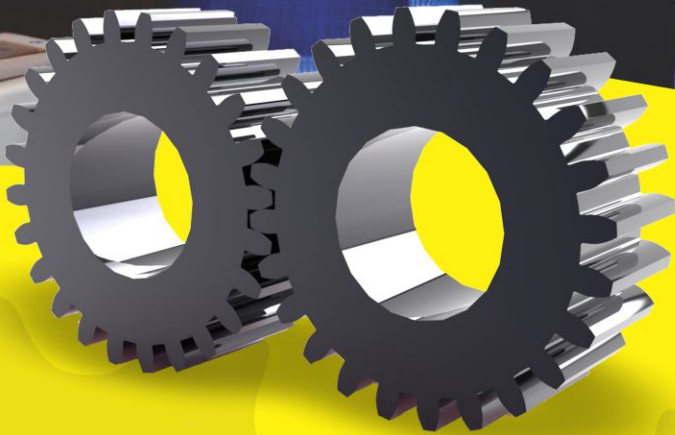


Quality INDIA

Apr-Jun 2017



12th National
Quality Conclave

'Leveraging Quality to Derive Economic
and Social Development'

KSDP Alappuzha
Receives Accreditation



CERTIFYING

Compliance with International Codes & Conventions

Indian Register Quality Systems is a division of IRClass Systems & Solutions Private Limited, is a leading global certification body providing Independent management system certification to a wide range of industries.

Industrial Inspection Services provides Third Party Inspection and Technical Advisory Services to the engineering industry.

Indian Register of Shipping (IRS) is an international ship classification society. The not for profit entity was founded in 1975. IRS is a member of the International Association of Classification Societies (IACS), which represents classification societies worldwide.

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- ISO 9001- Quality Management Systems (QMS)
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- OHSAS 18001- Occupational Health, Safety & Management Systems
- ISO 30000 - Ship Recycling Management Systems
- ISO 50001- Energy Management Systems
- IMS - Integrated Management Systems
- ISO 28000- Security Management Certification for Supply Chain
- ISO 27001- Information Security Management Systems (ISMS)
- ISO 22000/FSSC/HACCP Food Management Systems
- ISO/TS 16949 Technical Specification for Automotive Supply Chain



Editorial

Dr Ravi P Singh
Secretary General
Quality Council of India (QCI)

Dear Friends,

The year 2016-17 has taken us miles ahead in our objectives to create an Eco system of Quality in the country. Although significant achievements have been made since Independence in the field of education and skilling, employment generation, public healthcare and creation of a conducive business environment, yet a lot remains to be done to achieve excellence and leadership. Leveraging quality to drive economic and social development has emerged as a necessity rather than a choice and thus the theme of our annual flagship event, the 12th National Quality Conclave.

The 12th National Quality Conclave is a two-day flagship event of QCI wherein several eminent international and national experts are invited for addressing various sessions. This year, the theme of the Conclave “Leveraging Quality to Drive Economic and Social Development” will discuss the challenges, success stories and quality strategies for building an effective ecosystem, leading to creation and adoption of quality standards in everything we do. International and national experts, having extensive domain knowledge of Quality Strategies in different sectors have been invited to share their thoughts and ideas, some of which may be beneficial in our endeavour to achieve process excellence and customer delight. The discussions of the Conclave will stimulate new ideas and new strategies to build a better India.

The Conclave will also be addressed by several policy and decision makers, thought leaders and managers from public and private sectors, Government departments as well as scientific and professional institutes.

The theme will inspire questions that will increase our understanding of quality practices in an innovative world and provide directions on additional practical applications for shaping a stronger and sustainable future. The Conclave will act as a platform for sharing new ideas, and involve active discussion about promoting and achieving support from all stakeholders to improve quality.

It gives me immense pleasure in inviting you to our prestigious annual event, scheduled for September 21-22, 2017 at Hotel Le Meridien, New Delhi. I am sure that the event will not only offer you a platform to witness diverse ideas and establish networking with fellow quality professionals, but also to enhance your learning in the quality arena.

Thanks,

Dr. Ravi P. Singh

(Secretary General, QCI)



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Inspiring trust in a changing world

Solutions that enhance efficiency, productivity & mitigate risks.



South Asia

Choose certainty.
Add value.



A COMPREHENSIVE SUITE OF SERVICES



TESTING AND PRODUCT CERTIFICATION



INSPECTION



AUDITING AND SYSTEM CERTIFICATION

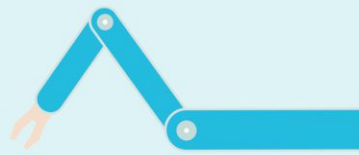


KNOWLEDGE SERVICES



TRAINING

WORKSHOP ON SET WINGS TO INDUSTRY 4.0



A workshop on “Set Wings to Industry 4.0” was held on 7th April, 2017 at India Habitat Centre, New Delhi. It highlighted the current trend of automation & data exchange in manufacturing technologies.

The concept of Industry 4.0, coined by the international manufacturing association early since 2013, is the integration of the technologies with the Internet of Things (IoT). The physical technologies include Additive Manufacturing, Robotics and Automation, High-performance Computing, Artificial Intelligence and Cognitive Technologies, Materials Science with focus on emerging and advanced materials and

augmented reality. The integration is convincingly completed in a sequence which creates a physical-to-digital-to-physical cycle. Under the current Industry 4.0 revolution, Indian manufacturing organizations are stepping forward to venture into smart manufacturing to cultivate the seed for smart factory which enables improvement in quality, lifecycle of products as well as other shop floor operating procedures like Supply chain, Skill and Capacity building, 3D Printing, Storage and innovations.

The workshop was attended by dignitaries. Following are the excerpts of the views expressed by the distinguished speakers:

Workshop on “Set Wings to Industry 4.0”



Piyush Srivastava,
Additional Development Commissioner, MoMSME

“GIZ and DC-MSME had an umbrella scheme for MSMEs in the component of policy and programmes in MSMEs. The efforts were initiated for capacity building and empowerment of BMOs. They have a crucial role to play for MSMEs addressing areas of human resource, capital, technology, access to market and delivery to public and private services.”

Session-1 : “Inaugural Session”



Vipin Sahni, Former CEO, NABET

“FDI's in India have reached 8 years high of USD \$ 46.8bn in 2016, growing at an annual average of 28.2% in past three years, making India 3rd most preferred destination for investment behind US and China. Under 'Make in India,' government has increased the contribution in manufacturing from 16% to 25%. By 2025, the conservative estimate is USD 1 trillion with current changing trends, Industry 4.0 technologies are required to be adopted for achieving the goals.”



Dr. R.P. Singh, Secretary General, QCI

“Since 2014, BMO accreditation scheme has been voluntary. Since inception QCI has put its efforts to inculcate an ecosystem of quality in the country. In this effort, BMOs have a huge role to play. These BMOs have an extremely important role of putting together a collaborative, deterministic besides channelizing the efforts of MSME industries in the country.”

“400 projects of worth Rs 15 Lakhs crores were not moving forward since last 10 years. These projects were monitored by the PM, and 300 such projects worth Rs 12 Lakh crores have been approved and are under implementation now.

India is first in low cost satellite technology and IT. India is going to be first in digitisation. However, we are still lagging in Primary Education, Primary Health centre (PHC) and our infrastructure. If we succeed in these areas, we have a chance to become superpower by 2022. Therefore, in the current budget allocation, infrastructure has been given primary importance investing Rs 4 Lakh crores. When these projects are rolled out, the prices in steel and cement are going to soar with a ripple effect of increased employability and movement. 'Mangalyaan' parts have been made by MSME, Tejas fighter plane spare parts are made by MSME reflecting the capability of quality manufacturing in India. In credit guarantee scheme in last 25 years, corpus was Rs 2500 crores; now it is Rs 7500 crores. In ZED scheme, an allocation of Rs 500 crores has been made. For transformation of India, the change has to reach each & every household. We do not have list of products manufactured in every sector. Efforts should be made to make such a list to ensure ease of procurement of raw materials leading to cost effective finished goods.”



Haribhai Parthibhai Chaudhary, MoS, MoMSME



Kalraj Mishra, Hon'ble Minister, MoMSME

“Once the MSMEs of our country adopt the Industry 4.0 tools, no force on earth can stop us from becoming a developed nation.

Our focus is on infrastructure led growth, leading to employability. PM has envisioned India to be a manufacturing hub through investment in MSMEs in the rural India. We require skilled manpower for entrepreneurship as well as for employment in MSME.

Zero Defect Zero Effect (ZED) manufacturing was envisioned so that the manufacturing takes place without damaging the industry. These initiatives would lead our country to become economically advanced nation. ZED has five categories -Bronze, Silver, Gold, Diamond and Platinum. ZED Maturity

Model has 50 Parameters, out of which 30 Parameters are mandatory as per MSME. To ensure that the manufacturing efficiency is maintained, a National Manufacturing Competitiveness Program (NMCP) has been launched. 'Design Clinic' technology-led manufacturing ensures quality as well as cost efficiency. This has been through adoption of lean technology mechanism.

Lean ensures product manufacturing to be cost effective, systematic and of high quality. Technological centre system program (TCSP) has been developed by MoMSME. If the 'Zero Defect Zero Effect' is introduced in manufacturing along with skill development, it can become a model for ZED certification. BMOs are working towards propagating ZED in MSMEs taking forward towards Industry 4.0.”

Session-2 : “Quality Practises in Manufacturing”



Rajiv Chawla, Chairman, IamSME

“There is a huge potential in each BMO, as small efforts multiplied by large number of BMOs would certainly be effective for the growth of the nation. Technology will never replace entrepreneurs but entrepreneurs who use technology will replace entrepreneurs who don't.”



Amit Kumar, Programme Manager, GIZ

“I emphasize on the skilled staff for BMOs as they would be the key for reaching out to different prospective members & thereby helping BMOs to raise funds. Presented some inputs from European Cluster excellence initiative like, In Germany if u r an enterprise, you have to become mandatory a member of a chamber whereas in India, it's your choice. If we talk about structural point, we both have Industry associations but in Germany, chambers have legal backing.”

“There is a huge potential in each BMO, as small efforts multiplied by large number of BMOs would certainly be effective for the growth of the nation. Technology will never replace entrepreneurs but entrepreneurs who use technology will replace entrepreneurs who don't.”

“Every aspect of production is getting replaced by automation and not only that, services also affected by automation, as it has seen that jobs are shrinking in IT sector. The Question is why IOT is happening now? Because till now what we had is 2 universes- Physical, where we had machine, cars etc. and other hand there was cyber world like internet, WhatsApp, Facebook etc. Now Due to the sensors, communication & computation build into the system, we have one seamless fabrics connecting the internet to the physical world.”

“It is very fitting that QCI is interested with the ZED program which is essentially to build the backbone of the Indian manufacturing industry and it's in conscience with the concept that quality should come before volume. If you want to really create value for now and for the future, it is the quality approach which will create that value; otherwise we are doing the things at half the price.”



Rajiv Kumar, SIDBI



Dr. Jaijit Bhattacharya, Partner, KPMG



Ciby James, Director, ASQ



A. K. Jain, Principal Advisor, ZED

“This model is to support 'MAKE IN INDIA' initiative. We developed this Zero Defect Zero Effect (ZED) model especially for MSMEs where MSMEs can work together and can upgrade their manufacturing processes to sustain quality standard. One of the important advantages of ZED is enhancing the employability. All BMOs work to enhance the business potential and competitiveness of their industry members; This ZED rating will greatly help to enhance the knowledge of their members.”

Session-3 : “Technology Led Manufacturing trends”

“We should encourage BMOs by recognising them so that they strive to do much better in their field. Such interactions will help us understand what their expectations are from the industry and from us.”



Dr Markandey Rai, UN Habitat



Purushottam Kaushik, Senior Advisor, McKinsey

“In case of Oyo Rooms, that without owning any asset, it is unbelievable to see how supply & demand side bridge together with the help of technology. In case of industry, the challenges are huge like travelling, cost and time. So technology is needed to reduce the cost factor significantly. This is what is happening in healthcare sector, wherein with the help of technology we are able to bring the doctor and patient together thereby cutting down the time & cost significantly and efficiently.”



Sanjay Sinha, IBM-Watson

“Watson is few step above artificial intelligence (AI). It is about cognitive computing. It is about how to combine AI to empower Human beings. Watson is being deployed in multiple cases such as in the treatment of different type of cancer such as lung, breast, leukaemia etc. In the new world, it is not the big fish that eats the small fish, it is the fast fish that eats the slow fish' and it is synonym of what is happening today in the world. Like Uber, Facebook, Alibaba despite having no retail store creating immense value.”



Shashi Shivrain, IDBI

“IDBI has received SME excellence award in 2017 for outstanding contribution to the SME sector. Technology does support in driving innovation and it allows manufacturer to create high quality goods faster than before with less expenses. We have certain products like short term & long term; working capital term loan can be sanctioned with the project loan for 'green field' i.e. for new projects or 'brown field' i.e. for existing projects.”



S. Narayan Kumar, SAMEEKSHA-TERI

Citing a case study for energy efficiency for MSME cluster, he said, “It is an initiative with a smart grid in Panipat. In case of smart grid, 2 factors are important- one is demand site management & other is demand response. Demand response is dynamic shifting of the load so as to ensure the quality & reliability power supply are taken for energy efficiency for MSME cluster.”



Dinesh Vedpathak, ACMA

“There are two aspects of digitization, one is Business IT and second is manufacturing IT. In Business IT, we have softwares, LAN system, servers we need to correct them first. Also in data security more efforts are required, in data processing we are excellent but improvement is needed in data storage & data transfer facility. Whereas in manufacturing IT, we have reliable machines where we have created machines where MTBF is more than 6000 hrs worlds benchmark.”

Session-4 : Promotion of 'Next Practices' by BMOs

BMOS



Dr. Jatinder Singh, Sr. Secretary, PHDCCI



Dr. K. Rajkumar, Director, IRMRA



Vineet Saxena, CII

"In 5 years, particularly in electronics sector 7% of the work will be totally driven by industry 4.0 aspects like by automation, IOT etc. We need to sensitize the HR part of Industry 4.0 and on a strong point we are in tipping point considering demographic condition and youth population in India."

"Smart factory in industry 4.0 or cyber-physical system, physical & mechanical system is merged or connected by means of a virtual world. We can see that manufacturing technology is rapidly changing & machines to machines interaction are taking place which results in flow of data and from this data analysis & capturing evolved which is very important and it is termed as operational efficiency of the system.

"Research say 4.6 trillion is the economy impact of Indian organisation by 2025. This is the value manufacturing would realize by really adopting industrial IOT in the market. Whoever picks up earlier will be in the race. As one size doesn't fit all, similarly organisation of different level will need to block the right solution depending on the production, labour rate etc. Technology can help connect, manage, validate & optimize key functionality like inventory problem which people are looking for improvement. Others are product & automation management, material inventory management, quality management, performance management & use of analytic software."



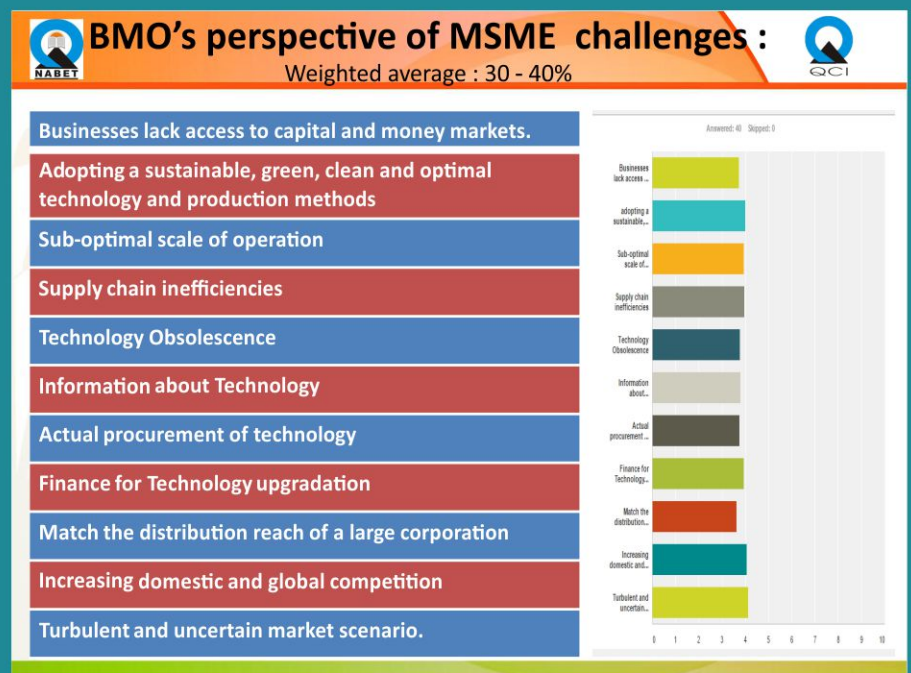
During the workshop **Dr. Indrajit Bhattacharya**, Director, NABET presented Awareness Survey of BMOs / Industry Associations

Introduction

As per the report published in 2012, fourth Census of MSMEs indicates that the total number of MSMEs in India is 3.6 crores employing over 8 crore people. It is the second largest employer after agriculture. It also accounts for 45% of total industrial production, 40% of total exports and contributes very significantly to the GDP. Manufacturing segment within the MSME contributes 7.09% of GDP. The MSMEs also contributes to 30.50% of services. The total contribution of MSMEs to the GDP is 37.54%. The MSMEs of India, through the Industry Associations / Chambers / Business Membership Organisations (BMOs), would be a cradle for the visions of 'Make in India', 'Skill India', 'Digital India', 'Start up India', 'Stand up India', 'Smart Cities' besides 'GST facilitation Cells.'

Objective of the Survey

To understand the various nuances of MSMEs through the BMOs such as 'Challenges faced by MSMEs, 'facilitation by BMOs to MSMEs, 'Role of government initiatives for facilitation of MSMEs,' 'solutions sought for MSMEs etc. An awareness survey was carried out of various BMOs on 'Survey Monkey' during 10th March – 8th April 2017. Forty Five BMOs responded to the survey. The objective of the survey was to derive the other perspectives of BMO on the subject, besides the 10-point questionnaire. The responses had a weighted average of 30- 40 %.



BMO facilitation to MSMEs

Weighted average – 30-40%

Facilitation Category	Weighted Average
limited knowledge about markets	~3.5
Government or bank procedures, cash flows or how to manage labour.	~3.5
Interacting with financial institutions and understanding markets, impact of globalisation	~3.5
Assisting linking of MSMEs with bigger commodity or supply chain and providing acceptable quality and delivery schedule	~3.5
Assisting in building the marketing activity of small units around their competitive advantage	~3.5
Sub-contracting exchanges solutions to MSMEs	~3.5
Assistance to reverse engineering of MSMEs (to the extent that it is WTO compatible)	~3.5
Make MSMEs have registered themselves on Udyog Aadhaar Memorandum (UAM) to avail the benefit of UAMs.	~3.5
MSMEs Register to Online databank msmedatabank.in	~3.5

The other Challenges reported were lack of training and feel of the actual corporate culture among entrepreneurs ; Cost of electricity - A Virtual monopoly of main raw material supply ; Policy of government and loosing competitiveness due to escalation in interest rates and infrastructure ; challenges of MSMEs being family owned and have no great desire to push themselves to professional ; Infrastructure Limitation ;Lack of encouragement tips from government on clean energy projects ; Lengthy and complicated statutory compliances to obtain licenses ;High cost of accessing, testing and certification ;Avenues for skill development at middle and senior management level ;No specific hand holding for MSMEs.

Some BMOs acknowledged the non-familiarisation of UAM and msmedatabank.in. Other challenges reported were - Advocacy with government departments and facilitation of information regarding government regulations and policies etc.; Training programs and skill development activities need to be promoted; Helping MSME's in building competitiveness; Guidance on regulatory issues and pollution control norms need facilitation. Further, BMO also acknowledged providing strong policy support, technical and motivational training along with platforms for better interactions among various stakeholders of ESDM Industry. This helps them to make better understanding of Government Policies & Market as a whole, besides providing consultancies for availing government benefits such as MSIPS etc.; and building capacities for MSMEs to face challenges and provide infrastructure.

BMO's perception on Role of Role of Govt. initiatives for facilitation of MSMEs

Govt. Initiative	Perception Score
Direct promotional role of hand holding, advocacy and facilitation	4
Legislative support put in place, fiscal incentives and protection from unequal competition.	4
Ease of Doing Business	4
Enabling for gearing up for Industry 4.0	4

On Solutions sought for MSMEs Today

- Access to Capital for Start Ups and Working Capital
- Lean manufacturing technologies
- Green manufacturing solutions
- Zero Defect Zero Effect (ZED) Solutions
- Cyber-Physical Systems (CPS) solutions Industry 4.0

Solution Category	Score
Access to Capital for Start Ups and Working Capital	4
Lean manufacturing technologies	4
Green manufacturing solutions	4
Zero Defect Zero Effect (ZED) Solutions	4
Cyber-Physical Systems (CPS) solutions Industry 4.0	4

On solutions sought for MSMEs Today

BMO awareness and promotion of Govt's Impact and Initiatives towards sustainability

Technology Acquisition Fund Programme (TAFP) - Futuristic & Revolutionary areas e.g. a) Internet of Things (IoT) b) Additive Manufacturing c) Industrial Energy Efficiency through Equipment

– National Science and Technology Entrepreneurship Development Board of the Department of Science and Technology, Govt. of India supporting Technology Business Incubators

– Technology Refinement and Marketing Programme (TREMAPP) – TIFAC: Support s provided to select innovations through a network of Technology Commercialization Facilitators (TCFs) by facilitating Technology Validation and Certification, Technology Transfer / Licensing Facilitation etc.

–Fund for Technology Development and Application introduced. Government has constituted a Technology Development Board. National awards for successful commercialization of indigenous technology : a.. Cash award of Rs. 10 lakhs - successfully commercialized the indigenous technology and the technology provider b. Cash award of Rs. 5 lakh to SSI unit that has successfully commercialized a product based on indigenous technology

Further Solutions sought were : Online application and approvals for all Government related permissions with no personal contact ; Ease of Business should come out of papers and urgent, Immediate & effective implementation at operational level should be maintained.; Access to Working Capital is the primary constraint ; Development of capital goods in India by easy access to risk capital ;Recognition of MSME and budget enhancement ; Leverage automation for in process inspection, increased uptime, safety, energy control, tracking and tracing ;Cut procedural delays for imports and exports which will reduce transaction costs.

Feedback: The Assessment process is completely devoid of market knowledge. The choice of industry experts is frequently self-defeating. The Schemes do not support first time failures which are more likely to succeed the second time as compared to virgin applicants. The Technology Upgradation programmes (TUP) of Government of India need to be popularised. These seem to DST initiatives. We need to familiarise with them.

