIOT), cloud computing, cognitive computing and artificial intelligence. Gave an example of Kodak where he stated that the pitfall of the Kodak is missing the power of exponentials

- He described power of exponentials as -

''6Ds'' – Exponential Framework
Democratize
Dematerialize
Demonatize
Disruptive
Deceptive
Digitized

Mr. Atul Srivastava, General Manager, Union Bank of India

- Talked on Quality Culture and Skill Enhancement for developing expert personnel where he shared his views on how to go about skill enhancement, which are as follows:-

- A person should continuously look for ways to develop his or her skills, abilities and competencies to enhance performance. Through effective skill enhancement, one becomes more capable, competent and confident in oneself and performs better

- Skill enhancement program should be goal specific in order to develop "core-competencies." This can be done by way of Re-skilling and Up-skilling in all domains of quality culture

Ways of Re-skill and up- skill were also mentioned by him, which are:-

Formal training

- Training at staff training centres
- Locational workshops delivered by domain experts
- Distance learning- using online training using multimedia interactive tools

Mentoring

- Assigning mentors to junior employees can give them exposure to skills; it would be difficult otherwise to pick up in a formal training

Easy access to training material

- Employee should have access to training material in order to be able to study anywhere anytime at their own convenience

Mr. R K Sharma, HOD, Institute of Hotel Management

- He gave an overview of Hotel Industry in India with the rapid growth of International Tourists visiting to India year by year, and explained the significance of Role Model Quality Culture to meet this rapid growth in the Hospitality Industry

- Additionally, he explained how innovation has been made in the quality of food in hotels (example – vegan, gluten free etc) to cater the visitors having different preferences in food

- Further, he also explained another super interesting innovation in the hospitality industry is the use of virtual reality in hotel rooms. So, instead of a bucket of fries or a sandwich, one can now order a virtual trip through room service. These services are pioneered by Marriott and are in beta phase for a lot of hotel chains

Mr. Pankaj Shukla, Jt. Director, NIELIT

Presented a presentation on Enhancing Skills for a New Quality Paradigm. He explained the benefits and importance of -

- Automation
- Internet of Things (IoT)
- Artificial Intelligence
- Case Study
- Big data Analytics and
- The need of Digitization for improved customer interactions

By elaborating the significance of Digitization he stated that in any given business, digitization would help to -

- Develop new digital way (more effective) to connect to its customers
- New Digital way to showcase your product

For example:

- Car Companies can provide virtual tour of the cars
- Tourism companies can provide Virtual tour of places of Importance etc.
- He concluded by stating that under this digital age the pivotal role played by Artificial Intelligence, Computer Vision & Robotics cannot be neglected and it goes without a doubt that digitization has transformed the services of business owners as well as customer satisfaction to a great improved extent

Prof. (Dr.) Bhavesh Kumar Chauhan, Director BBDNITM & Prof. Bhaskar Pandey, President (Institutional Innovation Council), BBDNITM

Presented a presentation on Enhancing Skills for a New Quality Paradigms in Academics. They explained the Paradigms of Education 4.0 as -

- E-Learning Tools (Learning, anywhere any time)
- Flipped Learning (Personalized Learning)
- Outcome Based Education
- Project Based Learning
- Hands on experience on the field
- Simulation and Data Analysis

They further elaborated the Program Outcomes for Engineering Graduates by following pointers –

- Engineering Knowledge
- Problem Analysis
- Design/Development of Solution
- Conduct investigations of complex problems
- Engineer and Society
- Environment and Sustainability
- Individual and Team Work
- Communication
- Project Management and Finances
- Life Long Learning

They concluded stating the significance of Flipped Learning Module as Modern Automated way of Learning and explained that a flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom.

Session 3

Innovation & Change Management

Discussion Agenda

Innovation and change have become business imperative component of sustaining competitive advantage. Successfully managing the ongoing change and building innovation culture in organization requires extensive preparation and careful execution.In this paradigm, employee development and talent man-

agement are important determinants for cultivating a culture where ideas are encouraged for thriving innovation. Innovation and change occurs when collaboration with peers happen. Innovation requires some level of change from external triggers like customer needs or expectations, new technology, societal change and regulation change. The internal triggers are problems in operations and leadership change.

Mr. Sandeep Kumar Lamba, AGM – QA, Radico Khaitan Ltd.

- Shedded light on the success story of Radico Khaitan Ltd. which is now one of the largest players in the Indian Spirits industry and is formerly known as "Rampur Distillery & Chemical Company" established in 1943

- He added that the renovation, expansion and modernization converted Radico into the Most Modern Distillery of India

While laying emphasis on the fact that Quality should be a continual Process for any product, he segregated the Quality Circle stages as –

- Consumer focus
- QA at vendor locations
- Quality Circle Meet
- Training & awareness
- Storage & ware housing

Ms Shashi Rana, Chief Consultant, Patent Minder, IP Associates

Key elements for competitive success are -

- Planning monitoring and evaluation
- Focus on customers and other stakeholders
- Teamwork
- Delivering quality in business
- Continuous evaluation and improvement
- Scientific and analytical approach
- Maintaining high quality standard is an integral part of any product's life cycle, as quality aims for high & sustainable performance, makes the product / services effective, gives strength and credibility, add in morale and confidence, helps in building trust, and in log run it proves to be very economical
- Explained the importance of Creativity, Invention and Innovation in the success story of any product's life cycle
- Emphasised on the significance of Intellectual Property Rights (IPR) in establishing a unique identity of brand value of any product as well as on any individual's creation of mind

Mr. Milind Raj, Director, Monda Tech (India)

- He differentiated between Change & Innovation stating that Change is incidental & Innovation is structural

- In recent years, technological advances in unmanned, autonomous and semi-autonomous vehicles have reduced their cost while increasing their utility and ease of use

- The increased development and use of unmanned aerial vehicles (UAVs), commonly and colloquially known as drones, have added a new dimension to SAR operations

- UAVs and drones are currently being developed for applications in construction, mining, journalism, security, and even in delivery. In practice, the use unmanned vehicles can be beneficial in situations where the use of human manpower can be dangerous, limited or rapid decisions are required

Explained how Tech Innovations are reshaping the future by giving the instances of -

- Innovative Imaging Technology
- Audio sensing to locate lives during disaster through swarming
- Machine Learning (ML) and AI in drones to fly through challenging routes
- Innovative robotic arms for drones to perform complex rescue missions
- Drone swarm technology—the ability of drones to autonomously make decisions based on shared information—has the potential to revolutionize the dynamics of conflict
- Precisely defined, drone swarms are "multiple unmanned platforms and/or weapons deployed to accomplish a shared objective, with the platforms and/or weapons autonomously altering their behavior based on communication with one another"

Mr. Amit Iqbal Srivastava, Founder & CEO, Anuna Education Network Pvt. Ltd.

- Shared the video clip on how Anuna Education is working to bridge the skill-gap in India by creating well-rounded professionals, who outshine their competition in India's growing work-force. He further added that Anuna Education is the lead enabler in innovating solutions in skill development and education space thus creating a productive skilled work force to prepare over 1,00,000 youth to be industry ready by 2020 from the States of Uttar Pradesh & Uttaranchal and also to act as a catalyst in the growth of small business entrepreneurs in North India

Session 4

Automation & Digitalization

Discussion Agenda

As disruptive technologies increase, traditional firms face a growing need for meaningful digital transformation. Automation is the process of converting manual tasks more efficiently through digital technology. Digitalization is a broader approach

that focuses on improving upon existing tasks. Automation enabled by the Industry Internet of Things (IIoT) allows for more centralized management and control. Manufacturers can become more agile of customer demand and inventory levels in the supply chain. Organizations can leverage the power of automation and digitalization by generating and analyzing data for predicting their future course of action.

Mr. Jayant Krishna, Senior Fellow, Center for Strategic & International Studies, Washington, DC & Ex Director, Wadhwani Foundation, USA

- Industry 4.0 technologies help organizations realize immense value with smart products, smart services, connected factory, and smart production to achieve business growth and efficiency

- 3D printing which is a transformative approach to industrial production enables creation of lighter, stronger parts and systems

- Product life cycle is broken into four stages: introduction, growth, maturity, and decline. This concept is used by management and by marketing professionals as a factor in deciding when it is appropriate to increase advertising, reduce prices, expand to new markets, or redesign packaging

Takeaways of Product Lifecycle –

- The concept of product life cycle helps inform business decision-making, from pricing and promotion to expansion or cost-cutting

- The product life cycle is defined by four stages: introduction, growth, maturity, and decline

Mr. Avanindra Gautam, DGM–TS, NTPC

- Emphasised on the significance of Automation & Digitization in Power Industry by stating that they have become an integral part in power sector about enhancing plant performance through dependable and predictable operations

- Power plant automation solutions help in automating turbine control, boiler control, boiler protection, the balance of the plant, and integration of third-party systems with the help of predictive maintenance and connectivity through the SCADA system. Various units of thermal power plant are controlled from common control of power plant even in hydro plant, remote operation from around 400-500 KM is also planned and in testing

- India's transmission sector is quite on par with global benchmarks, automation technologies has still

not penetrated distribution sector compared to the West

• The financial health of discoms needs substantial improvement so that they can start investing in digitalization technologies which will lead to further efficiency improvements and also address demand side challenges

• There will be a need to provide localized solutions to emerging challenges like renewable energy integration, EV charging infrastructure management, network stability, power reliability and load and demand management

• Additionally, digital sensing and automated analytics-based solutions will enable the move towards a more efficient, reliable, resilient and responsive grid

• Digitalization is growing rapidly across the world and devices are becoming increasingly intelligent. Digitalization will also play a major role in the renewable energy sector going forward

Mr. Venkateswar Chaubey, Industrial Automation-ESP, Larsen & Toubro Limited

• Emphasised on how significantly Automation & Digitization have played pivotal role in transforming it an Engineering and Construction major in the Country.

• L&T-Nxt, a new vertical will focus on artificial intelligence (AI), IoT (Internet of things), virtual reality, augmented reality, geo-spatial solutions and

cyber security to offer automation solutions to industrial clients by leveraging its diverse customer base and domain knowledge expertise

Mr. Rajkishor Behera, IOCL

Emphasised on advantages of Terminal Automation System (TAS) as -

• Improved Transparency in the Business & nil manual interference

• Increased production rate

• Increased optimization of resources

• Improved product quality

• Improved safety of supply Locations

• Records of all activities automatically on real time basis and available for future reference

• Helps to maintain an error free system

He further categorized Automation System Terminal as -

• Supply and distribution (S&D) operation i.e. Indenting system by dealers and consumers and up to acknowledgment of product

• Terminal Automation System (TAS) i.e. for Storage of product in tanks, facilities for receiving/delivery of Product & safety facilities installed in the Terminal

• Enterprise resource planner i.e. SAP System

Mr. Deependra Kumar, EO (RA), Kanpur DO, IOCL

Elaborated the significance and need of Automation Architecture by shedding light

on the challenges & issues faced by many corporate giants of the Country before Automation came to Retail Outlets, for e.g. -
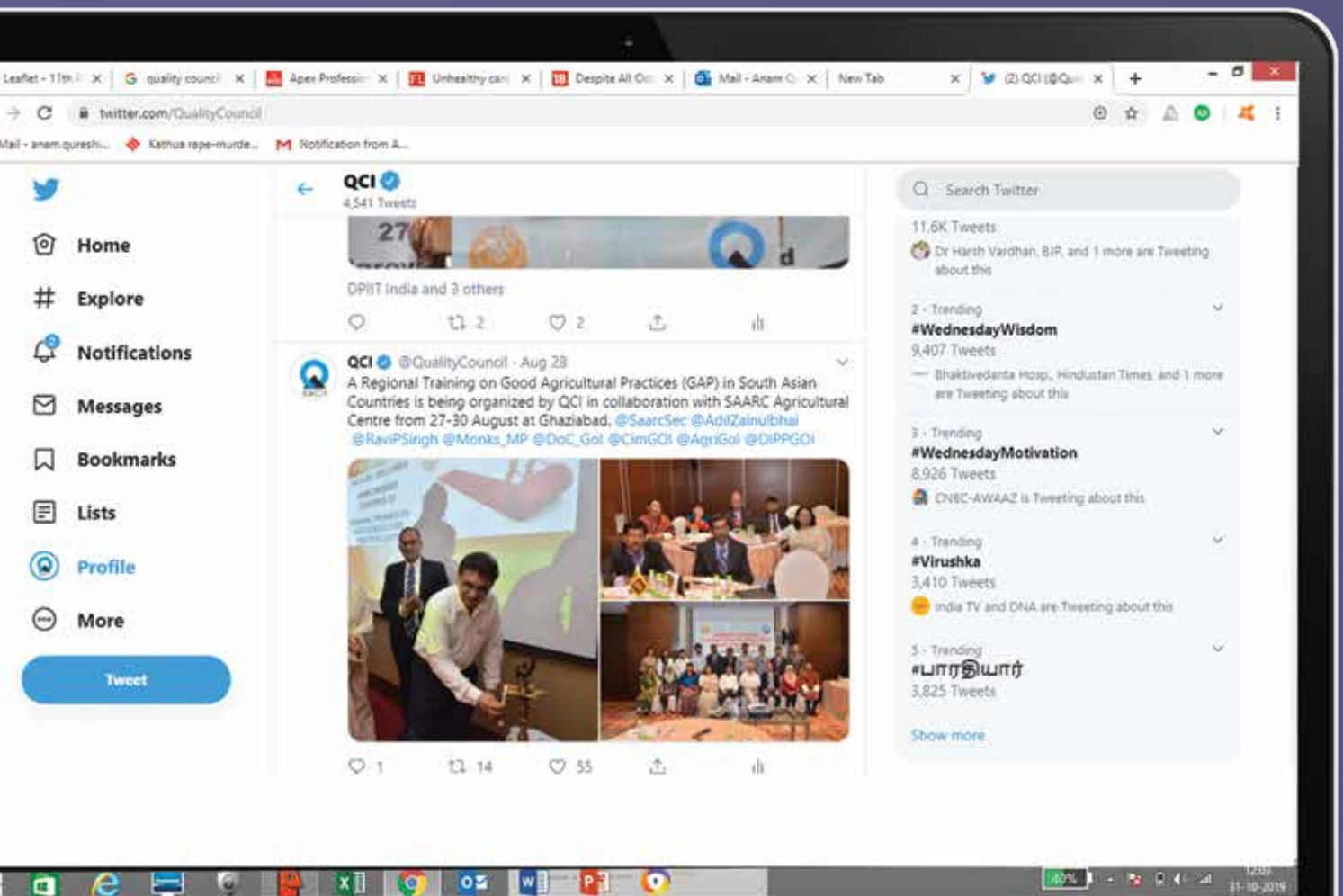
• Dealer Oriented System.

• No direct interface between the Company and the Customer.

• Details of ROs (Stock, Sale, Issues etc.) monitored by physically available at site

• Lack of confidence at customer end

• Improper utilization of assets

• Improper utilization of manpower (Company/Dealer)

He also mentioned the benefits which came after Automation as -

• Automated Dip and Stocks

• Auto Price Change

• Online record for every Transaction

• Auto Reconciliation

• Effective Grievance Management

• Better Manpower Utilization

• Automatic Bill Generation

• Monitoring of Customer Attendant

• Audit Trail

• e-Bill Generation

• Improved Loyalty Services to Customers

• Transparency in Operatio

With the introduction of Automation & Digitization, the Oil Industry has touched new heights with flying colours and improved customer satisfaction.

