Newsletter

Indian Society for Quality

Editorial Message

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Dear Readers,

Greetings from ISQ editorial team !

This being the first Newsletter of 2021 , it must start with a “Welcome” to the new year : Wishing you all a very happy and successful 2021.

For the Quality fraternity the year did not start at a good note. We lost Mr. C. Narasimhan an Ashoka award winner and a veteran Quality professional. Peace be with the departed soul !

Just as we started thinking that pandemic is under control and coming to end we are witnessing a return of Covid 19. The second wave infection rate seems to be higher but the fatality rate , to some relief, is lesser than the first one. We hope to see an end to this in the current year. Vaccination is going on at very fast pace and that should help as well.

We are happy to share with you that we are expanding our editorial team with one more supporting member from each region in an effort to bring more information and knowledge. Please welcome Mr. Sunil Garg from NCR chapter into the editorial team. I am sure his contributions will go a long way in shaping up the Newsletter going forward.

Covid 19 impact on business has been adverse and now the recovery is getting impaired , even if we do not see severe lockdowns like last year.

While pandemic has impacted many established business and their working models permanently, mostly for the better efficiency, it has opened up new business opportunities as well like sanitization equipment , AI, Automation, Remote working and Remote Audits.

In a survey on “Quality Management Trends 2020” pandemic has increased the urgency to manage risk. Also there is increased shift towards digital transformation pertaining to process , people and data. We at ISQ are revisiting our mission, vision and values in the context of current environment. If pandemic permits, we will have our annual Conference with physical presence.

Meanwhile please participate enthusiastically in the events planned during the year ahead.
Keep safe , follow Covid protocol and enjoy reading !

Ved Parkash

News:

TOPS CONVENTION : a contest of Team Oriented Problem Solving / improvement projects

A report on TOPS Convention II — January 8,9 - 2021

TOPS Convention II was conducted virtually on 8-9, January 2021 after the successful completion of TOPS Convention I in October 2020. 23 teams participated in the second contest similar to TOPS Convention I. The programme committee of TOPS Convention headed by Mahesh Hegde as Program Chair, Chandra Mouli, Dr. Gijo, Hemantha Bhatt and Devraj Chattaraj as members congratulate the winners of the contest.

And the winners are

Awards	The team	Project title
Winner	Kumari Puja & Team , Tata Motors Ltd, Jamshedpur	Reduction of Hub Play Warranty Expenses & In-house Rejections through Structured Problem Solving & Design Improvement
1st Runner-up	Anandavel & team, JSW Steel Ltd, Salem	Pass life improvement in NTM Stand#28 while rolling 5.5mm (HC Grades)
1st Runner-up	Sohel Khan & team, CEAT Ltd. Halol	OEE improvement of PCE extrusion line
2nd Runner-up	Vinayak Bhasme & team Tata Motors Ltd, Dharwad	Elimination of Door latch intermittent working issue in Ace Zip Vehicle.
2nd Runner-up	Ashok C & Team, JSW Steel Ltd, Salem	Enhancement of PCI rate in Blast Furnace#1
Special Jury Award	E.Ramesh, Nandhini Rubber Pvt. Ltd, Chennai	Elimination of Inner Dia Flash in Rubber Tube

Award winners of TOPS Convention

Winner –Oct 2020
(IT & Services)
Nandu Pawar & team
Wipro Technology

Winner -TOPS Oct 2020
Prashant Mishra & Team,
Tata Motors, Jamshedpur

1st Runner Up –Oct 2020,
Manas Mallick, & Team
M&M Ltd.

2nd Runner Up, Oct 2020
Sakkiah & Team from
JSW Steel Salem

Winner –Jan 2021
Kumari Puja & Team,
Tata Motors, Jamshedpur

1st Runner Up – Jan 2021
Anandavel & Team
JSW Steel, Salem

1st Runner Up Jan 2021
Sohel Khan & Team,
Ceat Ltd, Halol

2nd Runner Up, Jan 2021
Vinayak Bhasme & Team
Tata Motors Dharwad

2nd Runner Up, Jan 2021
Ashok C & Team
JSW Steel Salem

Indian Society for Quality

We are glad to announce:

Annual conference 2021: **ISQ's flagship event 9 to 11 – December 2021** at **Delhi/ NCR**

ISQ Symposium 2022 : An event to advance quality management by providing a common platform for both academicians & industry practitioners to present the research / implementations through technical & scientific papers of higher order in the field of quality. - **February 2022**.

TOPS Conventions 2021 : Details will be announced soon.

International News:

Quality Sustainability Award 2021 – ISQ has become a partner

It gives us great pleasure to announce that **ISQ has become partner** to the **Quality Sustainability Award 2021** of IAQ**.** Visit www.isqnet.org for regular updates.