Offerings of Quality Council of India for BMOs and MSMEs

Lean manufacturing Competitiveness Scheme (LMCS) – Quality Council of India – NABET

Accreditation of Environment Impact Assessment (EIA) Consultant Organisation– Quality Council of India – NABET

Zero Effect Zero Defect (ZED) – Quality Council of India

Accreditation of Vocational Training Providers - Quality Council of India – NABET

Accreditation of BMOs Quality Council of India – NABET

Skill Management and Accreditation of Training Centres (SMART) -NSDC Skills Project

Accreditation of Industrial Training Institutes (ITIs)

Swachh Bharat Mission - Open Defecation Free (ODF) - Third Party Inspection

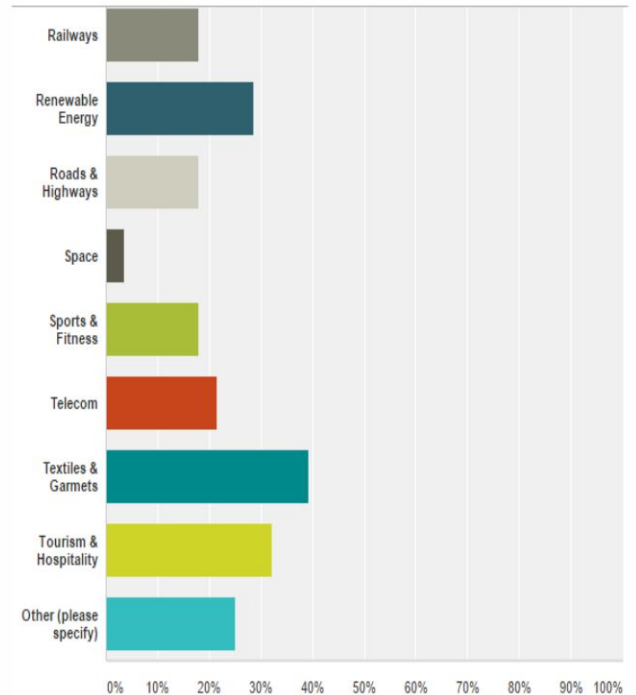
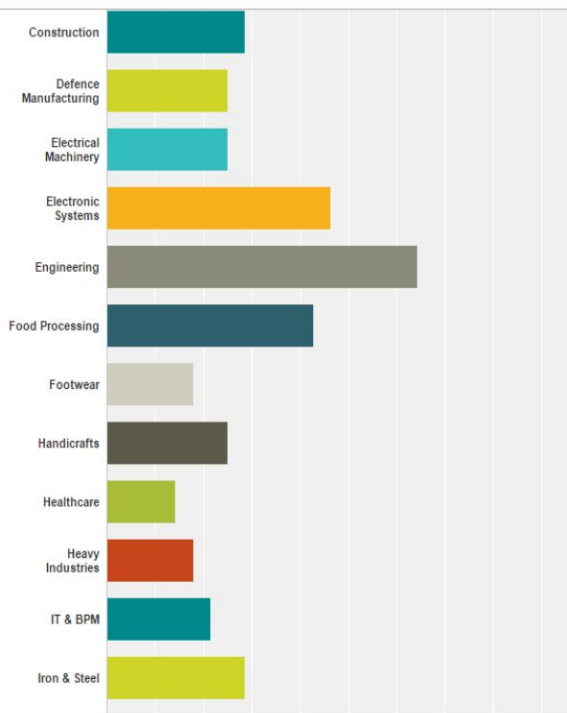
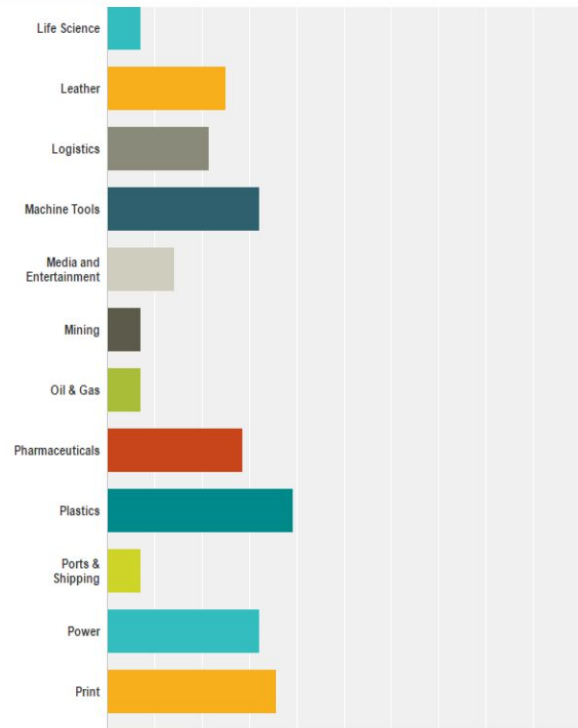
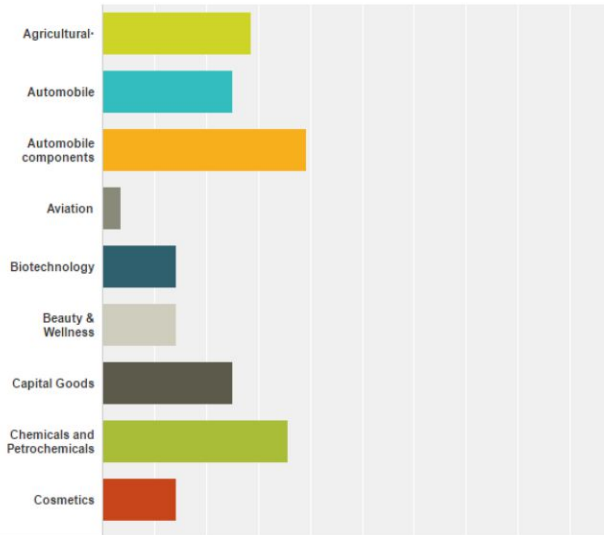
Answered: 40 Skipped: 0

Category	Count
Lean manufacturing...	4
Accreditation of Environem...	3
Zero Effect Zero Defect...	4
Accreditation of Vocational...	4
Accreditation of BMO's Qual...	4
Skill Management...	4
Accreditation of Industri...	4
Swachh Bharat Mission - Op...	4

Awareness of SIDBI support for accreditation of BMOs for strengthening of MSMEs: About 75 % BMOs responded in affirmation while about 25% BMOs acknowledged that they were not aware of the SIDBI support.

In which sectors is your BMO catering to your members?

Answered: 28 Skipped: 0



BMOs are catering to other sectors including - energy efficiency and clean Energy (replacement of fossil fuels) ; Powder Metallurgy, serves several market segments, mainly automobile ; Multi Product and Women Entrepreneurship ; Foundry Industry producing metal castings for various manufacturing sectors ; Natural Floor Coverings industry; Industrial Automation and System Engineering.

Necessity of conducting IT Security Audits in Enterprises



Dr Rajiv Nag

Chairman of CyberQ Consulting, specializing in Information Security and Software quality.

A decade-old form of malicious software, known as ransom ware is in headlines lately after cybercriminals hijacked hundreds of thousands of computers worldwide. Starting from Ukraine, it has spread to major Russian companies and has been brought to our very shores, affecting the Jawahar Lal Nehru Port in Mumbai and shutting it down completely.

In all the cases, it was found that these attacks were all preventable. All it needed to prevent these was a regular system of basic security audits, which would have unearthed the glaring holes in the security preparedness of the IT infrastructure in the organization. Of course, like any other audits, there would still be no guarantee that attacks would not happen but these audits would substantially reduce both the probability and the impact of a security breach.

Why do organizations not do more to prevent these attacks? This is, indeed, a very good question and one that has often perplexed those of us in the Security profession. Probably, one or more of the following reasons may apply:

- Ostrich-in-the-sand attitude: Just like an ostrich buries its head in the sand to avoid predators, organizations believe that if it hasn't happened as yet, it won't happen to me in the future too.
- Security is not yet a Top management issue: Security concerns need to be addressed at the Board level. Unless it garners top management attention explicitly, the focus on prevention of security breaches will not happen.
- Spending on Technology and Tools often make us complacent: It is often said because you have spent a huge amount of money on the latest security tools etc., you are now perfectly safe. To take a simple example, what is the point of a fancy password management system if the users were to stick a 'Post It note' on their computer screen with the latest password written on it?
- Not realizing the impact that a security breach could have: Many organizations do not realize the extent of dependence there is

nowadays on IT. Gone are the days when IT was used primarily for generating MIS reports etc. - for a long time now, IT is a bottom line issue, making a difference to the basic operations of the company.

- Concern that audits may be a very expensive proposition: This also tends to be an issue in many organizations, especially in the small to medium sized organizations. Audits can range from basic to the most elaborative with corresponding charges. Always choose the appropriate one.

What is the appropriate level of audits that one should look at:

It is not necessary that we adopt a "one size fits all" approach. We have segregated various types of audits into three Levels - Level 3 being the most exhaustive while Level 1 is the Basic level. Depending on the size of the organization and the impact a security breach could have, we recommend any one of the following levels of audits:

- Level 3 : Full blown ISO 27001 implementation and its attendant audits: With 114 controls, the ISO 27001:2013 is an end-to-end security management system which evaluates policies, processes, technical and physical security. The scope extends to areas like Disaster Recovery, Security Incident handling etc. Although large organizations should definitely implement this, there is no reason why smaller companies cannot also go in for ISO 27001. The standard is flexible enough to cater to organizations of different sizes, different

business models and different areas of work. In an ISO environment, apart from the registration audit, there would be annual surveillance audits. ISO would also require periodic internal audits to be done in the organization.

- Level 2: Comprehensive Technology audits (including both Dynamic and Static testing), Physical audits and Security Policies: This may be appropriate for those companies that do not have any marketing involved. Testing wise, Penetration Testing and Vulnerability Assessment both are done. It is recommended that this should be done at least once every quarter.
- Level 1: Basic Technology audits - Static Testing (called Vulnerability Assessment) and Access Control: This is the most basic levels of audits. It is recommended for small organizations which, due to budgetary constraints, are reluctant to do anything more than the most basic of security drills. These audits look for fundamental things like anti-virus protection, Vulnerability Assessment, physical security etc.

At the end of the day, the organization should remember that not getting periodic audits done is fraught with risk. What level of audits to be done etc. can be a decision which the organization can take based on various business considerations.

QUEST™

BRIDGING THE SKILL GAP

In the last couple of years, e-Learning has become a dominant way of imparting knowledge and up-skilling across the globe. With increasing usage of internet and improving literacy rate, e-Learning space is widening its horizon in India.

Recently, KPMG and Google published a comprehensive study on the online space which sheds light on emerging trends in India. Which is titled as "Online Education in India: 2021". The study projected that India's online education market is set to grow to USD 1.9 billion and around 9.6 million users by 2021 from USD 247 and around 1.6 million users in 2016. As mentioned by the study, this growth will be backed by a phenomenal increase in the paid user base for online education in India. It is interesting to note that decreasing cost of online education, availability of quality courses, employability quotient, government's digital initiatives, smart phone user base, internet penetration, widening disposable income and young population are contributing in the growth of e-Learning in India.

Recognising job creation as an important tool for inclusive development, the Economic Survey 2017 stated, "India needs to generate jobs that are formal and productive, provide bang for the buck in terms of jobs created relative to investment, have the potential for broader social transformation, and can generate exports and growth." With increasing emphasis on skilling, the Government of India underlined the importance of e-Learning in the General Budget 2017-18. The Union Government has increased the allocation to the education sector by over 9 per cent and e-Learning sector is an indispensable part of it, as reported by various news dailies.

It is adequately documented that the skill gap is holding back Indian economy. Considering the skill shortage in the Indian context, Quality Council of India (QCI) started eQuest – an e-Learning platform. eQuest offers a set of courses in key sectors of Indian economy. These are manufacturing, healthcare, agriculture, education and many more.

The number of Internet users in India is expected to reach 450-465 million by June 2017 as estimated by the Internet and Mobile Association of India and IMRB International. At this juncture, eQuest proves to be an excellent way to achieve quality results in a short time span. Our e-Learning solutions transcend geographical barriers and learners can learn more easily at their comfort. eQuest is designed to offer an engaging, and personalised learning experience to the learners. Our offering is based on the self-paced learning that can be accessed at anytime and anywhere. They will link skills to employability, efficiency, and productivity. It is evident that the acquisition of new skill and knowledge can be achieved through the digital platforms where the learner can access all courses and contents at their own pace.

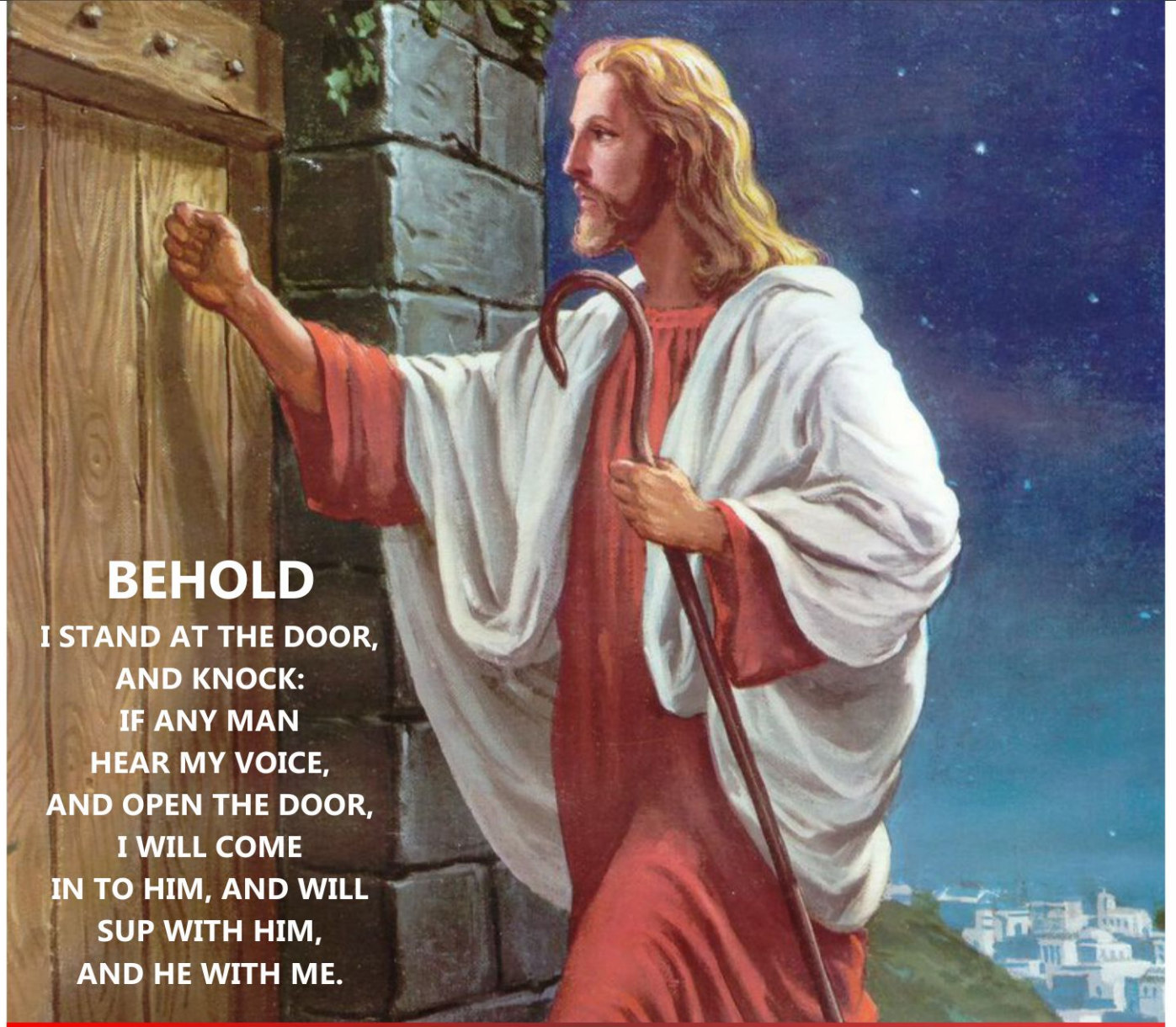
As institutions mature, they collaborate with various players where they co-create better learning tools. Consistent with this goal, eQuest (QCI) collaborated with the SWAYAM – an eLearning initiative of the Ministry of Human Resources Development. Going one step further, eQuest and ZED are developing various courses to strengthen the MSME ecosystem in India. As the pace of automation is intensifying day-by-day, workers need to upgrade their skills continuously and e-Learning is an appropriate answer for such changes. With the help from eQuest, they can equip themselves with relevant skill sets.

QUEST™
Quality, Employability, Skill, Training

BRIDGING
the skill gap
through
skill development & training

e-learning platform
for employability

Employment



BEHOLD
I STAND AT THE DOOR,
AND KNOCK:
IF ANY MAN
HEAR MY VOICE,
AND OPEN THE DOOR,
I WILL COME
IN TO HIM, AND WILL
SUP WITH HIM,
AND HE WITH ME.

PSALM 122

The peace of Jerusalem

A song of degrees of David.

1. I was glad when they said unto me, Let us go into the house of the lord. Is 2:3; Zech. 8:21
2. Our feet shall stand within thy gates, O Jerusalem.
3. Jerusalem is builded as a city that is compact together: See 2 Sam. 5:9
4. Whither the tribes go up, the tribes of the Lord, unto the testimony of Israel, to give thanks unto the name of the Lord. Ex 23:17; Deut. 16:16; Ex. 16:34
5. For there are set thrones of judgment, the thrones of the house of Davud. Deut 17:8; 2 Chr. 19:8
6. Pray for the peace of Jerusalem: They shall prosper that love thee. Ps. 51:18
7. Peace be within thy walls, and prosperity within thy palaces.
8. For my brethren and companions' sakes, I will now say, Peace be within thee.
9. Because of the house of the Lord our God I will seek thy good. Neh. 2:10

PSALM 121

Help from the Lord

A song of degrees.

1. I will lift up mine eyes unto the hills, from whence cometh my help. Jer. 3:23
2. My help cometh from the Lord, which made heaven and earth. Ps. 124:8
3. He will not suffer thy foot to be moved: he that keepeth thee will not slumber. 1 Sam. 2:9; Ps. 127:1; Is. 27:3
4. Behold, he that keepeth Israel shall neither slumber nor sleep.
5. The Lord is thy keeper: the Lord is thy shade upon thy right hand. Is. 25:4; Ps. 16:8
6. The sun shall not smite thee by day, nor the moon by night. Ps. 91:5; Is. 49:10
7. The Lord shall preserve thee from all evil: he shall preserve thy soul. Ps. 41:2
8. The Lord shall preserve thy going out and thy coming in from this time forth, and even for evermore. Deut. 28:6

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INTERNATIONAL MINISTRY OF MINISTERS

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RIGHTEOUSNESS EXALTETH A NATION

NAVPRAVARTAN

Innovation & Entrepreneurship: India's Future



Abhinav Bajaj, NABET & Mr. Vipin Sahni, NABET

"India's future is in Innovation and creativity."

"..We will double our investments in research and innovation; and, deepen collaboration among ourselves."

-Shri Narendra Modi, Prime Minister of India

Exigencies to India's growth: Innovation and Entrepreneurship

It is a well-known economic phenomenon that 'Creative Destruction' can break out the arrested development cycle of a country and propel it towards a path of dynamism and progress blitz. A conducive entrepreneurial environment fosters innovation, brings in new products and concepts to the market, improves market efficiency, builds wealth, creates jobs and enhances the economic growth. What is particularly disheartening is the recent economic theory suggests that governmental investment in R&D, knowledge-creation, and technological progress does have a key role to play in fuelling innovation, productivity, capital creation, and ultimately growth. This thinking highlights the scope for a positive government policy and investment to enable entrepreneurship and innovation. Together, they will face a challenge to productively engage 63% of India's population which is going to be of working age by 2020. Fortunately, Innovation and entrepreneurship are known to create jobs and up-skilling. To cash in this unique opportunity, India shall require to create 69 million additional jobs for the coming-of-age population, along with the jobs required for the currently unemployed. Overall, India needs a total of 115 million additional non-farm jobs in the next decade.

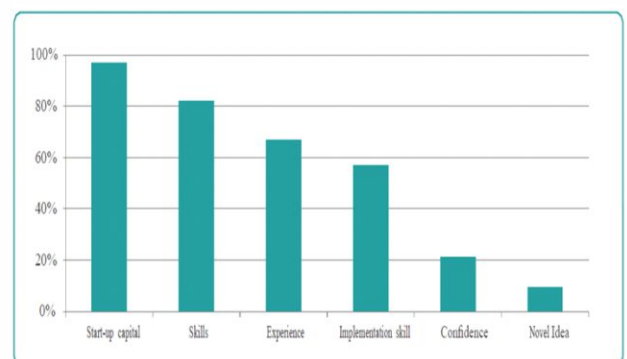
India had a history of several entrepreneurial ventures, evidenced by the popularity of the Indian sub-continent among the countless tribes that have made their homes in the past centuries. A significant wave of entrepreneurship in modern India was seen during the time of the Swadeshi Movement. It triggered a surge of successful entrepreneurs, prominent among them being Jamshedji Tata who founded the first iron and steel company in 1907. By 1939, it was the largest Iron and Steel plant in the British Empire. It, in turn, motivated a host of other ventures and the current swarm of ancillaries that supports the country's Iron and Steel ecosystem. Bengal Chemical & Pharmaceutical Works Ltd. was

also a new venture pioneered by P.C. Roy, adding to the new movement of self-reliance for consumer goods at that time. This served as a precursor of establishment of many smaller successful pharma units across the country, harnessing the already present knowledge and natural resource for mass production. Another prominent example, which later prompted scores of entrepreneurial ventures, was the Swadeshi Steam Navigation Company. It was started by V.O. Chidambaram Pillai, competing against the British Ships. It later became a robust success and an example of Indian competency and self-astuteness in the field of Ship commissioning and navigation.

New and innovative businesses have a positive relationship with employment. However, in order to ensure that this relationship not only thrives but flourishes also, we need to come to terms with the impediments hampering innovation and entrepreneurship.

Figure 1 below shows a survey conducted by 'Pratham' of 195 participants hailing from the bottom 30% of the income strata. It highlights the impediments to innovation and entrepreneurship as perceived by the sampled population. It signifies that there is no lack of depth for innovative ideas; what is the need of the hour is a structured approach to provide the necessary ecosystem in terms of capital, skills, incentives and mentorship to ensure the growth of innovative enterprises in the country.