Our Social Media Presence

People Development

What is People Development?

People are considered as family member/ assets of any organization/ human resource of an organisation. People development covers activities that identity & develop talents, build human capital and facilitate career propagation, enhance the quality of life and contribute to the realization of their dreams and aspirations. The human resource pyramid is depicted below: -

Senior Level

Middle Level

Supervisory Level

Operators Level
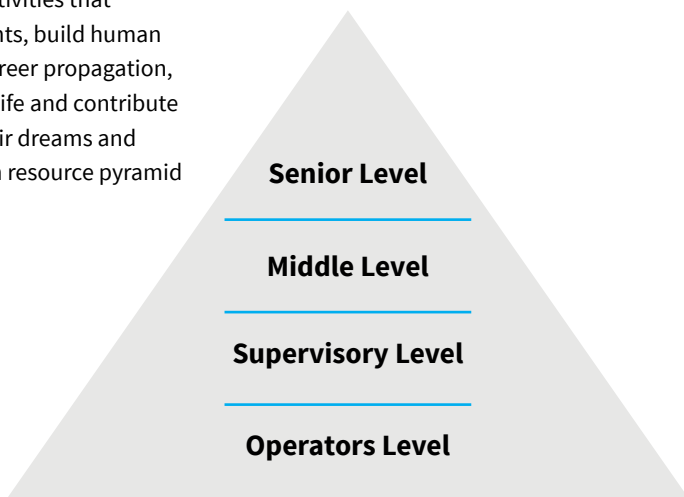
Objective

Coordinated activities of identifying the knowledge & skill gap, imparting the same, enhancing desired attributes that are necessary to perform one or more role-based tasks, and the evaluation that the desired competencies have been achieved for all the employees

Benefits for Organization

- Increased productivity and adherence to quality standards
- Economy of Operation: Skills people avoid accident, wastage of material and reduce cost of production

Some Examples

Skill Matrix

S.No	Employee Name	Designation	Product Knowledge	Process Knowledge	Operation Skill	Mould set up skill	Inspection Skill	InstrumentsHandling	Quality System	5S / Visual Control	Average	No. of Training Reqd
1	Name 1	Engineer	4	4	4	4	4	4	4	4	4	0
2	Name2	Supervisor	4	3	3	3	3	4	3	2	3.1	2
3	Name3	Supervisor	4	4	4	4	4	4	4	4	4.0	0
4	Name 4	Supervisor	4	4	4	4	3	4	2	4	3.6	2
5	Name 5	Operator	2	3	3	3	2	3	2	3	2.6	3
6	Name 6	Operator	2	2	3	2	3	2	2	3	2.4	5
7	Name 7	Operator	3	4	3	3	2	3	3	2	2.9	2
8	Name 8	Operator	3	2	2	2	3	3	3	3	2.6	3
9	Name 9	Operator	3	2	2	2	1	2	2	3	2.1	2
10	Name 10	Operator	3	2	1	1	2	1	3	2	1.9	3
11	Name 11	Operator	3	3	2	N/A	N/A	2	2	1	2.2	2
12	Name 12	Operator	3	1	2	N/A	N/A	1	2	1	1.7	2

Note: 1 mean Training (0.5)

Average Score:	1	2	3	4
	Trainee	Can work under Supervision	Trained	Ability to coach

Company Policy: Every employee should gradually move to score 3 in atleast 5 skills.

Prepared By: Name
Date:

Approved By: Name
Date:

- Coordination among team create improved employee satisfaction and morale
- Reduced employee turnover
- Multiskilling of operators across areas
- Encourage innovation and Creativity

Benefits to the People

- Professional Growth: Employee development plans are created to help individual in their career growth in the organization
- Understanding of new Quality, Productivity and Safety concepts. Trending practice in industry
- Increased employee motivation, process ownership and importance in organization

-Team ZED

Role Mapping

Role mapping for Manufacturing Process

Role Position	AVP Operations	AGM Manufacturing	Works manager	Production manager	Assistant Manager	Line supervisor	Line operators	Administrative executive
Plant development	✓					✗		✗
Planning & Organizing	✓							✗
Product /Process training		✓						
Corporate Management	✓							
Key project Accountability	✓		✓				✗	✗
Training & Development (Process/ Product Behavior)					✓			✓
Process Expertise/ Improvements		✓			✓			
Delivery Index achievement/ execution			✓		✓			
Quality Index achievement		✓	✓				✓	✓
Customs & Factory regulations					✓			
Generation Of MIS report & analysis						✗		
Continual Improvements in Plant	✓		✓					
Maintaining Factory standards & better work environment		✓			✓			✓
Plant Layouts	✓							
Rejection Disposal actions		✓				✗	✗	✗
Goal setting	✓	✓						
Mandatory Regulatory		✓	✓		✓			✓
New product development				✓				
Risk Mitigation plan & execution				✓				
Documentation & Execution		✓						
Process validation	✓			✓				

Symbol use Role : Yes	✓
Symbol use Role : No	✗

QUEST ™
Quality. Employability. Skill. Training

Decoding millennial's way of Learning

Millennials are the experiences generation

- Julia Hartz

Millennials or the Generation –Y, as we know are confident, ambitious, liberal, achievement-oriented and insanely tech-savvy. This generation has reached its adulthood in the early 21st century, thus becoming the dominant strata of population worldwide and has impressive representation in workforce and higher education.

The world is constantly changing and there has been a paradigm shift in way of acquiring knowledge. Ways of imparting knowledge are no longer confined to using blackboard, chalk, pen or paper. The educators have discovered innovative ways of incorporating it in higher education and corporate learning which, in turn, have manifested in the rapid growth of technology-assisted-teaching methods of learning.

As millennials are characterized as a generation that wants to be challenged all the time to enrich their experiences, build self-confidence and augment leadership quality. They keep looking for opportunities and mediums through which they can refine their existing skill sets to keep up with this dynamic and evolving world.

If we try to decode the millennial's way of learning, we get the answer by looking around ourselves. This generation has witnessed the digital boom and they simply rely on technology for all the solutions. It can't be denied that digital platform has unburdened them from physically demanding tasks and made life simpler, easier and faster. We no longer have to go through the physical task of searching through the library catalogues and then search the desired books from the shelves, leaf through the pages for long hours at a stretch. Everything is in front of us in a jiffy. With the ease of getting requisite information and the penetration of technology in the domain of education, the generation has become hungry for e-learning. Unlike

our predecessor learning and upgrading knowledge is no longer a laborious dedicated effort but can be had at any point of time available at our disposal.

E- learning or online education is favored by Generation -Y because it compliments with the characteristics that they possess. As most of them are self-motivated and have the continuous urge to keep learning they prefer to go digital instead of enrolling oneself in coaching or classes. This saves time and money associated with it. Moreover, the working ambitious millennials prefer to consider on-job learning. Continuous learning and updating of their knowledge have considerable impact on personal and professional growth.

As a millennial myself, I am always looking to stay ahead in the learning curve. Unlike the pre-Gen-Y period, social and business environment is extremely dynamic, emerging technologies have a shorter life getting steadily replaced with newer technologies. It is therefore quite apparent that we need to update our knowledge not only to take advantage of the new technologies but also get used to the great uncertainties at each transition. In a world where the fittest survives, only those who are able to update their knowledge continuously will survive the test of time.

The best part about this type of learning is that it is very focused and offers active learning. Gen- X loves realistic and experiential learning. They yearn for real world scenario-based examples and show greater interest in learning through hands-on experience. The interactive learning through infographics, animations and on -the -spot assessments work well for them. The learnings are focused and preferred size of studying these days; these are not elaborate lessons but bite sized contents that are precise and assures quality learning. This obviously gives individuals to build on inventions

that are already in existence and no one needs to reinvent the wheel due to their ignorance about such inventions elsewhere in the world. One can seriously focus on this area of choice without the need to go through unrelated matter as it is now possible to filter off such matters with great ease.

Over the years e-learning has seen an impressive growth and it is stated that it is the next big thing. It is here to stay since education is widespread, it is without boundaries and is available cheaply. It is not bound within the wall of libraries or museums or personal domains of institutions or individuals. As we are glued to gadgets all the time be it on laptop or mobiles, most of the digital learning platforms have made themselves ubiquitous which means knowledge can be absorbed anytime and all time .One can seriously focus on this area of choice without the need to go through unrelated matter as it is now possible to filter off such matters with great ease.

As a known fact, millennials are the most educated generation and they perceive learning as an indispensable part in their growth and development. The constant change in business demographics has revolutionized the way knowledge is being offered. The shift in acquiring education and knowledge is bound to happen and the next generation may completely shed of the idea of traditional learning and embrace digital learning.

Rituparna Mukherjee
A Millennial

Ease of Doing Business and India's Prospects

Sameer Parashar

Project Manager, PPID

What is Doing Business project?

The Doing Business project by World Bank provides objective measures of business regulations and their enforcement across 190 economies and selected cities at the subnational and regional level. The project was launched in 2002 and it looks at domestic small and medium-size companies to measure the regulations applying to them through their life cycle. Doing Business captures several important dimensions of the regulatory environment as it applies to local firms. By gathering and analyzing comprehensive quantitative data to compare business regulation environments across economies and over time, Doing Business encourages economies to compete towards regulation that is more efficient and offers measurable benchmarks for reform. These studies provide data on the ease of doing business, rank each location, and recommend reforms to improve performance in each of the indicator areas. Selected cities can compare their business regulations with other cities in the economy or region and with the 190 economies that has ranked. Doing Business subnational studies Doing Business The first study, published in 2003, covered 5 indicator sets and 133 economies. This year's study covers 11 indicator sets and 190 economies.

What aspects are studied to conduct the ranking?

Economies are evaluated on the following 10 aspects:

- Starting a business
- Dealing with construction permits
- Getting electricity
- Registering property
- Getting Credit
- Protecting minority investors
- Paying taxes
- Trading across borders
- Enforcing contracts
- Resolving insolvency

Each of these parameters has certain sub-parameters that are quantifiable (mentioned alongside). For example, the 'Starting a business' parameter has procedures, time, cost and minimum capital required as calculative parameters.

How are the Ease of Doing Business rankings calculated?

The Ease of Doing Business rankings are calculated based on the Distance to Frontier (DTF) score. The distance to frontier score benchmarks economies with respect to regulatory best practice, showing the absolute distance to the best performance on each Doing Business indicator. When compared across years, the distance to frontier score shows how much the regulatory environment for local entrepreneurs in an economy has changed over time in absolute terms. Based on the DTF score, the rankings are calculated. When rankings are compared, inter-country comparisons can be made.

How has India done on the EODB rankings?

India ranked 63rd in the World Bank Doing Business (DB) 2020 rankings, a measure of how easy it is to do business in the country. This is a 14-rank improvement over 77 in DB 2019. India ranked 100 in DB 2018. India's score has also improved, from 67.5 in DB 2019 to 71 in DB 2020.

Indicator	2018	2019
Resolving Insolvency	108	52
Construction Permits	52	27
Trading Across Borders	80	68
Registering Property	166	154
Paying Taxes	121	115
Getting Electricity	24	22
Starting a Business	137	136
Overall Rank	77	63

As it can be seen, India has improved significantly over the last year. The important features of India's performance this year are:

- The World Bank has recognized India as one of the top 10 improvers for the third consecutive year

- Recovery rate under resolving insolvency has improved significantly from 26.5% to 71.6%

- The time taken for resolving insolvency has also come down significantly from 4.3 years to 1.6 years

India continues to maintain its first position among South Asian countries. It was 6th in 2014

What improvements has India brought in to help improve its Ease of Doing Business ranking?

Starting a Business

India has made starting a business faster by abolishing fees for the SPICe company incorporation form, electronic memorandum of association, and articles of association. These reforms apply to both Delhi and Mumbai.

Dealing with Construction Permits

India (Delhi) streamlined the process, reduced the time and cost of obtaining construction permits, and improved building quality control by strengthening professional certification requirements. India (Mumbai) streamlined the process of obtaining a building permit and made it faster and less expensive to get a construction permit.

Trading across Borders

India made trading across borders easier by enabling post clearance audits, integrating trade stakeholders on a single electronic platform, upgrading port infrastructures, and enhancing the electronic submission of documents. This reform applies to both Delhi and Mumbai.

Challenges for Ease of doing business in India

Enforcing contracts

India ranks163rd out of 190 economies on enforcing contracts. Dispute resolution has been an impediment in India's further growth on EODB index.

Registering property

India finds itself at 154th rank when it comes to registering property. It has to be noticed that difficulty in registration of property discourages industries from establishing and enhancing further.

Prospects and way forward

- India has significant room for improvisation in almost all the sub-indices

- India fares among the best in access to credit in the South Asian region. Access to credit should be assured for small businesses and rural entrepreneurs through penetration of formal banking channels into rural areas

- Effective implementation of reforms like GST, Insolvency and Bankruptcy code is needed. The limit of 180 days prescribed in Insolvency and Bankruptcy code should be pertained to

- Governments should be proactive in obtaining regular feedback about the implementation and initiating the changes accordingly

- States can work towards providing a robust online system for registering property

- Digitising land records, improving titling and streamlining procedures for transfer of property should be taken up

- Foreign trade needs to be boosted by cutting red tape and reducing transaction costs

- A fair judicial and executive system needs to be in place to achieve the confidence of domestic and foreign investors

- Fast track commercial courts, paperless courts need to be set up to speed up the judicial processes

- Reforms should not be restricted to Mumbai and Delhi but should be implemented in the hinterland as well

- Create awareness about the reforms and procedures of institutional arbitration

- Labour compliances need to be eased

- Bureaucracy needs to be well trained and should try to come out of its popular mindset of being lax and indifferent

- In the spirit of cooperative and competitive federalism, all the states should initiate the best and proven practices for ease of doing business

- The government s assessment of states for implementation of Business Reforms Action Plan is a step in the right direction and helps to reinforce the idea of competitive federalism

India's positions in World Bank's Ease of doing Business ranking on key parameters

Doing Business Report 2018 ● Doing Business Report 2019 ● Movement in rank
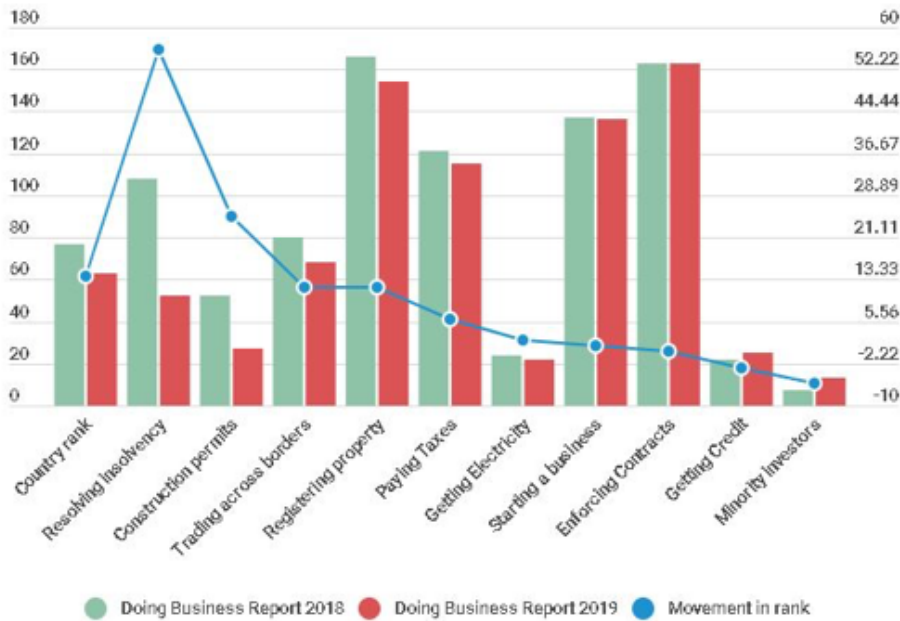
Conclusion

A high ranking in one year is not the end in itself. To reach the target of top 50 in the rankings, India needs to be more vigilant in its approach. It needs to demonstrate not only the regulatory, governance and economic reforms to investors but also political and macroeconomic stability, law and order maintenance and quality physical infrastructure. At the same time, reforms should not be restricted to Mumbai and Delhi as this would improve the ranking on Ease of Doing Business Index but doesn't account for the actual ground picture of the whole country. To address this issue, State- wise ranking of implementation of Business Reforms Action Plan needs to be continued. Not restricting to cooperative federalism, cooperative sub federalism also needs to be explored by bringing local bodies on board and encouraging their cooperation with Central and State governments.

