Quality : The only Strategy

QUALITY STRIVING FOR EXCELLENCE

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President's Message | Santosh Khadagade

Season's Greetings! Wishing all members, a safe and peaceful year ahead!

Deploying Industry 4.0 Smart Factory norms is deemed necessary for survival. Rather it should be a natural choice aimed to reap the benefits of digitalization. However, mere deployment of sophisticated digital systems do not guarantee quality. The deployment of Quality 4.0 must also go hand in hand.

You can place an online request to correct your address in a utility bill on a powerful online portal within minutes, but then you realise that there is neither acknowledgement nor communication of SLA. On enquiry, you are told that it will take 2 months; and your request has been sent to the concerned dept. No apologies! No Regrets! No escalation!

Such mishaps can be found in an organisation, severely affecting the quality of products/services, incurring a huge cost of poor quality and lower profit margins. So, the role of quality professionals has become more relevant than ever. There is an urgent need to upgrade expertise and skills in the deployment of quality methodologies, such as DOE, SPC, FMEA, QFD, Lean, etc.

NCQM continues to organise its activities virtually amid the uncertainty due to the pandemic. The BEQET Award function will be held in Jan 2021 followed by the DL Shah Memorial Lecture in Feb 2021. The AGM and Annual Day function are scheduled for 29th December 2020. Our senior member, Mr. Gopal Sehjpal has agreed to be the Chief Guest and deliver a Keynote Speech on "Quality in Leadership". We will also recognise members for their sustained support for 10 years/ 20 years.

We wish to thank all the members for their continued support. For any queries, feedback or requirements, please feel free to contact me at president@ncqm.com.

2021 Quality Professional of the Year

Our esteemed Member and International Advisor, Mr Navin Dedhia has been named the Quality Magazine's "**2021 Quality Professional of the Year**"!

On behalf of NCQM, we extend our heartiest congratulations to Mr Dedhia on this well-deserved achievement!

As you all know, Mr. Dedhia has had a long association with NCQM since its inception in 1985 and has actively supported NCQM's activities and initiatives.

Quality 4.0: Part 1 - Genesis

Introduction

The term 'Quality 4.0' comes from Industry 4.0' – the 'fourth industrial revolution', originally addressed at the Hannover (Germany) Fair in 2011. Increased intelligence and interconnectedness in 'smart' manufacturing systems and introduction of the newest technological innovations was emphasized in 2011.

Industry 4.0 and resulting Quality 4.0 are driven by the exponential growth of disruptive technologies and the changes these technologies are bringing to the work place, workforce and the markets being served.

The businesses are going through distinct challenging times, but not in the way anyone had dreamed. Political turmoil, social unrest, economic decline, and a once in 100 -years global pandemic have severely altered all activities. 2020 may seem like it was an epic disaster, but it represents a new opportunity to change the world for the better.

Businesses are facing stressful challenging times under the face of disruptive technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Augmented Reality (AR), and Big Data. Initiatives in technology are focused on quality improvement. Global disruptions in supply chain due to COVID-19 have caused shortages in essential consumer and food industries. Staff is required to work from home using digital devices.

Businesses are becoming more competitive. Businesses are looking at the ways to cut down costs with automation and new technologies. More and more industries are getting digitalized. Quality is always in step with industry advancements. Customer focus has been at the center to adopt new way of providing satisfaction.

Industrial revolution has brought changes and challenges along with new inventions and technologies. At present, businesses are experiencing the fourth industrial era with the introduction of disruptive technologies.

The third industrial revolution came at the end of the 1960's, with the invention of the Programmable Logic Controller (PLC).

Navin Shamji Dedhia of San Jose, California, USA, is a retired Quality consultant. He also retired from IBM and Hitachi Global Storage Technologies, San Jose, California. A holder of MBA, M.S. (EE) and B.E. (EE) degrees, Mr Dedhia is an ASQ-Certified CQE, CRE, CQM/OE and CQA.

Mr Dedhia, an elected Fellow of ASQ and recipient of the ASQ Distinguished Service Medal, E. Jack Lancaster Medal, the APQO Harrington-Ishikawa Medal, the ASQ Inspection Division Harry J. Lessig Medal and Jim Cooper Award, the ASQ Los Angeles Section Simon Collier Quality Award, ASQ Testimonial Awards, Lifetime Achievement Award from KOJAIN and many other honors, has numerous publications and presentations to his credit.

He has served ASQ in many high–profile positions at the Board, Division, Section and Committees levels and other professional and non -profit civic organizations. NCQM has a long association with Mr. Dedhia since its inception in 1985. He has served as Chairman of NCQM's International Committee.