Figure 1. Constraints to innovation and entrepreneurship



Similarly, many studies and data across the world show the importance of entrepreneurship in creating more jobs and boosting mature skilling among the employed. A strong example is that of Israel which saw a dip

in unemployment from 9% in 2000 to 5.5% in 2011. In the United States, SMEs and new businesses have been deemed responsible for creating an average of 1.5 million jobs every year over the past 30 years as compared to 10-year-old firms which created only 300,000 jobs. In contrast, Japan has lost two decades partly due to stagnation in entrepreneurial activity. However, it is to be noted that in Japan, 78% of jobs are generated by SMEs, an indicator of the role of grassroots innovation and entrepreneurship in the country's historical growth. In EU, 60% of the jobs on an average across the regions come from MSMEs. Germany, is a prime example of 'rags-to-riches' story post second world war, where 80% of the jobs come from SMEs. There is no question that SMEs lie at the helm of innovation and is a harbinger of efficacy of sustainable innovation and consequently jobs.

Government of India Initiatives and Assistance: Major Highlights

Since the advent of globalization, Government of India has fast-tracked their approach for promoting innovation in order to ensure that India stays ahead of the curve. These efforts over the years have come to fruition in the last decade where India has emerged as one of the fastest growing economies in the world. There are several current initiatives and many more in pipeline that have marked this clandestine journey:

Atal Innovation Mission (AIM)

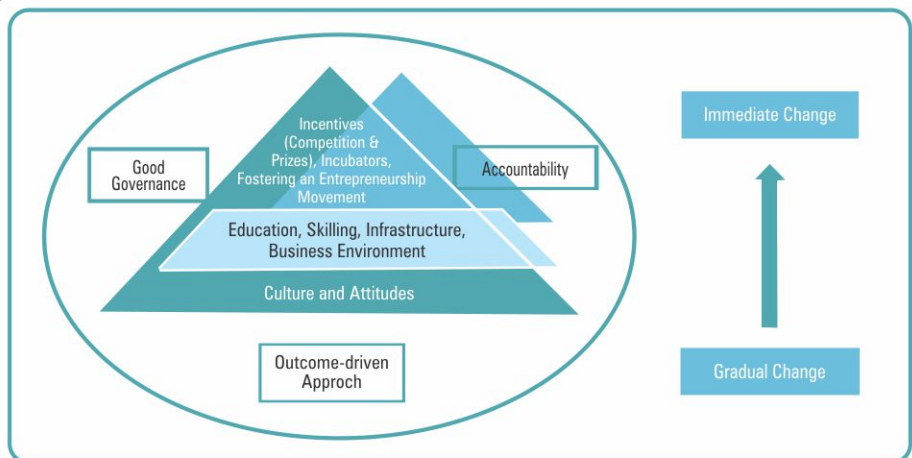
India has declared 2010-20 as the "Decade of Innovation". The Government has elucidated the need to carve out a policy to synergize science, technology and innovation in the country. A major step in this regard can be seen in Finance Minister's Budget Speech 2015-16, announcing the Government's intention to establish the Atal Innovation Mission (AIM) under NITI Aayog. A grand sum of Rupees 150 crore has been earmarked for AIM. The overarching purpose of this mission is to promote a culture of entrepreneurship and innovation in India. As per the office memorandum M-13040/11/2015-CIT&I, key objectives of the AIM will be:

- a. To create an umbrella structure to oversee innovative eco-system of the country
- b. To provide platform and collaboration opportunities for different stakeholders
- c. To study and suggest best and novel practices to be adopted by different stakeholders in the innovation chain
- d. To provide policy inputs to NITI Aayog and various government

departments and organizations.

- e. To create awareness and provide knowledge inputs in creating innovative challenges and funding mechanism to government and
- f. To develop new programs and policies for fostering innovation in different sectors of the economy.

Figure 2: AIM Pyramid



(*Source: Report of the Expert Committee on Innovation and Entrepreneurship, 2015)

The AIM pyramid framework in figure 2 examines an implementation approach.

The Top Layer: The summit of the pyramid represents the 'low-hanging fruits', so to speak. These are the issues that have quick fixes and if immediately mitigated, shall deliver immediate payoffs. These include motivating budding entrepreneurs through prizes for innovation and competition, to expand the scope of existing business incubators, roping in corporations to fund research and development at the school, college and university level and recognizing and celebrating innovation and entrepreneurs at the national level. In effect, it represents a national entrepreneurship and innovation movement that shall ensure inclusion of the disenfranchised. The Public-Private Partnership (PPP) model, fashioned like that of Israel, shall serve as a cornerstone to trigger the private sector's involvement and expertise.

The Intermediate Layer: This portion addresses the measures necessary to effectively improve the institutional framework of the economy, which has the potential to unlock the aforesaid disruptive innovation in the market over the medium term. These institutional gaps prevent the fostering of productive enterprise; like a structured approach to recruit relevant talent of managers and engineers by growing enterprises. It also seeks to address the gaps in physical and soft infrastructure, like the expeditiousness required for processing patents.

More broadly, it focuses on the smooth flow of transactions between product, labour and capital markets.

The Base Layer: This layer consists of generational measures to transiently weed out deep-rooted cultural impediments from entrepreneurship. Countering these hindrances shall require a fundamental change in attitude towards innovation and entrepreneurship. There is a necessity to expel the prevalent skepticism in middle class India with regard to entrepreneurship. The need has been realised to remove the trust deficit between private sector and the government; to cap the debilitating brain-drain, and remove bias against student from non-elite universities.

Self Employed and Talent Utilization (SETU)

The Government's commitment to catalyze the entrepreneurial process is evident from its establishment of the Self Employed and Talent Utilization (SETU). As stated in paragraph 50 of the Finance Minister's Budget Speech '15-16 will be a Techno-Financial, Incubation and Facilitation Programme to support all aspects of start-up businesses and other self-employment activities, particularly in technology driven areas. As stated in the Budget Speech (2015-16), initially a sum of Rs. 1000 crore would be set aside for the purpose.

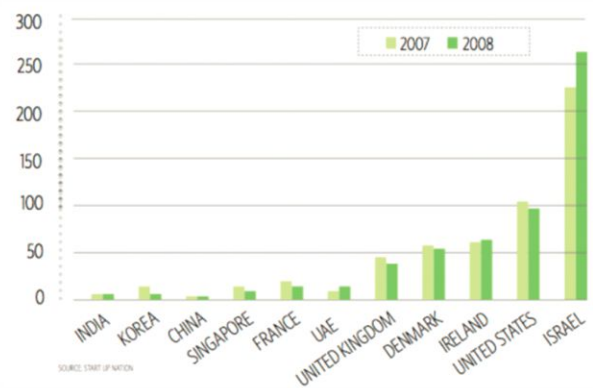
The expert committee, setup to guide the implementation structure has recommended its use to jumpstart innovation through two concrete initiatives at scale. Half of Rs. 1000 crore is to be spent in upgrading the system of incubators already in place in the country, i.e., to award the majority of the Rs. 500 crore to the best ten incubators. Meanwhile in subsequent years, allocation of these funds should similarly be used to continue to rate the incubators, and to reward those producing exemplary results.

The remaining Rs. 500 crore of SETU money should be used to set up Tinkering Labs. These are centers that will permit aspiring entrepreneurs to experiment to create products that address local problems. To paraphrase Amitabh Kant, chief executive officer at NITI Aayog, **The government is looking to set up tinkering labs in schools, incubation labs at colleges and universities and is offering scale-up support to established incubation centres. Over 25% of the 500 tinkering labs will be set up in government schools-Navodaya Vidyalaya, Sainik Schools, Central Schools, etc-to ensure that people from all walks of life get the experience of innovation.** One-time establishment cost of Rs 10 Lakh and operational expense of Rs. 10 Lakh for five years for each lab will be provided. They should be equipped with basic engineering design equipment and with a 3D printer, as well as staffed with appropriate technical personnel. They will need young leaders who have strong hands-on experience in technology, problem-solving. **These 'tinkering labs' may be**

christened as "JUGAAD - Centres of Innovative Technologies," keeping in view India's incredibly distinct capacity for local innovation over the years.

Bharat Innovation Fund

IIM Ahmedabad's Centre for Innovation Incubation and Entrepreneurship (CIIE) has got approval from market regulator SEBI, for its Bharat Innovation Fund as category-I venture capital fund under the AIF (Alternative Investment Fund) norms. Bharat Innovation Fund is a public-private-academia partnership set up by CIIE. The main target is to provide support and fund innovation-driven startups that solve real problems faced by the masses of India through technology-enabled and rapidly-scalable solution. The Rs 1,000-crore fund, which is targeting a



first close of Rs 200 - Rs 300 crore by June, will invest in technology-enabled enterprises in areas like sustainable energy, healthcare and digital technology.

Global Proof of Concepts

CASE STUDY I : ISRAEL

In 1991, Israel had nothing to speak of in the way of venture capital. Today, it has a host of local VC funds that together invest more than twice as much per capita as US (Rs. 12000 v/s Rs. 34000 approx. in 2015)

The government's YOZMA programme, launched in 1993, boosted the VC industry in Israel by using 180 crore to setup 10 private sectors to venture funds. Also, it invested 40 Crore as direct investment in high-tech enterprises. Tel-Aviv has now become the entrepreneurial hub of the world. Further, the government made it so that each fund was required to partner with a foreign VC and an Israeli company or bank. At the end of five years, the funds had the option to buy out government's share. In addition to this catalytic funding, the government also exempted non-Israeli investors in a VC fund from capital gains tax and allowed pension funds, endowment funds, high net-worth individuals and the likes to invest in start-ups. The government also absorbs a percentage of losses that institutional investors might suffer from VC

investments. To boost R&D, the government gives grants to companies that employ advance degree equipped immigrants and returning residents.

CASE STUDY II: Chile

The government of Chile started the 'Start-up Chile' program that seeks to attract early stage, high-potential entrepreneurs to bootstrap their startups in Chile, using it as a platform to go global. The program, which was launched in 2010, provides approx. Rs.25 lakhs to entrepreneurs who moved to Chile for six months and start a new business. At its inception, it was one of the few initiatives in the world that offered

CASE STUDY III: China

The idea of introducing competitions and prizes on the national level has borne fruit in China. The Chinese government has taken several steps to cater to the required policy support for innovation. In China, state backed groups and institutes use the challenge-approach to widen the debate on innovation and find solutions to common problems. China Association of Construction Enterprise Management, for instance, gives over 100 awards annually for innovation in construction.

China's Ministry of Education oversees several national competitions in areas ranging from advertising electric design, to cloud computing.



bootstrapping entrepreneurs financial support without taking equity. The deal flow is represented by three distinct programs based on the stage of the startup.

The S Factory: Pre-acceleration program designed for startups in early concept stage focuses on female founders. Selected companies receive approximately Rs 65 Crore equity free and three months acceleration. Two rounds a year of 20-30 companies each are conducted.

Seed: Acceleration program for startups with a functional product and early validation. Selected companies receive around Rs. 130 Crore equity free and six months acceleration. Two rounds a year of 80-100 companies each.

Scale: Follow-on fund for top performing startups that are incorporated in Chile have traction and are looking to scale in Latin America and globally. Selected companies receive around Rs. 390 Crore equity free with the condition that they incorporate and open operations in Chile.

China has also put in intense pressure on high worth MNCs for technology transfer to local personnel as a sort of quid pro quo for accessing their domestic market.

What lies ahead?

The overarching feature across every country's plan to inspire innovation and entrepreneurship is an aggressive and pervasive approach that focuses on the immediate as well as the systemic measures necessary to sustain a creative and pro-risk atmosphere in the country. It is the need of the moment to cater to the pressing issues that ails the 'nova mind-set' of a young India and also ensures a smooth transition to a generational change. This transition requires nurturing of innovators who seek a symbiotic relationship with India's unique needs in order to ensure sustainable growth. Hence, this "Navpravartan" will catalyze India to be an inspiration for the other emerging economies of the world.

Responsible Manufacturing

A vision where our manufacturers take full responsibility for sustainable manufacturing from beginning to end. To not only address quality in systems & processes and the waste that results from producing the products but also commit to doing business with the highest ethical standards and providing the safest working environment.



After a successful run of the ZED Model under a Pilot Project by QCI, the Ministry of MSME, Government of India, notified the ZED Certification Scheme on July 11, 2016 for which QCI has been nominated as the National Monitoring & Implementation Unit (NMIU). The ZED scheme was formally launched by our Hon'ble Prime Minister on October 18, 2016 at Ludhiana where he shared his vision of more than 1 million MSMEs participating under this scheme and adopting the ZED Model.

In the last three years, industry partners across India have come together for launching the largest initiative in the history of our country: Make in India. "Make in India" has now assumed a new meaning and has consumed us all in common interest. We have declared in one voice our vow to have a prominent position in the world's map. To thrust this, Hon'ble Prime Minister gave a clarion call in 2014 for Zero Defect & Zero Effect; to re-engineer our activities and reposition ourselves internationally as a manufacturing hub with our micro, small & medium enterprises seen as "responsible manufacturers".

As we are aware, the ZED Maturity Assessment Model has 50 parameters on which the systems and processes of an MSME will be assessed to arrive at a ZED score on the basis of which a roadmap for improvement will emerge. One of the parameters that contribute to this score is "Safe working environment". Let us know a bit more about this parameter.

Safe Working Environment is an enabler parameter under the discipline of "Process design for Quality". It essentially addresses an MSME's

focus on planning for implementation for safe working of all processes and personnel.

Workplace safety is a multidisciplinary field concerned with the safety, health, and welfare of people at work. A Safety Management System (SMS) provides a systematic way to identify hazards and control risks while maintaining assurance that these risk controls are effective. SMS can be defined as:

...a business-like approach to safety. It is a systematic, explicit and comprehensive process for managing safety risks. As with all management systems, a safety management system provides for goal setting, planning, and measuring performance. A safety management system is woven into the fabric of an organization. It becomes part of the culture; the way people do their jobs.



There are three imperatives for adopting a safety management system for a business – these are ethical, legal and financial. There is an implied moral obligation placed on an employer to ensure that work activities and the place of work to be safe, there are legislative requirements defined in just about every jurisdiction on how this is to be achieved and there is a substantial body of research which shows that effective safety management (which is the reduction of risk in the workplace) can reduce the financial exposure of an organization by reducing direct and indirect costs associated with accidents and incidents.

To address these three important elements, an effective SMS should:

- Define how the organisation is set up to manage risk.
- Identify workplace risk and implement suitable controls.
- Implement effective communication across all levels of the organisation.
- Implement a process to identify and correct non-conformities.
- Implement a continual improvement process.

A safety management system can be created to fit any business type and/or industry sector.

In the ZED Maturity Assessment Model, an MSME's performance on SWE will be mapped on the following 5 levels:

Level 1 (Learner): No policy, communication and training imparted on safety. No specific system for investigation of accidents/incidents, rather safety related accidents are attended reactively.

Level 2 (Beginner): Safety policy briefly mentioned in overall company policy & communicated on regular schedule. Training imparted but no regular schedule in place. Major safety incidents are investigated and CAPAs taken. Minimal process to avoid fines and complaints on safety conditions & review of safety technique.

Level 3 (Organized): Formal safety policy exists and addresses issues related to employees and contract workers. Formal / informal safety training done e.g. mock drill. Safety techniques demonstrated through visual management; safety information reviewed in detail on periodic basis. SOPs established to meet statutory and regulatory requirements on safety. Daily safety dashboard established, frequent reviews planned and documented.

Level 4 (Achiever): Formal safety policy addresses the concern of suppliers and community at large in addition to employees and contract workers. Safety policy communicated through comprehensive means (display in notice board, employee's handbook) & training to 100% employees. SOP established for safe working environment throughout the factory. "Near Misses" with respect to safety are recorded, analyzed and acted upon. CAPAs are documented and reviewed. Formal safety policy addresses the concern of suppliers and community at large in addition to employees and contract workers.

Level 5 (World Class): Formal safety policy addresses the concern of all primary and secondary stakeholders, along with sustainability goals. Safety policy reinforced every day during meetings/speech e.g. starting daily meetings with focus on safety. Training effectiveness measured for all safety related training with safety audits in place showing 90% adherence. Step by step risk management plan in place. Poka-yokes for safety have been done as per industry benchmark. Organization has OHSAS system in place. Well established system of Hazard Identification & Risk Assessment for all processes.

As we can see, whichever level an MSME's processes are mapped with

Awareness and Training Programmes in 2016-17



MSMEs were sensitized about the Zero Defect and Zero Effect manufacturing, benefits of ZED certification, QMS/QT and their benefits through 372 industry awareness programmes. 5- day training programmes were conducted to train MSME-DI officials, Assessors, Consultants and Master Trainers including an examination which is must to pass to become an Assessor, Consultant or Master trainer. Total 43 training programmes, including onsite MSME Capacity Building programmes, were conducted in 19 cities all over India.

on this parameter, the roadmap to the next level becomes pellucid. The ZED ecosystem will allow an MSME to take assistance from a ZED trained and qualified consultant who will handhold them on this journey to excellence.

It is prudent to mention here that ZED is not just about building capabilities for ensuring quality systems & processes, there is equal emphasis on an MSME being environment-conscious. Needless to say, this model will help create consciousness as well as processes which result in cleaner air, reduction of waste, preserving water, regaining groundwater tables, cleaner potable water, preservation of forests, increased biodiversity, and protecting land/soil. Simultaneously, the Indian market is growing rapidly and Indian industry is making remarkable progress in various Industries like Manufacturing, Precision Engineering, Food Processing, Pharmaceuticals, Textile & Garments, Retail, IT, Agro and Service sectors.

MSMEs of India are excited to adopt globally accepted quality standards as well as contributing to environmental consciousness with a little help from the government. Their exuberance to the ZED Model has given a new lease of energy and commitment to people working in the ZED team at QCI. We are confident that ZED will soon become a holistic certification for many schemes and ease the way business is done by small investors.

ZED Team

EMS MEMORIAL CO-OPERATIVE HOSPITAL & RESEARCH CENTRE



The only NABH Accredited Co-operative
Hospital in our Country



**The Multi Super Speciality Referral Hospital
designed to provide state of the art Medical Facilities
in a warm and courteous environment**



**NABH Accredited Multi Disciplinary Super Speciality
referral hospital with Full Fledged Modern
Operation Theatre Complex, Cath Lab &
Multi Speciality Intensive Care Units**



**Our Proposed new Hightech Building
having Facilities for
Full Fledged Oncology Department
with Chemo & Radiation Therapy Facilities,
Organ Transplantation Unit & Blood bank**

HEALING EACH WITHIN HIS REACH



QCI Scheme for Voluntary Certification of Traditional Community Health Practitioners



Sona Sharma

QCI Scheme for Voluntary Certification of Traditional Community Health Practitioners (TCHPs), village-based Traditional Health Practitioners, plays a vital role in meeting the healthcare needs, especially of the far flung, unreached rural population. As of now, while there is a clear AYUSH Policy and other Government of India Policy documents which

provide official recognition to the existence of the TCHPs, there is no national or state level program that involves them as Community Health Workers. This neglect inhibits the continuity of the great healthcare tradition of TCHPs of our country. In order to fulfil this need to identify and certify the TCHPs, a pilot project for Accreditation and Certification of Prior Learning of the TCHPs was launched by Indira Gandhi National Open University (IGNOU) in collaboration with Quality Council of India (QCI), New Delhi and Foundation for Revitalization of Local Health Traditions (FRLHTs), Bangalore mentored by the Department of AYUSH, Ministry of Health and Family Welfare, Government of India in 2010 - 2012.

The TCHPs were assessed for their knowledge and skill. 517 TCHPs were certified from one district each of the states of Chhattisgarh, Gujarat, Karnataka, Odisha, Rajasthan and Tamil Nadu. The certification was valid for a period of 3 years. The successful implementation and completion of the pilot project received great attention from government bodies, various organizations working with TCHPs and individuals working in the field of traditional health practices. Since the completion of the pilot project there has been demand from various stakeholders to widen the scope of the work and have a nationwide launch. Thus, QCI has taken the initiative to launch the Scheme for the Voluntary Certification of the TCHPs following the third-party certification process for Personnel Certification stipulated under ISO 17024 across the nation. The Voluntary Certification process will provide the TCHPs enhanced ability and self-confidence, they would be able to provide strong risk management strategies in case of outbreak of epidemics, there will be enhanced public awareness of the quality service of the TCHPs and the

credibility of the TCHPs with various Government agencies and greater customer trust. With these aims and objectives, Quality Council of India signed a Memorandum of Understanding (MoU) with Foundation for the Revitalization of Local Health Tradition, Bangalore on January 19, 2017.



Signing of MoU by Adil Zainulbhai, Chairman, QCI and Darshan Shankar, Managing Trustee, FRLHT

The national launch took place in Trivandrum on 24 Mar 2017 in the presence of more than 150 TCHPs, commonly called folk healers and their network of Associations from the states of Tamil Nadu, Kerala, Karnataka and Chhattisgarh, the Chairman of the Kerala State Biodiversity Board and officials of the Jawaharlal Nehru Tropical Botanical Garden and Research Institute. Receipt of application for becoming PrCB and TI body has started and the first assessment is planned in the month of June. There are further applications in the pipeline for assessment.

The Scheme envisages certification of Traditional Community Health Practitioners, to begin with, in 6 streams of practice viz **bone setting, poisonous bites, jaundice, birth attendants, common ailments and rheumatoid arthritis** and would be expanded to other streams of practice. The Scheme also has a provision for accrediting training institution. As planned the scheme documents shall be translated in other languages; Tamil version of scheme documents is now available under QCI website under QCI Scheme for Voluntary Certification of Traditional Community Health Practitioners

India PSS Leadership Story : Brazil VSS Launch

Manish Pande and Rudraneel Chattopadhyay

Platform Host : National Institute of Metrology, Quality and Technology (INMETRO)

Associate Organizers: Federation of Industries of the State of São Paulo (FIESP), German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Getulio Vargas Foundation (FGV)

On May 31 and June 1 2017, Brazil launched its National Platform on



Voluntary Sustainability Standards (VSS) in Brasilia and São Paulo. This initiative was led by the National Institute of Metrology, Quality and Technology (INMETRO) and supported by the United Nations Forum on Sustainability Standards (UNFSS), a joint initiative of five UN Agencies (FAO, ITC, UNCTAD, UNEP and UNIDO). This event was also jointly organized with the German Development Institute/ Deutsches Institut für Entwicklungspolitik (DIE) and the Getulio Vargas Foundation (FGV).

INMETRO, the host of the Brazilian Platform, was created by law to support Brazilian enterprises to increase their productivity and the quality of goods and services. Its major task is to improve the quality of life of the ordinary citizen as well as to seek the competitiveness of the economy through metrology and quality.

The two-day discussions, first in the National Confederation of Industry (CNI) in Brasilia and then in the Federation of Industries of State of São Paulo (FIESP) in São Paulo, established a multi-stakeholder platform for collectively assessing the impact of VSS upon Brazil's sustained trade growth and sustainable development. The launch workshops in Brasilia and São Paulo brought together representatives from the Brazilian private and public sector, from companies, international organizations as well as from other emerging economies.



Quality Council of India (QCI) was invited to participate in these workshops as the Secretariat of the India National Platform on Private Sustainability Standards, the first of its kind platform in the world to be established in March 2016. Dr. Manish Pande and Rudraneel Chattopadhyay represented QCI in this event.

