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*We are thankful
to
D. L. SHAH TRUST
for
sponsoring this
Newsletter Issue*

President's Message | Santosh Khadagade



A look at the winners of Deming Prize in last decade clearly shows a strong presence of Indian Companies in the Winners' list indicating that Indian companies have embraced TQM in its true spirit and have set a trend for other companies. NCQM has invited speakers from many of these companies to share their journey for its members through the D L Shah Memorial Lecture series. We are thankful to the D L Shah Trust for supporting NCQM by sponsoring the

lectures every year for last eleven consecutive years.

Deming Prize was established in the year 1951 by Japanese Government in honour of Dr. W. Edwards Deming. It is based on Dr. Deming's teachings and four pillars of Deming's System of Profound Knowledge, viz. *appreciation of system, knowledge of variation, theory of knowledge and understanding of psychology*. For easy implementation, he introduced PDCA (Plan-Do-Check-Act) cycle which is now the basis of all the ISO management system standards. Planning requires assessment of risk and evaluating the need for mitigation plans commensurate to the risk. Should the risk arise, there should not be any delay in action.

In the current situation where the world is passing through a difficult phase, the economy could get into a deep recession. As we all know, after World War II, Japan followed Dr. Deming in letter and spirit, and emerged as the best economy of the world. India would do good to emulate the same once we get over the current crisis. We wish all our members all the best in this situation and I am sure that all of us will contribute our best as an individual and team member.

We had the D L Shah Memorial Lecture last month attended by a house full of quality enthusiasts. The Speaker, Mr. Sandeep Mahajan, Head Quality, L&T ESP Division delivered an excellent lecture on their journey to Deming Prize. NCQM congratulates L&T ESP Division for winning the coveted Deming Prize in 2019. Our members are encouraged to follow the Deming Prize journey and NCQM is all geared up to provide training and advisory support. Inside you will find synopsis of the lecture.

NCQM has always believed that quality discipline has a lot to offer to the education sector. NCQM is encouraging such efforts by providing a platform in the form of BEQET Presidents Award for the past 13 consecutive years. Winners of this year were honoured by the dignitaries at the D L Shah Memorial Lecture. Congratulations to all the winners and others who participated in the award competition.

NCQM will continue to support members in all possible ways. We would be happy to help by providing off line support. You may email queries, quality issues, feedback to me at president@ncqm.com

D. L. SHAH TRUST FOR APPLIED SCIENCE, TECHNOLOGY, ARTS & PHILOSOPHY

Website – www.dlshahtrust.org Email – dlshahtrust@yahoo.co.in

Shri D. L. Shah was a well-known industrialist, philanthropist and a great visionary. Shri Shah made tremendous contributions to the Indian Industry in general, and the Machine Tool Industry in particular.

His company Perfect Machine Tools (PMT) was a pioneer company in the machine tool industry. He was the President of the Indian Machine Tool Manufacturing Association and Machine Tool Marketing Association of India for number of years.

Quality was a passion with Mr. Shah. It was his life's mission and objective to ensure that "Made in India" brand is recognized and respected all over the world. He worked tirelessly and with unwavering determination to achieve this mission. He was one of the founders of the National Centre for Quality Management (NCQM).

During his life time he received several awards and honors, some of which are listed below:

- Ø Gold Insignia & Citation (highest award given to a Foreigner) of Govt. of Poland for promotion of Indo-Polish trade.
- Ø Austrian Award, given by the Austrian Govt., for promoting Austrian business in India.
- Ø Qimpro Platinum Standard Award for Quality Management.
- Ø Shiromani Award, conferred by the Shiromani Institute.
- Ø Bajaj Auto Outstanding Quality Award', bestowed by NCQM, which was presented by Mr. R. Venkataraman, Former President of India.
- Ø The 'Ambassador for Quality in India' Award, of the American Society for Quality Control. This was presented by the U.S. Consul General.
- Ø IMC's 'Juran Quality Medal'. This was presented by the then Prime Minister of India.

His passion for quality and better life for all Indians was so great that he donated all his life's earnings to the D. L. Shah Trust founded in 1994 to ensure that his life's mission is carried forward even after he is no more.

MISSION & OBJECTIVES

The Trust's mission is :

To be known as the leading NGO to promote and propagate the ideas and visions of Late Mr. D. L. Shah, Founder D L Shah Trust for Applied Sciences, Technology, Arts and Philosophy by introducing systems, methods, mechanisms and practices to better the over- all Quality of life in INDIA.

Its objectives in brief are:

- Ø To promote research and other activities related to the preservation, protection and improvement of the ecology and environment.
- Ø To promote and foster the movement of Quality consciousness & Quality awareness as regards products & services provided in India.



DAHYABHAI LALLU BHAI SHAH
1907 - 1999



“A hundred times every day, I remind myself that my inner and outer life depended on the labours of other men, living and dead, and that I must exert myself in order to give in the same measure as I have received and am still receiving”.

Albert Einstein

- Ø To promote the development & use of environment friendly industry process and water management techniques.
- Ø To promote research & development as to safety measures and practices followed in industrial concerns.
- Ø To work towards the introduction of systems, methods, mechanisms and practices to the betterment of the over-all Quality of life in India.
- Ø To make Quality of dealings & business ethics to inspire confidence and faith among all public.
- Ø To make “Made in India” label synonymous with “Quality of Excellence”.

TRUSTEES

The Trustees of the D. L. Shah Trust are :

- Ø Mr. H. K. Taneja – Former Chief Executive of 'Indian Register of Shipping'.
- Ø Mr. Rohan Shah – An eminent advocate, Sr. Partner of Economic Law Practice.
- Ø Mr. Gautam Doshi – Group Managing Director of 'Reliance Anil Dhirubhai Ambani' Group.
- Ø Mr. S. M. Pathania – Former Director General of Police, Maharashtra State.
- Ø Mr. K. K. Nohria – Former Chairman & MD of Crompton Greaves Ltd.
- Ø Mr. Baldev Raj Arora – Former Managing Director of Wyeth Ltd.
- Ø Mr. Gur Sarup – Senior Auditor, International Association of Classification Societies.