This made it possible to automate processes like filling and reloading tanks, turning engines on and off, and controlling sequences of events based on changing conditions.

The Fourth Industrial Revolution extends the digital impact of the third revolution and merges it with the physical and natural worlds. It connects people, machines and data in new ways. Technologies are important because they enable the transformation of culture, leadership, collaboration, and compliance.

Evolution to Industry 4.0

Industry revolution happened over the time with the introduction of new methods, tools and technology. The First (real) Industrial Revolution embodied three revolutionary changes: machine manufacturing, steam power and the move to city living for people who had previously been agriculturalists. During the Second Industrial Revolution, the production line and mass manufacturing drastically reduced the cost of consumer and industrial products. The Third Industrial Revolution was barely a revolution as electronics and control systems gradually penetrated manufacturing, allowing greater flexibility and more sophisticated products at a significantly lower cost. In ancient times, artisans were making small quantity of product with their own skills and talents.

Technological advances of the past two decades have resulted in a new industrial revolution referred to as the fourth industrial revolution or "Industry 4.0“. It is a revolution driven by the exponential growth of disruptive technologies, and the changes those technologies are bringing to the workplace, and the markets organizations serve. Industry 4.0 represents the current trend of automation and data exchange in manufacturing technologies.

INDUSTRIAL REVOLUTION

Industry 1.0

During late 1700’s, Industry 1.0 came where water and steam were used to mechanize production.

Industry 2.0

During late 1800’s Industry 2.0 introduced electrical energy to create mass production.

Large factories and production assembly lines came into existence.

Industry 3.0

The third industrial revolution came at the end of the 1960’s, with the invention of the Programmable Logic Controller (PLC) and robotics.

This made it possible to automate processes like filling and reloading tanks, turning engines on and off, and controlling sequences of events based on changing conditions.

Industry 4.0

The Fourth Industrial Revolution extends the digital impact of the third revolution and merges it with the physical and natural worlds.

It connects people, machines and data in new ways. Technologies are important because they enable the transformation of culture, leadership, collaboration, and compliance.

The fourth industrial revolution, smart, hyperconnected cyber-physical systems help humans and machines to achieve shared goals and use data to generate value.

QUALITY 4.0 GENESIS

	INDUSTRY	QUALITY
1.0	Dependent on water and steam to mechanize production.	Each and every part was inspected prior to handing over to customer.
2.0	Electrical energy to create mass production. Large factories and production assembly lines came into existence.	Quality started with the need for inspectors to make sure production personnel were not making non-conforming products and stayed as a reactive approach.
3.0	Computer power, Electronics (PLC), Information, Communication Technology and Stand-alone Robotic Systems to automate production.	Quality as business imperative became important along with standardization activities and Proactive Approach.
4.0	Automated processes, digitalization tools, and interconnected world pushed further to smart manufacturing era.	Blends new technologies with traditional quality methods to arrive at new optimums in operational excellence, performance, and innovation. Digital data, analytics, connectivity, scalability, and collaboration are the drivers.

It includes cyber-physical systems, the internet of things, cloud computing and smart factory. The fourth industrial revolution is the move towards digitization including automation, robotics, artificial intelligence. Industry 4.0, includes interoperability to connect and communicate with machines, devices, sensors and people. The systems create a virtual copy of the physical world through sensor data thereby providing information transparency. It supports humans in making decisions and solving problems by providing technical assistance. The decentralized decision making is possible with cyber-physical systems to make simple decisions on their own. Industry 4.0 offers exciting new challenges to the Quality profession while building on expertise of problem solving, process improvement, and managing to sustain customer focus and achieve operational excellence.

Evolution to Quality 4.0

In the 1980's and 1990's, organizations in the US started to recognize the importance of human capabilities and active engagement in quality as essential, and TQM, Lean, and Six Sigma gained in popularity. Increase in productivity and higher precision parts resulted with repeatability of automated system, standardized and interchangeable parts. Smart equipment of Smart Manufacturing equipped with IoT capable sensors and intelligent controllers took advantage of the innovations in digital technology. Quality has always evolved along with industry.

Nowadays Quality 4.0 is becoming a hot topic among quality professionals. Quality means everything about customer. Practical approach is quality. Quality and IT professionals are working together to make it a success.

Quality 4.0 is a term that references the future of quality and organizational excellence within the context of Industry 4.0. Quality professionals are required to play a vital role in leading the organizations to apply proven quality disciplines to new digital and disruptive technologies. Drivers of fourth industrial revolution influenced Quality 4.0 strategies.