National Accreditation Board for Testing and Calibration Laboratories

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NABL Updates

NABL Awareness Program on QAS – BC (Entry-Level) 20th July 2019

An awareness program on Quality Assurance Scheme for Basic Composite Laboratories (Entry-Level) was conducted at Indore on 20th July 2019.

Around 130 participants attended the awareness program.

The program sensitized on the details of the scheme and received positive responses from participants.

3rd PTP / RMP Conclave, Hyderabad (30th – 31st Aug 2019)

The 3rd PTP / RMP Conclave was conducted on 30th and 31st August 2019 in Hyderabad.

More than 114 participants attended the conclave.

The program was graced by Dr. Bhaskar Narayan, Advisor FSSAI and Dr. Vasireddi, Chairman, Vimta Labs Ltd.

The program consisted of Technical Sessions on PTP and RMP organizations. Technical deliberations with active participation from all the participants were observed.

Based on the two-day conclave presentations, prizes were given to the following organizations:

First Prize
CMC, Vellore (PTP)

Second Prize
NRCG, Pune (PTP)

Third Prize
Metal Power Analytical Pvt.
Ltd, Mumbai (RMP)

Dr. D. K. Aswal, Director, NPL graced
the event and distributed the prizes.

NABL Lab Forum held in Chandigarh on 27th September 2019

NABL has initiated "NABL LAB FORUM" to sensitize Accredited / Applicant / Aspirant Laboratories about NABL Requirements & Accreditation Procedure and updates on recent initiatives.

First "NABL LAB FORUM" was conducted in Chandigarh on 27th September 2019. Around 60 participants from various laboratories of Himachal Pradesh, Punjab and Haryana attended the forum wherein their queries were addressed by NABL Team in real time benefitting the participants with direct interaction.

5-Day NABL Assessors' Training Course as per ISO/IEC 17025:2017 at ICAR-CIBA, Chennai during 16th-20th September 2019

NABL Assessors' Training Course as per ISO 15189 (23rd - 27th September 2019) at Madras Medical College, Chennai with 30 participants representing various Government Medical Colleges in Tamil Nadu
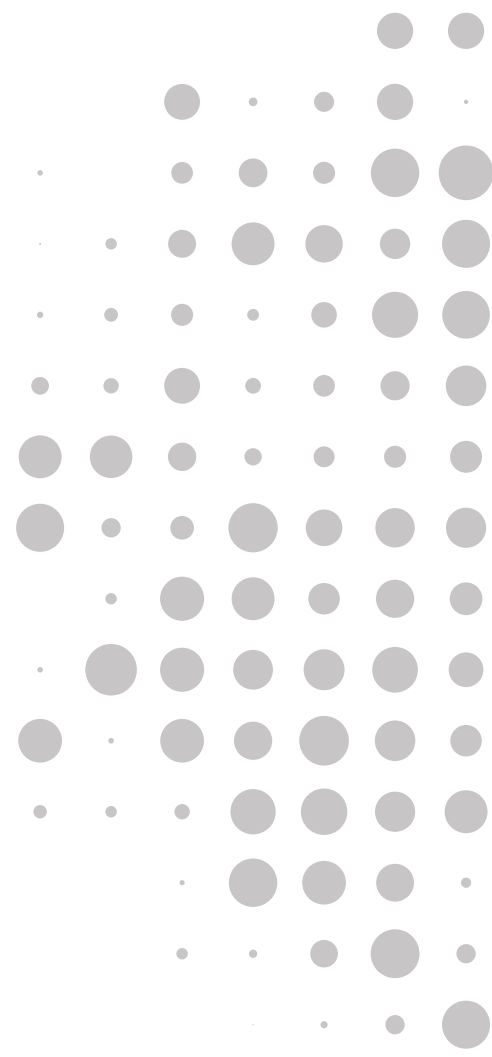
National Accreditation Board for Hospitals and Healthcare Providers

NABH

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NABH Updates

July 2019 to September 2019

Achievement in the last three months *(July 2019 to September 2019): During the period of July 2019 to September 2019 following works have been accomplished:*

S.No.	Program	Accreditation/Certification Granted
1.	Accreditation Program	130
2.	Certification Program	697
3.	Empanelment Program	94
	Total	**921**

Assessment Conducted

Total nos. of assessment 1111 conducted for Accreditation, Certification and Empanelment during July 2019 to September 2019

NABH Training Programs on Implementation (POI) & Education Workshops

- Program on implementation training conducted in the various cities on NABH Accreditation Standards of Hospitals, AYUSH, Blood Bank and Nursing Excellence, Pre Entry-Level Hospital & SHCO Certification Standards, Clinical Audit Workshop and Continual Quality: Tools and Techniques Workshop

- The objective of this programme is to provide guidance to healthcare provider on implementation of NABH standards

- This programme is very useful to develop Internal Capability within the hospitals to work towards implementation of quality and patient safety standards, achieving accreditation and maintaining the same

- In all, 12 Programs were conducted during July 2019 to September 2019 wherein more than 540 healthcare professionals participated

NABH Assessor Training Courses conducted in the various cities for accreditation and certification programs

S.No.	City of Course	Date of Course
Hospital & SHCO Full Accreditation Program		
1.	Chandigarh	21st to 25th August 2019
AYUSH Accreditation Program		
1	New Delhi	22nd to 26th July 2019
Blood Bank Accreditation Program		
1	New Delhi	22nd to 26th July 2019
2	Bangaluru	19th to 23rd August 2019
Dental Accreditation Program		
1	New Delhi	1st to 4th August 2019
2	Mumbai	5th to 8th September 2019
Pre Entry-Level Certification Program		
1	New Delhi	29th to 31st July 2019
2	Varanasi	29th to 31st August 2019
3	Hyderabad	29th to 31st August 2019

Glimpses of Trainings

Assessor Conclave at Bengaluru on 6th July 2019

Assessor Conclave at Hyderabad on 7th July 2019

Clinical Audit Workshop at Chennai on 21st July 2019

AYUSH Assessor Course at New Delhi from 22nd - 26th July 2019

Assessor Conclave at Mumbai on 27th July 2019

Assessor Conclave at New Delhi on 28th July 2019

Dental Assessor Course at New Delhi from 2nd - 4th August 2019

Continual Improvement: Tools and Techniques Workshop at Kolkata on 18th August 2019

Nursing Awareness Program at Coimbatore on 18th August 2019

Launch of AYUSH Entry-Level Standard at Mumbai on 22nd August 2019

Hospital Assessor Course at Chandigarh from 21st - 25th August 2019

Lean Six Sigma Yellow Belt Training for NABH Staff at New Delhi from 18th - 20th September 2019

NABH has been taking various initiatives to develop the staff by training them on various quality programs. A three-day training program was conducted by CEO-NABH to induct the staff on Lean Six Sigma methods. Its applicability in different areas was explained well to improve the day-to-day activities of the board.

Clinical Trial Accreditation by NABH in India

Prashant Paschal

Assistant Director, NABH

India is one of the leading countries to carry out separate accreditation programme for Clinical Trials

A brief & detailed overview

CLINICAL TRIAL Accreditation: A Brief History

1. Since 2011 there has been a steady decline in the Clinical Research projects being conducted in India. This has had a huge impact on the research industry of our country. This was attributed to lengthy approval time of the drug regulator and due to rising allegations of unethical practices in the country, which led to new regulations 2013 onwards

2. India being the 2nd most populated country in the world, participate in only 1.5% of industry sponsored Clinical Trials of the World (Ref-As per the active registered projects on www.clinicaltrials.gov on 25 February 2019)

3. In the year 2014, the Expert committee under the Chairmanship of Prof. Ranjit Roy Chaudhary formed by Ministry of Health & Family Welfare, recommended for the accreditation of Ethics Committee, Investigators and Clinical Trial Sites

4. Quality Council of India was assigned the task for creating a system for accreditation of Ethics Committee, Investigators and Clinical Trial Sites by CDSCO in Year 2014

5. After several discussions with the Ministry of Health & Family welfare; DCGI was notified that NABH would commence the accreditation process in a phased manner, starting with the Ethics committees in India

6. NABH/QCI received the approval letter from Ministry of Health & Family Welfare, (DR Section) dated 28th November, 2016 stating that accreditation of ethics committee is mandatory from 1st January, 2018

Prospects for Clinical Trials (CTs) in India

CTs are indispensable for drug development process to ensure efficacy and safety for any new drug

i. Favourable prerequisites for conducting clinical research and drug development

ii. Large and diverse patient pool (trial participants)

iii. Highly skilled workforce of qualified scientists (investigators), medical colleges (sites), etc.

Unfavourable ecosystem has undermined its potential

i. Only 19 trials approved in 2013, a drop of 93% from 2012 (262 trials), and a fraction of its peak of 500 trials in 2010

ii. India has 16% of the world's population, 20% of the global disease burden, yet it has less than 2 % of CTs registered worldwide

iii. Higher growth of Indian pharmaceutical industry, however, clinical research industry is lagged behind

iv. Unfavourable public opinion of CTs- due to several Contract Research Organizations blamed for conducting trials without due concern for procedural and ethical issues

Some Facts & Reported Analysis

Lack of appropriate regulation: India is losing out to Malaysia, China and Singapore.

Drugs continue to be approved in India without having ethics committee accreditation local population.

More than 1,700 patients have died in clinical trials over the past three years, the website reports, noting that "few" of these deaths were directly related to clinical research.

A sharp decline in the number of clinical trials in India due to lack of internationally acceptable framework addressing ethical and patient safety issues.

Six investigations have been conducted into alleged violations of Indian clinical trial regulations since 2010.

Less than 2% of Global Clinical Trial takes place in India.

Purpose

1. The purpose of the NABH accreditation is to ensure the quality & capability of the Ethics Committee which is responsible for approving a Clinical Trial at a particular site, protecting patients' right, safety & well-being

2. A well thought accreditation program can evaluate the capability or performance of any of the 3 components (CT site/Investigator/ Ethics committee) as an entity. It also establish confidence in India's research capabilities

3. To ensure transparency in every step followed in Clinical Trials & to promote and improve the standard for Clinical Trial practices in India

4. The registration process done for ethics committee by CDSCO is as per the submitted documentation, following which NABH checks the ground realities to evaluate the effectiveness of process implementation of the documented system

5. To bring more research in India: NABH would like to mention that improving the transparency and accountability in the process of clinical research in India will definitely bring more business in terms of investments by Pharma companies which are benefitted by ethical practices for subjects, as they are the biggest beneficiary among all the stakeholders. Also, Investigators in India would be more interested in clinical trials after analyzing the standardized procedure in the clinical research

Current Status of NABH Accreditation of Ethics Committee

1. NABH has developed standards (available free at NABH website), conducted trainings on implementation and has developed a pool of trained assessors with high competence to comply with the intent of the program at ground level

2. The laid down standards on Ethics Committee Accreditation are the basic minimum requirements, which needs to be adhered in order to improve the safety of the process of Clinical Trials in India. It is an attempt at standardizing the quality of clinical research in India

3. The program is moving smoothly with approximately. (145 applications in process and 122 Ethics committees are accredited till date)

4. NABH is working on guidebook (1st edition) with interpretations for better clarity of standards and objective elements including all the templates for easy implementation of NABH standards and will be soon available for masses

5. NABH has a toolkit to assess whether ECs adhere to policies and SOPs. Formats for ongoing trials, EC membership details and SAE reporting has been finalised by the Technical committee and is accepted well by the applicants

6. NABH has received excellent feedback from accredited ethics committees and members of Ethics Committees

Challenges to overcome

1. Capacity building in ethics committees

2. Miscellaneous issues: post-trial access to beneficial investigational products (NCEs), guidance on what constitutes a 'standard of care' for use in clinical studies, conditions for a CT waiver and an accelerated approval pathway, CTRI challenges, Investigator initiated studies, academic research

3. Protecting participant rights, safety and to see that the data generated is credible by strictly adhering to protocol

4. Ambiguity regarding Mandatory or Voluntary Accreditation of Clinical Trials in India

Benefits and Significance of Accreditation

1. Demonstrates accountability to the public

2. Demonstrates the commitment to excellence

3. Strengthens patient confidence

4. Facilitates continuous quality improvement for clinical Research

5. Ensures protection of patient safety, rights & well-being

6. Builds confidence in all stakeholders of Clinical Research

7. Reassures the biopharmaceutical & device industry to believe in Indian

Investigators & Hospitals for high quality standards for Data Integrity

8. Helps the Institution to know its strengths, weaknesses and opportunities

9. Gives the accredited facility a new sense of direction and identity

Way forward

1. We appreciate the steps taken by the Government of India to establish confidence in India's research capabilities and bring transparency in every step followed in the process of clinical trials without the harm to the subjects

2. This will also promote and improve the standard for Clinical Trial practices in India which will ultimately lead to increased number of clinical trials (Sponsored/Investigator's initiated) in India

3. In order to bring Clinical Trial procedure and policies on par with global standard and to ensure wellbeing/protection of trial participant, NABH request Government of India to continue this accreditation process and to consider the accreditation program for Investigators and clinical trial sites

4. In this regard, we request the ongoing continue to support in keeping this as mandatory, as done currently

5. In order to remove the misconception about accreditation being mandatory or voluntary, NABH requests Ministry to pass an order for CDSCO to publish the accreditation notice at their website and also to include the same in the clinical trial rules 2019. Ethics Committee Accreditation – Progress Report 2019

6. In order to bring more accountability and transparency in Clinical Trial Procedure in India, NABH suggests to make accreditation a compulsory step for re-registration for all the ethics committees which are registered by the CDSCO.