Congratulations to Ashok Leyland Ltd. India for being one of the two **winners** in the international IAQ Quality Sustainable award 2020.

Coming Up

ANQ CONGRESS 2021

Theme: Relentless Pursuit of Quality in a VUCA World"

(Volatile, Uncertain, Complex, Ambiguous)

Dates:

20 – 21, October 2021 **Organised by:** Singapore Quality Institute through Zoom

Quality Innovation Award

QIA international committee has given a press release and announced the winners at the international level of Quality Innovation Award.
The press release can be accessed with the link
https://1drv.ms/b/s!AoqLWPzaD1Mzgq9piuRxgYZFUXTlbQ?e=9exW9B

The first year of partnership with QIA and call for the applications from India received 47 responses. One National Winner was selected in 4 categories with meticulous followup of the QIA process.
The final award ceremony was held virtually o 15th April 2021 which will be organized by Serbian Quality Management and Business Excellence Association – SRMEK, Republic of Serbia.

National Winner – Education Sector
Global Indian International School, Qutuhal – The Journey of Curiosity

National Winner – Business (Large)
Tata Power Delhi Distribution Ltd, Gracote: The organic Earthing

National Winner – Circular economy and carbon neutrality
Manufacture of Paver Blocks using Steelmaking Slag-Waste to Wealth, JSW Steel Ltd Salem

Vignettes from Ram:

THE INDIAN MANAGER AND REALITY OF GEMBA

Leadership in a Quality Environment has at least two distinctive features: aligning everyone in the organization to serve the customer, and the habit of grasping reality directly from the gemba, the real place where work happens.

Per se, the idea of being in the trenches is not new. In the 1960s I have witnessed consumer marketing companies putting summer interns and new graduates through the grind. Bata, the shoe company, was known for making its young managers fit shoes to the feet of their showroom customers. Brooke Bond, the tea company, would make the trainee 'work the market' through the dusty terrains of rural India. So would companies that made soaps, or cold balms, or tomato ketchups.

In current times too, some companies, touched by TQM or TPM, *can* boast of strong professional presence on the shop floor. At the customer end, one tyre company, for instance, has its top managers visit their markets one day a quarter and observe and interact with users and dealers. In literature, Shapiro *et al,* in a 2004 article in Harvard Business Review, exhorted managers to 'staple yourself to an order' so as to know its travails as it is processed right until delivery.

However, on the average, the pull of the email and the PowerPoint has only gotten stronger, and gemba-oriented managers remain scarce. Though some manufacturing companies talk of putting young MBAs to work the factory night shift, few actually do. The professional classes seem to be 'protected' from the gemba, as if by design.

In the caste system, artisans and craftsmen were classified in lowly positions. Technical work was disdained. Of the medieval period, the historian Romila Thapar writes, "… mechanical work was a minor sin, and this category of work included the construction of bridges and embankments…" In his monumental work from prison, *Glimpses of World History*, Jawaharlal Nehru refers to the Meiji Restoration period (1867 to 1912) thus: "Japanese students were sent to Europe and America, not to become barristers and the like, as Indians have done in the past, but to become scientists and technical experts." As factories sprang up in the 20th century, the workers were also separated from the managing class by one insuperable factor – they spoke their local languages, while the manager *sahibs* spoke English. This has been our Great Divide. In more recent times, graduates have tended to spurn manufacturing in favour of careers in information technology and high finance.

The alienation of managers from places where work gets done and value is added is apparently not confined to India. Masaaki Imai, in his book *Kaizen*, assails the western manager who "views the workplace as a hostile jungle… His office is a well-fortified outpost where he entrenches himself and shuns communication."

The Japanese concept that managers should seek reality at the gemba – the factory floor - probably arrived in India when Suzuki set up a factory in partnership with the Government to roll out its 800 cc Maruti car in 1983. The triune principles of *gemba* (real place), *gembutsu* (real object) and *genjitsu* (real fact) constituted the foundation of Maruti's management system. Japanese management methods emphasize skilful observation of the workplace, as contrasted from a tourist view. Taiichi Ohno was said to train young men by drawing a circle at a vantage point on the floor with chalk for the trainee to stand inside, observe the process and suggest kaizen ideas

As TQM and TPM spread, the gemba idea took some root, albeit on rocky ground. Nevertheless, Prem Motwani, in his 2021 book ***Becoming World Class***, decries the Indian manager who eschews the shop floor. Even factories, where work can be termed dirty, dangerous, and difficult, can show up production managers in clean shirts, proving the aversion to soiling one's hands.