Quality 4.0's influence in transforming culture, leadership, collaboration, standards and quality management became evident in highly regulated companies in high tech, consumer electronics, and medical device industries. Quality has always been a product of the industry and has evolved over the period as the industry kept on evolving. Quality 4.0 does not focus exclusively on the technology itself, as Industry 4.0 does, but rather on the improvements in culture, collaboration, competency, and leadership.

Quality Management System

Key elements for a successful implementation of Quality Management System are enabling technologies, building human capacity, selecting key processes and proactive risk taking management.

- Enabling technologies include internet of things (IoT), cloud computational environment, large data processing for predictive analytics, artificial intelligence (AI), machine learning and deep learning.
- Human capacity building should include comprehensive training plan for human skill and digital knowledge to fully utilize all the benefits of technologies.
- Processes that can become Quality 4.0 compliant and show performance improvement will be key to gain benefit of digitalization.
- Risk taking management will consider investment in automated features, control, self-sensing, and self-correcting system for known issues and abnormal process conditions.

A comprehensive return on investment (ROI) on resource analysis should be an essential part of strategy map.

Digitalization

The COVID-19 pandemic has spurred more businesses to think about safeguarding themselves in an unpredictable future.

Lockdown really challenged businesses to think what else do they need to do to survive and compete. For businesses to be staying afloat, they just need to pick up new technology. At the same time getting workers with skill set in something that is new is becoming more and more important.

To meet the demands created by Quality 4.0 trends, companies are adopting a more connected, or product-centric quality management system (QMS) approach. Product-centric QMS can be realized in areas such as audit readiness, requirements, design controls, training, supplier quality, and integration. Advantages of digitalization becomes obvious in operations such as device designs, functionality, manufacturing processes, supply chain strategy, customer service, and the methods of maintaining quality systems.

Digitalization helps to reduce complexity in development, reshaping product development, eliminating reliance on paper-based quality system, and move away from manual systems. With digitalization scale up of design and supply chain processes can be handled quickly. It is easy to collect data on everything with automation.

The new technologies include - Big data, Machine Learning, Artificial Intelligence (AI), Cloud technology, connected devices and operations, Advanced Analytics, New forms of collaboration like social media and Block-chain, Collaborative robotics and Internet of Things (IoT). Disruptive technologies are stressing the industry from a human perspective point of view.

Many challenges appear when deploying an organization's digital strategy. Quality tools and principles should be leveraged to alleviate deployment challenges. Interpretation of current state to identify changes needed to move to the future state will make way easy. Success and failure depend on the ability to manage uncertainty and effectively identify trends having significant impact on the business. Keeping attention to business capabilities and environment will help in adopting and adapting technology.

RefleXion Medical, provider of biology-guided radiotherapy systems for cancer treatment and Toyota's largest supplier Denso have made remarkable progress in adapting real time data collection, the Internet of Things (IOT), and data analytics to support lean systems and amplify kaizen. Technology has the greatest potential when there is a culture of continuous improvement and highly developed people.

Quality 4.0 does not focus exclusively on the technology, but rather on the improvement in culture, collaboration, competencies and leadership. It is not replacing the traditional quality methods and techniques but improving them. Investments in modern technology are increasing to become world-class suppliers and to beat competition. Smart connected devices can help to achieve operational excellence.

Huge drive in quality improvements will come from digital transformation. Quality 4.0 is not replacing the traditional quality methods and techniques but improving them!

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World Quality Month

World Quality Month is celebrated in the month of November every year across the globe. Many programs or activities are undertaken by Quality Institutions and Organizations to celebrate and reiterate their commitment to quality management. Here is a glimpse into the celebrations at a few world renowned quality institutions.

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American Society for Quality (ASQ)

One of the great traditions at ASQ is to commemorate the contribution of Global Quality Gurus who inspired the world through their Quality Philosophies and created numerous success stories by applying the same in the workplace. These have emerged as universal foundations of Quality Principles, Practices, Systems and Frameworks.

This year, ASQ's Service Quality Division has taken the lead to share the contribution of some of the Quality Gurus from US and Japan with the members of American Society for Quality and quality professionals from around the world through a series of webinars.

The webinars are available for download and viewing on:

- ASQ URL: https://my.asq.org/communities/reviews/item/137/12/1971
- YouTube to watch online:

  Part 1 - https://youtu.be/lxg87xwT2mY

  Part 2 - https://youtu.be/tYHMMaOIoHo

ASQ India organized a panel discussion on ***Quality 4.0: Reimagining Quality*** on 28th November, 2020 as part of the Quality Month Celebration. ASQ Ahmedabad LMC organized its Annual Quality Conference in collaboration with Institute of Management, Nirma University.