RESEARCH

The Trust has set up **D. L. Shah Quality Research Centre** in association with Quality Council of India in New Delhi. The Centre has been operational since March 2013. It is perhaps, the first research centre in the country on the subject of Quality. The current focus of the Centre is on primary Education and primary Healthcare.

QCI-D L SHAH QUALITY AWARD

D. L. Shah Trust has instituted National Awards on Quality in association with the Quality Council of India since 2006, now known as the '**QCI-D.L. Shah Quality Award**'. The First set of awards was given in 2006 to the winners by the then Honorable Rashtrapati of India, Dr. A. P. J. Abdul Kalam. The Award ceremony is held in Delhi every year in a Quality Conclave which is attended by over 700 to 800 Quality professionals.

The Awards recognize successful improvement projects in an organization that have linked quality initiatives to real term financial gains and competitiveness. These awards are given after thorough evaluation by a team of highly qualified and

experienced quality assessors, and a jury comprising of senior officials of QCI and D. L. Shah Trust.

JOURNALS

The Trust publishes a compilation of select case studies. The publication is titled "**Quality Best Practices - Selected QCI-D.L.Shah National Quality Award Winning Case Studies**". Various volumes were printed and distributed.

The Trust also publishes two **e-journals** every fortnight on the 1st and 15th of every month. These are: Quality Info and Safety Info. Anyone interested in these journals can send an e-mail to the Trust at dshahtrust@yahoo.co.in They are also available on the Trust Website : dshahtrust.org

D. L. Shah Trust has published a number of books on Quality and had 60,000 copies of each of these books distributed free-of-charge to organizations, institutions and quality professionals all over India.

D L SHAH TRUST MEMORIAL LECTURE

NCQM organizes the 'D. L. Shah Memorial Lecture' on Quality every year.

Past luminaries who delivered the lectures are as follows :

- March 2019 - “Tata Motors Way to Business Excellence” - Mr. Anil Kumar Sinha, Head Quality, Tata Motors, Commercial Vehicle Business Unit
- February 2018 - “Revolution of Quality & Productivity in Japan” - Dr. Shrinivas Gondhalekar, Director, Kanzen Institute Asia-Pacific Pvt. Ltd.,
- February 2017 - “Creating a Quality Culture in an organisation - The Tata Steel Way” - Mr. Anand Sen, President, TQM & Steel Business Tata Steel Limited
- February 2016 - “Past, Present & Future of Mahindra & Mahindra’s Deming Journey” - Mr. K.G. Shenoy , Sr. Vice President, Manufacturing, S C M & C M E Mahindra & Mahindra Ltd, Tractor & Farm Mechanization Business, Mumbai.
Mr. Rajdeepak Chatterjee (Raja) - Sr. General Manager, Head Business Excellence, Mahindra & Mahindra Ltd, Automotive and Farm Equipment Sectors.
- February 2015 - Quality For “Make in India” Vision 2020 - Padma Bhushan Dr. M. B. Athreya.
- March 2014 - “Deming Journey toward Business Excellence” - Mr. D. Bheemsingh, Sr. V. P. - TQM & Marketing, Rane Brake Lining.
- February 2013 - “A Changing Dimension on Quality - Deming Experience” Dr. N. Ravichandran - CEO, Lucas TVS Ltd.
- January 2012 - “Quality for National Well Being” Dr. Girdhar Gyani - Secretary General -Quality Council of India
- February 2011 - “Journey Towards Excellence” Shri J. Sridharan - President, The Aditya Birla Management Corporation Pvt. Ltd.
- January 2010 - “Managing Quality to Quality Management” Shri Suresh Lulla - M D., Qimpro Consultants Pvt. Ltd.

11th D. L. SHAH Memorial Lecture “Quality First” to “Deming Prize” Journey at L&T’s ESP Business

Organization profile

L&T Electrical & Automation (E&A) is a major business portfolio of USD 15 billion Larsen & Toubro (L&T), an Indian multinational engaged in technology, engineering, construction, manufacturing and financial services. The E&A business comprises two Strategic Business Groups (SBGs) – Products SBG and Projects SBG offering a wide range of low and medium voltage switchgear, electrical systems, marine switchgear, industrial and building automation solutions, energy management systems and metering solutions. Its products and solutions cater to a variety of segments like industries, utilities, infrastructure, building and agriculture. Products SBG comprises Electrical Standard Products (ESP) and Metering & Protection Systems SBUs.

This is the story of the ESP SBU's journey to Deming Prize. ESP SBU contributes 48% of the Sales and 74% of PBIT of E&A business. Its manufacturing facilities are located at Mahape (Navi Mumbai), Ahmednagar and Vadodara. All these Plants are 5S certified and zero liquid discharge.



Pre 2011

ESP SBU is a market leader in LV Switchgear in India. It had already embarked on the Business Excellence Journey. As a testimony to its efforts, it received the Frost & Sullivan - IMEA Platinum award in 2008, RBNQA (Ramakrishna Bajaj National Quality Award) in 2009 and GPNQA (Golden Peacock National Quality Award) in 2010. Each experience enhanced internal processes within their Organization.

As an organization, they were facing fierce competition from MNCs, significant increase in Customer choices and Pressure on product quality. Their own internal evaluation revealed the following issues with their TQM model:

- Imbalanced PQCDMS with higher priority on Productivity
- Quality KPIs were not deployed across the full value chain
- Measurements were reported in %
- Monitoring and review not well structured.