Essentiality and need of NABH Accreditation of Clinical Trials

1. NABH has received an excellent feedback on the success of this program from the applicants and the accredited committees on the competence, transparency and effectiveness of the program as well as the assessment process

2. The programme has now started gaining greater acceptability and the ethics committee across the country in various institutions as well as Independent ethics committee have realized the importance of accreditation. An independent assessment body is able to pick up certain errors that earlier were either not been recognized or were simply not being handled in an appropriate manner

3. The accreditation programme has instilled confidence in all the stakeholders i.e. the research subject, the investigators, the site as well as the ethics Committee. This is evidenced from the fact that extremely favorable reviews have been obtained from the ethics committee on the observations raised by the NABH Accreditation committee

4. A programme that has been widely accepted and is making the clinical

research process in this country more friendly, transparent and objective should be given the requisite impetus by the Government of India in the larger interest of the trial subject and user safety

5. NABH has not only performed the role of trainer but has also ensured that due justice is provided to the concerned subjects wherein he is deprived of his genuine right to compensation. More than 40 subjects who had earlier been denied compensation were granted the same based upon the observations raised by the NABH Accreditation Committee

6. NABH has not received a single complaint with respect to the cost or a possibility that the cost of trial will go up or that the investors are shying away due to these accreditations. On the contrary the organizations are paying for both years of accreditation fees at one go even when this is not mandatory and it is cost effective as compared to other accreditations/recognition by other bodies like AHHARP and FERCI

7. All these are testimony to the excellence in clinical trials that is being put into place due to the efforts of NABH and such a programme is not only a need of the hour but will serve as a supplement to CDSCO and help in improving the quality and equity in clinical trials and put the country on a higher pedestal in the area of Clinical research. India is one of the leading country to carry out separate accreditation programme for Clinical Trials and we should not lose the impact already created nor the leadership position acquired by this country in this field

National Accreditation Board for Education and Training

NABET Updates

Formal Education Excellence Division (FEED)

Workshops from July to September 2019 in Formal Education Excellence Division, NABET

9th July 2019: 1-Day Awareness Workshop on NABET Standard for Quality School Governance in Noida

25th to 27th July 2019: 3-Day Awareness Workshop on NABET Standard for Quality School Governance in Mumbai

6th August 2019: Formal Launch of Assessment & Certification of 30 schools under Municipal Corporation of Greater Mumbai (MCGM)

10th August 2019: 1-Day Awareness Workshop on Accreditation Standard for Quality School Governance in Meerut

22nd & 23rd August 2019: 2-Day Awareness Workshop on Accreditation Standard for Quality School Governance in Meerut

29th to 31st August 2019: 3-Day Awareness Workshop on NABET Standard for Quality School Governance in Mumbai

27th September 2019: 1-Day Familiarization workshop with officials of ST & SC Development, Minorities & Backward Classes Welfare Department, Odisha and related stakeholders from school hostels

26th to 28th September 2019: 3-Day Training School Assessors' Workshop in Delhi

September 2019: Assessment in Government Schools of Jhunjhunu & Sikar, Rajasthan

Environment Division: Accreditation of EIA Consultant Organization

Meeting on comprehensive revision of EIA Notification 2006 at Ganga Auditorium, MoEFCC, New Delhi on 1 August 2019

29th to 31st August 2019: 3-day Awareness Workshop on NABET Standard for Quality School Governance in Mumbai

EIA Assessor Meet (Sept 18th -21st, 2019), Hotel Trident, Kochi, Kerala

QCI-NABET annually organizes EIA Assessor Meet inviting all the Assessors, Accreditation & Technical Committee Members at Hotel Trident, Kochi, Kerala, September 18th-21st, 2019. During the meet Assessors, Committee Members along with NABET secretariat discussed challenges faced in the implementation of the EIA Scheme, expectations of stakeholders and new suggestions/ideas.
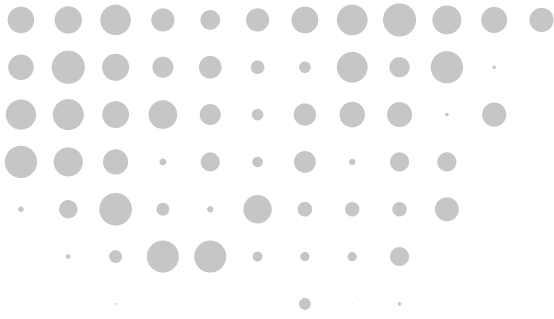
NABET Strategic Meet (September 16th -18th, 2019), Hotel Trident, Kochi

Strategic Meet had Sessions on Communication Skills, Leadership, Team Building, Case Studies, Group Activities, Strategy Management, SWOC of NABET and Individuals.

Exploring Artificial Intelligence (AI) –

An Effective Tool for Revolutionising the Education System

Dr. Indrajit Bhattacharya

Director, NABET

Artificial Intelligence will give the scale to provide good quality education across the country at low cost and without the need for equivalent manpower

In the wake of National Education Policy (NEP) 2019 formulations, it becomes pertinent to explore Artificial Intelligence (AI) as an effective tool for revolutionising the education system

Analytics and the 3 horizons of Artificial Intelligence (AI)

Deloitte conceives of 3 horizons when it comes to the role of analytics and Artificial Intelligence working with human decision-makers:

Horizon 1 involves 'assisted intelligence.' Human assistance is required in operation or interpretation.

Horizon 2 involves 'augmented intelligence.' Here, 'machine learning' (where AI systems are 'trained' with large amounts of data) augments decision-making by humans.

Horizon 3 involves 'autonomous intelligence'. In this scenario, the AI decides and executes autonomously.

Challenges in Education System

Education institutions globally are grappling with three big challenges: Providing quality education, often at scale; ensuring education is accessible to all, including in emerging markets, rural communities and to children with special needs; and reducing the cost of delivery to provide affordable education.

Teachers are burdened with administrative tasks that takes time away from teaching: Planning class materials for large classes of mixed ability students; marking and grading assessments and homework; and fact and source checking for submitted assignments. School administrators and admissions staff, meanwhile, are struggling with selecting the best students from a large volume of applications and effectively communicating with students, staff and parents.

All of this is resulting in an education system that is under-resourced and inefficient. And where all too often, students can get forgotten and left behind.

AI skills are quickly spreading beyond just the tech industry

AI skill penetration index by industry, from 2015-2017
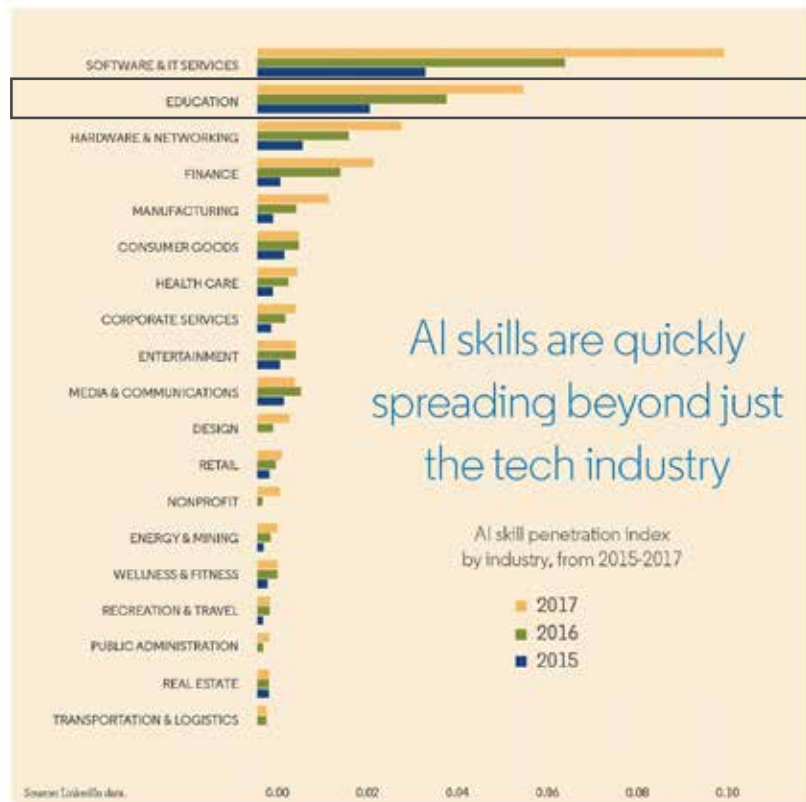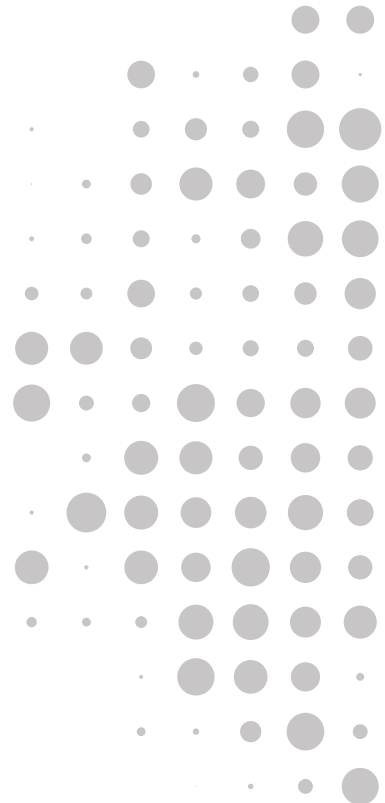
- 2017
- 2016
- 2015

Note: The penetration index looks at how many of the AI skills appear among top 50 skills for each occupation in each industry. It computes the mean % of AI skills across occupations within each industry in year 2015, 2016 and 2017. By comparing the index across years, it gives us the time trend of industry-level AI skills penetration.

AI in education

Problems		AI solution
Standardised curriculum does not cater to individual needs	→	Personalised learning
Limited 1-2-1 tutor time available for university students	→	Personal virtual tutors
Grading & assessment is time-consuming, with an over-reliance on multiple choice	→	AI can assess open ended questions – and in real time
Large class sizes in K-12 schools means children's questions often go unanswered	→	Virtual classroom assistants
Personalised communication is almost impossible due to scale	→	Chatbots can answer administrative questions on the fly from parents, staff and students
Selecting the best students from a large application pool	→	AI can short list candidates based on multiple data points
Increasing drop out rates at universities	→	AI sentiment analysis
The need to effectively combat plagarism and ensuring authorship	→	Natural language processing can identify patterns and source facts

Artificial Intelligence (AI)

AI is now being used by many of us in our day-to- day life. For example, today many homes are using Amazon's Alexa, an AI-based assistant. In fact, many of the support queries by airlines, banks, food delivery apps, etc., are being handled by smart AI driven chatbots. This proves that AI is quickly making deep inroads in many walks of life, thanks to the rapid technological advancements in the last decade which allow huge storage of data and high computational ability.

The industry where AI can possibly make the biggest impact is education. So, before we delve more into it, let us first understand what AI is in simple terms. AI is the ability of machines or computer programs to think and learn. The idea is to use the huge computing power of machines and make them think, learn and make decisions like humans.

Below are a few ways in which AI could effectively be used in the Indian education system:

Applications of Artificial Intelligence in Education

Adapting to the Needs of the Student

For years, child psychologists and educators have been constantly talking about the fact that each child is special, with a unique combination of abilities and needs that affect learning. And all children deserve the opportunity to learn in a way that utilises their strengths and helps them overcome their weaknesses. But in a regular school system, with large classrooms, limited time and resources, adapting the teaching style for each student is not possible. This is where AI can make a huge difference; it can understand the strengths and learning gaps of each child and adjust the pace of learning to suit their needs.

Delivering Personalised Content to the Student

AI has the potential to change the present single uniform content delivery mechanism. It can personalize the learning experience of the child to suit his/her learning style. So, in an AI based system, a child who is a visual learner will get an animated video, an auditory learner will get an audio of a teacher explaining the concept and a child who loves to read, would get a book or an article for the same lesson. Similarly, the questions that the child solves move from easy to difficult as the child's learning progresses.

Automated Grading

Grading tests and exam papers are tedious and time-consuming, an AI-enabled system can auto-grade different types of questions such as essays, long-form and not just the multiple-choice questions. This would allow teachers to save a lot of time and use it to interact with students.

Providing Actionable Feedback to the Teachers

In a regular, pen and paper test, it is not possible for a teacher to analyse the child's learning gaps. The teacher can only say whether the child understood the tested concept or not. But the child may have existing learning gaps in related concepts which may be hampering his/her ability to learn a new concept. With AI, teachers can get precise actionable data on students' performance and hence can provide students with the help they need to succeed.

Changing the Role of Teachers

One key aspect of education that will not change is the teacher. AI-based tools will never replace the teacher but their role will evolve. The teacher would become a facilitator of learning, assisting students, providing human interaction and more hands-on experience in the classrooms. Students will become owners of their own learning process and this will significantly improve learning outcomes and quality of education.

> **Artificial Intelligence (AI) is soon going to be the wind of change that would impact the education industry. Artificial Intelligence will give the scale to provide good quality education across the country at low cost and without the need for equivalent manpower. So, all stakeholders should welcome this as it would have a long-term positive impact for our country's place in the digital and globalized world.**

Adaptive Learning

It is one of the promising applications for the benefit of students. AI in schools help the students for adaptive learning by tracking their academic progress, modify the course or its learning pace, informing the teacher about the difficulty in comprehension, and, more.

Automated Grader

Though automatic grading has a long way to go, several standardized tests are using automatic grading systems. At an initial phase, the teachers submit graded essays as a sample to distinguish good and a bad essay. The software accumulates the knowledge as it grades more essays and provides specific feedback instantly. However, the Robo-graders replace a part of the grading system, and human grader is always there for further assessment.

Chatbot

Students' evaluation is necessary as it gives valuable information and also needs an elevation from the existing setup. The AI-driven chatbots seem to be promising in increasing the feedback quality. The chatbot collects the students' opinion through a dialog interface as if it is a real interviewer and looks reasons too for varied opinions. The system is unbiased.

Chat Campus

As the name itself indicates, you can chat with AI to know the campus. You can understand the life on the campus like searching a lecture hall, application procedure for the next semester, get assignments, know the cafeteria, parking lot, library, campus events, interviews, and more.

Data Accumulation

Using previous search queries, Artificial Intelligence in education can suggest related content for the students.
For instance, if you are looking into preposition part of English grammar, it may suggest further readings on complete parts of speech as a whole, or other parts of speech like Noun, Adverb, and, etc.

Personalized Learning and Intelligent Tutoring

It is evident that the pace and needs for learning differ from one learner to another. Accordingly, the learning instructions and approach should vary and optimized for individual benefits. Artificial Intelligence in education can adapt quickly to the individual needs and deliver personalized learning methodologies and activities driven by the learners' interest. And, it incorporates complex tasks readily and accelerates the learning task too.

The Watson Tutor, developed by IBM, is a technology which can do this. It helps educators understand what to focus on with each student by engaging with the students and providing feedback in areas they need help with. The same individual feedback provided by the software can also be used to teach the teachers: for example, by closing gaps in general coursework or finding new ways to improve student-teacher interaction.

Proctoring

E-learning, the future of learning needs supporting technologies. AI-powered systems ensure the authenticity of the student to take the exam and prevent from cheating. It can be used for attending competitive exams, school /college admission test, promotions, and, more.

Smart Content

Smart content creation is already introduced into the primary and secondary school, college, and corporate environment. With the help of AI, the textbooks could be split into small chunks of digestible guides, which is easy to read and understand.

The study guide includes flashcards, MCQs, fill in the blanks, pointers, true/false, chapter summary, and, so forth. For instance: Cram 101, Netexlearning, and, etc.

Virtual Facilitator

Though virtual humans are not welcomed in place of a human instructor, virtual instructors could be used in the educational and therapeutic environment. It can think, act, and react to the students' queries and act as an assistant for the teacher.

Learning Environment

Technological advancements which seemed like something out of a far-fetched sci-fi movie only a few years ago are already in existence. One such advancement is augmented reality, which when combined with AI, offers the possibility of a learning environment tailored to the needs of the student no matter where they are.

Language Barriers

A key field in which AI is breaking down barriers is language. A free plugin already available for Microsoft Office Power Point, Presentation Translator, translates speech in real time for more than 60 languages, and lets you broadcast subtitles to anyone.