In Tibetan Buddhism they talk of 'head in the clouds, feet on the ground'. The meaning is that vision and reality need to be connected. In the abstraction ladder of semantics professor Hayakawa, the name of a particular cow (say, Devaki) is the immediate reality while cow as a species is an abstraction, and higher-level abstractions can be created in steps. It is not uncommon for MBAs to be mocked behind their backs for talking in the clouds – meaning that they speak in abstractions that are disconnected from ground reality. On the other hand, there are those who seem to miss the wood for the trees, meaning they are lost in the minutiae and fail to grasp the big picture. The desirable ability is of course to see the vision, the big picture, and being grounded on reality at the same time.

One time I asked someone returning from a company visit as to what he saw as the problems there. Quite seriously he said: "They don't have A3 sized paper." The Japanese have made a science out of planning, executing, and reporting even complex projects in single A3 sheets – which forces them to see the essence of the big picture as well as the data supporting it, at the same time. They can explain in brief a whole storyline, supported by quantitative data as well as facts gleaned from the gemba - an ability that examiners for awards often complain that Indian company officials lack.

So, whether one is identifying customer needs by observing customers in action – as part of Quality Function Deployment or otherwise, or investigating complaints, or understanding the shop floor to detect problems and generate improvement ideas – skilled observations at the gemba are central.

When accurately understood reality is combined with a lofty vision, extraordinary results are only to be expected.

About the author:
Mr. N. Ramanathan is a senior counsellor and advisor of TQM. He is a Mechanical Engineer with Masters from IIM, Ahmedabad(1969) with 50 years of experience in industry, and in teaching and counselling. Ram has received awards internationally for his work, as well as receiving the Dronacharya Award in 2018 by ISQ for his contributions to teaching and counselling on quality. Ram has been associated with twelve successful Deming Prize challenges, and has taught and advised Ashok Leyland, Ceat, SRF, Indus Towers, JSW, Mahindra group of companies, Tata Quality management Services, Tata Steel, and other organizations.

In Memoriam:

C. Narsimhan

A Karm Yogi passed away on 1.1.2021

ISQ had the privilege of honoring Mr. C. Narasimhan with the Ashoka Award during 2005 annual conference.
(Ashoka Award was given to Professionals who lead organizations for sustainable business results with primary focus on quality management and people involvement.)
The citation presented during the award ceremony is given below.

- Mr C Narasimhan did his mechanical engineering and joined Crompton Greaves Limited, Mumbai in the year 1963. For over 3 decades, he served the company in various capacities, specializing in Production Engineering, Quality Management Systems and Total Quality Management. Under his leadership, Crompton Greaves became one of the first few companies to receive ISO 9000 certification and also the first to receive the "Rajiv Gandhi National Quality Award

- Mr Narasimhan joined Sundaram-Clayton Limited, as President in the year 1995. He played a key role for the growth of QC circles in Sundaram-Clayton group of companies, which has resulted in improvement from 50% to 100% participation of employees in QC circles for the last six years and winning many regional, national and international QC awards. He has played a vital role in establishing cluster movement for ACMA to enhance manufacturing excellence of Indian companies. Standardisation of the process by which cluster companies may be developed is a benchmark for the world

- Under his leadership, Sundaram-Clayton won the prestigious Deming Prize and later Japan Quality Medal, the first Indian company to achieve this twin recognition.

Has been actively involved in the professional bodies as detailed below:

- Regional Chairman (Southern Region) of Automotive Component Manufacturers Assn of India - 1998-99, 1999-2000 & 2002-2003
- Chairman of Quality, Productivity sub-committee, CII (Southern Region) (for the year 2001 – 02 and 2003-04)
- For UNIDO to improve SME companies
- For OEMs (Hyundai Motor India Ltd.) to improve the performance of suppliers
-

Presently he is

- Board Member of the TPM Club of India
- Executive Committee member of Automotive Component Manufacturers Association of India.
- Vice Chairman of ACMA Centre for Technology (A division of Automotive Component Manufacturers Assn. of India) for the year 2003-04, 2004-05
- Mentor, ACMA Center for Technology 2005-06
-

He is recipient of the following prestigious awards

- "Firodia Award" for outstanding contribution to Industrial Engineering.
- Fellow of Indian Institution of Industrial Engineering.
- " QCFI Outstanding Contribution Award – 2004"
- NIQR award for 'Outstanding Quality Man of the year 2005"

The Governing Council of ISQ is pleased to honour Mr. C Narasimhan with Ashoka Award for outstanding role in promoting Quality Management practices in Sundaram Clayton and its group of companies.