To address the above deficiencies, the Business rewrote their Quality Mission to focus on reducing customer complaints and producing zero defects. **Management empowered them by saying that they were Customers' representatives within the business and should initiate programs to benefit all stakeholders.**



Sandeep D. Mahajan
General Manager – Quality,
Engineering, Strategic Sourcing,
TQM

Larsen & Toubro Limited
Electrical Standard Products,
Electrical & Automation IC

Phase 1 (2011-13)

Their journey to achieve their new quality mission began under the guidance of Mr. Basudev Banerjee. Some of the key initiatives during this phase were:

- Mapping of KPIs across full manufacturing Chain
 - Incoming rejection reduction
 - FTY, RTY Improvement
 - Customer DPM reduction
- Compliance to Procedures
- MET, APQP, CAPA
- Build capability through
 - Training
 - Hiring Experts
- Supplier Quality Programs
- Automation & Poka-yoke
- FMEA
- Innovations
Standard Operating Procedures (SOPs).

To provide the next level of impetus to Quality improvement efforts, Mr Banerjee advised them to learn Daily Work Management (DWM), adopt structured TQM approach and prepare to challenge Deming Prize.

Phase 2 (2013-15)

Their guide for Phase 2 was Mahindra Institute of Quality (MIQ). The focus now shifted to:

- Daily Work Management
- Management Points (MP)- Control Points (CP) Policy deployment
- Creating TQM Champions through PGDQM course of MIQ
- Implementing QC Story - the Japanese Way of Problem Solving
- Priority for Quality as a way of life on Shop Floor
- QC Circle start up
- Strategic Initiative - Roadmap for taking Field Quality Levels to 5 Sigma.

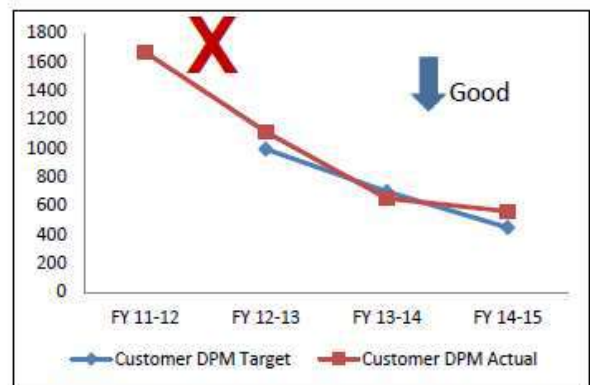
The SBU Head started participating in Monthly Quality reviews which **focused not only on review of performance but also on solving problems**. The Quality Function was reorganised for focused factory-specific QA and QC activities. Information Technology was utilised for timely and accurate reporting of On-Line Daily FTY (First Time Yield on production Line) and Parking of Pre-Delivery Inspection report by Suppliers along with Challan / Invoice in SAP Portal. SOPs were created for DWM implementation. QC Story, Low Cost automation and Poka-Yoke

implemented for getting In-Process Quality First Time Right.

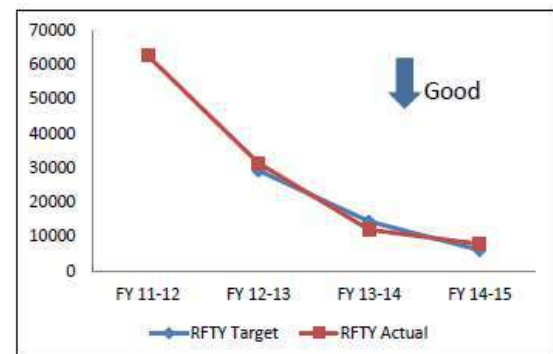
Field Complaints data were captured by Service Engineer in SAP CRM for analysis and prevention. Reliability of products was improved by introducing Robustness test and Electronics was brought under the reliability umbrella. **All known problems across Products were resolved.**

The results were impressive. Customer DPM reduced from 1200 to 600. Incoming Rejection DPM reduced from 30000 to less than 10000.

INCOMING REJECTION



CUSTOMER DPM



There were a few issues still to be ironed out:

- Voice of Customer not being captured
- Mechanism to validate products for robustness was inadequate
- Supply chain is not stable & reliable
- Variability in manufacturing.

The way forward was to engage a Japanese Sensei and focus on quality for 2 years and then challenge Deming Prize in 2017-18.

Phase 3 (2015-17)

They started working under the guidance of Japanese Sensei. **Feedback loops were created across value chain functions to encourage teamwork and involvement.** The New Product Development team and Sales/ Marketing teams were involved. They started carrying out WIN/LOSS analysis and revamped the VOC process. MP-CP and PDCA were deployed organisation-wide to include HR, IT and Finance functions as well.

Complaint Stratification was carried out to define resolution mechanisms. Channel Partners were recognized as important stakeholders and Channel Partner Engagement program was implemented. Reliability testing and audits were further strengthened.

Product lines were graded based on In-process quality DPM to Red, Orange, Green, Green-Green.

Four Student Model Applied To Deployment

		Target Achievement	
		Target Achieved	Target Not Achieved
Process Completion	Process Completed	Student A Process Completed Target Achieved	Student C Process Completed Target not Achieved
	Process not Completed	Student B Process not Completed Target Achieved	Student D Process not Completed Target not Achieved

The concept of T-matrix was introduced. **The objective of T-matrix is to push defect detection as close to where it is created.**

Widespread training was initiated to create awareness about PDCA and MP-CP. A unique feature of the training was Gurukul. **Gurukul was a dexterity school for Operators, especially contract employees, thereby engaging another key contributor to product quality.**



GURUKUL

TQM Diagnosis was carried out by JUSE in Nov 2017 and the report was received in Feb 2018. The next step was to act on the TQM Diagnosis Report with a view to challenge Deming Prize in 2019.

Phase 4 (2018-19)

The policy deployment process was further strengthened by a complete alignment of the organization with business goals. The classic Four Student Model (FSM) was used to analyse weaknesses in policy deployment.

ESP believes that business is about **Win4 – win for Channel Partners, Suppliers, Customers and Employees.** Hence, satisfaction surveys of all these key stakeholders were initiated as part of the VOC process.