AI Teachers

From algorithms that curate tutoring lessons to surveillance systems that monitor classroom progress, tens of millions of Chinese students currently rely on some sort of AI to help them learn, MIT Tech reports, with three elements factoring into AI-powered education's ability to thrive in China. For one, the nation has made it a point to incentivize such efforts through tax breaks. Then there's the fact that education is already something of a competitive sport in China, with students — and their parents — willing to try anything that might increase their test scores even slightly.
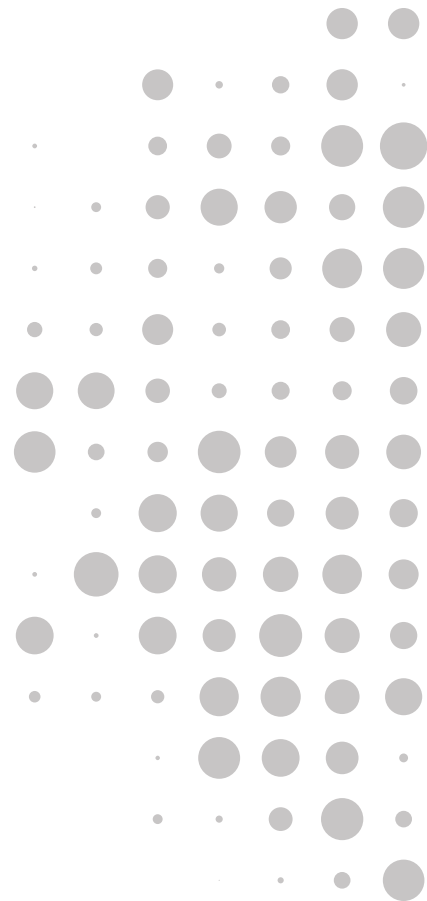
National Accreditation Board for
Certification Bodies

@QualityCouncilofIndia   @QualityCouncil   qualitycouncilofindia

NABCB Updates

Transfer of Accreditation Activities of NABET to NABCB

NABCB has secured international recognition for personnel certification in June 2019 for its accreditation programme based on requirements of ISO/IEC 17024. Considering the same, Quality Council of India management decided to transfer two activities being handled by another accreditation board, National Accreditation Board for Education and Training (NABET) to NABCB. The two accreditation programme transferred from NABET to NABCB include:

- ISO/IEC 17024 accreditation programme for Personnel Certification Bodies

- ISO/IEC 17021-1 accreditation programme together with 21001 for certification bodies

The purpose of this decision was to avoid duplication of accreditation activity under the constituent Boards of QCI and the activities could function in harmonized manner.

To allow smooth transition of activities, a meeting was held between officials of NABET, NABCB and all certification bodies accredited by NABET on 4th Sept 2019. During the meeting requirements of NABCB were explained and changes in procedure required for transition was informed. The certification bodies were given time till 30th September 2019 to provide their consent to transfer their accreditation with NABET to NABCB. 11 CABs have given consent for transfer of their accreditation from NABET to NABCB and the transition is in progress.

NABCB participates in 5th Workshop on Capacity Building for inspection bodies organized by PNGRB held on 17th July 2019

PNGRB conducted its fifth Workshop on Capacity Building for their empanelled Inspection Bodies on T4S and Pipeline IMS Regulations on 17 July 2019. More than thirty representatives from fifteen IBs participated in the Workshop. The meeting was inaugurated by Mr. S. Rath, Member, PNGRB Board who welcomed all the participants and urged all IBs to reaffirm their commitment of value addition through various audits carried out on behalf of regulator. Mr. Arvind Kumar, Senior Advisor, PNGRB apprised all IBs of the implications of these regulatory audits. Mr. Ajay Sharma, Joint Director, NABCB and Mr. C.M. Sharma, Assessor attended the Workshop. NABCB also made a presentation on the NABCB Documents on Competence, Sub-sector categorisation and ERDMP Process already implemented. For the first time, selected Oil & Gas entities were invited by PNGRB for interaction.

The feedback of participants was positive and they appreciated the enhanced quality levels of the audits. They also expressed interest in percolating down further in their domains.

NABCB participated in 21st FAO/WHO Coordinating Committee for the Asian (CCASIA) region held in India in September 2019

Ms. Vani Bhambri Arora, Deputy Director, NABCB participated in FAO/WHO Coordinating Committee for the Asian region (CCASIA) meeting. Delegates from 18 member countries participated in this training in Goa during 23 to 27 September. The meeting was inaugurated by Ms. Rita Teaotia, Chairperson FSSAI, who stressed on the importance of Primary Production in her key note address. The meeting had participation of delegates from Bhutan, Sri Lanka, Japan, Thailand, Singapore and other Asian countries.

The meeting had discussions on common concerns related to food safety in the region and debated on ways to deal with development of food safety standards. The participants in the meeting also discussed on ways to be adopted to ensure the standards that advance in the Codex system are relevant. A regional workplan to respond to the goals and objectives of the new Codex Strategic Plan was discussed considering the review of food safety system practiced in other countries.

NABCB participated in 5th Meeting of ISO/CASCO-TC 34 SC 17 JWG 36 from 19th-20th September held in Canada

Ms. Vani Bhambri Arora, Deputy Director, NABCB attended the 5th Meeting of ISO/CASCO- TC 34 SC 17 JWG 36 on revision of ISO 22003- Requirements for certification bodies providing audit and certification of food safety management system held in Canada. This international standard (ISO 22003) will be developed in two parts, providing common elements for food safety certification:

- ISO 22003-1:20xx supplemental to ISO/IEC 17021-1:2015

- ISO 22003-2:20xx supplemental to ISO/IEC 17065:2012

ISO 22003-1 corresponds to the revision of ISO TS 22003:2013 and is work in progress being carried out by the joint working group (JWG36) between ISO TC 34/SC17 and ISO CASCO.

ISO/TC34/SC17 has agreed to revise ISO/TS 22003:2013 and to publish it as an international standard.

NABCB Conducted Consultant Meet on 27th September 2019 in New Delhi

NABCB consultant meeting was held on 27th September 2019 in New Delhi at Hotel Hans. The programme was a half-day event which was attended by 65 consultants. The agenda of the meeting was to create an awareness about the NABCB process and programme among the consultants. The purpose was to allow them to reach the industry and explain them the benefits of NABCB accreditation and its international linkage. With the above concept in mind, NABCB made presentations related to its process and schemes; International equivalence and the unauthentic practices which were being practiced in market. Presentations were made by representatives of different consultant organisations.

The purpose of the meetings was echoed in the speeches of Senior Officials of QCI and NABCB. Mr. Shyam Sunder Bang, Chairman, NABCB, in his speech stressed that there was a need to raise the confidence of Indian Products and Services in Indian and International market. With the above purpose NABCB conceived the concept to educate the Consultants about our processes to improve the Quality ecosystem by reaching to industry. Dr. R P Singh, Secretary General, QCI informed the participants that industry needs a medium to rely on quality of services and products and Accreditation to National Body is a means to achieve the same. He informed that the meeting was designed to support industry in the area of conformity assessment through Consultants. Mr. Rajesh Maheshwari, CEO, NABCB highlighted the importance of consultants in quality ecosystem since they are directly engaged with the clients and understand their needs and can explain the need for Accreditation to them. Mr. M Jena, Director, NABCB also explained NABCB processes and urged consultants to take the quality movement forward.

The half-day programme had talks delivered by NABCB officers Mr. Ajay Sharma, Ms Vani Bhambari Arora, Ms Poonam Gupta. The meeting had a series of good interactions during Open House interaction and was concluded on a positive note. NABCB plans to organize such programmes in other parts of the country as well.

Consumer Awareness Program

In order to educate consumers and consumer organizations in small cities about Quality of Products and Services, NABCB organizes Consumer Awareness Programmes in partnership with Consumer Coordination Council (CCC). NABCB conducted one such programme in coordination with CCC and World Commission on Protected Areas (WCPA), Madurai on 29th August 2019. The sessions for the programme were taken by Ms Rajalakshmi Subramanyam, Lead Assessor and Dr Aparna Dhawan, Jt Director NABCB. The participants were informed about Voluntary Standards and Regulations, Role of accreditation, Product and Systems Certification and Complaint handling. The programme was attended by over 100 participants. The programme received good response and more programme are planned in future.

NABCB launches Accreditation Software

NABCB launched its accreditation software for all users on 1st Sept 2019. The launch of new software will support an online platform development and would help in completing the entire process of accreditation in an e-based approach. The software launch would support in reducing the total turnaround time for grant of accreditation and process will be more transparent. The access to the software is through the link http://nabcbportal.qci.org.in. NABCB has also arranged webex trainings related to software for assessors and Conformity assessment bodies on 25th September 2019.

India going digital and Unified Payments Interface – Current Scenario

Ashutosh Kumar

Junior Analyst, NBQP

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Accreditation Officer, NABET

With a population of over 1.25 bn and with GDP of USD $ 2.6 trillion, India now represents one of the largest market opportunities for payments. Economy of this size is predominantly cash driven. Currency in circulation in India is 12% compared to that of Brazil (3.93%), Mexico (5.32%) and China (8.8%).

The growth of digital payments is driven by 4 trends:

India Going Digital

Favorable Regulatory Environment

Enhanced Customer Experience

Emergence of NextGen Payment Service Provider

01
India Going Digital

- India currently ranks number 2 in the world with over 1 bn mobile subscription. Of this, 240 mn are smartphone users (expected to increase to over 520 mn by 2020)

- With increased 3G & 4G penetration, even in the remotest parts of the country internet enabled devices are expected around 90% by 2020

- Over the last few years, digital transactions have shown steady growth of 50% Y-o-Y, followed by ATM 15%

02
Favorable Regulatory Environment

- KYC Relaxation for small transactions

- UID (Aadhar) making biometric and authentication easy

- Demonetization and promotion to cashless economy

03
Enhanced Customer Experience

- Online shopping wave
- Door-to Door services
- Attracting customers through offers and discounts

04
Emergence of NextGen Payment Service Provider

- Government led (BHIM)

- Bank led (E wallets and UPI)

- Telco led (Phone Pe)

- After UPI's launch in Dec '16 with 31 banks, the count has now reached to 102. (That's 229 % in 2 years! Amazing?)

- UPI uses have surpassed m- wallets (Volume wise)

- Total UPI-BASED transactions have grown exponentially to 706 bn. It was 300 bn till last year Sept.

- Paytm has switched 50% of its merchants (4mn) to UPI platform

- Customer trust, customer service, and overall user experience plays an important role here. BHIM has largest share -40% in Jun '17. Then Phone Pe was a market leader with 40% (Vol) in July '18. Now Paytm is the market leader with 37% (Vol)

- Most recently, UPI 2.0 has been launched allowing Overdraft facility, One time mandate, Invoice in inbox, and Signed intent and QR

Data Source- BCG's report on Financial Services '20
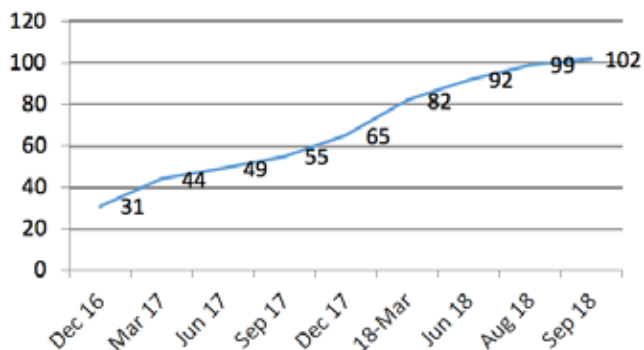
Exhibit 1.2: UPI Vs Cards Vs m-Wallets (Vol)

By making transfers from bank account to bank account easier via mobile through the Unified Payment Interface (UPI), we are on the verge of solving the last mile problem.

- Raghuram Rajan (Former Governor, RBI)

Why UPI is better?

EXSISTING METHODS-Traditional modes include:

NEFT (National Electronic Funds Transfer) is the most common way of transferring funds till date. Can be used only in those banks which are NEFT-enabled. Also details such as bank holder's name, account number, and IFSC code is required.

Immediate Payment Service (IMPS) is a mobile payment program which enables the customers to transfer funds from their smartphones. For an IMPS transaction, the same details as NEFT is required but the payment is made instantly.

Credit & Debit Cards- Widely used. Need to use PIN, CVV, Card no etc.

E- wallets – Relatively new to the space. Wallet transfers within the same wallet are instantaneous, but beyond paying a friend for coffee, the utility of such transfers is minimal.

Fig: UPI High Level Architecture

The Problem

Here are the shortcomings of current money transfer system

Security at Infrastructure level: Its main concern in each step of transaction. Placing the burden of two-factor authentication on banks leads to reliance on insecure communication channels and a non-standard authentication process across different institutions

Interoperability: Arguably the biggest drawback of the multitude of perfectly functional payments systems

API-functionality: A third-party ecosystem that seamlessly integrates with existing payment rails
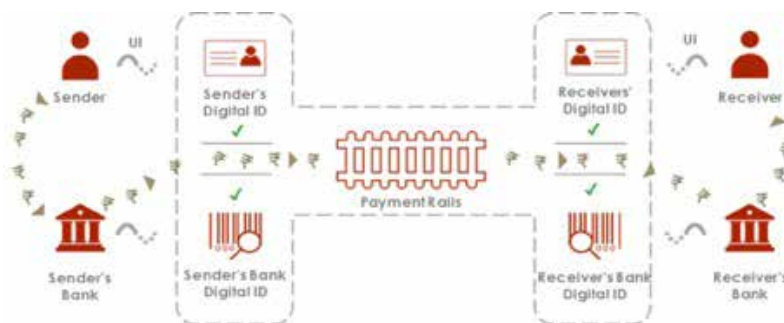
Ease of Use: Has many friction points such as trust barriers to share bank account details, Queue to swipe cards at PoS (Point of Sale), etc.

UPI - The Solution

Here is how this works in practice

Sender Authentication: *Standardization of digital identity* through 2 factor authentication - i) App password & ii) Aadhar biometric / 4-6 digit PIN

Receiver Identification: *Simplification of recipient information through* – i) Global identifiers (Aadhaar number and/or mobile number) & ii) Virtual Payment Addresses (or VPA)

Authorization: *A two-way street* - The authorization process takes place once the sender authenticates his identity and authorizes the transaction on his/her end

Transaction (Value Transfer): *The wrapper-* This is where the beauty and simplicity of UPI comes to fruition. By standardizing every step of the payments process, UPI enables the use of any existing payments rail to facilitate transactions

Why It's Better

- Faster- Immediate transfer
- Anytime – 24*7 money transfer
- Interoperability- P2P & M2P transfer irrespective of Bank
- Cheapest – INR 0.50 per transaction
- Security- Minimum personal information sharing
- Quick registration
- Ease of operation
- Notification & alerts
- Overdraft facility

Data Source: NPCI

The Opinion Slide

Survey

Digital payments in India is not limited to urban and affluent phenomenon. Trends show that future adoption will be driven by the next set of low income users, who wishes for convenience and proper guidance.

We cite a **survey conducted by Nielsen** to analyze the needs and future of UPI. The survey spanned 9 cities (metros and non metros) and covered appx. 2500 consumers (C) and 920 merchants (M), aware of digital payments.

Key Insight

- Convenience is as important as offers in driving adoption
- Lack of awareness, complexity and lack of value proposition are big barrier
- Security, identity theft and fraud are not big barriers
- Food, Entertainment and E-commerce industry can leverage digital footprint to understand user behavior and offer best deals to increase consumer spending and experience
- Less userbase is still a problem
- Building robust and user friendly application is very critical to help them adopt
- Non metro consumers are not far behind metro consumers

The Making of UPI 3.0

UPI needs to offer following feature for wider adoptability --

- Simplicity
- Universality
- Speed
- Ease of registration & onboarding
- Least expensive
- Tax management opportunity
- Expenses management
- Convenience
- Customizable
- Security
- Data
- Quick resolution to customer problems – Customer is the GOD!