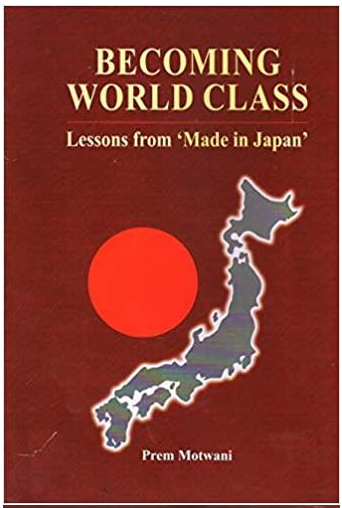
BECOMING WORLD CLASS - Lessons from 'Made in Japan'

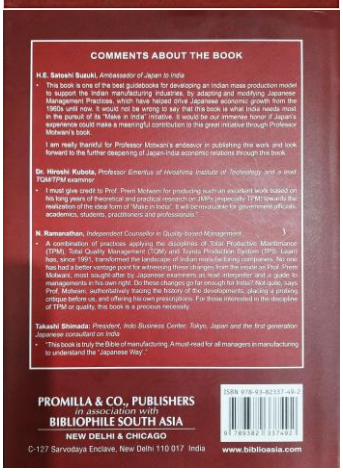
A book by Prof. Prem Motwani which is a treatise on Indian manufacturing and provides answer to some very pertinent questions:

- Why manufacturing in India has failed to take off
- How to create more jobs and lift people out of poverty
- How to make 'Make in India' work
- How to reduce imports from China
- How to change the narrative about India as a manufacturing destination

The book expounds the Japanese manufacturing management model which enjoys tremendous popularity in India for nearly three decades but has not been adopted in its entirety for a variety of socio-cultural reasons such as lack of vision and direction from a long-term perspective, no collective thinking towards a common goal and in the larger interest and deficient business ecosystem due to human resource practices and the silo work culture.

As a part of ISQ's vision – "to be the principal national forum for leaders, professionals, and academics for exchange of knowledge on Quality and Quality-based management", ISQ encourages well written books by Indian authors on quality management which add value in enhancing the competitiveness of Indian industries and quality management.





About the author:

Prof. Prem Motwani retired from the Jawaharlal Nehru University in 2019. After 40 years of service in the Japanese Department, School of language, literature and culture studies. Visited Japan nearly 80 times and spent about 6 years in that country including visiting professorship at the Hiroshima University in 2011-12. Prof. Motwani was conferred the 'Order of the Rising sun", Gold Rays with Neck Ribbon's by the Government of Japan in the 2020 Autumn Decorations in recognition of his contributions to promoting academic exchange and mutual understanding between Japan and India. He has authored many books including four published in Japan.

An interview of Prof. Motwani was conducted by Mr. Snehil Kumar, well known TPM counsellor.

We are unable to publish the excerpts of the interview in this issue of Newsletter because of Covid-19 related hurdles. The interview will be published in the next issue of the Newsletter.

NEED OF MSME IMPROVEMENT IN INDIA

Prashant Mahadar

MSME Scope:-

The role of micro, small and medium enterprises (MSMEs) in the economic and social development of the country is well established.
The MSME sector is a nursery of entrepreneurship, often driven by individual creativity and innovation.
This sector contributes 8 per cent of the country's GDP, 45 per cent of the manufactured output and 40 per cent of its exports.
The MSMEs provide employment to about 60 million persons through over 26 million enterprises producing over six thousand products.

The labour to capital ratio in MSMEs and the overall growth in the MSME sector is much higher than in the large industries. The geographic distribution of the MSMEs is also more even.
Thus, MSMEs are important for the national objectives of growth with equity and inclusion. Cutting across all sections of production and services, MSME sector is truly a strategic asset for the economy of the country.

Current Limitations of MSME's: -

A non-level playing field for MSME Sector, facing the odds like reluctance of banks/financial institutions for providing credit to MSMEs, lack of access to technology, inadequate marketing capabilities, etc., has pushed them towards the edge.
It is envisioned that the sector will have a healthy growth with a large number of enterprises being set up and their graduation by upscaling into small and medium enterprises. This would be accompanied by enhancement of their contribution to the GDP, manufacturing output, employment, and exports.
Presently, the MSME sector is associated, in public perception, with low quality standards. It is envisioned that the MSME sector will be upgraded through modern and new technologies to achieve global quality standards.

External Factors

As MSMEs are an integral part of the overall manufacturing and services value chains, both at the domestic and global level, several factors have a bearing on the growth of the sector. impact on the MSMEs or a specific sub-sector. This is because of the low threshold of tolerance levels, which characterize MSMEs.
The economic externalities which affect the sector are the following:-
(i) Overall domestic and global growth trends;
(ii) Domestic tax regime, particularly advent of Goods and Service Tax and Direct Tax Code;
(iii) Policies governing the credit flow to the sector;
(iv) Trade policies, including free trade agreements with other countries.
(v) Labour policies, particularly multiplicity of labour laws and procedures for compliance of various labour regulations.
(vi) Availability of infrastructure facilities, including power, water, roads, etc.;
(vii) Availability of critical raw material at competitive prices;
(viii) Availability of skilled manpower for manufacturing, services, marketing, etc.