Total Productive Maintenance (TPM) was introduced within the TQM umbrella. Quality Circles were established at both permanent and contractual employee levels. This increased the employee participation from 51% in 2017 to 94% in 2018.

Organisation-wide SOPs were created and DWM was deployed across non-manufacturing activities as well. New Cost management technique Material Flow Cost Analysis (MCFA) was implemented. **The DWM process was improved by adding maturity levels. This was appreciated by the Japanese Sensei as a unique feature.**

Channel Partner Engagement program was appreciated as a unique feature by the Japanese audit team. This included Young Leaders Program where training was provided to the children and wife of Channel Partners to handle channel business.

Results & Reward

Results were seen across Customer, Business Goals, New Products, Operations and Employee KPIs. **However, the crowning glory moment came when L&T's ESP business was awarded the Deming Prize in 2019.**

JUSE's key reasons for awarding L&T ESP business were **Improved Customer Satisfaction and Business Performance through Sound Business Planning, Company-wide Systematic Approach, Customer-Oriented Product Development and Participative Management.**

11th D. L. Shah Memorial Lecture Learning Points

Compiled by Mr. B. Banerjee

Summary of learning points of 11th Shree D. L. Shah memorial lecture by Mr. S. D. Mahajan - GM, Quality Engineering, Strategic Sourcing and TQM at EAIC held at Hall of Harmony , Nehru Center, Worli-Mumbai on Saturday 22nd February 2020.

1. Introduction:

Mr. S. D. Mahajan narrated L&T's ESP division's Deming relentless journey over the past seven years leading them to acquiring prestigious Deming Prize. He titled his talk as “Quality First “to “Deming Prize”- Journey at L&T's ESP Business. He structured his talk in three phases.

First Phase was their acquiring IMC-RBNQA which is Indian equivalent of MBNQA of USA under the guidance of Mr. Basudev Banerjee. Decision to pursue Deming Prize towards building organization wide Total Quality Management (TQM) culture was subsequently taken.

It started with getting an overview of Deming Application Prize (DAP), trainings were imparted by Mr. Banerjee at various levels on 7 basic QC tools coupled with Root cause analysis, target oriented technical training (TOTT), 5S, SHE, JH & VM, SPC & FMEA, NGT and revitalization of Quality Circles and Kaizen activities.

Second phase during 2014 to 2016 comprised their TQM journey in collaboration with Mahindra Institute of Quality, Pune. This bolstered TQM philosophy at all locations of ESP.

Third phase during 2017 to 2019 focused on Deming journey in its letter as well as in spirits under the guidance of Japanese Sensei Dr. Shu Yamada which culminated in their receiving Deming Prize in 2019.

Currently they are working under another Japanese Sensei Dr. Kubota particularly in the areas of TPM and TPS.

2. Learning points:

Mr. Mahajan's 100 minutes structured talk was attended by 120 plus quality professionals. This was followed by 20 minutes Question/Answer session coupled with summary of learning points. Highlights on generic as well as company specific learning points are summarized hereunder:

2.1 Normally TPM protagonists advocate PQCDMSM (Productivity, Quality, Cost, Delivery, Safety, Morale or Motivation) theme with Productivity at the top of agenda. In contrast, Deming journey strongly believes in “Quality” first. According to them, once both Product and Service Quality are in place the rest is bound to follow.

2.2 Change of mindset from defect percentage to defects per million (DPM) was another challenge.

Since this was prerequisite of Deming Prize toward customer satisfaction, top management exhibits customer centricity by making it mandatory at all units of ESP.

2.3 As is well known, one of the basic drawbacks of Brain Storming (BS) which is age old popular root cause analysis is lack of quantification of various ideas. This hinders prioritization. In contrast, NGT (Nominal Group Technique), apart from intuition, judgment, feel & experience emphasizes more on quantification through back up data on actual trials, similar problem tackled elsewhere, Google search etc... Mr. Banerjee conducted number of sessions on NGT for various levels of personnel and personally guided technical groups in tackling number of chronic quality problems.

2.4 While NGT helped in prioritization of probable causes, real root cause(s) were found using Why—Verify—Why analysis.

Differential Diagnosis technique popularly known as Kepner—Tregoe or K—T method was another powerful tool which was used as RRCA (relentless root cause analysis) technique to trace root cause off certain major customer complaints.

2.5 Target Oriented Technical Training (TOTT) for fitters, operators, maintenance personnel and similar other operating people (actual doers) was another “Building Block” toward building quality into the product. These programs were conducted mostly by respective departmental heads. Towards standardization, course manuals & videos were developed for each trade.

2.6 Use of T-Matrix helped in detecting defects to their origin. This quick feed helped in defect prevention.

2.7 Training in seven QC tools such as Stratification, Check sheet or Data sheet, Pareto analysis, Ishikawa diagram, Histogram, Control charts and Scatter diagram were taught to supervisors and even to workers (in Hindi/Marathi). This helped in success of number of SGIAs (Small Group Improvement Activities) such as Quality Circles and Kaizen activities.

2.8 They were also exposed to 5S, SHE (safety, health and environment), JH (Jishu Hozen or Autonomous Maintenance) and VM (Visual Management).

Their religious implementation and periodic audit by Mr. Banerjee really helped them in drastic improvement of their Housekeeping. Now all their three ESP units are 5S certified. In fact, Mr. Banerjee's audit popularly known as GMP (Good Manufacturing Practices) Audit included ISO systems as well.

2.9 Mr. Mahajan proudly announced that they have been able to extend the application of seven QC tools and 5S & SGIA concepts to their 700 channel partners. In fact, this was well appreciated by JUSE Assessors.

2.10 Suppliers were graded in 5 fronts and radar chart was developed for all major suppliers. In addition, “Quality Award “was instituted for healthy competition amongst them.