Ques: Reason why you started using Digital Payment?

	One Click Payment	Offers	Pay anytime anywhere	Easy to track expenses	Convenience	No Hassle of changes
Metro	66	48	62	48	43	50
Non Metro	51	57	38	32	31	21

Ques: No. of times you use digital payment per month?

	Metro	Non Metro	All
Freq.	7.5	8.2	7.7

Ques: List of Payment made during Month? %

Food & Entertainment	73
Organised retail	71
E-Commerce	66
Utility Bills	61
Professional Services	52
Travel & Transport	49
Unorganised retail	48

Ques : Problem faced during using Digital Payment %

Need to remember multiple passwords & usernames	47
Not everyone accept this payment	44
Possibility for technical/human mistakes	43
Not enough Balance	42
Likelihood of fraud	29
Hidden charges	10

Ques: Reason for not accepting digital payment instrument (in %)

Technical Issue	48
Not enough customer pull	67
No Clear benefit over other payment method	87
Proclivity towards cash	78
Lack of clarity	77

The Future of UPI- More Secure, More Convenient, More Services – For All...

After thorough study of present and past of UPI, following features in UPI 3.0 would be a breakthrough!

All About Data

- **Data for better consumer experience:** The large volume of transaction data can be analyzed on various dimensions (transaction/ visit, ZIP etc.) to forecast customer's next transaction to give lucrative offers and run highly targeted marketing campaign

- **UPI for merchants:** Charging more from users can only help in decrease in numbers. It's better to charge from merchants. Currently, common app is for customers as well as merchants

- **Credit rating for micro- loans:** Based on transaction history of user, UPI based companies can standardize credit score through AI of every user and offer micro credits

- **Premium UPI:** To target credit and debit card users. UPI should offer numerous loyalty offers such as airport lounge, reward points etc.

- **IoT (Internet of Things):** For automation and connectivity of gadgets. For Eg -- Consumer could use IoT to see Electricity uses through UPI app to pay bill instantly

All About Technology

- **Near Field Communication Technology:** Customers can just flash the mobile app with the QR code at the Point of Sale. And bill can be paid through UPI

- **USSD (Unstructured Supplementary Service Data):** To

target the segment where internet penetration is low & and mobile data is expensive for them. SMS-based UPI transaction would be key in financial inclusion. (BHIM's USSD failed due to robustness)

- **ATM withdrawal through UPI:** For cardless withdrawals at ATM

- **Audio QR:** Authentication through inaudible frequency signals so that the need to enter password/PIN is eliminated. (Google is working on it, but still to scale). Would be helpful to illiterate users

- **Biometric Authentication:** To ensure that only primary user is able to do transactions

All About Business

- **Work on cost – benefit equilibrium:** Banks & financial institutions may not support UPI in the long run as benefits per transaction is very less. At the same time it is cannibalizing their Card users, where they earn more

- **Wallets and UPI Merger:** Wallets such as Paytm is now focusing on UPI. They have shifted 4Mn merchants to UPI platform. Wallets and UPI have cannibalizing effect on each other

- **Merchant's Rating:** Customers should be allowed to rate everyone they pay to help next user

- **Financial statements:** Help SMEs in local accounting and creating financial statements to onboard them

- **Government push:** Government services including RTI, toll tax, Municipality taxes, subsidy transfers, traffic fines etc. could be on UPI (In line with FASTag). This will help in decreasing corruption at local level
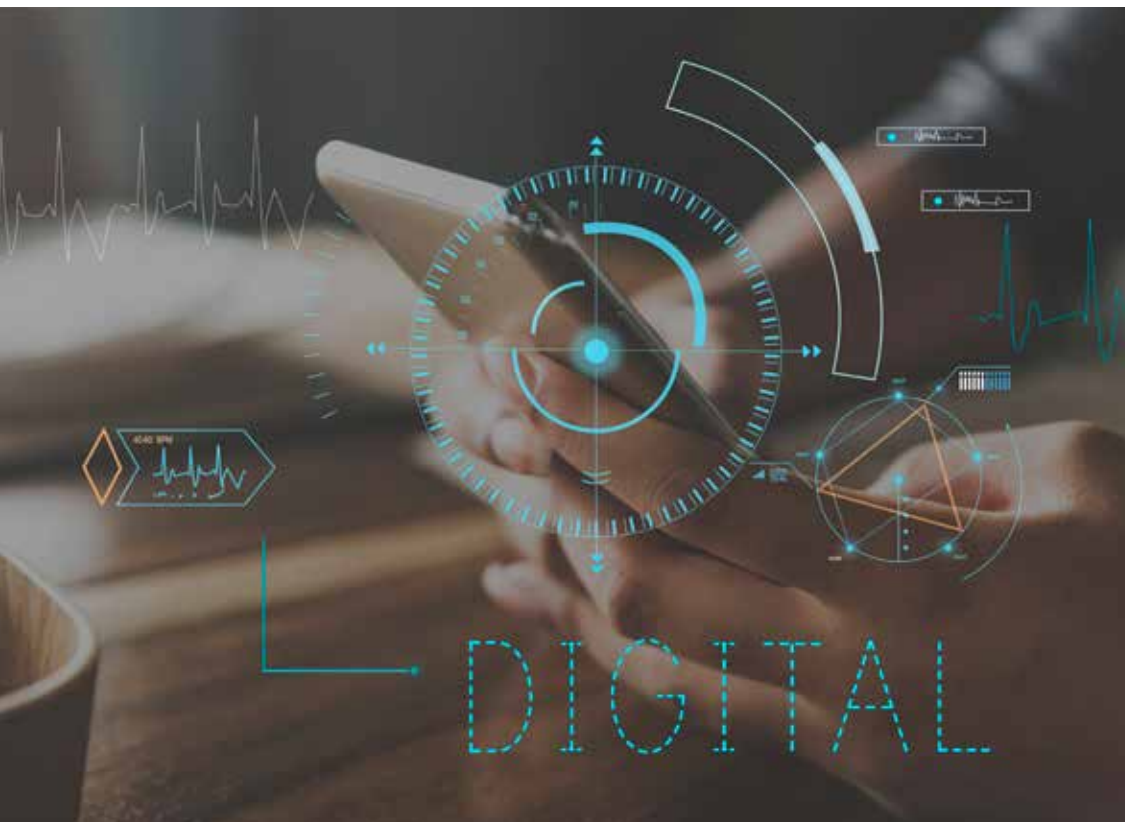
Note – Tech giant Google as well Facebook has acquired license for UPI.
The future of payments is interesting!   Source : TOI

National Board for Quality Promotion

NBQP Updates

1-Day Awareness Workshop on 'KAIZEN and Standard Work'

Date: 19th August 2019
Venue: Hotel Amar Vilas, Bhopal, Madhya Pradesh

About the program: The objective of this program was to familiarize the participants with quality tools of KAIZEN such as LEAN, 5S and MUDA, MURA & MURI. Apart from these, they were also explained the concepts of 'The Toyota Way', Value of Time and Standard Work. The definitions of KAIZEN focussed on leadership and continuous self-development with a comparison study on KAIZEN and KAIKAKU. It involved various exercises during the workshop wherein the participants were told about adapting right methodology to seek desired results in any given circumstances. It was a successful workshop which concluded with distribution of participation certificates to the attendees and getting their valuable feedback.

Webinar on 'Quality: Emerging Challenges'

Date: 23rd August 2019

About the program: Implementing and maintaining a Quality Management System (QMS) can be quite a challenge. It's not always easy to find the information, method, person or time to implement the QMS that best suits your needs. NBQP, in association with eQuest, hosted a webinar which intended to convert challenges into opportunities by understanding the new challenges emerging due to fast-pace change in the business scenarios. The webinar was wrapped up by opening the floor for questions in the Q&A session.

1-Day Awareness Workshop on 'Industry 4.0 & Internet of Things'

Date: 26th August 2019
Venue: BMA House, Bhiwadi- Rajasthan

About the program: It was an in-house program conducted by NBQP- QCI with Bhiwadi Manufacturers Association, Bhiwadi, Rajasthan as a venue partner. The participants of this program were primarily the members of BMA along with some industrial representatives in and around the regions of Bhiwadi. The participants were exposed about the concepts and components of Industry 4.0, specifically Internet of Things. They were also briefed about the evolution from I2.0 to 3.0 and eventually to I4.0. It also showcased implementation of I4.0 in the manufacturing sector and its cost implications.

3-Day In-house program on Quality (ISO 9001), Environment (ISO 14001) and Occupational Health & Safety (ISO 45001) Management Systems

Date: 26th-28th August 2019
Venue: Central Warehousing Corporation, New Delhi

About the program: The program was conducted by QCI as per the request received from Central Warehousing Corporation. The program was focussed on Quality, Environment, Health & Safety requirements. Participants were made aware about all the clauses of the Quality Management Systems ISO 9001:2015, Environment Management Systems ISO 14001:2015 and Occupational Health & Safety Management Systems ISO 45001:2018 standard, their need & their importance. Risk Identification & Assessment being the important areas introduced in the latest version of the standard was also discussed.

1-Day program on STEPS (Scientific Tools for Effective Problem Solving)

Date: 28th August 2019
Venue: Okhla Phase 3, New Delhi

About the program: Organized problem-solving methods utilize a variety of quality tools for problem analysis. STEPS are proven scientific management tools, which are basic and easy to understand. Different from traditional method

of teaching the tools, this 1-Day program was organised by NBQP which focussed on building skill for interpreting the results and solving problems rationally, scientifically and effectively.

Webinar on 'Industry 4.0 & IoT- The convergence of information and operational technology'

Date: 29th August 2019

About the program: NBQP, in association with MixORG, hosted a webinar on Industry 4.0 and IoT. Internet of Things (IoT) no more needs any introduction. This webinar focussed on how one can use IoT to solve long-standing industry-specific challenges. Quickly develop IoT solutions that connect things, collect data, and derive insights, with this webinar. In addition to this, it also provided a suitable model for digitalization and navigate the options for innovation in the age of the Internet of Things and explored opportunities to scalable solutions so that one could reduce costs, improve productivity, and increase revenue.

Learning Mission on Manufacturing Excellence

Date: 30th August 2019
Venue: Noida, Uttar Pradesh

About the program: Learning Mission on Manufacturing Excellence was organized at Sahasra Electronics Ltd., Noida, U.P. The objective of Learning Mission was to provide an insight into the best practices/ management concepts adopted in the Manufacturing industry like value engineering, system assembly, Electronic Manufacturing Services (EMS), PCB design, Printed Circuit Board Fabrication (PCBF),

LED Lighting, etc. The Mission also helped in bridging the gap between classroom theoretical training and practical learning in a real-life environment. The agenda included exposure to Electronic Manufacturing Services (EMS) like PCB design, Printed Circuit Board Fabrication (PCBF), Pen drive manufacturing etc. with focus on automation and digitalization.

3-Day In-house program on Quality (ISO 9001), Environment (ISO 14001) and Occupational Health & Safety (ISO 45001) Management Systems

Date: 16th-18th September 2019
Venue: Central Warehousing Corporation, New Delhi

About the program: The program was conducted by QCI as per the request received from Central Warehousing Corporation. The program was focussed on Quality, Environment, Health & Safety requirements. Participants were made aware about all the clauses of the Quality Management Systems ISO 9001:2015, Environment Management Systems ISO 14001:2015 and Occupational Health & Safety Management Systems ISO 45001:2018 standard, their need & their importance. Risk Identification & Assessment, being the important area introduced in the latest version of the standard was also discussed.

Program on "Importance of Energy Management System ISO 50001:2018" for value chain

Date: 18th September 2019
Venue: Visakhapatnam, Andhra Pradesh

About the program: The program was conducted by NBQP At NTPC Simhadri for their contractors, sub-contractors & their supervisors. The objective of this program was to familiarize them with the requirements of Energy Management Systems ISO 50001:2018 & its importance. They were explained the measures that can be taken by them to ensure effective implementation of Energy Management Systems within the Unit.

3-Day Lean Six Sigma Yellow Belt Training Program

Date: 18th-20th September 2019
Venue: ITPI Building, New Delhi

About the program: Six Sigma Yellow Belt training program allows employees to possess a more profound understanding of process improvement via process management introduction. Participants also become familiar with the fundamental tools associated with Six Sigma. The goal of the Yellow Belt training was to give participants the necessary tools required in order to become a valuable player within a company's larger goals and objectives. This specific training provided the comprehension of the fundamental methodologies utilized for Six Sigma. The Six Sigma Yellow Belt training course covered a few of the basic improvement procedures and their necessary metrics. Yellow belt can become a team member for an individual project or multiple projects.

New Initiatative
Learning Mission On Manufacturing Excellence At Sahasra Electronics, Noida

At NBQP we put a lot of emphasis on holistic learning. We believe learning should not be restricted to four walls. To bring the immersive learning within the participants, people at NBQP planned an industrial visit as a part of their new initiative. The aim of these industrial visits is "Education – Exposure – Experience."

The objective of these industrial visits is to provide everyone with an insight into the manufacturing world. It provides an opportunity to understand and develop the practical real-world perspective on different functions in organization which includes Design and Development, Manufacturing Planning and Control, Supply Chain Management, Logistics etc.

Plant Visit. 30th August 2019

Here are some of the learnings of Sahasra Electronics Industrial Visit through
Learning Mission On Manufacturing Excellence Program:

- The visit brought clarity to important management concepts and also provided the first-hand knowledge of how these concepts are put into action
- It bridged the gap between theoretical understanding of a factory operation and the real world of a factory
- It provided an opportunity related to manufacturing operations
- The visit also gave a platform to enhance our interpersonal skills
- We also got to see the best practices opted by an Electronics Industry wherein understanding of their work process and how various industrial operations are executed
- The visit also helped us in developing our critical thinking

BENEFITS FROM THE VISIT

Informing the leadership team about various schemes of QCI/NBQP

Building a permanent relationship between the company visited & QCI/NBQP

Helped in identifying industrial partner for promotional activities of QCI/NBQP

An opportunity to interact with the managers & operators at various levels

An opportunity of networking within the participants

Members Write

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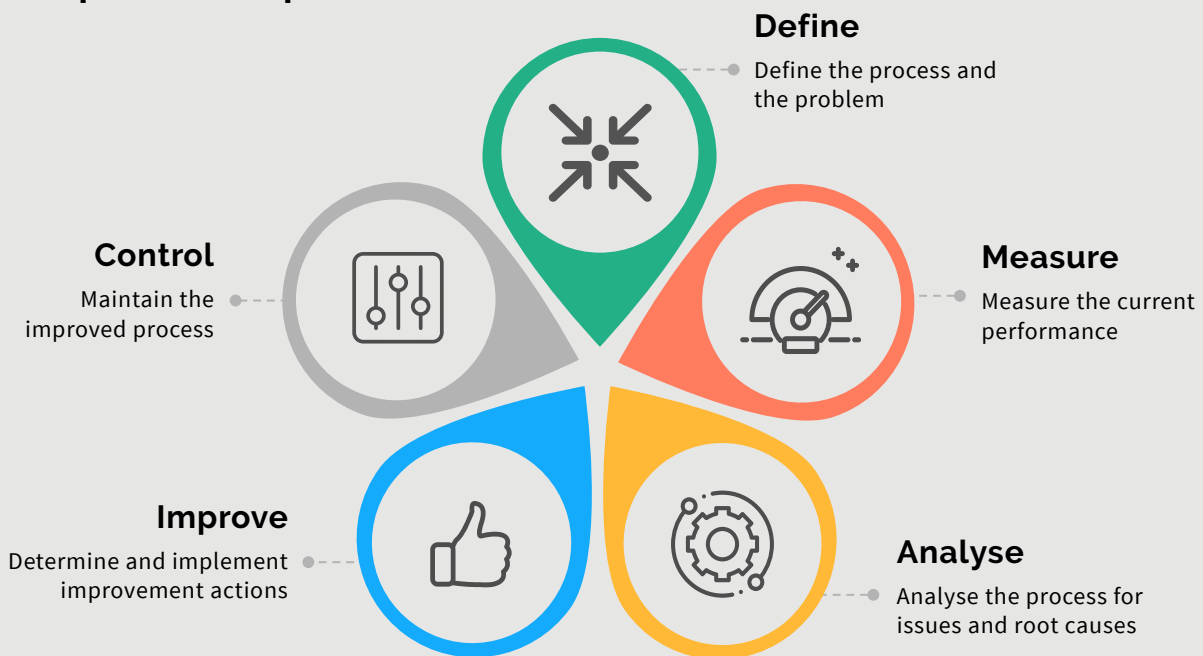## Prashant Sharma

Designated Partner, CEO,
Credere®GlobalServices LLP

Six Sigma Methodology

A set of methods and tools for process improvement

Define
Define the process and the problem

Measure
Measure the current performance

Analyse
Analyse the process for issues and root causes

Improve
Determine and implement improvement actions

Control
Maintain the improved process

An overview of the Six Sigma methodology

The term Six Sigma was originally used by Motorola in the early 1980s to describe the overall management approach. The Six Sigma method has since been successfully used by several other organizations including General Electric, Boeing, and many others. It is rapidly becoming a major force driving the strategy of many leading organizations.