2. The role of technology, as an external factor -

2.1. Information Technology is a thread which runs through the entire sector. Access to information technology enabled services at an affordable cost would bring the MSME sector on a level playing field with bigger players. Various enabling software from designing to customer management and sales management are still beyond the reach of the MSME due to their higher cost. The challenge is to effectively enable trends in cloud computing which (as per Gartner) have reached a maturity level, within the reach of MSME.
2.2. Innovation being the strength of the MSME sector, it would be important to provide financial support to promote innovation and upscale them to withstand global competitions.
2.3. Various productivity improvements through application of industrial engineering concepts as well as technological upgradation of the MSMEs, whether through purchase of new technologies as well as machines, would be another challenge. The creation of a Technology Upgradation Fund enabling the MSME, (which generally suffer from low level of technology) to access world class technology would minimize external risks to tolerable levels.

3. Strengths and Weaknesses of MSME's:-

3.1 The MSME sector is often driven by individual creativity. A major strength of the sector is its potential for greater innovation both in terms of products and processes. An inherent strength of the sector is that these enterprises can be set up with very small amounts of investments and have the locational flexibility to be located anywhere in the country. Their employment potential is higher compared to large enterprises and are presently estimated to employ 6 crore persons.
3.2. Having said so, the sector suffers from a number of constraints and weaknesses. Of the 2.6 crore enterprises, a predominant number is in the unorganized sector, often located in non-conforming urban zones. The units being small in size also have poor access to equity and credit.
3.3. While we have large pool of human resources, this sector continues to face shortage of skilled manpower due to lack of paying capacity and poor managerial capabilities. Another major weakness is absence of marketing channels and brand building capacity.
3.4. Credit availability remains one of the most major concerns. Whereas, the Government of India has taken several steps to increase the lending of this Sector, this remains even now the most difficult problem faced by the MSME.

4.0 Need to Learn

4.1. The strengths and weaknesses provide learning for the future strategy.
Thus the learning agenda is at several levels. There is a need to learn from best of the breed international practices both in technology and marketing. On another level, creation and professionalization of efficient organizational systems even at the lowest level and promoting innovations at grass root level.

5.0. Outline of the Strategy

5.1. Potential Strategies
5.2. The potential strategies would mainly rest on five pillars, as it were, concurrently.
i) Skill development
ii) Markets
iii) Technology
iv) Infrastructure
v) Credit availability

6.0. Analysis and proposed actions: - Need to initiate by Big Organizations (OEM/Tier1)

The OEM/Tier 1 would focus on its efforts for giving financial assistance for Entrepreneurship Development Training Programmes, Skill Development Training Programmes, Entrepreneurship-cum-Skill Development Training Programmes.
Database of the trained persons would be created and linked to Job Exchange to give the benefit of training to the trainees and the industry. Industry would be enabled to access the database of trained manpower.

7.0. **The employment generation**: - is another area where MSMEs play a pivotal role.

Keeping this in view, The OEM/Tier1 would take initiatives for further improving the MSME performance through implementing IT-enabled application tracking system and related data collection. A special effort would be made by creating a web-portal as one-stop shop for multitude of products to facilitate buyer-seller interaction.

Strengthening and empowering the MSME Associations, to be appropriate delivery channel can be a supplemental strategic tool for better targeting of schemes and data collection.
For expanding the outreach of the MSME improvement programmes, the OEM/Tier1 will take a comprehensive review of all the defined programmes. The programmes with overlapping objectives will be merged. In place of implementing a number of small schemes, the OEM/Tier1 will provide focused attention on few large areas to have a discernible impact to the 3 parties (MSME, Tier1 & OEM)
Leveraging the benefit to the approach in a cluster has been recognized as one of the best instruments for effective policy intervention.

Knowledge and Capability

The knowledge and capabilities will be built up through proper documentation, introduction of a Management Information System (MIS) in all programmes, regular training of programme officers and capacity building of MSME Clusters
The MSME in the country need to learn the best of breed manufacturing and marketing practices from across the world. Thus, whether it is a cluster cohesiveness and availability of mentoring and technical advice as prevailing in institutional context of the Small Business.