QCI was also participating in this event as a partner institution in the Managing Global Governance (MGG) network of the German Development Institute/ Deutsches Institut für Entwicklungspolitik (DIE). Members from



similar standards bodies and national accreditation agencies from China, Mexico, South Africa, and Indonesia also participated in these meetings as part of the MGG network. The events also saw participation from the UNCTAD and Dr. Ulrich Hoffmann, who pioneered the concept of VSS and the idea of establishing the UNFSS and congruent national platforms.

Through the panel meetings in these workshops, QCI guided the host and the participating countries to understand the importance and relevance of such a Platform in the Indian context. QCI, by making a short presentation, walked the members through the conceptualizing of the

Indian Platform, its need, nature, objectives, major milestones, projects undertaken, and the proposed way forward for the world and similar national platforms.

It evolved clearly through these meetings that in India, the government is aligned with the idea of voluntary sustainability standards being created by autonomous agencies such as QCI, and only the privately owned and created standards had to be tackled. It also emerged that it was essential to make PSS more accessible to the smallest of producers through nationally interpreting the context of the global standards and to make the cost of implementation/conformity very nominal.



QCI also made proactive interventions on the role that governments in developing countries can play in making sustainability standards more effective, and the role that the private sector can play in making these standards influence exports and the economy. QCI engaged with numerous international stakeholders from Brazil and other countries to share the Indian experience.

The events of the launch of the Brazilian Platform included a guided tour to a certified company in Sao Paulo – Natura – which was in the business of manufacturing cosmetics and fragrant products out of natural ingredients from the Brazilian tropical ecosystem, including the Amazonian terrains, in a sustainable manner. The visit culminated with numerous best practices being shared by the stakeholders and learning of new types of corporate certifications that may just be the future of the sustainable industries.



For more information and feedback please write back to manish.pande@qcin.org

Role of Advanced Materials in Manufacturing Industry 4.0

Research Analysis and Capacity Building Division
National Accreditation Board for Education and Training
Quality Council of India, New Delhi

Vipin Sahni

Dr. S. K. Mishra



The Fourth Industrial Revolution is still in its nascent state. But with the swift pace of change and disruption to business and society, the time to join in is now. (Gary Coleman, Global Industry and Senior Client Advisor, Deloitte Consulting, 2015)

1. Background

The word **Industry 4.0** has been coined in the recent years due to its tremendous significance in the manufacturing sectors. The concept of Industry 4.0 which is being backed by the international manufacturing association since early 2013 is the integration of the technologies with the Internet of Things (IoT). The physical technologies include additive manufacturing, robotics and automation, high-performance computing, artificial intelligence and cognitive technologies, materials science with focus on emerging and advanced materials and augmented reality. The integration is convincingly completed in a sequence which creates a physical-to-digital-to-physical cycle. Under the current industry 4.0 revolution, Indian manufacturing organizations are also stepping forward to venture into smart manufacturing leading to cultivate the seed of smart factory to enable improvement in the quality, lifecycle of products as well as other shop floor operating procedures like supply chain, skill and capacity building, 3D printing, storage and innovations.



Fig. 1. Pictorial image of shop floor of an automated manufacturing plant (Industry 4.0)

Conventionally, the standard operating procedure followed in the industries during the manufacturing does not always result into optimum cost effective and quality products. It is thus imperative to exploit the concept of Industry 4.0 to achieve products of the international standards. Innovation based smart manufacturing can be integrated with cutting edge technologies to obtain hi-end products. Automation

and robotics are primarily the most essential requirements of any smart manufacturing system (smart factory). The lack of automation in manufacturing sectors diminish the quality of products which impact to the growth of the industry resulting into restrictions to innovations and diversifications of futuristic products.

For people with a disability, the Fourth Industrial Revolution will give us super powers (Birgit Skarstein, Double Paralympic Athlete and World Rowing Champion, Norway)

2. Scope of Industry 4.0

Industry 4.0 enables to cater for exciting areas which directly influence the concept of smart manufacturing. Smart technology enabled manufacturing, innovation in processes and materials, automation are some aspects to be tailored to ensure industry 4.0 in reality. It is also discussed that cyber physical system, energy efficient safety devices, additive manufacturing, 3D printing are some nascent tools and technologies which contribute in the growth of industry 4.0. The concept of industry 4.0 collectively is an outcome of all new aspects as mentioned in order to improve the production and quality of goods having sufficient opportunities to forecast emerging technologies. This concept is now very popular as industrial revolution of the next generation across the world. Automation is being integrated during the manufacturing with computer and internet intervention.

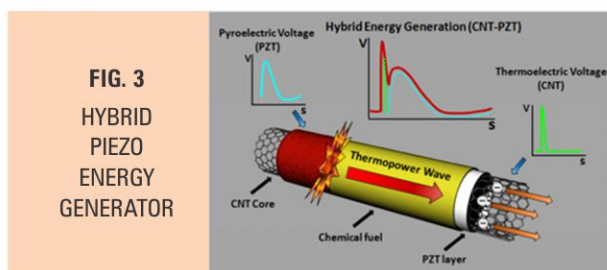
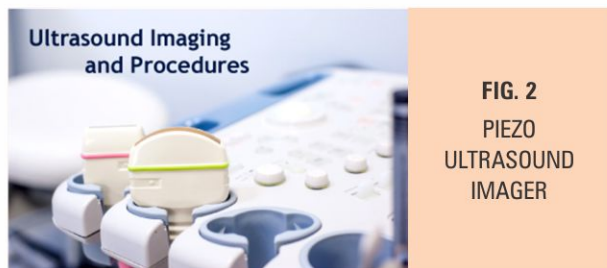
To meet challenges and to compete across the world in the field of smart manufacturing sectors, Indian government has taken a step forward to activate the industries for implementation of the concept of industries 4.0. Under this pioneer move, IIT Delhi has been identified as nodal place to establish a national Centre of Excellence for industry 4.0. NABET is also a part of this pioneer move of CoE for making industry 4.0 popular in India.

(Advanced materials permit new product designs: a global manufacturer designed a continuous, hybridized additive manufacturing process embedding functional elements into in-mold labelling material. This process increased the rapid prototyping and scalability of objects for mass production securing process patents to gain competitive advantage).

3. Technologies and Innovations: The approach of Industry 4.0 is well taken by the manufacturing sectors across the world. In this section and at the very first, we are making an attempt to describe the role of advanced and emerging materials (innovative materials) in Industry 4.0

revolution. We shall continue to discuss other aspects of industry 4.0 in future issues of Quality India.

There is currently enormous interest in exploiting composition-induced phase transition in advanced and emerging materials. Advanced materials are the future of next generation industrial revolution in the world. These materials are popularly called as smart materials. They are designed and developed in such a way that they immediately response to stress, temperature, magnetic and electric fields, noise, pH, humidity and therefore also known as shape memory materials.



One of the most investigated materials are from the class of piezoelectric ceramics which have brought revolution in the manufacturing sectors since last few decades. The piezoelectric materials have applications in piezoelectric, pyroelectric, electro-optic and ferroelectric memory devices in bulk ceramic, thin film and multilayer forms. In the bulk ceramic form, it is widely used as a source of high voltage generator whereas hard ceramic is used to make high voltage ceramic transformer, spark pump, ignitors for lighters. Because of their high piezoelectric constant, these ceramics have also been utilized for smart devices such as ultrasonic generators, buzzers, precise positioners and miniaturized motors. In the medical diagnosis, miniature piezoelectric ceramic transducers are inserted in blood vessels to record the periodic change of blood pressures with the heartbeat. Now a day's piezoelectric transducers are used in remote control of television sets. Some other exciting applications of piezoelectric ceramics are as transducers, ultrasonic cutters, welders and soldering irons, IF filters, surface wave filters and delay lines, relays, printer heads, keyboards, fans, motor suspension and hydrophones. In current pace of rapid technological developments, the thin films of piezoelectric materials are also being commercially exploited for a variety of device applications. These thin films are being used in devices such as micromechanical devices, infrared detectors, ferroelectric memories, accelerometers, pacemaker, micro-actuators, ferroelectric memory devices, ferroelectric switched capacitor RAMs. After the discovery of



Fig. 4. Thin film development of advanced materials for hi-end devices (Industry 4.0)

transparent electro-optic, they are also used in manufacturing of nuclear flash blindness goggles developed for U.S. Air force.

It is worth mentioning that a single material innovated is capable to be used as material for the manufacturing of variety of devices. The invention pertains to modification in compositions which is one of the potential aspects of smart factory (industry 4.0). The commercial exploitation of the technologically important advanced materials is an innovative research which is based on compositional modification, atomic level mixing of elements, functional modification and bringing down the size of particles to the nano scale for superior quality parameters. Advanced (smart) materials can be engineered further to define a promising road map for the industry 4.0. It is also reported that currently there are nine different class of advanced materials which can change the future of manufacturing sectors of next generation (industry 4.0).

These are promisingly categorised as carbon fibre, iron coated alloys, large magnets, semiconductors, functional materials, ceramics and composites, nanomaterials. Indian research institutions are working to exploit advanced and emerging materials for technological applications. Institutions like IISc. Bangalore, IIT Kharagpur, IIT Delhi, IIT BHU and IIT Bombay have established centre of materials science in their premises to explore materials research for manufacturing industries.

Overall advanced materials enable to reduce weight of a product, component or system while maintaining or enhancing performance, operational supportability, survivability and affordability. When executed efficiently, weight reduction encompasses the early integration of design, development and implementation of lightweight materials, component fabrication, assembly, joining and other technologies as well as the capability to manufacture and produce components at reasonable cost. These characteristics features benefits in the terms of reducing the manufacturing cost, improved quality of products, smart technology, automation which largely contribute to prosper the growth of Industry 4.0. Industry 4.0 is a field that



QCI – D.L. Shah Awards Programs By National Board for Quality Promotion (NBQP)

The QCI – D. L. Shah Quality Award Scheme institute is an opportunity for organisations to showcase their best-practices on quality excellence and share their success stories.

National Board for Quality Promotion is entrusted with the responsibility of promoting the QCI – D. L. Shah Quality Award Scheme.

During the 11th cycle of QCI – D. L. Shah Quality Award, The NBQP has facilitated awareness programmes across various cities in the month of May, 2017. All these programmes received good response with participants coming from various sectors.

S. No	Programme Name	Organized in association with	Date	Location
01	Awareness program on QCI- D L Shah Quality Award Scheme	Kumaun Garhwal Chamber Of Commerce & Industry, Kashipur Uttarakhand	May 16, 2017	Rudrapur
02		Central Tool Room & Training Centre, Bhubaneswar, Odisha	May 16, 2017	Bhubneshwar
03		Mahratta Chamber Of Commerce Industries & Agriculture, Pune, Maharashtra	May 17, 2017	Pune
04		Centre for Electronics Test Engineering, STQC Directorate, Hyderabad, Telangana	May 19, 2017	Hyderabad
05		IamSME of India, Faridabad, Haryana	May 20, 2017	Faridabad
06		Bhiwadi Manufacturers Association, Bhiwadi, Rajasthan	May 26, 2017	Bhiwadi



Rudrapur - May 16, 2017



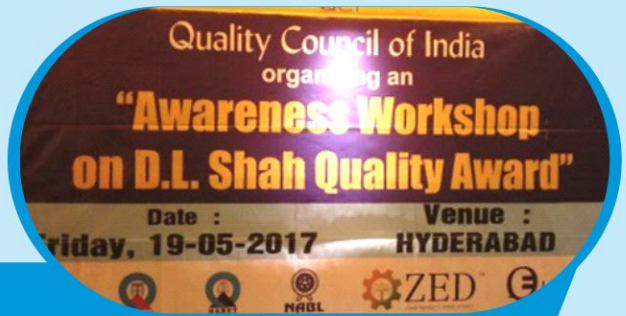
Bhubneshwar – May 16, 2017



Pune – May 17, 2017



Hyderabad – May 19, 2017



Faridabad – May 20, 2017



Bhiwadi – May 26, 2017





National Accreditation Board for Testing and Calibration Laboratories

Kerala State Drugs and Pharmaceuticals Limited (KSDP), Alappuzha receives Accreditation:



From left to right: Shri G. Sudhakaran, Minister for Public Works and Registration; Shri A. C. Moideen, Minister for Industries, Sports and Youth Affairs; Shri P. Thilothaman, Minister for Food and Civil Supplies; Shri Pinarayi Vijayan, Chief Minister Kerala; Dr. T.M. Thomas Issac, Minister for Finance and Coir; Shri K.C. Venugopal, Member of Parliament; extreme right: Mr. Anil Relia, CEO NABL.

Under Kerala Government's initiative to make quality medicines, Kerala Chief Minister Shri Pinarayi Vijayan inaugurated a 'Dry Powder Injection unit' at Kerala State Drugs and Pharmaceuticals Limited (KSDP), a public sector unit at Kalavoor in Alappuzha on 06th May, 2017. As part of upgrading manufacturing facilities, a Pharma and Allied Testing Laboratory was set up to facilitate testing of medicines. The services of the lab would be available for both the public and the private agencies.

Recently, this laboratory was granted accreditation and the Certificate of Accreditation was handed over by Mr. Anil Relia, CEO, NABL to Dr. T.M. Thomas Issac, Minister for Finance and Coir in the presence of Chief Minister Shri Pinarayi Vijayan. The event was also attended by Shri G. Sudhakaran, Minister for Public Works and Registration, Shri A. C. Moideen, Minister for Industries, Sports and Youth Affairs, Shri P. Thilothaman, Minister for Food and Civil Supplies and Shri. K.C. Venugopal, Member of Parliament.

GOOD CLINICAL LABORATORY PRACTICES (GCLP) WORKSHOP ON ISO 15189:2012



Sri Ramachandra University, Chennai and YRG Centre for AIDS Research Education (YRG CARE), Chennai jointly organized a workshop on International standard ISO 15189:2012 at Sri Ramachandra University campus, Chennai from 23-25th March, 2017. This workshop was designed to offer comprehensive guidance to develop and implement quality system for those who are implementing GCLP in their laboratories. In patient care and clinical research sector, GCLP outline the principles and procedures to be followed by medical laboratories so as to provide consistent, reproducible, auditable and reliable laboratory results. Chief Guest Dr. Vandana Jain, Director, NABL addressed the gathering and apprised them with the significant role of accreditation in medical testing.

ROUND TABLE MEETING ON DRUGS AND PHARMACEUTICALS



NABL, along with Indian Pharmacopoeia Commission (IPC), organized a Round-Table Meeting on Drugs & Pharmaceuticals on 01st March, 2017 at India Habitat Centre, New Delhi. The meeting was honoured by Mr. Adil Zainulbhai, Chairman (QCI); Dr. G.N. Singh, DCG(I); Dr. R.P. Singh, Secretary General (QCI); Mr. Anil Relia, CEO (NABL); Mr. N. Venkateswaran, Director (NABL). About 20 participants representing Pharmaceutical Industries, Regulators, Indian Medical Association (IMA) and Drug Manufacturing Association attended the meeting. Mr. Adil Zainulbhai, Chairman QCI, in his opening remarks emphasized on improvement in quality of pharmaceutical products. Dr. G N Singh, DCG(I), as a regulator, stressed upon defining the minimum benchmark for effectiveness, safety and quality of drugs.

ACCREDITATION OF MEDICAL LABORATORIES NABL "ESSENTIAL FOR EXCELLENCE"



NABL, jointly with University College of Medical Sciences (UCMS), Delhi, organized a seminar on 11th March, 2017 at India International Centre, New Delhi. The seminar aimed to familiarize and create awareness about importance of accreditation amongst the medical professionals in the Government Health Institutions. Over 100 participants including medical academicians, faculties, medical students, laboratory personnel and assessors attended the seminar.

The occasion was graced by the Chief Guest, Dr. R.P.Singh, Secretary General (QCI); Prof. M.C.Misra, former Director, All India Institute of Medical Sciences (AIIMS), Mr. Anil Relia, CEO, (NABL), Dr Ashwani Kumar, Director, Prof. & Head, Department of Microbiology, UCMS and Dr.Vandana Jain, Director (NABL).

AD MET-2017



AdMet-2017 was organized from 23rd-25th March'17 jointly by The NorthCap University, Gurugram and Metrology Society of India (NR) with the support from National Physical Laboratory & Metrology Society of India (HQ). MSI has been organizing these events annually at different academic and R&D centers in the country to highlight and discuss the technological advancements in various aspects of Metrology - the science of measurements. The focal theme of the conference was: Reference Materials, Sensors and Measurement Techniques for Precision Industrial.

REFERENCE MATERIAL PRODUCERS (RMP) AS PER ISO 17034:2016



Recently, NABL obtained the MRA signatory status for accreditation to Reference Material Producers (RMP) based on ISO Guide 34. ISO Guide 34:2009 has now been replaced by ISO 17034:2016 'General requirements for the competence of reference material producers' issued on 01.11.2016. 1st Orientation/ Training Program for RMP Assessors (based on ISO 17034: 2016) was held at Pune on 20th- 21st Apr'17. Other programs have been planned in the year 2017. Thereafter, assessments will be conducted as per the new standard. Till date, NABL has accredited 4 RMPs in the fields of Petroleum, Pharmaceuticals and Metals.

PROFICIENCY TESTING PROVIDERS (PTP) ACCREDITATION



Training Course (25th- 28th April'17), New Delhi



Training Course (02nd-05th May'17), Chennai

With an objective to educate and sensitize the potential PTPs, NABL organised a four-day Training programs on "General Requirements for Proficiency Testing based on ISO/IEC 17043" in Delhi & Chennai. The programs were designed to familiarize the participants with the following:

- a) ISO/IEC 17043:2010 requirements
- b) designing & operating PT schemes
- c) analysis and evaluation of PT scheme results
- d) developing competence in PT schemes

NABL -FSSAI AWARENESS PROGRAM

NABL, along with Food Safety and Standard Authority of India (FSSAI), is working toward strengthening and developing a reliable food testing network in the country. In this regard, two awareness programs were conducted in northern and southern region at Delhi and Chennai respectively.



3rd Awareness program at Kolkata

The program for eastern region was held on 16th February and was attended by 36 participants from state food testing laboratories of Assam, Odisha, West Bengal, Nagaland, Chhattisgarh, Meghalaya, Manipur, Tripura, Jharkhand, Bihar, Himachal Pradesh and Andhra Pradesh.



4th Awareness program at Mumbai

The program for western region was held on 23rd Feb' 17 in Mumbai. The program was attended by 35 participants from the state food testing laboratories of Goa, Maharashtra, Madhya Pradesh and Gujarat.

TRAINING ACTIVITIES

NABL conducts Laboratory Assessor's training courses based on ISO/IEC 17025:2005-'General requirements for the competence of testing and calibration laboratories', ISO 15189:2012-'Medical Laboratories-Requirements for quality and competence, ISO 17034:2016-'General requirements for the competence of reference material producers' and ISO/IEC 17043:2010-'Conformity assessment-General requirements for proficiency testing'.

Assessor Training courses are conducted by NABL from time to time pooling in the expertise from various disciplines to cater to the demands of accreditation.



NABL organized 79th five-day Assessor Training Course as per ISO/IEC 17025:2005 dedicated to National Physical Laboratory scientists from various calibration disciplines. The course was held at National Physical Laboratory (NPL), New Delhi from 15th-19th May, 2017. The training course was attended by 22 participants.



NABL organized 27th five-day Laboratory Assessor's Training Course based on ISO 15189:2012- 'Medical Laboratories- Requirements for quality and competence' from 06-10 March, 2017 at Gurgaon. The training course was attended by 20 participants.



NABL organized 77th five-day Laboratory Assessor's Training Course based on ISO/IEC 17025:2005 and NABL requirements from 21-25 March 2017 at Chandigarh. The course was attended by 20 participants.



NABH Accreditation Program for Wellness Centre

Sama dosha sama agnischa sama dhatu mala kriyaah Prasanna atma indriya manaha
swastha iti abhidheeyate | | Sushruta Samhita

This beautiful Sanskrit quotation reveals the true meaning of 'Wellness'.

One is in perfect health when the three functionalities - doshas (vata, pitta and Kapha), Digestive fire (digestion, assimilation and metabolism), all the body tissues & components (Dhatus) (the entire physical body) and all the excretory functions (the physiological functions of urination and defecation) are in perfect order with a pleasantly disposed and contented mind, senses and spirit.

This is very similar to the meaning of wellness in oxford dictionary which is "Wellness is a state of optimal health covering physical, mental, social, spiritual wellbeing of an individual and not sickness"

Wellness means improvement in one's health -- whether it is physical, mental or emotional

well being. With an easy access to information, people are getting more aware of themselves, their consumption patterns, and their surroundings. This awareness has helped consumers take more informed decisions in consumption patterns and increased eagerness to prevent diseases.

Wellness centre is a healthcare facility that provides scientifically proven physical interventions with repeatable positive outcomes for improvement or maintenance of physical form, enhancement of functions or improvement for achieving the state of wellness of an individual.

Wellness interventions are those interventions that do not require overnight stay at the Wellness centres for medical reasons; leaving the treatment after any stage should not cause any harm to the individual.

National Accreditation Board for Hospitals and Healthcare Providers (NABH) has the Accreditation standards for wellness centres. This standard, meant for accreditation, is applicable to all the organizations providing wellness services. In addition to implementing the specified applicable clauses of the standard, the organizations will maintain highest degree of cleanliness, customer-friendly approach, transparency and professionalism in its dealings with respect to the provided services and projection of the same.

Through this standard the accredited organizations will provide a benchmark of excellence in their fields and will enhance the

respectability of not only their organizations but that of the wellness industry also.

Accreditation Standards for Wellness Centres prepared by the Technical Committee contains a complete set of standards for evaluation of Wellness Centres for grant of accreditation. The standards provide framework for quality of care for customers and quality improvement for Wellness Centres. The standards help to build a quality culture at all levels and across all the functions of Wellness Centres. NABH Wellness Centre Standards have ten chapters incorporating 84 standards and 396 objective elements.

The standards focus on all aspects of service delivery like customer rights and education, infection control practices, trained and experienced staff, infrastructure, environment safety, processes and controls among many others, quality and safety issues.

Accreditation benefits to all of its stakeholders. Accreditation results in high quality of care and customer safety. Customer satisfaction is regularly evaluated. Accreditation of a Wellness Centre stimulates a continuous improvement. It enables the Wellness Centre in demonstrating commitment to quality service. It raises community confidence in the services provided by the Wellness Centre. It also provides opportunity to wellness unit to benchmark with the best.

Accreditation process is simple. The performance of the applicant organisations are assessed on the basis of implementation of these standards in their organisations. The accreditation process involves review of the documentation and two onsite visits by trained assessors. Communication is maintained throughout the entire process between the applicant organisation and NABH thereby making the entire process a very transparent one. Renewal of accreditation has to be done after every three years. Thus accreditation serves as an assurance of quality services from a reliable, safe and quality conscious operator to the consumer desiring the best.