This year's conference showcased Live Case Study Presentations, talks by distinguished eminent personalities, release of a new book on Quality Management, Best Case Study Competition, etc.

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Chartered Quality Institute (CQI, UK)

The theme for this year's World Quality Day was "**Creating Customer Value**".

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Customer-focused organisations have a culture of creating value for their customers by innovating and improving products, services and processes. In a world of ever-increasing customer expectations, competition and technological change, businesses are striving to be seen as 'partners' in the eyes of their stakeholders. CQI believes that the quality profession supports businesses to develop a customer-centric quality culture that will help them to:

- Recognise that it is the customer, not the company, that defines what quality means
- Understand product and service quality through their customers eyes
- Share their quality performance with customers
- Collaborate with customers to improve product/service quality and resolve problems.

Quality Council of India (QCI)

Quality Council of India (QCI) celebrated the World Quality Month with the theme **"Quality - The Essence of an Atmanirbhar Bharat".**

QCI believes that the celebration provides a platform for acknowledging the accomplishments of people and organisations making advancements and valuable quality contributions in businesses, communities and institutions worldwide.

QCI curated a series of competitions on their theme viz.: Slogan Writing, Essay Writing, Poster Making, Photography, Kaizen Implementation and how organizations celebrated the Quality Month.

© QCI

(Sources: ASQ, CQI and QCI websites)

Standards News

COVID 19 Safe Working Guidelines

The COVID-19 pandemic has turned the world of work upside down and employers are faced with challenges never seen before. Recognizing the need for comprehensive yet generic guidance on protecting staff while continuing to function effectively, ISO occupational health and safety (OH&S) experts quickly got to work, delivering in record time.

While the average ISO International Standard takes three years to develop, the newly published ***ISO/PAS 45005, Occupational health and safety management – General guidelines for safe working during the COVID-19 pandemic***, was developed in just three months in response to the urgency of the situation and the need for such information now.

ISO/PAS 45005 brings together international best practice on how to manage the health and safety of employees and stakeholders during the COVID-19 pandemic and is intended to complement any existing national guidelines and regulations.

Experts from 26 countries worked tirelessly to produce the guidelines in the form of a publicly available specification (PAS), which was approved by the 80 member countries of ISO's technical committee for occupational health and safety management.

Select Standards Recently Published

1. ISO 14040:2006/ Amd 1 :2020 - Environmental management — Life cycle assessment — Principles and framework — Amendment 1.
2. ISO 14044:2006/ Amd 2 :2020 - Environmental management — Life cycle assessment — Requirements and guidelines — Amendment 2.
3. ISO 50049:2020 - Calculation methods for energy efficiency and energy consumption variations at country, region and city levels.
4. ISO 41014:2020 - Facility management — Development of a facility management strategy.
5. ISO/TR 22914:2020 - Statistical methods for implementation of Six Sigma — Selected illustration of analysis of variance.
6. ISO/TS 20559:2020 - Graphical symbols — Safety colours and safety signs — Guidance for the development and use of a safety signing system.
7. ISO 23601:2020 - Safety identification — Escape and evacuation plan signs.
8. ISO/ASTM 52903-2:2020 - Additive manufacturing — Material extrusion-based additive manufacturing of plastic materials — Part 2: Process equipment
9. ISO/IEC TR 23842-1:2020 - Information technology for learning, education and training — Human factor guidelines for virtual reality content — Part 1: Considerations when using VR content.
10. ISO/IEC TR 23842-2:2020 - Information technology for learning, education, and training — Human factor guidelines for virtual reality content — Part 2: Considerations when making VR.

(*Source: ISO*)

REVISED TIMELINES

BEQET 2020

BEST EDUCATIONAL QUALITY ENHANCEMENT TEAM (BEQET) PRESIDENT AWARD - 2020

Worried about not being able to meet the BEQET 2020 Application Deadline? Relax....

In view of the COVID 19 pandemic, the BEQET 2020 Awards timelines have been revised!

This will give educational institutions more time to submit their applications for the 2020 Award. The revised timelines are as follows:

BEQET 2020 Events	Old Timeline	Revised Timeline
Call for Entries	Nov 30, 2020	**Nov 30, 2020**
Application	Dec 15, 2020	**Jan 10, 2021**
Acceptance	Dec 31, 2020	**Jan 15, 2021**
Final Submission	Jan 10, 2021	**Jan 31, 2021**
Competition	Jan 21, 2021	**Feb 06, 2021**
Award	Feb 20, 2021	**Feb 20, 2021**

Take advantage and rush in your applications by Jan 10, 2021!