Implementation Plan:-

The Implementation Plan would cover the following areas:
(i) Strengthening Training Institutions and upscaling training facilitation
(ii) Better infrastructure support to MSMEs and strengthening/creation of existing institutions
(iii) Technological support to MSMEs;

OEM/Tier 1 can approach of Ministry of MSME for the existing Micro and Small Enterprises-Cluster Development Programme would be pursued more vigorously with renewed guidelines to cover all round sustainable growth of the MSMEs.
It will help:- i) To Facilitate start-ups through appropriate schemes for handholding and credit support.
ii) To Provide network of testing facilities to ensure quality standards of MSME products.
iii) To Separate funding window for MSME sector through banking channels by bringing a new scheme;
(iv) Cluster Development Programme would be strengthened. MSME
(v) Encouraging innovations through setting up of large number of business incubators in educational institutions of repute;

The proposed strategy would be met by revising the different Plan schemes of the Industry Experts after conducting evaluation studies of the schemes. Detailed resource requirements will be worked out after studying the report of evaluation studies of different schemes.
The most major cross departmental issue is regarding resource allocation.
The success will be monitored and measured through outcome parameters laid down for each program and their concurrent evaluation. Implementation will be monitored through a robust MIS and grievance redressal mechanism. The existing system of monitoring like periodical review of the schemes by identified Senior Members team of an Organization (OEM/Tier 1), would be made more sharp and objective by making above mentioned MIS online.

Major focus needs to be given on CHANGE IN MIND SET **of supplier management (MEDIUM & SMALL-SCALE INDUSTRIES) in view of** NEED ON TODAY
Indian Government Initiatives for MSME's :-

The cluster development approach can make the industry more competitive. The Cluster Development Scheme of the Ministry of MSME addresses all the sectors of MSME clusters across the country. The awareness about the scheme would be increased among various. stakeholders including State Governments. More clusters will be undertaken for soft and hard interventions including diagnostic study, infrastructure development and Common Facility Centre projects.

The critical factor that drives growth in MSME sector is technology. In the present economic scenario of globalised competitiveness, it is the technological edge that will determine the winners. In view of this reality, the Ministry of MSME is initiating a number of programmes and schemes for technology development of the sector. It has recently introduced 10 innovative schemes under the National Manufacturing Competitiveness Programme (NMCP) covering entire manufacturing in the sector aiming to develop global competitiveness among Indian MSMEs.

These ten schemes are:

i. Marketing Support/Assistance to MSMEs (Bar Code)
ii. Support for Entrepreneurial and Managerial Development of SMEs through Incubators
iii. Enabling Manufacturing Sector to be competitive through Quality Management Standard & Quality Technology Tools (QMS/QTT)
iv. Building Awareness on Intellectual Property Rights (IPR) for MSME
v. Lean Manufacturing Competitiveness Scheme for MSMEs
vi. Mini Tool Rooms (MTR)
vii. Design Clinic Scheme for design expertise to MSMEs Manufacturing sector (DESIGN)
viii. Marketing Assistance & Technology Upgradation Scheme in MSMEs.
ix. Technology and Quality Upgradation Support to MSMEs
x. Promotion of ICT in MSME Manufacturing Sector (ICT – Information & Communication Technology)

These schemes under NMCP would get priority of the Ministry and would provide competitive edge to the MSME units in future.
In addition, the Ministry is also implementing Credit Linked Capital Subsidy Scheme for Technology Upgradation with the aim to facilitating Technology Upgradation of Micro and Small Enterprises by providing 15% capital subsidy on institutional finance availed by them for induction of well-established and improved technology in approved sub-sectors/products.
The schemes of the Ministry to provide financial assistance to MSMEs for participation in domestic and international exhibitions/ trade fairs.

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Senior Management Professional

•A competent professional with **over 26 years** of rich experience in Supply Self Certification Management, Supplier Quality Management, Vendor Management, Product Development, Quality Assurance, Customer relationship Management and Team Management in the Manufacturing sector
•Expertise in managing Supply Chain Management functions involving Strategic Planning, Supplier Quality Assurance, Engineering Support, Product Development, Quality Cost control, Supplier Self Certification etc
•Proficiency in carrying out various activities pertaining to market plan execution, cost control, vendor rating & selection and people management.
•Skilled in leading the **Supplier Development Process** and collaborating with the vendors / suppliers to discuss technical specifications of the materials and assess the performance of the vendors based on QMS, APQP, quality improvement rate and timely delivery.
•Supplier improvement through various aspects like 'Supplier Cluster Program, Meetings with Supplier Top Managements & Supplier Trainings' etc.
•Awarded by Mahindra Automotive for successful Supplier (MSME) Cluster Program
•Lead Auditor in VDA 6.3 & IATF 16949 Systems
•Lead Auditor in SCM Systems
•Insightful experience in implementing cost saving measures to achieve reduction in terms of raw materials, procurement, processing and logistics costs.