Though the Accreditation Program for Wellness Centres is a voluntary program, it would go a long way in enhancing the growth and credibility of the Wellness Industry in India and will also build the consumer trust in a wellness brand.

BENEFITS OF AYUSH ACCREDITATION

BENEFITS FOR PATIENTS/CUSTOMERS

- Accreditation benefits all stakeholders, patients/customers are the biggest beneficiary
- Results in high quality of care and patients/customer safety
- Patients/Customers get services by qualified, trained and credentialed staff
- Rights of patients/customers are respected and protected
- Patients/Customer satisfaction is regularly evaluated

BENEFITS FOR STAFF

- It provides for continuous learning, good working environment, leadership and above all ownership of service processes
- Improves overall professional development of staff and provides leadership for quality improvement in various techniques

BENEFITS FOR HCO

- Initiates & sustains continuous improvement
- Enables the HCO in demonstrating commitment to quality of care
- Raises community confidence in the services provided
- Provides opportunity to benchmark with the best

BENEFITS TO PAYERS

- Objective system of evaluation and empanelment by Third Parties to empanel the hospitals on the basis of certified information on facilities, infrastructure and level of care

ACCREDITATION STANDARDS AVAILABLE FOR AYUSH SYSTEM:

- NABH Accreditation Standards for Ayurveda Hospitals
- NABH Accreditation Standards for Yoga & Naturopathy Hospitals
- NABH Accreditation Standards for Unani Hospitals
- NABH Accreditation Standards for Siddha Hospitals
- NABH Accreditation Standards for Homoeopathy Hospitals

National Accreditation Board for Hospitals & Healthcare Providers (NABH), a constituent Board of the Quality Council of India (QCI) has been setup to establish and operate accreditation programs for hospitals, healthcare organizations and sets benchmarks for the progress of the healthcare industry. NABH supported by all its stakeholders including industry, consumers and government.



NABH as an organization is International Society for Quality in Healthcare (ISQua) Accredited

VALUES

Credibility : Provide credible and value addition services

Responsiveness : Willingness to listen and continuously improving service

Transparency : Openness in communication and freedom of information to its stakeholders

Innovation : Incorporating change, creativity, continuous learning and new ideas to improve the services being provided

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.

PROGRAMMES OFFERED BY NABH

WHAT WE DO?

- We conduct Accreditation of Hospitals and Healthcare Organisations
- We provide necessary training for the accreditation process

ACCREDITATION PROGRAMS

- Hospitals
- Small Health Care Organization (SHCO)
- Blood Banks and Transfusion Services
- Blood Storage Center
- Dental Institutions
- Medical Imaging Services
- AYUSH Hospitals, Clinics & Colleges
- Wellness Centre's
- PHCs
- Allopathic Clinics
- Oral Substitution Therapy (OST) Centre
- Pre Accreditation Entry Level for Hospital & Small Healthcare Organization
- Pre Accreditation Progressive Level for Hospital & Small Healthcare Organization

QUALITY IMPROVEMENT CERTIFICATION PROGRAMS:

- NABH Safe I
- Medical Laboratory
- Nursing Excellence

TRAINING PROGRAMS

- One Day sensitisation Programmes on NABH Accreditation
- Three Day Programme on Implementation (POI) of NABH Accreditation Standards

IMPORTANCE OF AYUSH SYSTEM OF MEDICINE

AYUSH is a common word derived from Sanskrit which means "life". AYUSH system of medicine is considered as the Alternative system of Medicine or Traditional system of medicine that includes Ayurveda, Yoga & Naturopathy, Unani, Siddha & Sowa-Rigpa and Homoeopathy. Each

speciality has its own personal identity & principles for preventive, curative and Promotion of health. Each of the AYUSH systems has its empirical base of codified knowledge, often textual, and has endured as a living tradition during a century-long dominance of western biomedicine.

The present contemporary system of medicine addresses only the curative aspect of the health which is not free from a host of side effects resulting in reduced or low quality of life. The AYUSH system of medicine on the other hand focuses on the individual needs & has a holistic approach with respect to constitution of a person, daily and seasonal regimen. These systems have the added advantage of prevention and promotion of health and have principles in accordance to nature.

Ayurveda defines three body humours as vata, pitta and kapha, the equilibrium of which is health and in-equilibrium is disease. The approach for treatment includes Shodhana (by various panchakarma procedures), Shamana (by medicines) and Nidanaparivarjana (by avoiding the cause of the disease). Siddha has a similar approach with Vadham, Pittham & Kabham. The treatment modalities are similar to Ayurveda and have a speciality of Varmam Chikitsa which is stimulating specific vital points for the purpose of treatment.



Yoga & Naturopathy is a drugless therapy where in specific diet, yoga postures and elements of nature namely soil, water, sun & air are used for treatment.

Unani or Tibbi has the body humors identified in its own terminology and in accordance to Ayurveda & Siddha. The detoxification procedures termed as "Regiment Therapy" is similar to Panchakarma of Ayurveda. Cupping is a special procedure for bloodletting used for treating various ailments.

Siddha has a similar approach with Vadham, Pittham & Kabham. The treatment modalities are similar to Ayurveda and have a speciality of Varmam Chikitsa which is stimulating specific vital points for the purpose of treatment.

Homoeopathy having its basic origin from Germany and depends on the principle of "like cures like".

WHY DO YOU NEED AYUSH ACCREDITATION?

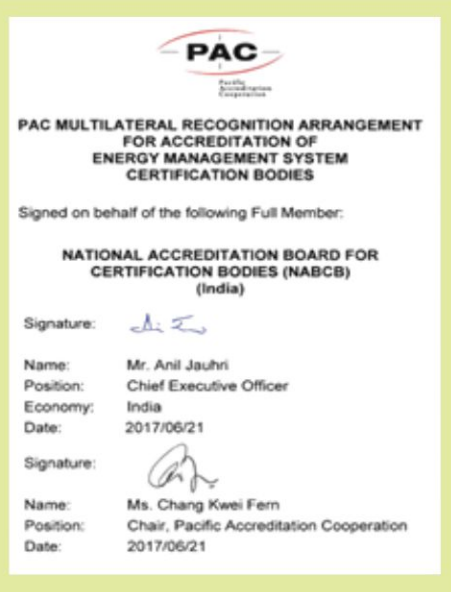
NABH has developed quality standards to ensure quality care and patient safety for AYUSH systems. This will enable the healthcare organisation to improve their services and reach to a wider population nationally and internationally. Accreditation guides and drives the HCOs to follow standardized procedures in order to achieve & maintain patient safety and quality of care by way of establishing systems, protocols and a culture which is patient-centric.



NABCB signs PAC MLA for EnMSm



Mr. Anil Jauhri, CEO NABCB receiving PAC MLA Certificate from Ms. Chang Kwei Fern, Chair PAC



NABCB has signed the Pacific Accreditation Cooperation (PAC) Multilateral Recognition Arrangement (MLA) for Energy Management Systems (EnMS) at Bangkok on 21 June 2017 during the APLAC / PAC 2017 Joint Annual Meetings. NABCB earned a new international equivalence adding on to the MLAs for QMS, EMS, FSMS, ISMS, Product and GlobalG.A.P. already signed. NABCB expects to sign the IAF MLA for EnMS in Oct. 2017 based on it being the signatory to PAC MLA for EnMS. NABCB has already been operating an accreditation scheme for EnMS since August 2013 and has already accredited 4 certification bodies for providing EnMS Certification. By signing of this MLA, any industry or organization certified to international standard ISO 50001 for EnMS by a certification body accredited by NABCB in India can claim international equivalence. This would facilitate acceptance of Indian goods and services in the global market.

NABCB re-confirmed APLAC MRA Signatory for Inspection

NABCB underwent re-evaluation for its Inspection Bodies Accreditation Programme during 26 Feb - 03 Mar 2017 by an APLAC Peer evaluation team. As reported earlier, there were no Non-conformities and only 3 Concerns and 5 comments were raised. The response to concerns were submitted by NABCB and were found satisfactory. The re-evaluation report of NABCB was reviewed by APLAC MRA Council in its meeting held on 21 June 2017 at Bangkok during APLAC-PAC Joint Annual Meetings and NABCB was reconfirmed as MRA signatory by APLAC for

Inspection for a further period of 4 years as a result of successful re-evaluation.

NABCB grants World's First Accreditation for TDRMS

NABCB granted the world's first accreditation on TDRMS (Trustworthy Digital Repository Management Systems) for certification as per ISO 16363 to a UK based certification body Primary Trustworthy Digital Repository Authorization Body Ltd. (PTAB) in May 2017. NABCB accreditation programme for TDRMS is based on ISO/IEC 17021-1:2015 and ISO 16919:2014 standards and was launched in January 2017. NABCB is the 2nd Accreditation Body after ANAB, USA to start this programme. NABCB has provided its accreditation services in countries of Asia and Africa, but with this accreditation NABCB has stepped into Europe for providing its accreditation services.

Accreditation Programme for Standards Development Organizations (SDOs) launched

QCI has launched an accreditation programme for Standards Development Organizations (SDOs) on 09 June 2017 on the occasion of World Accreditation Day. The programme was launched in the presence of Y S Malik, Chairman, and National Highways Authority of India (NHAI), who was the Chief Guest along with Dr. R P Singh, Secretary General, Quality Council of India and CEOs of NABCB, NABL and NABET in a gathering of nearly 300 invitees.



Launch of the Accreditation Programme for Standards Development Organizations (SDOs)

SDOs support Regulators as well as promote industry-driven standards and this programme will provide India with a framework based on international best practices for accreditation and recognition of the

Standards Development Organizations and their processes.

TCHP Certification Scheme launched

QCI, in partnership with the Foundation for Revitalization of Local Health Traditions (FRLHT), launched the Voluntary Certification Scheme for Traditional Community Health Practitioners (TCHPs), commonly called Folk Healers or Gram Vaidyas, who have treated illnesses for centuries based on tradition of local health practices but have not been recognized in our healthcare delivery system. The national launch took place in Trivandrum on 24 Mar 2017 in the presence of more than 150 TCHPs and their network of Associations from the states of Tamil Nadu, Kerala, Karnataka and Chhattisgarh, the Chairman of the Kerala State Biodiversity Board and officials of the Jawaharlal Nehru Tropical Botanical Garden and Research Institute. QCI and FRLHT had initiated the work in Sept 2016 and were able to put in place a clearly laid out competence requirements and certification process within a short time. The framework developed follows international best practices laid down in international standard, ISO 17024, for Personnel Certification. The Scheme envisages certification of TCHPs, to begin with, in 6 streams of practice viz. Bone setting, Poisonous bites, Jaundice, Birth attendants, Common ailments and Rheumatoid arthritis and would be expanded later to other streams of practice. The Scheme also has a provision for accrediting training institutions.



Launch of Voluntary Certification Scheme for Traditional Community Health Practitioners (TCHPs)

Meeting with Secretary of Ministry of Labour & Employment

Mr. Anil Jauhri, CEO, NABCB made a presentation to Ms. M. Sathiyavathy, Secretary of Ministry of Labour & Employment, Government of India and her team of officers on the role of accreditation in implementing regulations on 9 Mar 2017. Mr. Shyamsundar Bang, Chairman, NABCB was also present. The Secretary showed an interest in utilizing accreditation for OHS audits under the Factories' Act as also certification of private placement agencies. As a follow-up, NABCB held a meeting with the Directorate General of Employment, Ministry of Labour & Employment on regulating the Private Placement Agencies in the country. The meeting was attended by Mr. Pravin Srivastava, DDG (E), Dr. Shikha Anand, Director (E) and other officials from the Ministry of Labour, and Mr. Anil Jauhri, CEO (NABCB) and Mr. Rajesh Maheshwari, Joint

Director from NABCB.

The meeting was held in the context of considering regulation of Private Placement Agencies as there is currently no regulation and there are only Guidelines on Operation of Private Placement Agencies which are not sufficient. It was suggested that pending regulation, which takes considerable time even if decided, QCI can establish a Voluntary Certification Scheme for Private Placement Agencies based on requirements in ILO Convention No .181 and available standards for certification of Private Placement Agencies. The scheme would cover both the Private Placement Agencies as well as the Staffing Firms. Under the proposed system, the QCI approved / NABCB accredited CBs can be notified by the Ministry and which in turn will certify the Private Placement Agencies / Staffing Firms. This voluntary scheme can be made available in very short time to support the Government until a regulation is established and thereafter it can support the regulation to verify compliance. NABCB has received a very positive response from the Ministry in this regard.

Kerala Panchayati Raj Department Invites Bids from NABCB Accredited Certification Bodies

The Director of Panchayats, Thiruvananthapuram has invited online bids from NABCB accredited Certification Bodies for ISO 9001:2015 certification of around 700 Grama Panchayats in the State of Kerala. This is an outcome of NABCB's dialogue with the state government which was initiated three years ago. NABCB accredited certification is fast gaining popularity with the state local bodies also.

NABCB Training on ISO/IEC 17021-1 Standard for Bhutan

NABCB conducted a training programme for officials of the Government of Bhutan on ISO/IEC 17021-1 as well as on Auditing Skills during 21-24 March 2017 in Delhi -under a project coordinated by NABET. Four NABCB participants also attended the training on ISO/IEC 17021-1 while two NABCB participants attended the training on Auditing Skills. The faculty were Mr. V.K. Mediratta (Lead Assessors, NABCB), Mr. Anil Jauhri, (CEO, NABCB), Mr. A.K. Bahl, (Lead Assessor, NABCB) and Mr. M. Jena, (Joint Director, NABCB).



Participants at NABCB Training on ISO/IEC 17021-1 Standard for Bhutan

NSDC SKILLS PROJECT

8800 Training Centers Recommended for Accreditation

The Hon'ble Prime Minister of India, Narendra Modi in his speech at the launch of the Skill India Campaign said that "India is the world's most youthful nation and a nation with such youthful power cannot dream small. We should dream big, we should enable the youth to dream big and we should give them an opportunity to realize their dreams". The development of a country and improving the lives of a billion-plus people cannot be done in a quarter or even in a year, but over a span of time, much can be achieved. In its commitment to be a part of this nation building exercise, Quality Council of India (QCI) has been assisting National Skill Development Corporation (NSDC) in operationalising end-to-end centre accreditation and affiliation process through a web-based portal for Center Accreditation, Affiliation and Continuous Monitoring called SMART.

The Skill Centers are being assessed with respect to Accreditation Standards, Compliance Standards, and Performance Standards Grading Metrics provided by NSDC. QCI has developed an indigenous technology solution (web portal and mobile app) for managing the audit and assessment of the Training Providers and Skill Centers through desktop assessments and on-site center inspections. Through this technology platform and a trained assessor pool of 200 qualified assessors and more than 50 professionals, QCI has completed the desktop assessment of more than 15,000 and inspection of more than 12,600 Skill Centres across the country. Of these, till date, 27 TCs and more than 8800 training centres, have been Recommended for Accreditation and Conditional Accreditation respectively.

Skill Management & Accreditation of Training Centres (SMART) snapshot

5577 Training Providers	15,156 Training Centres	12,624 Inspections completed	8870 TCs Recommended for Accreditation
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Increasing Employability

The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) has given a thrust to skill development in the country. It has been a great initiative by the government to bring skill education to those who do not have the financial capacity to pay for their training. Till April, 2017, PMKVY has 17.58 lakh candidates who have been trained under the scheme, out of which 81,978 have already been placed. The scheme today covers 34 sectors across 29 states and seven Union Territories, 609 districts and 534 constituencies. The focus of the scheme is to bring about industry linkages to the scheme to increase employment opportunities for the skilled workforce. Economies of scale in the sector will ensure that it will be a good business model for many to invest and support the ecosystem. Industry partnerships are important and the creation of skilled workforce

QCI PROJECTS

will help to meet the needs of the industry and also bridge the skills gap.

Improving quality of training through Vocational Courses

- **Industry Connect** – Apprenticeship- Curriculum should be designed in such a way to incorporate a mix of vocational programmes reflecting student preferences and industrial needs encouraging apprenticeship. In addition to training on specific skills to meet employers immediate needs, the scheme should also focus on transferable skills to support occupational mobility.
- **Sustain the workforce of teachers and trainers:** In vocational institutions like Skill Training centres, the schemes should promote partnerships of Skill Centres with industry to provide real time industry, encourage part-time work, and promote flexible pathways of recruitment.
- **Promote workplace training:** The scheme should offer sufficient incentives (monetary and non-monetary rewards) for both employers and students to participate in workplace training. It will ensure good quality training, with effective quality assurance and contractual frameworks for apprentices.
- **Leverage Technology-** Brick and Mortar based Skilling programs cannot achieve such higher targets. Technology has to be exploited to achieve scalability. Video based tutorials, Mobile labs and other innovative technologies should be leveraged to achieve higher skilling targets.
- **Focus on Non-Cognitive and Behavioural skills-** Attitude and Behaviour of youth towards employment is the biggest factor of attrition and unemployment. Every skill based programs must mandatorily focus on Non-Cognitive skills such as Customer engagement, Verbal and Body language. Other skills such as Personal finance management, Yoga and health skills to look after themselves.
- **Career Growth and Aspirational goals:** The scheme should also focus on providing career guidance to the students as per the labour market demands. Also, awareness programs should be conducted in industries for apprentices for a better quality of training.
- **Most of the schemes and projects are aimed at achieving certain targets.** At the execution level, the translation of targets is brutal. This results in beneficiaries dropping out of the skill courses or drop out from employment. Rather the skilling should be done keeping individual's aspiration in mind. There should be awareness programs, events to spread knowledge about certain job roles. Youth will eventually choose skill courses based on their aspiration.

Learning of the project - The focus of this scheme should be on standardisation of all Skill India Initiatives and bringing all Centre as well as State Skill Development Programs under a Common Platform so that there is uniformity in delivery across the country. Synergistic alignment of several stakeholders such as Training Partners, Agencies, Sector Skill Councils, MSDE, and most importantly the Industry is crucial to make Skill India Mission a success.

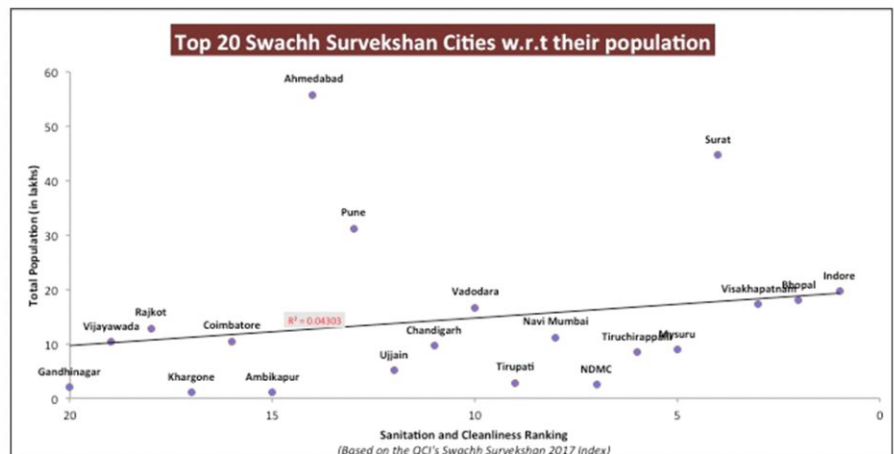
Understanding the SWACHH SURVEKSHAN Index



According to the World Bank, 39.6% Indian population had access to improved sanitation facilities in the year 2015. Out of the 238 countries listed by them in the 'improved sanitation facilities' category, India stands at the 197th spot. Indicating the lack of basic sanitation services, which results into open defecation and that is further linked to transmission of diseases such as cholera, diarrhea, dysentery, hepatitis A, typhoid and polio. However, the theme of 'sanitation and cleanliness' has today become a national movement in India after Prime Minister Narendra Modi launched 'Swachh Bharat Mission' with a vision to make a Clean India by 2019. The mission is to cover all rural and urban areas to ensure that there is safe, clean, accessible and affordable drinking water and sanitation facilities throughout the country.

Swachh Survekshan is about 'Swachh Bharat Mission for Urban Areas' where the focus is on the elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, eradication of manual scavenging, municipal solid waste management and bringing about a behavioral change in people regarding healthy sanitation practices. The task is huge, and therefore, Quality Council of India (QCI) has been closely working with the Ministry of Urban Development to gauge the preparedness of Indian cities on these parameters. The first on ground assessment was carried out by QCI in the year 2016 to evaluate and rank 73 cities so as to foster the spirit of healthy competition among them. The improvement made by cities was well evident in the results of Swachh Survekshan 2017 ranking, where cities like Indore and Bhopal surpassed Mysore, which was 2016 winner.

The Swachh Survekshan 2017 was conducted in 434 AMRUT cities. The 2017 index had three components - municipal documentation, direct observation and citizen feedback with a weight of 45%, 25% and 30% respectively. As a part of the process, 17,500 locations were visited to capture the ground realities by our 421 on-ground inspectors and the three-layer quality check was done with the help of our 55 members, in-house team. The data and photographic evidence received from the



assessment further helped to obtain insights about the sanitation coverage, citizen awareness and capacity building of the Urban Local Bodies.

Indore emerged as the cleanest city on the Swachh Survekshan 2017 Index due to its unique awareness campaigns to educate the citizens, better preparedness of municipal documentation (in 2016, it was ranked 25th out of 73 cities) and positive feedback by the citizens. It is followed by Bhopal, which also belongs to the state of Madhya Pradesh. Cities at the 3rd and 4th rank are Vishakhapatnam and Surat because of their consistently good performance over the years. The 5th rank was held by Mysore, which was last year's winner. It is interesting to note that the three mega cities, Delhi, Mumbai, and Kolkata did not make it to the top five spots. New Delhi Municipal Council (NDMC) was at 7th place and Navi Mumbai at 8th place on the index while cities from West Bengal did not actively participated in the survey.