2.11 To improve inherent quality of input materials and subassemblies, apart from guiding them in effective process controls, a Leadership program was organized for a group of 35 young generation of channel partners, who were sons/daughters of loyalists doing business with them for over 30 years. This helped in building long term cordial relationship as well.

2.12 “Gurukul” concept was even extended to “Green –Green” suppliers who willingly adopted “Zero Defect” philosophy.

2.13 Another feather in their cap was NPI% (new product intensity percent) which is percentage of sales from new products developed by their Indian Research Team without any foreign collaboration. This is commendable.

2.14 For in process control, control charts were maintained on all process CTQ (Critical to Quality) parameters which helped operators & supervisors to take appropriate action. This “first time right philosophy” pushed up FTY (First Time Yield) to over 95% for number of products.

2.15 Daily work management (DWM) through MP/CP (Managing points and Checking points) methodology along with structured reviews even at Business Head level provided real boost to productivity as well as quality.

2.16 Though initially the entire quality improvement journey started in Manufacturing, gradually with top management involvement it got extended to Design, Marketing, Sales, Logistics, HR, Administration and all other Service functions. Dr. Yamada's advice was “Follow-Follow-Follow” all validated Systems, SOPs (standard operating procedures) and SOCs (standard operating conditions) particularly on process CTQs like Temperature, Pressure etc.

2.17 Religious implementation of 5S and basics of Jishu Hozen namely Cleaning, Oiling, Tightening and Straightening (COTS) steps helped the organization achieve 85% OEE (overall equipment efficiency) on 7 A category machines.

Dr.Kobota, who is an expert in TPM area is personally spearheading this initiative now and wants ESP to shortly go for TPM Award from JIPM.

2.18 PDCA (Plan- Do-Check-Act) cycle was followed in tackling many improvement projects in QPCDSM areas. In certain cases, this cycle was rotated more than once.

2.19 Voice of Process (Process Capability = 6 Sigma) was compared with Voice of Customer (Tolerance $T = U - L$) on important product quality characteristics which helped them in “Economic Centering” for efficient & effective process control.

2.20 Significant reduction in attrition & absenteeism and hundred percent employees participating in Kaizen or Quality Circles amply demonstrate high level of employee satisfaction.

2.21 Managers and senior supervisors were exposed to various advanced Statistical and Analytical tools like DoE (Design of Experiments), Six Sigma, Simple & Multiple Regression analysis, FMEA (Failure Mode and Effect Analysis),

Tests of Hypotheses, VSM, VE, BM etc. They were made use of by CFTs (Cross Functional Teams) comprising Design, Quality and Production engineers for solving major quality & productivity problems. Similarly, cross functional teams of Service functions like Marketing, HR, Accounts, SCM tackled their respective long pending issues.

2.22 Managers and Supervisors made extensive use of IT services which helped them in agility at their various decision-making process.

2.23 When asked about Cost—Benefit analysis of this noble venture, Mr. Mahajan clarified that their direct cost itself over past five years was about Rs 600 lakhs. Benefits accrued in various fronts. Tangible ones being:

- Drastic reduction in rejections and reworks.
- 90% reduction in customer complaints and product returns.
- Substantial improvement in productivity. As already pointed out OEE on critical machines crossed 85% mark which is the world standard.
- Accidents & incidents came down to one tenth of their previous average.
- Over 98% adherence to on time in full (OTIF) delivery.

Significant cost reduction in Inventory and in SCM (supply chain management) areas. The tangible benefits themselves far outweighed total costs.

Intangible benefits included:

- Improvement in team working
- Improved employee satisfaction level as already pointed out
- A neat and safe work environment
- Cordial relationship with channel partners
- Greater satisfaction level of customers and
- Spread of organization wide quality culture.

2.24 Mr.Mahajan concluded his talk by highlighting ESP's contribution to CSR activities in areas of Education. Environment and Health care sectors.

11th D. L. Shah Memorial Lecture SNAPSHOTS



Mr. Santosh Khadagade, President, NCQM introducing the speaker



Mr. Mahesh Gandhi, Trustee, NCQM welcoming Mr. Sandeep Mahajan



Mr. H. K. Taneja, Trustee, D L Shah Trust and Mr. Sandeep Mahajan garlanding portrait of Shri D. L. Shah L-R Mr. Santosh Khadagade, Mr. Mahesh V. Gandhi and Mr. Khushroo Khambata



Mr. Mahesh V. Gandhi briefing NCQM's activities & achievements to the audience



Mr. H. K. Taneja briefing activities of D. L. Shah Trust to the audience



Mr. Sandeep Mahajan delivering his lecture



A section of the large audience



Question / Answer session in progress



Mr. Taneja presenting a silver plaque to Mr. Sandeep Mahajan L-R Mr. Mahesh Gandhi, Mr. B. Banerjee, Mr. Khushroo Khambata and Mr. Santosh Khadagade



Mr. Aravind Ghaisas, Hon. Secretary, NCQM proposing vote of thanks



Dignitaries on the dais L-R Mr. Santosh Khadagade, Mr. B. Banerjee, Mr. Navin Dedhia, Dr. H. M. Mehta, Mr. Mahesh V. Gandhi, Mr. Sandeep Mahajan, Mr. H. K. Taneja, Mr. Khushroo Khambata, Mr. Ashok Kurup, and Mr. Aravind Ghaisas

14th BEQET AWARD WINNING PROJECTS

1st Prize Winner :

Catalyst in Fulfilling Student Aspirations: An Empowered Freeships and Scholarships Cell

Team Leader: Dr. Usha Mishra

Team Members: Ms. Hemlata Kumar, Ms. Soumya Nichani, Mr. Dattatray Gawde, Mr. Shahid Ansari, Ms. Shagufta Memon

The Freeships & Scholarships Committee of our college over the past 4/5 years had been making good progress in the area of student support through fulfilling their financial requirements. At the behest of the Principal of our Institution and the IQAC team of our institution, the committee was urged to apply for the BEQET Award Competition conducted by the NCQM. The team members then attended the Preparatory Workshop conducted by the NCQM. In the course of this workshop we came to know about the various techniques of presenting our data, the quality control tools that can be highlighted and so on. The workshop proved to be extremely helpful in preparation of our project.