Currently working :- As a General Management Supplier Quality Development & Corporate Quality function for IGW, Pune (India)

Building the System for Managing Quality in Software

The Background – Quality in Manufacturing

The history of managing quality in manufacturing in a structured and systematic manner can be traced back to the time of the World War II, if not before. This war caused massive destruction of industrial assets in several nations and compelled them to act innovatively to catch up with the rest of the world.

Japan took a pole position in the quality movement and was instrumental in leveraging concepts and methods such as TQM (Total Quality Management), QC (Quality Circles) and TPM (Total Productive Maintenance). Interestingly, the building blocks for developing these concepts and methods were first introduced to Japan by the western quality management gurus like Deming and Juran.

Later, various manufacturing organizations in different countries across the world adopted several other standards, frameworks, methods, and tools for establishing and upgrading their quality systems and consequently for building and improving quality in manufacturing.

The list of such standards, frameworks, methods, and tools includes the following – ISO 9001, ISO14001, ISO 45001 (OHSAS 18001), DMAIC six sigma, DFSS, sector-specific standards like AS 9100 (aviation, space, and defence) and IATF 16949 (automotive), etc.

Software as a Business Need

As time progressed, use of software in industrial processes gained traction and then increased gradually to come to the level that we see today, where we can experience its pervasiveness and impact so very frequently all around us.

Over time, the hardware and software integration has reached a stage where we have software enabled intelligent manufactured products and product components.

The reasonable success of WFH (work from home) or remote working that organizations have been impelled to use in the World War like scenario we are currently witnessing due to the coronavirus induced global pandemic is a testimony to how far the world has progressed on the industrial and technology front since World War II.

Software, embedded or otherwise, has truly become a key driver of the technology-enabled world we live in. Hence it is a business imperative to ensure flawless creation and delivery of software/IT services to customers.

Comparing Software and Hardware

At this point, it is quite important to understand the major differences and similarities between software work and manufacturing work.

Here are some of the major differences:

- Software creation happens primarily and largely in the mind and not on a machine
- Software can never be tested to the point where it becomes zero defect• Software can be delivered quickly "over the air"
- Software is relatively easier to change than hardware

At the same time, there are some major similarities also as given below:

- Work in both cases requires the use of appropriate technical and engineering activities
- Work in both cases also requires the effective management of technical and engineering activities
- Certainty of delivery of outcomes is a crucial need in both cases
- Assurance of quality and consistency of outcomes delivered is a key ask in both cases

Though there are certain differences, the similarities in software work as compared to manufacturing work has significant commercial importance and hence necessitates the case for managing quality in software in a way that is like the way it is done in manufacturing.

Setting the Context – Quality in Software/IT Services

While designing and establishing the system for managing quality, an organization providing software/IT services should factor in the following key considerations:
• Type of work performed
• Development methodology
• Project execution management model
• Revenue generation model

Organizations providing software/IT services are generally involved in performing one or more of the following types of work:
• Develop new software from scratch and then hand it over to the customer
• Work on existing software and change it in the following manner:
o Major feature additions or enhancements
o Minor enhancements and bug-fixes
o Refactoring and performance tuning
o Migration to another, generally newer, technology platform
• Provide support to business users if they need any help or face any issue while using the software
o Production support – provide fix or work-around if software malfunctions or doesn't work as intended
o User support – resolve query or provide special assistance to users as requested or required
o Operations support – ensure back-end support like back-ups and scheduled jobs processing for smooth operations and enjoyable user experience
For software/IT services organizations involved in developing new software or working on feature additions or enhancements, major and minor, following types of methodologies are commonly used:
• Plan-driven or Waterfall-type
o This is generally suitable for developing software for complex situations or mission-critical applications.
o The quality system for this scenario needs to provide strong project and scope
Change-driven or Agile-type
o This is generally suitable for prototyping and for developing software in a rapid or adaptive manner.
o The quality system for this scenario needs to provide strong risk and change management processes and controls.
• Combined methodology
o This is the methodology that is used most commonly, and work is performed by appropriately combining and leveraging the relevant aspects from both plan-driven as well as change-driven approaches.
Project execution management in software/IT services is primarily done using two models:
• Customer managed
In this case, the customer engages the software/IT services partner from resource augmentation point of view and manages and controls the entire delivery supply chain.
o This necessitates that the quality system provides processes and controls that can ensure resources with required competencies and skills are developed and deployed with the customer for performing the assigned work though high-level oversight is maintained on their performance to identify surprises and address them before they can turn into escalations.