Sigma is a statistical unit of measure which reflects process capability. The sigma scale of measure is perfectly correlated to such characteristics as defects-per-unit, parts-per-million defective, and the probability of a failure/error.

For a business or manufacturing process, the sigma capability (z-value) is a metric that indicates how well that process is performing -- The higher the sigma capability, the better. Sigma capability measures the capability of the process to perform defect-free work. A defect is anything that results in customer dissatisfaction.

The old belief of using increased levels of inspection and testing to prevent defects and reduce scrap and rework said that increasing appraisal and prevention costs tend to outweigh quality costs as we strive to improve quality. Thus, one can find a stationary break-even point.

However, when you improve your process capabilities and therefore the sigma capability of your company, the break-even point moves. Appraisal and prevention are needed less and less as we assume a higher level of quality.

Therefore, you can get more quality at lower costs if you improve the process capabilities of your company.

The Six Sigma method focuses on understanding customers' requirements better and eliminating defects and waste. These objectives are achieved through profound knowledge of statistics, engineering and project management, as well as the underlying processes and systems.

Objective here is to improve the organization's products, services and processes across various disciplines, including production, marketing, finance, and administration.

The benefits of Six Sigma include better understanding of changing customer requirements, behavior, improvement of quality and delivery, reduction of waste, reduction of cost, development of robust products and processes, continuous improvement, and prepare themselves to adapt successfully to a rapidly changing business environment.

The main elements of effective selection and management of Six Sigma projects are aimed at business systems improvement. It clarifies the roles of various participants in achieving the bottom-line financial and technical objectives of each Six Sigma project, and the importance of evaluating the success of these projects.

Six Sigma Method

The Six Sigma management method philosophy focuses on better understanding of customer requirements, improving business systems throughout the organization, and enhancing the organization's financial performance. It is used to improve the organization's products, services and processes across various disciplines, including production, product development, marketing, sales, finance, and administration. It is achieved

through understanding the underlying processes, and reducing or eliminating defects and waste.

Six Sigma and Other Quality Initiatives: The Six Sigma management method is more comprehensive than prior process improvement initiatives such as Total Quality Management (TQM) and Continuous Quality Improvement (CQI). The Six Sigma management method includes measured financial results, uses additional, more advanced data analysis tools, and uses project management methodology and tools.

TQM and CQI and their basic quality control tools were appropriate in the 1980s and early 1990s. As implemented, these initiatives aimed at what was often referred to as the "low hanging fruit." Many organizations had such improvement opportunities. The problems that were originally targeted had occurred as a result of historical developments in these organizations. Certain activities were performed in these organizations for specific reasons, and continued to be performed well after their value diminished or disappeared completely. To improve these processes and eliminate these non value-added activities, TQM (or CQI) aimed primarily at empowering individuals and teams to discuss these issues within their own area or across organizational boundaries. The tools of TQM (or CQI) were heavily oriented toward brainstorming, communications and simple data analysis.

However, by the mid1990s, most organizations that adopted TQM (or CQI) ran out of "low hanging fruit." The problems that needed to be tackled next, did not lend themselves easily to simple data analysis, and required more investment in resources and time than what was viewed as appropriate involvement in TQM (or

CQI) process improvement activities. Significant business results were no longer achievable through TQM (or CQI) initiatives, and organizational commitment to these initiatives came to an end.

In the meantime, the Six Sigma management method continued to grow and thrive, from its initial development by Motorola in the mid 1980s, to its widely advertised adoption by GE in 1992, to its adoption by many other powerful organizations since that time. The Six Sigma method appeared to be the next logical step, since it cured the deficiencies of TQM (or CQI) by including measurements of financial results, using additional, more advanced data analysis tools, and using project selection, evaluation, and relevant project management methodology and tools.

The clearly measured financial results ensured sustained commitment to the initiative by senior executives. Application of advanced data analysis tools, such as quality function deployment (QFD), design of experiments (DOE), failure mode and effect analysis (FMEA), regression analysis, in addition to the basic analysis tools of TQM (or CQI), focused on customer concerns and ensured problems were properly analyzed. The Six Sigma project-driven organizational structure and the use of appropriate project selection, evaluation and project management tools, ensured that Six Sigma projects reached their objectives effectively.

As such, we can summarize the Six Sigma management method as follows:

Six Sigma = TQM (or CQI) + Stronger Customer Focus + Additional Data Analysis Tools + Financial Results

Theoretical Basis of Six Sigma

The German mathematician Carl Friedrich Gauss (1777–1855) developed the normal

distribution. This distribution was found to apply to many physical and process characteristics. It is often used as an underlying assumption for measurements on many processes.

The Normal Distribution indicates that a process has many observations around its mean (average) and fewer observations as we get further and further away from the mean. It indicates that about 68% of the observations in a process would be within one standard deviation (one sigma) in each direction from the mean, about 95% of the observations in a process would be within two standard deviation (two sigma) in each direction from the mean, about 99.7% of the observations in a process would be within three standard deviation (three sigma) in each direction from the mean (Figure 1).
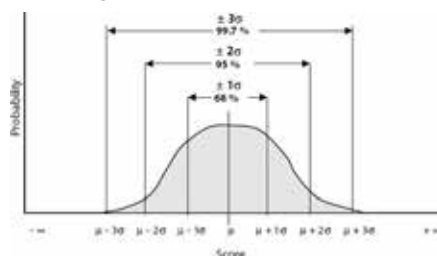

Figure 1

Quality control charts, developed by Dr. W. A. Shewhart, provide a view of the process characteristic of interest over time. Observations, or sample means are plotted on the chart. The Centerline (CL) of the chart is the mean of the data, the Upper Control Limit (UCL) is set three standard deviations above the mean, and the Lower Control Limit (LCL) is set three standard deviations below the mean. These values are calculated from observations on the process itself. Therefore, the quality control chart represents the voice of the process (Figure 2).

Since the UCL is set three standard deviations (three sigma) above the mean, and the LCL is set three standard

deviations (three sigma) below the mean, the distance between UCL and LCL is six standard deviations. When the process is in statistical control, the process is said to be stable, predictable, consistent, or in control. In this case, approximately 99.7% of the plotted points will be within the control limits. The remaining 0.3% (or 0.003, or 3 per thousand) of the plotted points will be outside the control limits: 0.15% above the UCL and 0.15% below the LCL.

The quality control chart allows differentiation between common cause variation and special cause variation.

Common Cause variation is caused by the total system, including planning, design, equipment selection, maintenance, personnel selection, training, etc. It can be referred to as system, random, or normal variation. Since management designs the system and has the authority to change it, management is generally considered to be responsible for system variation. Common cause variation is indicated when all plotted points fall within the control limits, with no trends, runs, cycles, or special patterns.

Special Cause variation is caused by causes outside the system, including human error, accidents, equipment breakdown, etc. It can be referred to as assignable variation. Since this variation indicates a condition different than the way the system or process operates normally, it is generally considered to be the responsibility of the individual worker. Special cause variation is indicated when a plotted point, or points, fall outside the control limits, or when all plotted points fall within the control limits but have trends, runs, cycles, and/or special patterns.

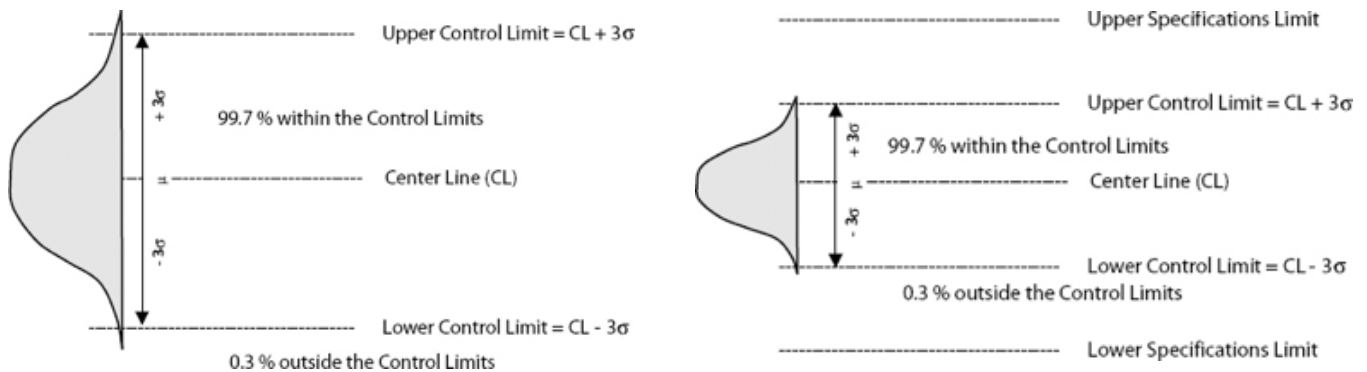Dr. W. Edwards Deming (1900–1993) developed the management theory based

Figure 2

on continuous quality improvement, popularized the use of Statistical Quality Control methods and had a great deal of impact on Japanese and American Quality and competitive position. The Deming Medal, given out annually by the Deming Prize Committee of the Japanese Union of Scientists and Engineers (JUSE), continues to be the highest honor in quality in Japan.

Dr. Genichi Taguchi developed the Loss Function, emphasizing the importance of having process output as close to the target (or nominal dimension) desired by the customer. He further stressed the importance of reduction in variation, and popularized the use of experimental design in manufacturing processes.

Process capability studies combine the voice of the process with the voice of the customer, engineer, designer or manager. Widely used measures of process capability include the Process Capability Index (C_p) and the Capability Index with Correction (k) for non-centrality (C_{pk})

If the Upper Specifications Limit and the Lower Specifications Limit were six standard deviations (six sigma) each away from the mean, then pure six sigma would be achieved with a theoretical maximum of 2 defective parts per billion.

Six sigma practice convention is based on allowing the mean to move ±1.5 standard deviations (1.5 sigma), leaving

4.5 standard deviations (4.5 sigma) between the process mean and the closest Specifications Limit. This results in a maximum of 3.4 defective parts per million. Further, practice convention indicates that the maximum is 3.4 defects per million opportunities (DPMO). This provides less stringent requirement, since the same part (or component, or item) may have multiple defect opportunities. Thus, six sigma is achieved when the process generates no more than 3.4 defects per million opportunities. This is still a very heroic target for many organizations, processes and projects.

Six Sigma Projects: The Six Sigma method adopted the idea of project-driven business system improvement. A Six Sigma project is targeted to have a duration of three to six months. If a business system improvement project exceeds these targets, it would be broken down to smaller projects to fit these criteria.

Six Sigma projects are elected carefully and evaluated rigorously to ensure that they achieve their financial objectives.

Six Sigma Project Management Tools include project identification and selection methods, basic team development approaches, basic project planning and control tools, and post project evaluation methods.

Six Sigma Project Methodology

The generally accepted methodology for managing Six Sigma projects includes the following phases:

Define: Identify product/process performance and reliability CTQs and set quality goals

Measure: Perform CTQ flow down to subsystems and components and Measurement system analysis/capability

Analyze: Collected data are analyzed to find the root cause(s) of the problem.

Improve: Solution(s) to the problem are developed and implemented.

Control: The implemented solution(s) are evaluated and the mechanisms are implemented to hold the gains, which may include standardization.

This methodology has often been referred to by its initials: DMAIC. Some are suggesting an additional initial phase that might be called Recognize. This would occur before the Define phase, and is intended to ensure that appropriate opportunities and problems are properly recognized.

Quality of Tea and Economy

Improvement in tea quality is the need of the hour to satisfy all sectors of its economy

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Pranab Kumar Sarma

Researcher

Indian Tea Industry occupies an important position as an Agro-based Industry. It employs a large number of people, mostly from the non-elite section of the society.

India exported about 256.57 million kilograms of Tea in 2017-18, while foreign exchange realization was about $785.92 million (https://economictimes.com)

There are various sectors of economy in the Tea Industry. They are: shareholders, executives, staff and labourers, small tea growers, contractors, suppliers, dealers, retailers, and tea brokers, customers and the Government. Everyone has their own expectations from this Industry. Out of the above sectors of economy, labourer is an important sector and they expect

more wages and benefits to meet their requirements and to enjoy the modern facilities. On the other hand, the shareholders want to have more profit to get better dividend at the end of the year.

To reach a favourable position to provide higher wages to workers and higher dividend to the shareholders, the Tea Companies have to make very good profit. As far as Tea Industry is concerned, 26 Acts and Rules framed thereunder are applicable to provide various facilities to the labourers. Out of which Plantation Labour Act 1951 and Factories Act 1948 regulate the working and living conditions of Tea garden labourers. Provident Fund, Pension Fund and Link Insurance Scheme provide retirement benefits.

Similarly, the other sectors of the economy are also not happy when they do not receive expected salary, commission etc. The Government also wants to earn by way of Taxes and Revenue and the last but not the least the consumers want good quality tea, pesticide residue free, at reasonable price.

The picture depicted above suggests prevalence of some weak links and requires correction immediately. In short, unless the Tea garden improves their Land and Labour productivity along with quality of tea, it is not possible to improve the economic condition of the Tea Gardens.

It is a matter of pride for everyone that Tea Industry established a research Institute named as Tocklai Experimental Station in 1911 at Jorhat (run by Tea Research Association) and later renamed as Tocklai Tea Research Institute.

Tocklai Experimental Station improved various cultural operations and manufacturing processes through their research work and guided the Tea Industry. The Tea Industry is growing by improving land productivity and quality of Tea.