The team then got down to making a detailed application for the competition with timely inputs and guidance from the IQAC team. The application was submitted after due verification and scrutiny by the Principal.

The committee then got down to the task of collection of the data for five years since our project covered five years. The results achievements at end of each year were collated along with data of the various activities conducted such as lectures, seminars, orientations as well as the photographs in order to make the presentation more attractive. A Seven- year trend analysis of the data with all parameters and ratios was meticulously compiled and the same was presented. The Institutional documents which had been recently uploaded for the NAAC – 3rd Cycle Accreditation were used as supporting to authenticate our results achieved.

The team faced a daunting task of fitting in the work done in the entire term of five years in a concise and effective manner and also taking into account the stipulated time given for presentation. Repeated self-reviews of the presentation as well as those by the IQAC and our Principal helped the team to rise up to this challenge and present our project effectively in front of the panel of judges. The team members also learnt to supplement and complement each other's strengths and weaknesses and convert the group's collective energy into a winning project. Data quantification and application of statistical tools to analyse and present data were also some areas focused on by the team.

Their efforts were richly rewarded and recognized by the NCQM by awarding the first position in the BEQET awards for 2019-2020.

The entire project was an extremely fulfilling journey of enrichment and knowledge-enhancement for all the team members. The Freeships & Scholarships Committee of Smt. M.M.P Shah Women's College of Arts And Commerce, Mumbai is grateful for the wonderful experience and opportunity provided by the NCQM. We hope to continue the journey of achieving quality in all areas of our institution.

14th BEQET AWARD WINNERS

1st Prize :

**Smt. Maniben M.P Shah
Women's College of Arts &
Commerce, Matunga, Mumbai**



2nd Prize :

**Dr. B. M. N. College of Home
Science, Matunga, Mumbai**



3rd Prize (Joint Winner) :

**Shri M. D. Shah Mahila College of
Arts & Commerce, Malad, Mumbai**



3rd Prize (Joint Winner) :

**St. John College of Engineering
and Management, Palghar**



2nd Prize Winner : Marching Towards A Green Campus

Team Leader: Ms. Milina Pereira

Team Members: Ms. Sonu Mishra, Mrs. Shilpa Wagh, Mr. Nitin Pawar, Mrs. Amruta Sapre and Prof Mala Pandurang

Introduction:

Global warming has been a universal concern over the decades. The phenomenon has been a threatening dilemma not just because of geographical changes but also due to society's role in behaving irresponsibly and having insensitive practices in everyday life. Research has shown that India today stands fourth amongst the E waste generating nation. Reports by ICAR- Central Marine Fisheries Institute (CMFRI) revealed the highest average concentration of non-biodegradable marine debris (NBMD) found by trawler nets in the fishing grounds off Mumbai at 49.11kg per square kilometer (sq. km). According to Central pollution Control Board of India report released in 2017-18, India consumed 660,787.85 tons of plastic enough to fill 66,079 trucks at 10 tons a truck. This shows the amount of plastic generated in today's highly consumerist society. While the above said are global issues, the solution lies in acting locally and so as a mark of our small contribution the ES committee framed various activities which we shall now present through a project „Marching towards a Green campus“. While working on this project these were the problems listed by committee members.

1. Most of our students hail from traditional background where religion and religious practices mark their day. Therefore without sounding offensive, sensitizing these students was very important.
2. Majority of the students lacked knowledge of how their everyday irresponsible practices towards environment was making an attempt on the society.
3. Increasing use and throw plastic culture in society.
4. Mindless energy consumption.
5. Unethical practices with regards to environment.

Objectives:

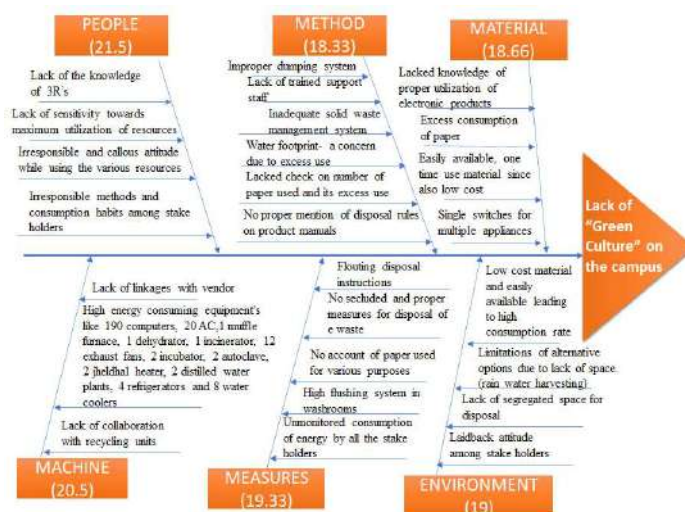
To inculcate "Green Culture" amongst various stakeholders on the campus by

- Ø Ensuring students implement theoretical knowledge into practice
- Ø Sensitizing stake holders about their responsibilities towards environment protection
- Ø Institutionalizing the culture of energy conservation (ENCON) within and off the campus
- Ø Creating appropriate platform to make meaningful contribution towards sustainability

Target Group: BMN College first year students (Total 370 students).