• Partner outsourced
o In this case, the customer "outsources" the work or a part of it to the software/IT services partner and the software/IT services partner is expected to own the delivery of the
outcome for the assigned outsourced work.
o This necessitates that the quality system provides processes and controls that can ensure the software/IT services partner can plan and successfully execute and manage the entire delivery supply chain for the assigned outsourced work.
Revenue in software IT/services is primarily generated using two models:
• Time and material
o In this case, revenue is generated by billing the customer at a defined frequency and invoicing is based on the "hours consumed" at an "agreed person-hour rate".
o This necessitates that the quality system provides process and controls that can ensure that the work assigned is understood with exactness and the performance and progress
of work is regularly communicated to the customer.
• Fixed price
o In this case, revenue is generated by billing the customer at the defined milestones and the invoicing is based on and subject to the achievement of the "specified outcomes".
o This necessitates that the quality system provides process and controls that can ensure the work to be performed is determined and estimated correctly, and its execution against the estimates gets tracked and controlled precisely to ensure completion on time and
within the effort and cost estimates.

Building the System for Managing Quality in Software/IT Services

The system for managing quality in the software/IT services context needs to be designed not only keeping in mind the above key considerations but also ensuring full alignment with the organization's business objectives, execution strategy and core competencies.
In addition, there should be clear market understanding through profile analysis of the existing and prospective customers and segments as also the study of the competitive and regulatory landscape within which the organization needs to operate.
The best bet for establishing a strong quality system in software/IT services context is to leverage the available industry standards, frameworks, methods, and tools.
The list of such standards, frameworks, methods, and tools includes ISO 9001, ISO 27001, ISO 27701, CMMI, and lean six sigma.

The ISO 9001 standard can serve as the fundamental foundational block of the quality system in a software/IT services organization. It helps in establishing the basic hygiene factors like:
• Organization's repository for sharing the standard processes, SOPs, guidelines, checklists, and templates with all employees
• Roles, responsibilities and staffing of roles for taking care of operations as well as process improvement activities in the organization
• Practices like management reviews, internal audits, customer satisfaction surveys, etc. for obtaining a holistic view of the organization's performance

Thereafter, the two standards ISO 27001 (related to information security) and ISO 27701 (which is an extension to ISO 27001 and is related to data privacy) can be integrated into the organizational process fabric in a combined manner.• In the current scenario, where data is the new oil, securing and protecting information and data is crucial for an organization to create and maintain its competitive edge.

• In the outsourcing model especially where the customer's data gets transferred to the software/IT services provider, sometimes may be in a different geography, it is quite important that these aspects are managed in a comprehensive manner.

• These standards provide the necessary controls and compensating controls to ensure and assure information is kept secure and in case there is any personal information, the same is kept private.

The next thing would be to look at the CMMI (Capability Maturity Model Integration) frameworks.

• Though CMMI can be applied to any organizational context, it has found lot of acceptance in the software/IT services organizations.

• For software/IT services organizations which are into providing software development and enhancement work, the "development view" provides a good collection of practices for managing and performing this type of work.

• For software/IT services organizations which are into providing software maintenance and support work, the "services view" provides a good collection of practices for managing and performing this type of work.

• For software/IT services organizations which are into providing software/IT services by engaging contractors and other partners, the "supplier management view" provides a good collection of practices for managing and performing this type of work.

Focus on continual improvement is important for any organization. And this is true for any software/IT organizations also. The lean six sigma method can be quite effectively used for this purpose.

In addition, there are many other standards, frameworks, methods, and tools that various software/IT organizations in different countries across the world have adopted for establishing and upgrading their quality systems and consequently for building and improving quality in software. These can be considered too.

The list of such standards, frameworks, methods, and tools includes the following – ISO 20000, sector-specific standards like HIPPA (healthcare providers), ITIL (IT service management), COBIT (IT governance), etc.

Finally, it is important to go beyond quality and focus on business excellence. This can be achieved by strengthening the enterprise-level framework for business process management and improvement. For the above purpose, software/IT organizations can leverage frameworks like Malcolm Baldrige National Quality Award (USA) and European Foundation for Quality Management (EU).

About the author:

Hemanta Chandra Bhatt is a business excellence and process management professional with over two decades of experience. He is currently working as the Head of Quality and MR at Hughes Systique, a Hughes Group company. In the past he was associated with the business and operational excellence programs at several organizations that operate across various types of businesses – IT services, application development and management outsourcing, software products and engineering services. Hemanta is a Six Sigma Master Black Belt and M. Tech. in Quality from the Indian Statistical Institute. He is also a life member of the Indian Society for Quality and the Quality Council of India. Hemanta is highly passionate about improving business systems and processes. He is also deeply interested in economics, finance and investing.

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