A detailed analysis of the index reveals that out of the 434 cities:

- 114 were from North, 111 were from South, 55 from East, 142 from West and 12 were from North East and hilly areas
- 46 were million plus cities, 134 having population between 2-10 lakhs and 228 with population below 2 lakhs
- There are 27 state capitals covered by the index out of which 10 are million-plus cities and only Bhopal, Chandigarh, Gandhinagar, Greater Hyderabad Municipal Corporation, Greater Mumbai, Shimla,

Understanding the Swachh Survekshan INDEX - QCI PROJECTS

Gangtok, Panaji, and Bhubaneswar were able to find a place in top 100

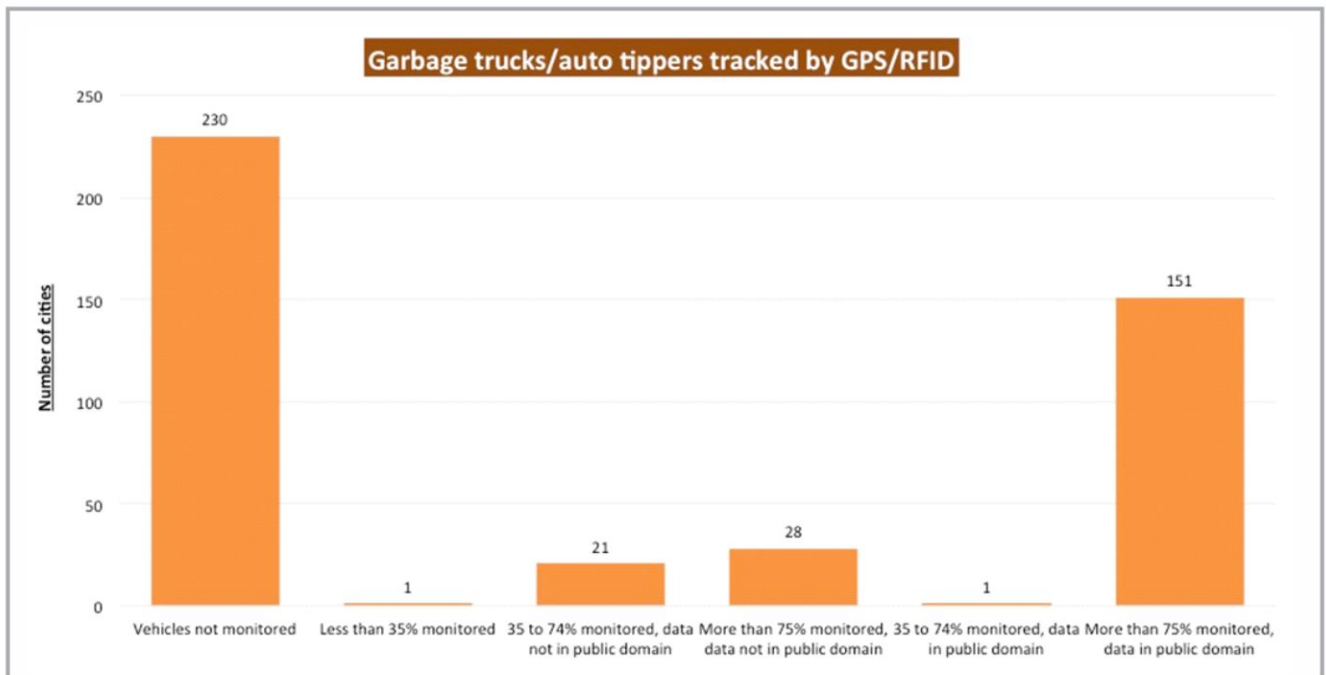
- Only 54 cities scored more than 70% marks (out of 2000) on all the parameters
- Ahmedabad is the only city to remain constant at the 14th rank

Cities with a rank of 400 and above are mostly from the state of Uttar Pradesh and Bihar with Gonda being the dirtiest city in the country

It was also found that sanitation in cities and towns of the country has improved during the last one year as 82% claimed improvement in the

sanitation infrastructure and services. Also, 80% of the respondents stated better access to community and public toilets and out of them, 75% found it to be considerably clean.

With these competitive ranking on the index, all the cities across the country are geared up to improve their sanitation facilities and adopt better cleanliness mechanisms so as to perform better on the Swachh Survekshan 2018. It is a sign that QCI is assisting in nation building activities and helping cities to drive the Swachh movement in the country.



NABCB grants World's First Accreditation for TDRMS



Mrutunjay Jena
Joint Director, NABCB

Today, almost every document created and the output from almost every research-related project is a digital object. Not everything has to be kept forever, but materials with scholarly or historical value should be retained for future generations. Preserving digital objects is more challenging than preserving items on paper. Hardware

becomes obsolete, new software replaces old, storage media degrades. In recent years, there has been significant progress made to develop tools and standards to preserve digital media, particularly in the context of institutional repositories. The most widely accepted standard thus far, in this areas is the Trustworthy Repositories Audit and Certification: Criteria and Checklist (TRAC) which evolved into a standard ISO 16363:2012.

The first edition of ISO 16363, the international standard on **Trustworthiness of Digital Repositories Management Systems (TDRMS)**, was developed by the ISO Technical Committee "ISO/TC20" and published by ISO on 15 February 2012. This international standard defines requirements for assessing the trustworthiness of digital repositories. It is applicable to the entire range of digital repositories and for all kinds of industry sectors and is used as a basis for certification. The main purpose of this international standard is to provide a basis for the operation of the organizations that will be required to verify the credibility (trustworthiness) of digital repositories based on the standard ISO 16363. It is primarily intended to support the accreditation of bodies providing such certification.

The standard is seen as a solution to concerns of data preservation for energy and utilities, healthcare, manufacturing, legal, cultural heritage, and creative sectors. Any industry that has data preservation requirements, whether mandatory or voluntary, will benefit from accredited certification of digital repositories.

The trustworthiness is of high importance in the entire digital repository systems and the repository management system is now in its evolving phase. In order to maintain, support and boost the momentum of Digital India initiative, the Department of Electronics and Information

Technology (DeitY), Govt. of India, has taken cognizance of the looming threat of technological obsolescence and its far-reaching implications on the national fabric and citizen-centric services and consequently entrusted C-DAC to involve domain experts and relevant stakeholders to commission the study on Digital Preservation Requirements of India. The nominated team studied international trends and facilitated firming up the National Digital Preservation Policy, which serves as the main driving force behind the digital preservation initiative across a wide spectrum of domains in India and came out with the National Study Report on digital preservation requirements of India.

"Information for all" is the most important pillar out of the nine pillars based on which Digital India programme has been structured. Online hosting of information & documents would make open, easy and long-term access to information, available to citizens, growing digitalization and the dynamicity of its evolution without backward and forward compatibility necessitates revisiting the dangers of rapid technological obsolescence. Fragility of the storage devices & media and continued reduction in size & increase of capacity and performance, compounded with physical threats like improper storage environment, infrastructure failure, human error etc. endangers the digital content. It is therefore obvious that digital information is vulnerable to obsolescence & destruction which in turn can create problems in administrative, judiciary and legislative functions in addition to loss of valuable information, intellectual property, scientific data and heritage.

Considering that the National Accreditation Board for Certification Bodies (NABCB) is one of the leading Accreditation Bodies (ABs) in the world, especially in the IT sector being one of the 3 ABs in the world to have signed IAF MLA for ISMS (ISO 27001), it took leadership in this emerging area and launched an accreditation programme for Certification Bodies for certification as per ISO 16363.

NABCB accreditation programme for TDRMS is based on ISO/IEC 17021-1:2015 and ISO 16919:2014 standards and was launched in January 2017. NABCB is the 2nd Accreditation Body after ANAB, USA to start this programme. In May 2017, NABCB granted the world's first accreditation in TDRMS for certification as per ISO 16363 to a UK based certification body "Primary Trustworthy Digital Repository Authorization Body Ltd. (PTAB)". NABCB has provided its accreditation services in countries in Asia and Africa, but with this accreditation, NABCB has stepped into Europe for providing its accreditation services.



QUALITY COUNCIL OF INDIA

INDIA Good Agriculture Practices (IndGAP) Certification Scheme

INTRODUCTION



Sona Sharma
Deputy Advisor – QCI

Strengthening farmer for their produce!

Agriculture continues to be the bedrock of South Asian rural economy in respect of employment and it contributes to

the national GDP. In some countries though agriculture's share in GDP may be diminishing but in terms of employment and centrality in rural economies, farm and non-farm sector, premised on basic farming as also engaging the large majority of small and marginal farming households, agriculture's role in the SAARC Member States is projected to remain the key to drive overall national economic growth and well-being of its people.

The above premise is validated by various international agencies. World Bank reported that in SAARC countries agriculture employs about 60% of the labour force and contributes 22% of the regional GDP (World Bank, 2011). The Asian Development Bank (ADB) estimated that the largest concentration of the world's poor, around 40%, lives in South Asia (Srinivasan, 2012), while World Bank figures show that 76% of them live in the rural areas, contributing at least 65% of the agricultural labour force (World Bank, 2011).

Good Agricultural Practice (GAP) are specific methods which, when applied to agriculture, create food for consumers or further processing that is safe and wholesome. While there are numerous competing definitions of what methods constitute good agricultural practice, there are several broadly accepted schemes.

QCI IndGAP Certification Scheme was launched by the Quality Council of India, India's apex quality facilitation body, in September, 2014 with the objective of producing safe and hygiene food at the farm in India and providing Indian farmers an option to get certified to a local standard at lower cost.

This Scheme describes the requirements of good agricultural practices against which certification can be obtained by the farmers or group of farmers. The focus of BasicGAP is to address not only the quality and quantity of the produce obtained from a unit area but also focuses on various aspects of food safety, pre-and post-harvest practices including worker's health and safety ensure sustained supply of produce of the desirable quality at a scale that could be managed by a small holder. The BasicGAP Scheme or IndGAP comprises of guidance document citing requirements for detailing the on-farm production, an internal checklist that a farmer can use by himself, so that he could embark in the process of adopting good agriculture practices in his farms. This, in turn, will result in better price realization of their produce, which in turn, will secure and strengthen livelihood of the small and marginal farmers.

The basic requirement of BasicGAP is applicable to all farming practices in sustainable manner for maintaining quality and food safety of agricultural Products. This focuses mainly either small or marginal farmers or the ones that aspire to introduce quality in their farms for farm produce in fresh unprocessed form for direct human consumption or for further processing for human consumption by food Industry.

IndGAP: This scheme has unique feature in which it provides two options to the farmers depending upon their current practices and resources either to adopt BasicGAP or IndGAP: the later provides a mechanism which gives direction to farms irrespective of size and resources to introduce quality in their production system to ensure food safety and hygiene thereby increasing acceptability of their produce by consumers and food processing industry.

The main components of this standard are base modules and crop-based modules:

General Modules

- a) All farm base module
- b) Crops base module Crop Based Modules
- c) Fresh fruits and vegetables
- d) Combinable crops

e) Tea f) Green Coffee

Criteria: The Certification Criteria indicates requirements with respect to good agricultural practices in farms that details, requirement clause and section wise for the producers intending to go in for GAP. The detailed checklist is provided as under:

A. Annex A Table 1 – BasicGAP (Section 3)

B. Annex B Table 1 – IndGAP (Section 3)

(Please refer <http://www.qcin.org/india-good-agriculture-practices.php>)

SOCIO-ECONOMIC BENEFITS FOR FARMERS OPTING INDGAP CERTIFICATION.

Introduction of Good Agriculture Practices (GAP) in agrarian economies shall bring in culture of food safety, enhanced produce quality, optimization of human and natural resources in agriculture. This, in turn, will result in better price realization of their produce which in turn will secure and strengthen livelihood of the small and marginal farmers.

The local retailers and global buyers recognize that if farmers in the region opt for hygiene and food safety in their production system through Good Agricultural Practices (GAP), they will enjoy access to guaranteed new markets, have reliable quality inputs, will increase farm value and increase farmer's skill in farming operations.

The focus of IndGAP is to address not only the quality and quantity of the produce obtained from a unit area but also on various aspects of food safety, pre-and post-harvest practices including worker's health and safety to ensure sustained supply of produce of the desirable quality.

While the scope of IndGAP covers all agriculture farm produce, it is structured in a manner to address the small and marginal farmers by developing certification criteria suiting their needs as BasicGAP to allow them a phased approach to international GAP while for the bigger farmers and large farms IndGAP certification criteria has been designed which they can go for straightaway.

IndGAP Scheme has been developed and benchmarked with GlobalGAP with fewer financial implications and is much more affordable and acceptable to international market.



Approved Certification body

TQ Cert Services Private Limited has been accredited for QCI IndGAP Scheme and under provisional approval of certification body, QCI has approved Indian Council of Food and Agriculture (ICFA) - AGROCERT.

A mango farmer, J Srikanth Reddy from Karimnagar district of Telangana, has achieved the distinction of becoming the first to get his farm certified for quality as per the Good Agricultural Practices (GAP).

Note: The Scheme is open to all farmers/producers or organizations engaged in IndGAP implementation who are legal entities in India. The certification shall be carried out by the Certification Bodies (CBs) duly accredited for the certification scheme as per ISO 17065 by NABCB. To operate under the Scheme, the CBs will require an extension of scope within the accreditation for ISO 17065. The information on how to obtain certification for Good Agricultural Produce is also available on the website of QCI <http://www.qcin.org/india-good-agriculture-practices.php>; please write to ayushmark@qcin.org

Does GFSI Certification Equate to FSMA Compliance?



Vani Bhambri Arora
Deputy Director, NABCB

The food processing industry is a complex industry and has many stakeholders. It is a global collection of diverse businesses that together supply much of the food energy consumed by the world human population.

India's food processing sector covers areas like: fruit and vegetables; meat and poultry; milk and milk products, alcoholic beverages, fisheries, plantation, grain processing and other consumer product groups like confectionery, chocolates and cocoa products, Soya-based products, mineral water, high protein foods etc.

India is the seventh largest supplier of food to the United States. The Indian food products that end up on the dinner table of Americans every night — including rice, spices, and shrimps — reflect the increasing globalization of food products produced and processed in our country.

With the increase in demand for processed products, food safety is a major concern and critically important in the mind of all stakeholders including consumers, manufacturers and government etc.

Food for every valid reason because of health has traditionally been a highly regulated sector and considering the ever growing worldwide concern regarding food safety and health, stringent measures and standards are being imposed by every country. The concern is increasing with increasing number of ready-to-eat food, complex processing of food and increasing international trade of food. To ensure food safety by various stakeholders there is a growing demand for voluntary certifications worldwide.

Standards provide a way for processors and retailers to satisfy themselves, their customers and the enforcement authorities that products are being sourced from organization sites capable of consistently producing safe, legal products of the required quality. For producers of products, meeting the standards allows them to demonstrate that they comply with industry requirements.

Now food industry always has a question that whether their certificate against any private standard would be accepted by the regulators in India or country to which products are exported or not.

In this article we will try to answer this question

About FSMA

The FDA, Food Safety Modernization Act (FSMA), was signed into law by President Obama on January 4, 2011

- FSMA enables FDA to focus more on preventing food safety problems rather than relying primarily on reacting to problems after they occur
- The law also provides FDA with new enforcement authorities designed to achieve higher rates of compliance with prevention- and risk-based food safety standards and to better respond to and contain problems when they do occur.

- The law also gives FDA important new tools to hold imported foods to the same standards as domestic foods

About GFSI

The Global Food Safety Initiative (GFSI) brings together key actors of the food industry to collaboratively drive continuous improvement in food safety management systems around the world.

With a vision of Safe food for consumers everywhere, food industry leaders created GFSI in 2000 to find collaborative solutions to collective concerns, notably to reduce food safety risks, audit duplication and costs

while building trust throughout the supply chain. The GFSI community works on a volunteer basis and is composed of the world's leading food safety experts from retail, manufacturing and food service companies, as well as international organisations, governments, academia and service providers to the global food industry. Some of the GFSI approved standards are BRC, FSSC, etc.

National Accreditation Board of Certification Bodies (NABCB), a constituent board of QCI, also organized a session on FSMA by representative of US FDA for its accredited certification Bodies.

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David Acheson, CEO and Founder of The Acheson Group and former Associate Commissioner for Foods at the U.S. Food and Drug Administration

Ever since the rules of the Food Safety Modernization Act (FSMA) began being published,

the industry has questioned its linkage with the Global Food Safety Initiative (GFSI) certification.

As such, a major question has been: "If I am certified to a GFSI scheme, does that mean I will also be compliant with the rules of FSMA?" The short answer has long been: "You are likely close, but not necessarily completely compliant." But now, certification to the newly released GFSI Benchmarking Requirements V7 should move food facilities even closer.

FSMA RULE DEVELOPMENT.

In the development of the rules for FSMA, FDA reviewed and took into consideration numerous inputs and documents, including the requirements of GFSI along with those of other programs — domestic and international; input from public meetings; proposed-rule comments; etc.

At the 2012 Global Food Safety Conference, then-Deputy Commissioner for Foods Michael Taylor said, "As we build our new import system, we want to work closely with GFSI and build on the foundation you have established for effective and credible certification programs." And with a majority of public meeting participants expressing interest in "seeing or participating in the creation of comparative analyses of existing programs, plans, and schemes (such as GFSI) to provide industry with a better understanding of what, specifically, they need to do in order to comply with FSMA and FSVP requirements," FDA had little choice but to at least consider these programs.

The agency is continuing to consider stakeholder input in its implementation of the rules. For example, FDA scheduled a February public hearing specifically to request input on strategic partnerships it should consider to enhance the safety of imported food. Recognizing the importance of strengthening existing collaborations among food safety regulators, the agency said the public hearing provided an opportunity for it to "receive input from stakeholders as it develops, expands, and refines partnership activities related to imported foods."

Of even greater relevance to this topic, a key focus of the hearing was to obtain information on the role of partnerships "to enhance risk-based decision making through the consideration of private standards, the recognition of commodity-specific export programs, and the implementation of the existing systems recognition program."

While this public hearing focused specifically on imported foods, I would see any alignment with GFSI as crossing over to all the rules of FSMA. I say this because of FDA's statement that "while the FSMA regulations are not the subject of this public hearing, the initiatives that will be discussed align with and support FSMA implementation."

So, if the safety standards are to be the same, I would expect that consideration or recognition of a standard (i.e., GFSI) for an imported food would mean consideration or recognition of the standard for a food produced in the U.S. as well.

What makes all this of even greater relevance is that, with its release of its Benchmarking Standards version 7 (previously titled GFSI Guidance Document), GFSI is bringing its requirements into closer alliance with FSMA — adding new requirements for food defense and food fraud prevention into all GFSI scopes; incorporating a requirement for unannounced audits; and expanding the supply chain approach to include food brokers and agents.

THE FSMA/GFSI LINKAGE.

So, while that is all good information, it doesn't really address the base question of whether or how far GFSI certification ensures FSMA compliance. But I addressed exactly that at a recent briefing in Washington, D.C., at which I showed that, in a comparative analysis, GFSI V7 generally meets or exceeds all the requirements in the FSMA preventive controls rule — with GFSI actually exceeding FSMA in some cases where it has requirements not reflected in FSMA.

At the same meeting, GFSI Chair Mike Robach noted GFSI as being an example of a partnership being able to achieve something that no company could do alone, that is, achieving "massive reciprocity on a global scale."

This reflects GFSI's central aim of "once certified, accepted everywhere," and is the very goal that I see FDA as seeking (or should be



if it isn't), as it is what will enable FSMA to be accepted globally, and not seen as a trade barrier.

All that said, a food facility that is GFSI certified cannot expect that this automatically makes it FSMA compliant. While there are areas in which the facility will exceed FSMA requirements, there are definite differences between the two, and there are requirements of FSMA that are not a part of GFSI, such as having a Preventive Controls Qualified Individual, specific Produce Safety water requirements, etc. But, despite the differences, being GFSI certified will take you a long way down the road to FSMA compliance, essentially just leaving some FSMA-specific details for enhancement.

It is the new GFSI V7 requirements that truly lessen the differences between the two. While the most obvious of these may be the added focus on food defense and food fraud, what I see as being of even greater consequence is the new requirement for unannounced audits. FDA doesn't tell you when an inspector is going to show up at your door, and now, neither will you always know when a GFSI scheme auditor will appear.

While it may seem to be a negative for food facilities who like to ensure they are prepared for such audits, it actually will reflect as a positive, not only ensuring that you maintain the standards on a daily basis, but also enabling you to feel more secure that your food safety program is at full implementation when the unannounced FDA inspector does arrive at your door.

So, while the answer to the question with which I began this column remains: "With GFSI certification, you are likely close, but not necessarily completely compliant, with FSMA," I'd now add: If you are GFSI V7 certified, you are definitely in a good place.

If you're not, consider taking your facility through the process. Not only will it move you down the road to FSMA compliance, it will help you analyze and improve your food safety program to protect your consumers and your brand.

Drones and Indian Defence

The Next Generation

WARFARE



Dhruvajyoti Bhattacharjee
Research Fellow, Indian Council of World Affairs

The Indian defence forces have been actively engaged in integrating Unmanned Aerial Vehicles (UAVs), expanding their influence and prominence, engaged in surveillance, target acquisition, intelligence gathering as well as using the platform as a weapon delivery system. In 2014, it was assessed that 50 Medium-Altitude Long-Endurance (MALE) UAVs, 60 Navy UAVs, 70 Air Force tactical UAVs, 100 Army tactical UAVs and 980 mini-UAVs would be acquired within the next decade. Israel and the US are the world's main sources of military UAVs. Almost 80 countries in the world already have some type of UAV and about two dozen either possess armed devices or are purposefully travelling down the path of weaponisation. However, the proliferation of Unmanned Combat Air Vehicles (UCAV), as the armed versions of UAVs are called, may not be rapid because in order to carry meaningful weapon loads, the platform would have to be fairly large as well as expensive and would require sophisticated ground control organisation.

India has been interested in acquiring armed medium-high altitude, long-endurance UAVs with payload capability in the form of laser-guided bombs or air-to-ground missiles. India has been using Heron UAVs, which is in service with the air force already, where they are being used for surveillance as well as in the target acquisition and reconnaissance role. There is also the need of maritime and coastal surveillance as well as intelligence, surveillance and reconnaissance, helping boost battlespace awareness and target acquisition or guide forces on suspected surface threats. The earliest UAVs were meant purely for reconnaissance but they are increasingly employed for Intelligence, Surveillance and Reconnaissance (ISR), communications, Electronic Warfare (EW), weapons delivery and practically every role a manned aircraft is capable of. The drones that have been in use are:

- Nishant, made for Indian Army by DRDO, requires a launching system with catapult technology as it doesn't have self-propelling ability and gets down with the help of a parachute, and the army has decided to retire this brand of UAVs.
- Heron, a Medium Altitude Long Endurance (MALE) UAV, is used by Indian Air Force. Developed by Israel, it has a flight time of 52 hours, but its actual time of flight depends on weight it carries and flight profile. It has some advanced features like artillery adjustment, surveillance and intelligence tasks. In the recent Prime Ministerial visit, as well as the high profile visits that took place in 2017, a new batch of the Heron series has been discussed to be produced in India under the 'Make in India' banner. Heron TPs have an endurance of upwards of 30 hours, maximum take-off weight of 5,300kg and a potential weapons/mission payload of up to 1,000kg. They can be used both for surveillance as well as combat and support roles, and can carry air-to-ground missiles to take out hostile targets. However, the details of such deal have not appeared in the public domain.
- Harpy, another product of Israel, is used by Indian armed forces. It can carry explosive as well as destroy radar system. It can also carry out actions of suppression of enemy air defence to control and overcome air defence systems, including surface-to-air missiles and anti-aircraft artillery. It has a maximum speed of 185 km/hr and 500 km range of flight.
- Searcher, developed by Israel, can attain a speed of 200km/hour and can fly up to 18 hours. Indian Navy and Air Force are the users in Indian armed forces. It performs the role of reconnaissance in the armed forces.