Methodology:

PROBLEM DIAGNOSIS



SMART Analysis



Results:

Benefits achieved:

- Improved student's sensitivity towards environment.
- Observed a positive impact in student's attitude towards recycling activities like E waste collection drive, Plastic collection drive.
- Students were sensitized towards ill effects of human practices and its impact on environment.
- Observed positive change amongst students in terms of recycling papers and reducing paper wastage.
- Increase in number of students voluntarily donating E waste and bringing plastic waste from homes.
- Enhanced students creativity through E waste articles and book binding activities

Tangible benefits:

1. 53.62% increase in books bound
2. 192% increase in e-waste collected
3. 89% reduction in paper

Intangible benefits:

- Increased awareness and sense of responsibility towards the environment amongst the stake holders on the campus
- Inculcated healthy green habits among stake holders on the campus
- Observed positive change in attitude towards the environmental issues on campus
- Developed better ambience on the campus
- Increased sense of pride among stake holders due to their involvement in a social cause

Conclusions:

The aim of the committee to implement green initiatives seems to have been successfully implemented as positive impacts have been observed in green practices. The cost factor on stationery has been reduced considerably. The stake holders have been very vigilant and there is a sense of responsibility with regard to carbon foot printing. The need for sustainability seems to have reached far and wide among the students as there has been an enthusiastic response while participating in green initiatives.

3rd Prize Joint Winner : Enlarging Application of 5S in Departmental and Administrative Office Documentation

Team Leader: Dr. Preety Jain

Team Members: Mrs. Geeta Patil,

Mrs. Manasi Ghule, Ms. Vaidehi Patil

Project description in brief:

“Proper storage is about creating a home for something so that minimal effort is required to find it and put it away” says Ms. Geralin Thomas in her book, [De-cluttering Your Home: Tips, Techniques and Trade Secrets](#).

In the golden Jubilee year of our college, the management graciously decided to give a facelift to the entire college. Accordingly massive renovation work started during the vacations. It was very prominently noticed during this time that, not only the outer infrastructure but even the internal storage spaces like departmental cupboards, library and office storages needed to be revamped. The need for storage revamping was more underlined by complaints by department heads, about delays in getting required information, due to unstructured state of the storages.

Project “**Developing Space Optimisation System**” was launched with the **objective to apply 5-S technique for optimising storage space utilisation, leading to enhanced operating and retrieval efficiency.**

Methodology:

The department heads had complaints related to

- Improper storage of documents
- Shortage of cupboards
- Lack of floor space
- Improper arrangement of files
- Delay in work due to attitudinal problems and unsystematic way of working

IQAC suggested to analyse the problems in a systematic way.

First the problems were deliberated in depth using Nominal Group Technique and cause effect diagram. This resulted in identifying the major areas of concern as shown in the diagram



Fig1 :Step 1 of NGT - Silent Generation of Ideas

It was decided to use the 5S quality tool for optimizing storage systems and improving the operating efficiency. The activities of the project are summarized in the following chart:



Fig 2 :PDCA cycle of the project

The staff was trained and motivated to use the 5S tool. The 5S concept was spread throughout the college campus by distributing the 5S pamphlet. The zeal was evident from the efforts taken by all departments to rearrange their cupboards using 5S principles. Teachers, non-teaching staff and even students got involved in the college make over process. The college management spearheaded the 5S movement. They graciously sanctioned purchase of compactable storage for maintaining documents in college office, repair of 32 old cupboards, refurbishing of labs and active involvement in e-waste drive.

For best and full proof implementation of 5S, IQAC suggested repetitive audits through peer reviews. A review committee consisting of experienced staff members was formed and a review schedule was announced. In the 1st audit cycle review was carried out at various places across the college.

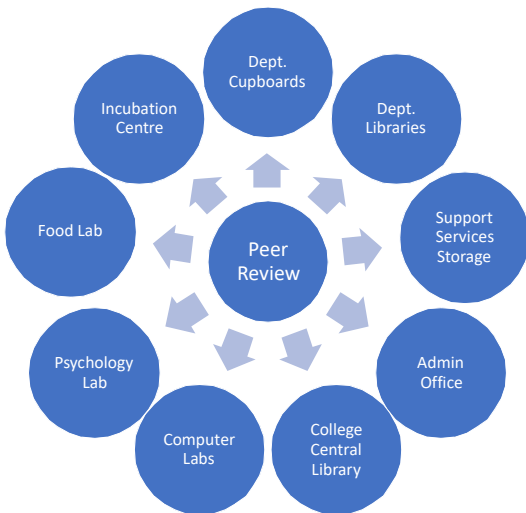


Fig 3 : Peer Review

- **1S** - Sorting
- **2S** - Systematic arrangement
- **3S** - Cleanliness (Shine)
- **4S** - Standardisation using Visual indicators

The **5th S** which represents “Sustain” is implemented by way of periodic reviews to ensure that the arrangement is sustainable.

A collective review report after the 1st cycle was displayed. This report mentioned the score as well as general suggestions given by the committee. Each department was provided with recommendations and remarks. The departments and support services started working on the recommendations so as to improve the storage systems. The schedule for 2nd audit cycle was announced consequently.

Comparative analysis after 1st audit cycle

Old System	System after implementing 5S
Crowding in the lobbies and office	One Compactable storage replacing 32 cupboards Spacious lobby and Office
Cluttered documents at multiple locations	Necessary documents at defined places
Shortage of floor space	Availability of space
Inefficient retrieval	Enhanced retrieval efficiency
Obsolete material stored from many years	Only required material

Benefits:

Tangible benefits

- 32 cupboards from the office could be emptied and available which will be repaired and donated to schools
- 100 Kg Scrap was removed clearing the unnecessary, obsolete material
- More than 50 kg e-waste collected in the first cycle
- Increased availability of working space in office
- Enhanced retrieval efficiency
- Spacious and cleaner ambience

Quantification of Benefits

	Then	Now
Floor Space	Crowding in the lobbies and office	Approx. 500 sq.ft. more space in office
Cupboards in office	38	6
Retrieval time	a week	15 min
Cost of books, stationary & Equipment maintenance	2 lac per year	Expected to reduce by 10%
Dependency on individual	60%	10%

Apart from the above mentioned benefits, the project helped to improve team work and gave systematic approach to problem-solving. It has resulted in an evidently better workplace and work culture and a marked improvement in work efficiency.