Nowadays, the developed countries are very conscious about the health of their citizens and they only allow to consume food products which have zero pesticide residue or with the limit acceptable to that country. Indiscriminate use of pesticide by a section of tea gardens and small tea growers invited a problem to the Tea Industry while exporting their Tea to the developed countries. To control the situation, the Tea Board of India developed a PLANT PROTECTION CODE through the contributions of Tocklai Tea Research Institute, Tea Research Institute of UPASI, Tea Research Directorate of Tea Board of India, Scientists of HUL and TGBL, Member of Trustea Advisory and Technical Committee, which is of very high standard. The code encourages tea garden owners and growers to critically review their plant protection formulation, which are to be used at proper time with proper dose. It also guides how to handle the Tea Protection Formulations. It gives detail technology right from land clearing, planting to harvesting and includes various cultural operations and other measures to be taken to protect the tea plants from pests and diseases. This type of plant protection code for a particular plant is very rare. The best part of this code is that it speaks very specifically about the Dos and Don'ts in Tea Pest Management. This code is based on Codex Alimentarius, which is a set of international food standard and guidelines. By following the guidelines of the plant protection code, it will be possible for any Tea garden to produce zero or acceptable limit pesticide residue Tea acceptable for export or to sell at remunerative price.

The main problem faced by Assam Tea Industry is to identify pesticide residue of green leaves at the field level or on arrival at the factory. An instrument is required to check the pesticide residue of green leaves instantly but this kind of instrument is not available at present. Since technology is available at IIT Guwahati, cooperation from Central and State Government is necessary to develop an instrument urgently as it requires fund.

Plant Protection Code also advises to pluck 7-days-old leaf for CTC Tea and 4/5-days-old leaf for Orthodox and Green Tea. It also advises clearly how to pluck the bushes to reduce the attack of some pests and diseases, thereby to reduce the chemical load on the bushes. Hand plucking is the best way to pluck quality Tea leaf but nowadays it is seen that there is shortage of pluckers during Sali paddy transplanting time in June/July and festive season in October. Therefore, in many gardens as well as for the plantations of small Tea growers it is not possible to pluck tea leaves in time and later overgrown leaves are plucked which does not produce desired quality of marketable Tea. To attract the education section of garden boys and girls, a plucking machine is required which can sensor and pluck leaf as per requirement of the factory to produce quality tea. This will improve plucking productivity and earnings of the puckers. The technology to develop this kind of machine is available at IIT Guwahati and interest from the Government authorities is required as it involves requirement of fund.

By manufacturing quality pesticide residue free tea, it will be possible to retain all parameters of a health drink and earn more name and fame in the international market to sell Indian Tea at remunerative price. It will satisfy all sectors of economy associated with the Tea Industry.

Chitkara International: A Quality Conscious school

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Dr. Niyati Chitkara

Principal, Chitkara International School

Quality, although a considerably subjective concept, almost invariably stands for the measure of excellence. It is a way of life that empowers one to take an unadulterated pride in one's work. Quality is not defined by mere organisational procedures but by the general inimitable attitude of the head, management and staff of an organisation (school, office, etc). Thus, for Chitkara International School (CIS), quality, which is perceived disparately by different institutions, stands as an inveterate dream – a dream that has been contemplated and envisioned by its founding team with an earnest hope of imparting supreme skill education.

Fifteen years later, the school continues to relentlessly pursue this goal through its various offices. Chitkara's endeavour to ensure 'Persistent Quality Enrichment' has been firmly backed as well as acknowledged by NABET. The board has truly made 'quality', the chief concern of Indian educational institutions, and thereby, revolutionised the education and training sector of the nation.

Research and innovation is the fulcrum of a 'Qualitatively Progressive School' – a nomenclature that each school aspires to attain. It stands for an educational

institution that essentially fosters proactive attitude towards work. It infixes the process of in-depth research as a general norm. In line with the objectives of the 'National Quality Campaign' so admirably initiated and helmed by NABET and QCI, each school must unmistakably instill scientific temper and attitude among its staff as well as students, who shall then carry an unconventional yet promising approach towards problem-solving. Playing the key role of a catalyst, NABET has truly accelerated the process of quality upgrade in India's educational & training institutions, for it has created a mechanism that rightly acknowledges and rewards skill education. Such recognition acts as the basic foundation of a progressive community that capacitates youth with global and employable skills. It creates an ecosystem wherein the students shall gain various skills required for creating a well-planned task proposal with objectives, hypotheses, investigations and mechanisms. Quality, therefore, has no end point and no starting point. It is in fact, a thought process, which once embedded in a system, constantly pushes it towards perfection.

CIS infused 'quality' in its blood through inculcating, adopting and practising various skill-enhancing techniques and methods, which have been duly chronicled hereunder:

- Established various offices to streamline school's operations

- Consciously approached NABET after careful deliberations as the board holds a distinctive, unparalleled and highly meticulous mechanism for quality accreditation

- NABET offers a strong scaffolding on which the quality mechanism of CIS rests; therefore, significant steps are persistently taken to uphold its vision and mission

- The mission of the 'Quality Campaign' is being efficaciously led by the school as measurable quality objectives are statistically analysed to immediately rectify the deviations, if any

- Quality evangelists, working closely and concomitantly with NABET and CIS, have contributed immensely in bridging and consolidating the quality objectives of the two institutions

- Orientation sessions and workshops on 'Quality consciousness and its significance thereof' are being customarily held to ensure excellence in the operations of various offices. Keeping a proactive approach, these sessions are held before implementation of a novel concept

- In compliance with the policies pursued by NABET, 'Accreditation Manual' and 'Standard Operating Procedures (SOPs)' have been devised by the team which reflect ideal quality processes with appropriate frameworks and structures in place

- Detailed accounts of management operations are being duly reported through Daily Management Information System (MIS). Furthermore, the office communications are held digitally on a regular basis to reduce inefficiencies and ensure compliance

- Documents and records are being maintained electronically and otherwise to ensure transparency, accountability, ease of accessibility and traceability

- A system of notification alert has been established to ensure prompt emendation of deviations

- Calendars, Audit Calendars and Deviation Calendars have been suitably formed to match compliance to quality

- Quality works and processes are continuously propagated and promoted amongst all the stakeholders through social media campaigns and otherwise with an aim of disseminating vital information pertaining to QCI's vision upheld by NABET i.e. 'Creating an ecosystem for Quality'

- Audit reports and feedbacks are created for future course of action to work on the deficiencies of a process and thereafter, devise suitable plan to ensure flawlessness

CIS thus propagates the idea of quality, time and again among its faculty and students which decidedly stands for:

Q **Questioning and Re-Questioning**
U **Uniqueness**
A **Approach and Attitude**
L **Leading**
I **Innovating**
T **Testing and Re-Testing**
Y **Yielding**

Quality, therefore, is a temperament, which is everlasting and once it is inculcated into the system, there is a significant change in the working of an institution. As duly published by NABET, three basic elements of quality contain Management Quality, Teacher Quality and Student Quality. Therefore, CIS endeavours to achieve supreme quality in the three stated elements, even more so now, as it has been sustainably guided to a quality track by NABET.

Industry 4.0 / Smart Factory for the Indian MSMEs

Mr. Manjiv Singh

Consultant, Gilard Application Programmers LLP

Industry 4.0 is a much talked about and less understood subject today. Most MSMEs neither understand the subject nor the benefits that can be derived by adopting it.

Those who understand it do not know how to go about it and how much it will cost. Here I try to de-mystify that.

One of the problems ailing the MSME today is that it is unable to grow beyond a certain level – either because it doesn't have the orders or it is not able to execute the booked orders on time.

The reason why any MSME fails to grow beyond a certain point is generally because the decision making is centralised. Switching to a decentralised organisation structure will enable decision making at local level which frees up the top management from the need to involve themselves in low to mid-level decision making. This gives them more time to concentrate on more important strategic decisions catering to the growth of the MSME.

Operations is a major concern for all MSMEs and some of the Shoe pinch-points for MSME owners are listed below as per the acronym 'PCQDSM':

Productivity

Eliminating productivity bottlenecks due to machine breakdown or manpower issues

Cost

Streamlining operations to be cost competitive

Quality

Improving Quality to reduce rejection

Delivery

Booking orders and executing on time while keeping a control on inventory

Safety

Ensuring a safe work environment with zero accidents

Morale

Boosting employees' morale by eliminating daily fire-fighting and making roles transparent

All of the above shoe pinch-points have one thing in common. All of them require accurate and reliable data to be able to make informed decisions for daily works management. When an organisation's decisions are based on real time and reliable data, it is bound to make growth oriented decisions with minimum daily fire fighting. Digitisation of your business processes makes credible and relevant information available in real time for decision making at the lowest level. This is the foundation step for all the subsequent steps for the Industry 4.0 solution.

ERPs or Enterprise Resource Planning Software have existed for a long time now but their 'importance' has now become a 'necessity' for the MSMEs. With the talks of Industry 4.0 and what it means for the Manufacturing sector, the ERP software has increased in its scope wherein the software solution now not only provides a more wide coverage of manufacturing and business processes but also integrates it with Industrial IoTs (Internet of Things) for data capturing from production shops.

What exactly is Industry 4.0?

Some define Industry 4.0 as "digitization of the manufacturing sector, with embedded sensors in virtually all product components and manufacturing equipment, ubiquitous cyber-physical systems and analysis of all relevant data." I would like to simplify this definition for the MSME readers – Industry 4.0 is the ability of an entrepreneur or a manufacturing unit owner to be able to know the workings of his manufacturing plant while sitting anywhere in the world. Imagine keeping track of your production (machine wise), approve employee leaves, approve material indents, stop or start a machine, check the financial position of the company, view all business measurable from the comfort of your smart phone. The creation of such a digital twin of your manufacturing unit on your smart phone, tablet or computer is called Virtualisation.

Industry 4.0 uses a functionally deep software with wide coverage of all your manufacturing and business processes. Using this software as a platform, sensors and IIoTs are deployed so as to capture data straight from the machine. A smart machine will be able to send you a message on your phone if it detects abnormal behaviour (like stoppage in production).

Is your MSME ready for Industry 4.0?

We have established that Industry 4.0 is a necessary technological up-gradation. Does it mean that only MSMEs with the latest machines and equipment can set their sights on I-4? No it does not. If an MSME owner wants to convert his unit into a "Smart Factory" and has manual mechanical machines with no PLC / SCADA, he can also go in for Industry 4.0 to become competent. The implementation of IIoTs has nothing to do with the quality or sophistication (or lack of it) of your existing machines. It can be built on any machines that you have in place.

Cost of Industry 4.0

It is important for all business owners to realise that the cost of implementing and maintaining Industry 4.0 is not an expenditure but an investment. As per a study, every MSME should allocate 5% of their annual turnover for going Digital and can expect a Return of 6.5% in the very first year after the deployment of the "Smart Factory" solutions. The full solution of Industry 4.0 will be able to enhance your plant capacity, thereby reducing the need for further capital investments in Plant and Machinery. So you can well realise that the investment for I-4 will pay for itself many times over.
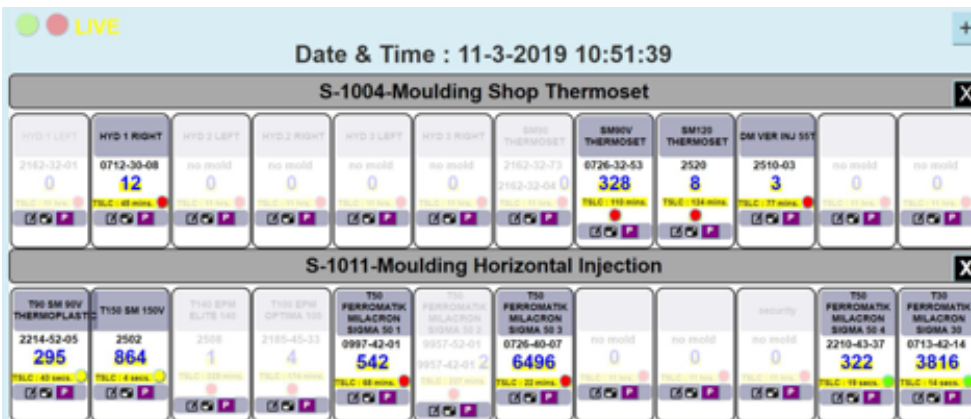
The above picture is a screenshot from GAP OSM's PCMD module used for monitoring of production. This screenshot shows the items being manufactured on various machines and the real time production data of each machine. This module can be made accessible from any device, anywhere in the world.

MARK OF EXCELLENCE

National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a constituent board of Quality Council of India (QCI), set up to establish and operate accreditation programme for healthcare organizations.

NABH has been established with the objective of enhancing health system & promoting continuous quality improvement and patient safety. The board while being supported by all stakeholders, including industry, consumers, government, has full functional autonomy in its operation.

NABH provides accreditation to hospitals in a non-discriminatory manner regardless of their ownership, size and degree of independence.

International Society for Quality in Healthcare (ISQua) has accredited NABH. The approval of ISQua authenticates that NABH standards are in consonance with the global benchmarks set by ISQua.

Vision

To be apex national healthcare accreditation and quality improvement body, functioning at par with global benchmarks
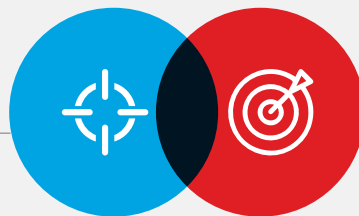
Mission

To operate accreditation and allied programs in collaboration with stakeholders focusing on patient safety and quality of healthcare based upon national/ international standards, through process of self and external evaluation

NABH Activities

NABH Accreditation Programs

NABH offers accreditation to Hospitals, Blood Banks, Eye Care, SHCOs/ Nursing Homes, OST Centers, CHCs/PHCs, AYUSH Hospitals, Wellness Centers, Medical Imaging Services, Dental Centers, Allopathic Clinics, Ethics Committees and Panchkarma Clinics

NABH Certification Programs

NABH offers certification to Medical Laboratories, Nursing Excellence, Emergency Departments, Medical Value Travel Facilitator (MVTF), Pre-Accreditation Entry Level for Hospitals, Pre-Accreditation Entry Level for SHCOs

NABH International

NABH has started its operations overseas under NABH International (NABH I). It offers all accreditation programs as being offered in India. The program is unique as in addition to the accreditation standards it requires compliance with local regulatory requirements

Training & Education

NABH conducts Education/Interactive Workshops, Awareness Programmes and Programmes on Implementation (POI)

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Professional Membership Scheme

Dear Quality Aspirants / Professionals,

Warm greetings !

NBQP is one of the five constituent Boards of QCI. The "Professional Membership Scheme" is one of the initiatives which is being operated by the NBQP in order to make "Nationwide Quality Movement" a reality, as well as integrate the organizations, institutions and individuals working in the field of quality.

This "scheme" is open for all as per their eligibility and it would give you an edge over the other Professionals/ Corporates as QCI has earned the reputation of being a very credible, successful and highly sought after accreditation/ registration institution. Besides getting the membership certificate, a copy of quarterly "Quality India" magazine and an opportunity for placing articles/ads in it, discounted registration for the Awareness/Training programs & events such as Conclaves, Seminars/Workshops, access to the upcoming Knowledge Repository etc. will be provided.

If you have the passion to become a part of this movement for quality promotion, stay abreast with the latest on the quality front, connect with other professionals, advance your knowledge and career, or grow your reputation as a thought leader, this membership would put you on the right track.

Best Regards,
CEO-NBQP(QCI)

For any membership related queries, you may connect:
Ms. Kokila Gaur / Mr. Kushal Kanwar

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