- Rustom, an unnamed combat air vehicle and a production of DRDO, is dedicated to all three services of Indian armed forces. The project is in the last stages of development and has been displayed in international air show and some top private players in defence field are bidding for its manufacturing deal. This UAV has come with wheels which make its take-off and landing a bit ahead of Nishant. Its variant Rustom 2 is also under progress with more specification and durability. Rustom 2 has a wingspan of 21 m, a payload of 350 kg and a planned endurance of more than 24 hours. It takes off and lands using a conventional undercarriage.



India has also gone ahead with the procurement of 22 Guardian Unmanned Aircraft System (UAS) which has been signed during PM Modi's visit to the United States. It is the naval variant of the Predator B drone or to call it by its proper name, the MQ-9 Reaper. Fitted with a 900-horsepower turbo-prop engine, the Guardian UAS remains to be the unarmed variety, unlike the Predator or the MQ-9 Reaper. The Guardian has been modified from a standard Reaper with structural, avionic and communication enhancements and an added Raytheon SeaVue Marine Search Radar. Its Electro-optical/Infrared Sensor is optimized for maritime operations. As far as the numbers go, it has a wingspan of 20 meters and is powered by the Honeywell TPE331-10 power plant. With a fuel capacity of 1769 kilograms, it can attain a maximum altitude of 50,000 feet (15,240 meters) and can cruise for a maximum of 27 hours.

With India's long coastlines that remain unguarded mostly, and the two major archipelagos, the Lakshadweep and the Andaman and Nicobar Islands, the need of high- end UAVs or UAS is the need of the day. Though DRDO has been involved in indigenously producing such high-end technological platforms, with the advent ideas to make Heron TPs in India with sharing innovative technologies with nations, there is significant scope for such technology to play a larger role in strengthening the defence forces in the future.

Global Reform and Requirements of Education System



Dr. Manvijay Singh,
Professor and Head, Department
of Mechanical Engineering
DR, K.N. Modi University

The pace of change is mandating that we produce a faster, smarter, better grade of human being. The current existing systems are preventing that from happening. The upcoming education system will be unleashed with the advent of a

standardized rapid courseware-builder and a single-point global distribution system. John Naisbitt, the author of Megatrends, says, "Education is now the number one economic priority in today's global economy."

Within two years a radical shift will begin to occur in the world of education and at this stage many of the people may predict the direction of education system. There are chances of developing, participant-driven systems that are closely aligned to the demands of the marketplace. It is the right time to focus on the key missing elements that will cause the disruptive next generation education systems to emerge. If we are able to identify these missing pieces and be in a position to create within the next two years through private funding, it will cause a dramatic educational shift in less than five years.

In present education scenario the following may be key trends that are driving change in the world of education. These trends will eventually define the size, scope, and speed of the emerging new system along with the characteristics needed for a global-scale adoption.

1. Transformation from Teaching to Learning: The education system of the future will undergo a shift from a heavy emphasis on teaching to a heavy emphasis on learning. Experts will create the courseware and the students will learn anytime anywhere at a pace that is comfortable for them, learning about topics that they are interested in.

2. Exponential Progression of Information: In the very early period of history people tended to live and die within 20 miles of where they were born because they didn't have reliable source of information about traveling. The flow of information was controlled by just a few elite members of society, and they understood well the concept of knowledge equaling power. That was the time of less information; now it's a time where information is so plentiful that we feel like drowning in it – information overload.
3. Courseware Vacuum: We have flood flow of information but we are not able to transfer it into courseware. Yes, some attempts are currently being made to unleash the public on this problem; we still remain far away from solving the problem. The open-education movement, inspired by the open-source software movement (i.e. Linux), was the very initial work in this regard.
4. Expanding Gulf Between Literates and Super-Literates: Due to development in science and technology day by day, number of new words in vocabulary is increasing every day. According to the New York Times, there are an additional 20,000 new words added to the English language every year. This is increasing distance between the functionally literate and the super literate.
5. Classroom-centric education is not necessary for learning: The education system now is not classroom centric, many learning activities such as doing homework, reading assignments, or writing papers happen outside the bounds of the school. Indeed some topics like mathematics and science require a more structured form of learning for most students to grasp the information being imparted, but learning is not dependent upon the classroom.
6. The Age of Hyper-Individuality: Our need for hyper-individualized solutions is driven by several factors including our time, our personality, and an overwhelming need to feel special in a world of over 6 billion other people wanting many of the same things. With time being one of our major constraints, we are continually searching for products that will save us time.
7. Transition from Consumers to Producers: As we transit from a predominantly passive society to a more active one, people no longer want to just sit on the sidelines and watch. They want to participate. And a whole new generation of tools and equipment are allowing people to shift their role from consumer to producer.

New forms of education system are not achieved by putting an umbrella over our existing education systems and networking them with hopes that they will get better. And they're not achieved by simply recording the lectures for later broadcast. Education system in its present architecture has to achieve newer heights for leading society.

Modern Era of Eco friendly Medical Image Printing



Sameer Bhati
(Head of Research and Development)



Since the evolution of humanity, health and medical issues have been the subject of special focus. This is the reason why we have so many medicine principles and systems at present. As we progress on technical front, our scientific aptitude starts to help this self-interest core issue i.e. medical diagnostics by starting to add more diagnostic and radiological probes.

At present, radiology has become so important that without it no medical treatment begins. These advancements provide our doctors a powerful probe to treat us in a very effecting way. So in radiology, films have become the main tool for all the doctors in fighting against most diseases. Millions of X-ray films are used every day and every hour across the globe. On one hand these films have made our lives comfortable by recording our medical problems but on the other it has become a big foe for our environment and eco system.

There are many kinds of chemicals that are either acidic or basic in nature involved in these films development for final finishing stage, which are becoming highly dangerous for humans and environment. India, where population is very huge and entire healthcare system works under a huge pressure, if there is any carelessness in handling these films, a catastrophic effect would be an outcome.

To keep all these issues aside, Digital Imaging and

Communications in Medicine (DICOM) standard came into existence more than 15 years ago, for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol. It is an application layer network protocol for the transmission of medical images, waveforms and accompanying information. DICOM was originally developed by the National Electrical Manufacturers Association (NEMA) and the American College of Radiology for Computerized Axial Tomography (CAT) and Magnetic Resonance Imaging (MRI) scan images. It is now



controlled by the DICOM Standard Committee and supports a wide range of medical images across the fields of radiology, cardiology, pathology and dentistry. DICOM uses TCP/IP as the lower-layer transport protocol. These standards really help advanced medical imaging applications to change the face of clinical medicine and has made best standards of medical imaging for doctors and patients.

By following these standards and eco-friendly concept, many well-known companies like Fuji, Sony, Ricoh etc. came out with a solution of printing these medical images over a simple plain paper with specially designed printers where the risk of any human error and mishandling is nearly zero. Medical images from different modalities e.g. X-ray, CT, MRI, Ultrasound etc can be directly printed on plain paper.

In modern times, record keeping is the biggest challenge and then transporting it without losing any valuable information from it is the next challenge, but this technique has made record keeping simple. In our existing document management systems we can keep these records very easily for further use. But due to lack of awareness most of the Indian healthcare establishments are still using the same old technologies.

We are using this modern era-eco-friendly concept in our organization from last one year and have realized many tangible and intangible benefits.

Tangible Benefits	Intangible Benefits
<ul style="list-style-type: none"> • Cost reduction by more than 50% • Profitability increased by 20% and expectation of its increment every year • No. of head counts for particular task reduced • Quality and resolution of images got better • The cost of handling, record keeping and maintenance went down • Direct and indirect expenses reduced • Business grew from dormant stage and customer- to-customer referral system 	<ul style="list-style-type: none"> • Customer's satisfaction level increased • A new addition in value chain • Employee productivity, moral and confidence level enhanced • Customer retention increased • Better care of environment • Better compliances and standards following possible • Reputation of the organization enhanced • Brand value of our services & products getting improved • Easily understandable by doctors and patients • Short and effective responsive time

Country like ours, where medical facilities are very less in comparison to the population, losing out maximum time in developing, handling and then managing the medical images is just like sheer wastage precious time. So, as per my experience of implementing this concept in my organization, I can say that this is the best way to boost the development cycle of our nation.

Organized Industrialization



Mr. Sumant Mathure
ZED Master Trainer & NBQP Member

Being in the state of constant evolution has always been a key to success. Wealth creation is a by-product of this dynamic process. Any industry can

thrive in an atmosphere where all the stakeholders responsible for its existence work in sync with each other as a team.

All kinds of enterprise develop and grow when the respective governments and the industry complement each other on a continuous basis. Industry associations and training institutes are two more stakeholders in this chain having their own strategic importance. Traditionally, associations were formed primarily to represent industry to the government and resolve various issues faced by them while customised training institutes were few and far between. But as the business eco-system around us is undergoing a paradigm shift, we need to create a new order to meet the challenges of the future.

The Government of India has launched "Make in India", which can prove to be a boon to the Indian manufacturing industry. Simultaneously, the Government has come out with initiatives like ZED certification to help industry compete with world class manufacturers. However, to make this effective, the industry (particularly the small and medium enterprise) is required to take a decisive lead in transforming its associations and training institutes, as they will have to play a much larger role in the process apart from being the voice of the industry. If these associations and training institutions are not transformed, they may soon lose their relevance, creating a big impediment on the path of development.

Let us understand how the new roles of the association and institute would help the industry in a much bigger way than in the past.

Under the MSME – DI (Development Institute) umbrella of the Government of India, there will be a healthy co-relation between Industry, Institute and Association.

The role of the institute shall be elevated to include the following:

1. Theory and practical support related to the actual manufacturing process
2. Training and required skill development
3. Setting up of library and laboratory for initial learning and testing
4. Maintenance of non-disclosure clauses in accordance with the IP act
5. Provision of statistical tools related to training and testing
6. High standard calibration facility
7. Creating awareness about new technologies

The role of the association is envisaged to be taken to the next level by expanding its circle of influence and making it more professional as well as accountable. Broadly, the association shall be expected to provide the following –

1. Register the relevant companies with the association
2. Inform MSME and keep the Government in loop about all required sanctions for the industry
3. To help industry in achieving necessary compliance related to the required sanctions from the Government
4. Providing technical and any other help for achieving compliance
5. Keep regular (weekly/monthly) track of the progress of the Industry

This will help the manufacturing industry to focus on their priority areas enlisted below –

1. Concentrate on manufacturing techniques and production
2. Use the services provided by the institute and association to the maximum possible extent for their own good
3. Provide proper protection to employees and environment

4. Explore sales and new ventures for growth
5. Participate in exhibitions and technology transfer meets
6. Evaluate own progress at regular intervals and do course correction as required
7. Have a continued dialogue with the association about its needs and ensure that the association provides the same

Such close co-ordination among the industry, institute and association will naturally lead to the evolution of a dynamic system which can respond to the situations in almost real time.

To be effective, an association will have a reasonable number of members. This will enable it to cater to its members quickly and in a customised manner. Thus, there would be multiple associations related

checklist. This will enable it to understand various factors affecting the industry which can lead to detection of early signals before they hit the industry. This would prevent many industries from becoming sick.

New ideas and ventures will be nurtured and their actual progress would be monitored with the help from MSME-DI. These would include industrial parks, exhibitions, new products and usage of latest technology.

To achieve this, the industry as well as the associations & institutes would have to change their mindset.

Once this happens, industry would benefit in terms of freedom from the tensions of compliance, availability of more free time to focus on their core businesses and predictability about the future.

On the other hand, some of the responsibilities of the Government shall



to the same industry across the country in various geographical areas. These associations would, in turn, create a pool of knowledgeable experts useful for industry.

The association with its new role will help industry to remain complied with various requirements which are a pre-condition for Government sanctions. This would take place in a transparent manner and the peer pressure of other members would also help as a deterrent for wrong doers.

Finally, let us understand the role of the MSME-DI. It will remain involved in each process and get continuous feedback from the association. It will monitor the developments related to the industry with the help of a

be shared by the associations leading to speeding up of the process. This will help the Government to use its resources for other constructive purposes.

Thus, the associations and institutes would become more professional and create tremendous opportunities for experts from different fields to contribute to the progress of the industry. This would also help them to compensate the professionals in a better way thus attracting and retaining the best talent.

Ultimately all this will complement the goal of "Make in India" – Zero Defect, Zero Effect".

Quality Improvement in **HEALTHCARE**



Nitin Sharma
CEO, Elegant Healthcare Ltd

Today's standardization... is the necessary foundation on which tomorrow's improvements will be based. If you think "standardization" as the best you know today, but which is to be improved tomorrow – you get somewhere. But if you think of standards as confining, then progress stop - Henry Ford

Greater awareness among the public, increasing demand for better care, stronger competition, more healthcare regulations, rise in medical malpractice litigation and concern about poor outcomes are the factors that have contributed to 'change.'

The Indian healthcare industry has been growing at an impressive pace. The high incidence of safety violations and medical negligence continues to be the cause of shockingly high rate of deaths, disease and disability that are largely preventable. A major reason behind this poor quality of healthcare is the lack of awareness and understanding among healthcare professionals about the concepts, techniques and tools of quality improvement. Further the measurement system to evaluate quality of care is not foolproof even in those hospitals where quality system is in existence.

Good or Bad quality of treatment and care results in a life or death of a patient. Quality is needed in healthcare due to rapid advancements in healthcare sector, speedy developments in diagnostic services, increased awareness in public, stiff market competition, increased cases of medical negligence, and improved communication technology. Any healthcare organization that wants to survive in today's market needs to provide quality health services to all the people from all sections of society by skilled and trained manpower by utilizing the available resources efficiently.

Quality has a variety of meanings:

- To some, sitting in waiting area for short time to see a doctor means quality health care.
- To others, being treated politely by medical staff members means quality health services

Quality health services means doing the right thing, at a right time, in a right way, for the right person and having best possible results.

The standard of medical care should be of utmost concern for healthcare providers. Due to various factors such as paucity of resources, lack of norms & standards, right system for assessment, lack of awareness among public, the quality of healthcare never got the importance that it deserved. But now, the scenario has changed, society is aware of its rights. Quality of healthcare is totally different from quality of medical care because a little compromise with quality can lead to a life or death situation.

The quality of healthcare given by a healthcare professional can be judged by its outcome, the technical performance, and by interpersonal relationships. The ultimate judgment of quality of hospital's services is the satisfaction of users i.e. Patients who are dependent on the hospital. Healthcare quality has three cornerstones; quality, access and cost. A quality service must be customer-oriented, available, accessible, acceptable, affordable and effective. Quality is achieved when the needs and expectations of patients are met. So, the quality of health service can be perfectly judged by the end-user and that is the 'patient.'

Quality of health services has many dimensions, it means-

- Ensuring availability and accessibility of primary healthcare facilities to the entire population
- Bringing the healthcare services within the reach of common people by reducing cost of services, in order to make it affordable for all
- Services planned and implemented for the entire populations (rural & urban) with an equitable distribution of resources
- Availability of communication and transportation system for prompt and efficient treatment

Quality can never be achieved by a fluke, it is the responsibility of every person involved at every level at various phases of healthcare delivery system. For improving quality of healthcare services data collection, data analysis and control is important.

Quality is now playing a more important role as patients have started choosing healthcare providers based on quality of care and their level of satisfaction with the organization from their previous experiences. Healthcare delivery is becoming more complex with the passing of time and there is a requirement for new and enhanced methods that will reduce costs and provide access to advancement in industry. The main idea of improvement is that – when a system remains unchanged over time and no enhancements are made, it cannot generate better results than the ones already created. Bringing the change into system can facilitate the achievement of a new performance level.

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1	Ministry of Labour & Employment	8	Ministry of AYUSH
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3	Ministry of Chemicals & Fertilizers	10	DIPP, Ministry of Commerce and Industries
4	Ministry of Mines	11	Ministry of Tourism
5	Ministry of Science & Technology	12.	Ministry of Electronics & Information Technology (MEITY)
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Anganwadi Centers developed under A.P Janmabhoomi initiative



Etee Dubey

Anganwadi centers in the country were sometimes dubbed as the unacknowledged harbingers of social change in the past. A place catering and representing social healthcare to numerous people at a rather local level. The A. P Janmabhoomi project undertaken by the Andhra Pradesh Government has taken steps to bring these centers to the forefront.

The AP Janmabhoomi project is a social initiative by the Government of Andhra Pradesh along with the special representatives of North America, which true to its name, aims to give back to its native land. The initiative mainly comprises of three main scheme- Digital Classrooms, Anganwadi Centers and Crematoriums.

The digitization of classrooms primarily aims to propel the quality of

education in the state, through technologically advanced endeavors like smart class, visual and auditory explanation of concepts. The digitization will help in creating a more interactive and intellectually stimulating environment for the students, and also helps in quicker grasping and better understanding of concepts.

Not to mention, availability of internet can work wonders and increase the accessibility to study material by manifold. Most importantly, this scheme will lead to technology-integrated learning which is more authentic and breaks away from a passive non-interactive learning environment. The construction of Crematoriums, referred to as Mahaprasthanam, is another step towards fulfilling the aim of providing basic necessities to the people living in those remote areas. Attention is given to necessities like providing a proper raised platform and a place for final rites. The NRIs themselves seemed very enthusiastic at getting an opportunity to help people in improving the living condition in their homelands, through their donation for the schemes at a gross 30%.

Apart from the three major schemes, the A. P. Janmabhoomi team also

regularly organizes workshops and campaigns that endeavor towards raising the standard of living of the common people. For instance, on 21st June 2017, the Janmabhoomi team organized Yoga campaign in various schools across district to teach students and teachers the importance and application of yoga in their daily life.

Moreover, the Youth Empowerment Program organized by Janmabhoomi was a three-week government-run pilot project on digital literacy in Andhra Pradesh's Prakasam district, where selected volunteers mentored the youth in basic computer skills, ranging from using the computer to working on the MS office suite of programs, through session-based learning in a simple yet comprehensive presentation format. Besides, the program also offered training in communication and résumé writing skills.

Glancing at the events of history of Anganwadi centers concluded the fact that they have been around for quite some time. In fact, they went as far as 1975 when they were started by the Indian government as part of the Integrated Child Development Services program to combat child hunger and malnutrition.

The term 'Anganwadi' literally means "courtyard shelter"; in Indian languages. True to its name, it has continued to provide basic healthcare services in Indian villages. Anganwadi centre provides basic health care in Indian villages. It is a part of the Indian public healthcare system. Basic health-care activities include contraceptive counseling and supply, nutrition education and supplementation, as well as pre-school activities. However, the administration and state of Anganwadi centers have fallen prey to a lot of criticism in the recent time through allegation of inefficient management to lack of resources. The Janmabhoomi Project seeks to root out these shortcomings and restore the Anganwadi centers to its intended utility and glory.



The Andhra Pradesh Government has allocated a significant budget to Anganwadi centers, along with the special representative of North America. The possibility of construction and maintenance of Anganwadi centers has increased manifold. The donations from the NRIs have been a significant factor behind these Anganwadi centers becoming a major social care element in the area. The Anganwadi centers have been entrusted with the job of immunizing all infants and children below the age of 6, providing antenatal care for pregnant women and ensuring that they are immunized against tetanus. In addition to this, they provide post-natal care to nursing mothers and lactating women. According to recent survey (Global Burden of Diseases survey), 55% of women in India are anemic, and adolescent girls form a large part of its constitution. Keeping this in mind, the Janmabhoomi project provides regular healthcare and medical check-ups for adolescent girls between the ages of 12-19.

Andhra Pradesh government is determined on providing the population of underdeveloped and remote villages the best and most efficient Anganwadi services. 30% of the overall funds for the initiative are directed towards Anganwadi centers. While a majority of the funds are used in construction of compound walls, a significant portion is dedicated to child friendly equipment and pre- school aid. Some part of the fund is spent on interior painting of animals, birds etc. to provide a conducive environment for the children. In conversation with an Anganwadi worker, Lakshmi, from Chittoor district of A.P, we got to know about the various amenities provided by the government through the project. "I am very happy with the new buildings the government has provided.

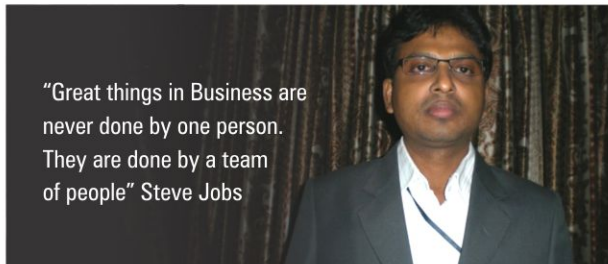
We suffered a lot for the past 15 years due to pressure from outside forces without any authority to vacate the premises," said the visibly satisfied Anganwadi worker.

The environment of the centers was given a lot of thought. For instance, Paintings of Alphabets have proved to help the students remember them and pasting pictures of students with good attendance on notice boards in creative ways have increased the attendance significantly. The preschool education carried out with the use of technology has proved to be beneficial for the students as well. The children show higher learning capabilities due to auditory and visual aids and repeat the rhymes and alphabets effortlessly.

The Anganwadi centers are indeed proving to be an indispensable part of the social healthcare sector in rural part of Andhra Pradesh. The Government efforts are much appreciated by the people and are clearly bearing fruitful results.

TOTAL QUALITY MANAGEMENT

Effective management for better customer satisfaction and business result through organization performance & efficiency



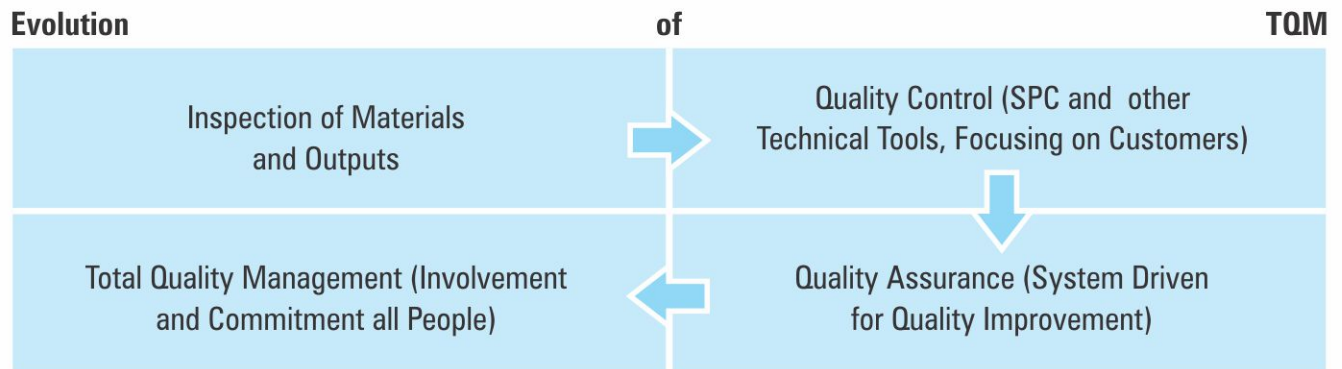
"Great things in Business are never done by one person. They are done by a team of people" Steve Jobs

Dilip Kumar

Head, Technical and projects East West Infosolutions

TQM could be defined as "Total Organization Management focusing on Customers and Business Result through System, Process, Employee and

Techniques". TQM is a Technical and Managerial process with various dimensions; it is a Part of Quality and Productivity, Customer Services, Business result, Cost effectiveness and Internal Efficiency. Organization in any size & capacity applies TQM as a strategy or implement within a limited scope. Implementation of TQM and it's continues Practice, depends on the Strategic planning and involvement of all people in an Organization for long term perspective of Business Goals with radical changes. It is important for sustainability in existing market for completion both in domestic and global. Management commitment and involvement for TQM creates sustainable improvement culture of an organization. TQM is an evolution of quality practices started from inspection to quality assurance with system approach.



The above mentioned evolutions are contributed by many Quality Gurus in various countries starting from Japan.

Contribution of Quality Gurus in TQM

Crosby	Ishikawa	Demming	Taguchi	Shewhart	Feigenbaum	Shigeo Shingo	Ronald Fisher
Zero Defect	Quality Circle	14 Point of Management	Robust Design	Control Chart	Company-Wide-Quality-Control	Toyota Production System	DOE and ANNOVA
Conformance of Requirement, Prevention of Non-Conformance	Cause-Effect Diagram, SPC	To Improve Quality, Productivity and Competitiveness	Noise of Business	Economic Control of Quality of Manufactured Products	Employee and Management Involvement, – Total Quality Control – TQC	Poka-yoke, SMED system, Zero Quality Control and non stock production	Design of Experiment and Analysis of Variance

TQM starts from Quality which also a part of system and strategy that ensures whatever the output produced by the organization, it will be as per the customer demand & delight and desired specifications. In Quality Engineering, there is concept of Off-line and on-line Quality and also Customer's Quality and Engineering Quality based on products. But TQM is a continuous journey through system approach with 3600 approach and involve every individual in the

organization irrespective work specifications and groups. World-wide everybody aware that due its quality, country like Japan, Korea and Taiwan etc. becomes the World manufacturing hub and in-spite of very limited resources.

Template of TQM could be; TCM: Total Customer Management (Commitment), TPM: Total Product Management (Quality), TRM: Total Resource (Human Efficiency / Performance) Management, TOM: Total Organization Management (Leadership), TPE: Total Process Management (Reengineering), TSM: Total Skills Management, TPM: Total Performance Management, TBM: Total Business Management, TCM: Total Cultural Management (Trust Building) and TCM: Total Competency Management (attitude and efficiency of employee).

The main pillars of TQM are Quality & Efficiency, Customer Focus, and Business Result, cost Effective i.e. Wastage Reduction, Process Modification and People Involvement. In selections of Tools & Techniques for improvement, there are various options from organization like Manufacturing, Service sectors with specified productions & Services, category – MSME to large business establishments etc. Every



organization has their specific products and variations in process for desired outputs. For manufacturing sector the purpose of Quality Practice is Reduction in Defects, Re-work, Rejection, customer Return and increase in Productivity for Optimum Utilization of Resources. In TQM, it includes all aspects of your business and all activities. TQM have various pillars but in this article, the discussion focused on TQM perspective and its implementation.

7 Steps of TQM

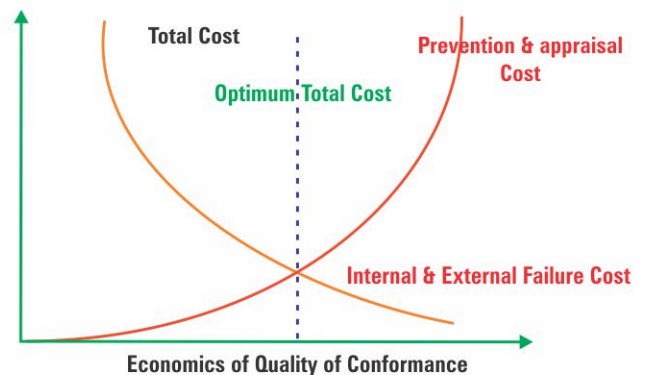


PDCA	Plan	Do	Check	Act	
Six Sigma	Define	Measure	Analyze	Implement	Control

Process of Implementation: Implementation consist of steps and stages as per the applicability of the Organization which could be defined as 1) Understand about the Organization on Existing Output, Manpower, Skills, Training and System with Structured Formats. 2) Start the review and assessment of existing Flow of Operations, Dept. Activities and Core Group Formation and Planning in the Areas of Techniques and Process of

TQM Implementation. 3) Plan and start on **Training** for Creating and Building Competent People on Quality and Responsibility with mutual Trust and Value Engineering & Reduction in Process Loss. 4) **Teams:** Develop Dept-wise QC Teams with Action Plan (PDCA Cycle) of Implementing areas and Cultural Initiatives on People and Motivation, TQM Framework Templates. 5) Collection of Data and Modification of Internal Data and record collection, analysis and preservation System. 6) Develop Group-wise Action Plan and distribution of responsibilities with review system. 6) Start QC activities by People Involvement on Problem solving and connect the Org. Performance and People Performance: On time Completion of Commitment to Customers etc. 7) **New Technical Interventions:** According the Level and Types of Organization. Dept. Objectives and Dept.-wise Quality Policy and Increase in Manpower Involvement. Modifications of Process Flow and New IT Interventions etc. 8) In Manufacturing units start Reduction in Defects and 8 Types of Wastages and Internal Innovation, Research and Knowledge Management Groups. 9) Connect Business Performance with People Performance: Departmental and Organization Scorecard: Performance Reward etc. Organization could follow International Benchmark for Future Road Map for TQM.

Quality Cost: There Quality Cost associated with TQM Project, these are Prevention Cost –Planning, Document, Control, Training and Appraisal Cost –Inspection & Tests, Installation, Calibration, M/c Depreciation, Reports & Rejects, Implementation etc.; another is Internal Failure & Inefficiency Cost which affects the Organization – Scraps, Repair Rework, Design Changes, Defect Failure Analysis, Retests & Re-Inspection, Downgrading, Down Time, Untrained Manpower, Process Delay; External Failure Cost – Complaints, Goodwill, Failures, Services & Replacement, Guarantee & Warranty, Compensation, Recall, Loss of Sales, Service & Commitment Failure, Seconds Sales.



CONCLUSION

In TQM, there are three most important obstacles required to overcome; First – Decision to start by the Top Management, they must take initiative to make a effective System of Competency, Second – Selection of Technical Process of Implementation with Sustainability and Third – Involve, prepare and make it for People oriented. If Management wants to count the success, understand and implement TQM could one of the useful Techniques. At last, TQM is combination of all techniques which could give the desired result and it is effective in any organization by understanding the truest spirit of it.

Impact of Yoga on the Modern Lifestyle Disorders



Ajay Kumar Sehgal

Technology advancement, prosperity and competition in the modern life has contributed to change in the behaviors and functions of individuals in job, activities, fun and diet thus has posed various health issues. The metabolic diseases, joint pains, overweight, obesity, cardiovascular diseases, hypertension have become common among the people irrespective of age

and gender.

Access to comfort provided by the new technologies not only reduced the physical activities but has also exposed to unhealthy food habits and poor postures while performing the various tasks. Emerging new technologies such as the use of internet and virtual communication networks has led to a major challenge that threatens the physical and mental health of individuals.

The change in lifestyle has great impact on health and the following are some of the issues.

Body Mass Index (BMI): Fast food with practically no nutritional value and lack of physical exercise has a direct relation with health. Obesity and cardiovascular problems are quite common in urban societies. Unhealthy lifestyle can be measured by BMI

Lack of sleep: The social, psychological, economical and also addiction to new technologies such as use of mobile phones computers have a clear influence on sleep and thus on mental and physical health.

Behaviour changes: Addiction to unhealthy lifestyle like smoking and drugs lead to cardiovascular disease, asthma, cancer and brain problems etc

Yoga had a great influence on the way of life in India as a holistic science concerned with all aspects of human functioning. This can have a positive effect on tackling the modern Lifestyle change disorders.

It is the science of Yoga which provides a unifying framework by which the issues related to mind and body can be understood and eliminated. As per Yoga, we are unconscious of mental/emotional/perceptual processes which habitually take place.

Yoga provides a systematic method by which we can expand our awareness of these processes and thus begin to gain control over them. Therefore, in a very practical sense, Yoga provides us the tools and techniques through which our conscious awareness can be expanded into the unconscious parts of the mind and make us aware of the patterns and habits which lead to stress. Yoga is the most important technique used by the Indians to cope with the problems related to mind

which lead to stress.

During stress our auto-nervous mechanisms fail to function adequately so as to minimize the impact of stressful stimuli. Yoga has the potential to influence the auto-nervous mechanisms in various ways since it is based on the principle of stimulating one's body and mind and then relaxing it turn by turn that does not allow the stress to build up.

The Yoga provides a life which encompasses the philosophy of Karma Yoga (path of detached action), Jnana Yoga (knowledge of self), Bhakti Yoga (trust in the supreme order) and Raja Yoga (asana, pranayama, meditation, etc.). Practising on this philosophy can bring about a complete transformation of one's personality, on physical, mental, emotional, and spiritual levels which strengthen his stress-coping skills.

Practices like hatha-yoga (i.e., asans/ posture), pranayama (i.e., breathing practices intended to influence vital forces), kriyas (i.e., cleaning process), mudras (i.e., certain internal attitudes) and bandhas (i.e., neuro-muscular locks) are mostly taught as physical practices.

It is believed that human body endocrine system has several glands and the major being:

- **hypothalamus.**
- **pituitary gland.**
- **thyroid.**
- **parathyroids.**
- **adrenal glands.**
- **pineal body.**
- **reproductive glands (which include the ovaries and testes)**
- **pancreas**

The hormones produced by these glands regulate all our body functions. The normalization of the imbalance of hormones makes it possible for our cells to replicate and prosper and thus help condition our body.

If we start practicing yoga we can experience a wide range of benefits. Yoga can help us change our life in the following way regardless of age, background or gender:

Increases flexibility, improves body balance and strength: Yoga will make us strong, flexible, and balanced—not just physically but mentally and emotionally as well. The mind, body and emotions are intimately connected with one another. The practice of yoga stimulates the muscles and tissues and communicates to the mind to build up the confidence of making use of them. This makes us stronger and more flexible, and we are also becoming more stable and open in our way of thinking which helps us feel more balanced and puts us at ease.

Release of Stress and calmness of Mind: The practice of yoga makes us learn how to breathe mindfully helps us release stress and calms the brain. The concentration on our breath drives our body to relax automatically, the muscles soften and the mind starts to calm down. Fewer thoughts are produced at slower rates, helping us clear the excess noise. Having a clear mind helps us to make better decisions, feel centered and calm.

Awareness: Yoga increases body awareness, it reconnects self with body thus helps in strengthening our sense of intuition and inner power. This mind and body connection helps us to realize the effects of body, mind and emotions on each other.

Cultivates Inner Peace, Self-Love and Positive Thinking: The practice yoga cultivates a sense of inner peace and serenity. We start loving ourselves. It does cultivate positive thinking and increases our positive vibration.

Overview of Disinfectant Manufacturer in Indian Scenario



Dr. Thiagarajan Thandavan

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Over five decades ago, Earle H. Spaulding¹ devised a rational approach to disinfection and sterilization of patient care items or equipment. This classification scheme is so clear and logical that it has been retained, refined,

and successfully used by infection control professionals and others when planning methods for disinfection or sterilization.^{2,3,4}

In present global scenario for hemodialysis, there are many researches undergoing to study the disinfectant solution. Those disinfectants are used to disinfect dialyzers, blood tubing and other medical equipment. In my experience in Indian scenario, we get disinfectant from local manufacturers as well as from other countries for reprocessing dialyzer and blood tubing. All imported disinfectant products are clearly labeled with specification and material safety data sheets are available. All imported products are CE approved and the manufacturer obtains proper drug license.

In Indian scenario the local manufacturers are not aware of manufacturing concepts and obtaining basic approval for starting manufacturing disinfectant solution. Indian manufacturers have not clearly understood that only having drug license is not enough to start manufacturing disinfectants. Some manufacturers, after obtaining ISO 9001 certification, believe that it will be enough to start manufacturing disinfectants in India. Manufacturers need to understand that disinfectant solutions need to be used under framed categories of disinfecting patient's consumables like dialyzer. Spaulding believed that the nature of disinfection could be understood more readily if instruments and items for patient care were divided into 3 categories based on the degree of risk of infection involved in the use of the items. The 3 categories he described were: critical (enters sterile tissue and

must be sterile), semicritical (contacts mucous membranes and requires high-level disinfection), and noncritical (comes in contact with intact skin and requires low-level disinfection). Multiple studies in many countries have documented lack of compliance with established guidelines for disinfection and sterilization⁵. Failure to comply with scientifically-based guidelines has led to numerous outbreaks⁵.

Dialyzer and blood tubing comes under critical category but in Indian scenario these are kept under semicritical category. It can be accepted under semicritical category provided disinfectant manufacturers in India follow strict regulation and standard operating procedures for manufacturing disinfectant.

Hospitals, while procuring disinfectants, need to be aware that following documents are obtained :CE/FDA approval, ISO 9001, and Medical devices, transport and storage of the product with Material safety data sheet.

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Strategizing Quality Management Implementation in Manufacturing



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Quality is a buzzword in today's market scenario. It is one such aspect that no manufacturer can ignore. It demonstrates a manufacturer's performance. Nothing explains better about a manufacturer than its methodology of quality management in manufacturing systems and processes which is required to excel in this critical area.

In a manufacturing industry the higher the quality, the more consistent is a customer experience, and the profitability of a business.

Manufacturers, who opt to embed quality deep into their enterprises and do the hard

work of making it a part of their system, enjoy the following benefits over a period of time:

- Reduced manufacturing costs attributable to less material waste
- Greater efficiency of tools and manufacturing equipment
- Greater optimization of skilled workers' time and talent
- Improved supplier quality
- Improved traceability across the entire production process
- Continual reductions in non-compliance

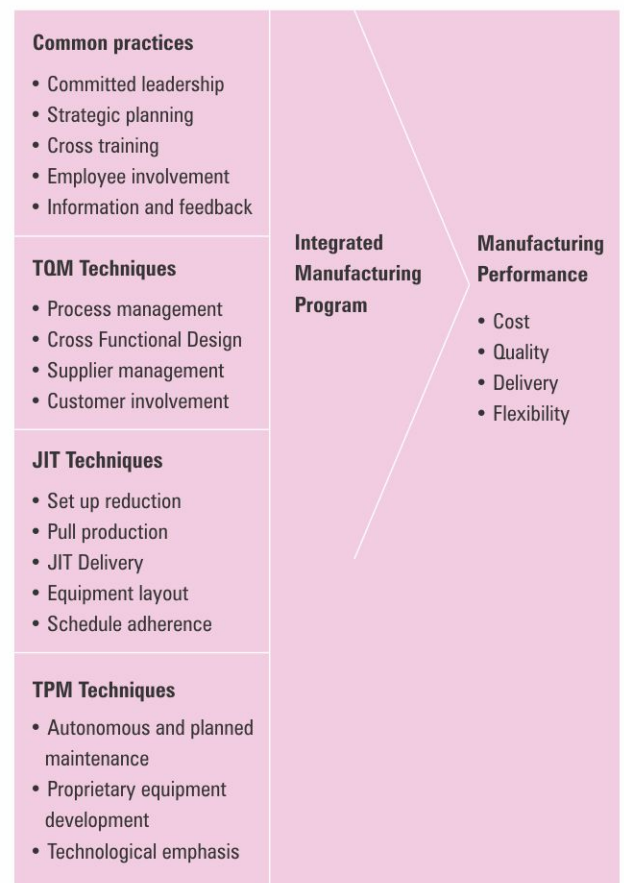
Combining all these measurable gains together to create a unified enterprise, quality

strategy makes any manufacturer significantly more agile, enabling the ability to reconfigure operations, processes and business relationships in real-time.

Strategies for Improving Quality Management

Manufacturers need to adopt a more enterprise-wide approach for quality, not allowing these systems to be in silos which will result in delivering limited effectiveness. Instead, manufacturers should follow process approach and can use the Six Sigma DMAIC (Define, Measure, Analyze, Improve and Control) and lean methodologies to get the most value from their quality management efforts by doing sustainable improvements.

Manufacturers need to go beyond their narrow frame of mindset that is - isolated, non-integrated quality management systems are good enough as this mindset invites an average performance. Therefore, a strong focus on enterprise-wide results is required. Out of many strategies, which manufacturers can use for improving quality management performance, the following five deliver efficient, effective and long term results:



Framework of Integrated Manufacturing

1. Creating and reinforcing a strategic framework of quality that permeates every aspect of a manufacturer's value chain is essential

A unified framework of quality management that integrates common practices TQM, JIT and TPM techniques, increases the efficiency and effectiveness of a manufacturing system. The above Table shows how a suggested framework can be used for defining an integrated manufacturing program that leads to greater manufacturing performance.

2. Supplier quality management objectives need to be defined before procurement and strategic sourcing is undertaken and integrated into incoming inspection, traceability and audits

Manufacturers who make the deliberate decision to invest in supplier quality management from procurement and strategic sourcing which involves supplier selection, lot identification and traceability and supplier audits through fulfillment have greater control over cost of quality and greater visibility into overall manufacturing quality performance. For complex manufacturers who have mixed-mode manufacturing strategies that have a multiplicative effect on supplier breadth and depth, implementing supplier quality management is crucial to their success.

3. Quality Control and compliance departments need to get beyond just reacting to quality management problems and take a much more proactive, strategic approach instead.

Too much focus on reactive processes including final product inspection, documenting problems and failures, and tracking failure and correction metrics can deprive manufacturers of the benefits of a

proactive approach to quality management. It includes greater focus on quality assurance which covers process standardization, visual aids, process control, configuration verification, in-process inspection, Statistical Process Control (SPC), implementing international standards like ISO 9001 and several others.

4. Measurements of quality performance are the baseline of supplier management, production and customer services

Manufacturers who improve the most on the most critical dimensions of quality are using metrics and key performance indicators (KPIs) to evaluate the entire value chain and not just selected functional areas. Supplier rating, production yield, machine down time , machine capability , employee performance and satisfaction rating , customer satisfaction index and sales volume are the important performance indicators. The most valuable metrics which impacts on profitability includes defect rates, cost of rework, warranty expenses, after-sales service costs, opportunity costs and costs of good and bad quality.

5. Quality process control programs need to be based on metrics and KPIs that serve as guard rails to keep quality management on track to meet and exceed customer requirements first

Reducing product variability based on unique customer requirements using Six Sigma's DMAIC methodology. It adheres a manufacturer to the key requirements of conforming to product specifications and meeting customer requirements that matter most, which keeps existing customers intact and attracts new ones through superior quality. Quality process controls need to

Patient Risk Management in Clinical Laboratory



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Introduction to Risk and Risk Management

Risk is defined in ISO 31000 as the effect of uncertainty on objectives, whether positive or negative. For healthcare, risk is generally understood to mean the chance of suffering or encountering harm or loss. So, risk is essentially the potential for harm to occur to a patient or the possibility of an error that can lead to patient harm.

Sources of Laboratory Error:

- Environmental:
 - Temperature
 - Humidity
 - Light intensity
 - Altitude
- Operator:
 - Improper specimen preparation, handling
 - Incorrect test interpretation
 - Failure to follow test system instructions
- Specimen:
 - Bubbles
 - Clots
 - Incorrect tube additive
- Analysis:
 - Calibration factor incorrect

- Mechanical failure

Quality Control

- Advantages
 - QC monitors the end product (result) of the entire test system.
 - QC has target values: if assay recovers the target, then everything is assumed stable (i.e. instrument, reagent, operator, sample).
- Disadvantages
 - When a problem is detected, one must go back and reanalyze patients since the last “good” QC.
 - If results are released, then results may need to be corrected.
- Need to get to fully automated analyzers that eliminate errors upfront
 - Until that time, need a robust QC plan (QCP)

Risk Assessment Information

- Gather information from several sources:
 - Regulatory and accreditation requirements
- Clinical Laboratory Improvement Amendments Test/test system information
 - User's manual, reagent package insert, literature
 - Healthcare and testing site settings
 - Temperature conditions, operator training programs
 - Medical requirements for the test results
- Allowable performance specifications via physicians

Process Map Development:

- Break down all phases of the test or test system into steps, so that weak points can be identified.
- Each step can be analyzed to find potential failure modes that could present significant risk to patients.
- Process can then be further analyzed to see if controls can be put into place to avoid the failures.

Key Process Steps:

- View the pre-analytical, analytical, and post-analytical areas of the laboratory.
- Think about what steps can be taken to reduce potential errors “unrelated” to the actual testing of the sample.
- Once the key process map is created, examine it for places where errors could occur.

Five major areas:

- Samples
- Operator
- Reagents
- Laboratory environment
- Measuring system

Risk Identification

Some areas to consider for weaknesses in the process:

- Testing personnel training and competency
- Reagent/calibrator/parts procurement and storage
- Patient sample acceptability
- System startup
- System calibration
- Loading and testing of patient samples
- Proper device function

- Test result review

Perform the Risk Assessment

- Review the process map, fishbone diagram, manufacturer's instructions, etc.
- Construct a table; see which types of errors are detected and which ones are not.
 - If not detected, it must be included in the QCP.
- For each possible failure, assess the likelihood of that failure occurring and the severity of consequences if it occurs.
 - Do this for each identified failure.
 - Use all of the information gathered in order to make these assessments.

Monitor QCP for Effectiveness

- Verify that the QCP that is put in place actually works
- Continue to monitor errors and control failures.
- If an error occurs:
 - Take the appropriate corrective action.
 - Investigate the cause of the error.
 - Once the cause is understood, evaluate whether any changes need to be made in the QCP.

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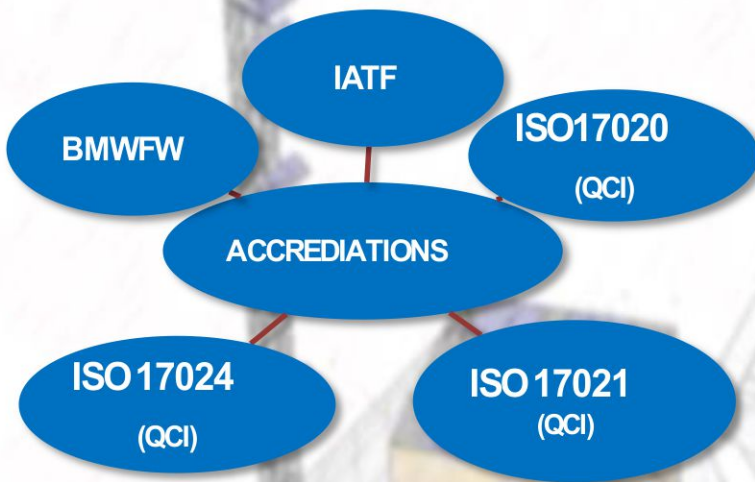
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