3rd Prize Joint Winner : **Supply Chain Management for** **Selling Farm Produce Using Block** **Chain**

Team Leader : Ms. Brinzel Rodrigues

Team Members: Ms. Anita Chaudhari,
Dr. Terence Johnson, Mr. Ahmer Usmani,
Mr. Vivek Solavande

Introduction:

St. John College of Engineering and Management (SJCEM) provides facilities for professional education in the rural and tribal area of Palghar District near Mumbai by offering four year Degree Courses in Civil Engineering, Computer Engineering, Electronics and Telecommunications Engineering, Information Technology and Mechanical Engineering and three year Diploma courses in Civil Engineering, Electronics and Telecommunications Engineering and Mechanical Engineering. SJCEM also offers two year Post Graduate Degree Course – Masters of Management Studies.

One of the missions of our institute is to nurture socially responsible professionals. Keeping up with this mission of ours we have developed this project as part of social outreach to help the farming population in the rural and tribal belt of Palghar and Dahanu. This project is aimed at farmers getting the exact value for their farm produce.

Blockchain is a new solution to the old problem of trust between the users. It provides an architecture to be called as trustless trust. It allows us to trust the outputs of the system without trusting any entity within it. A Blockchain protocol uses Internet for functioning, on a P2P Network of computers who maintains an identical copy of the ledger of transactions, enabling P2P confirm transactions without a middleman through machine consensus. Blockchain is nothing but a file – a shared and public ledger of transactions that records all transactions from the genesis block till today.

Marking the beginning of a new era, Blockchain technology is a revolutionary idea in decentralized information technology. First invented as part of Bitcoin's underlying infrastructure in 2008, its potential application reaches far beyond digital currencies and financial assets. The technology is still in its initial phases and is yet to reach mainstream and enterprise adoption. As the technology gained wider gratitude increased in recent years, there has been a flurry of improvements, new use cases, and applications. The range of potential applications of Blockchain technology is boundless, from digital currencies to Blockchain enabled legal contracts with

the most capable applications yet to be developed. There are billions of products being manufactured everyday globally, through complex supply chains that spread to all parts of the world. Though, there is very little knowledge of how, when and where these products were originated, manufactured, and used through their life cycle. Even before reaching the customer, goods travel through an often huge network of retailers, transporters, storage facilities, and suppliers that participate in production, delivery, and sales, up till now in almost every case these journeys remains hidden to the end users. Supply chains are becoming more complex, more extended, and more global. An incident on one side of the world can stop manufacture or transfer of a service on the other side. The incident may be a natural or man-made cause, the incident may be large or small, but if the supply of a critical component or service is interrupted, the consequences can be severely damaging to companies further along the supply chain, both financially and in terms of status. Supply chain visibility is a crucial business challenge, with most companies having little or no information about their own second and third tier dealers. End to end supply chain transparency and visibility can help managing the flow of products from raw materials to manufacturing goods, which enables new kinds of analytics for operations, risk and sustainability. Companies such as Source map, Hiperos and Aravo are taking initiatives to visualize end-to-end supply chains and provide organizations with valuable knowledge on their third party networks. Though, this revolution of greater transparency in manufacturing supply chains is incremental and mostly intended at the moment.

Transparency allows one to understand the effects and consequences of a result of a product and furthers understanding of eco-friendly environment. However, managing information and control of transparent transactions about every product's supply chain can be a very crucial task. It requires precise data collection and secure data storage to enable a flow of trusted information between entities. Currently, this responsibility is accepted by non-profit, governmental entities or other third parties, through centralized information depositories.

Using blockchain technology a transparent & tamper proof supply chain system for Farmer crop was made on a local platform. The system generates a bill at end which includes the commissioning prices & the total price at which the product was sold by the retailer in the market. This research will focus on secure transaction between farmers and retailers. Farmers should know how much amount they had sold farm produce and how much amounts customer paid for same thing while purchasing from retailer. Farmers will get the

actual value of farm produce. So farmer's conditions can be improved in India.

Aim and Objectives:

- To make the supply chain system tamper proof.
- To build a transparent supply chain system.
- To help the farmer get his fair share of income in the supply chain.
- To eliminate the involvement of middle man in the supply chain system.
- To implement the system as cost efficient.

Research Methodology

The system is developed to make the supply chain system transparent and tamper proof. Currently the existing system is developed for a local platform that is on a LAN network. If any further advanced changes are to be made in the existing system is to make it decentralized on a blockchain platform so that the system is accessible all around the nation. The system can be used to maintain a number of supply chain transactions. It can be used to generate a bill for each product in the supply chain. Furthermore QR code can be added at the retailer end so that customer can remain assured of where his product has come from.

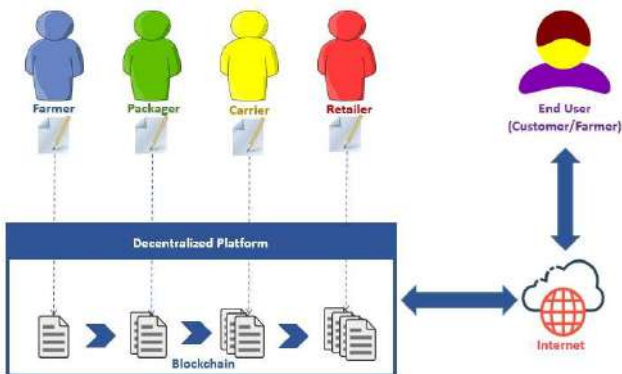


Figure I: Architecture Diagram

Description:

- The Farmer, Packager, Carrier, Retailer are the clients of the supply chain system.
- The decentralized blockchain platform is where the blockchain ledger is stored and the transactions are processed and validated.
- End User may include the Farmer or the customer who can only view all these transactions to make the supply chain system transparent.

The application developed will show the details of transaction of different roles i.e. the client may have the role of a 1. Farmer or 2. Packager or 3. Carrier or 4. Overview displays all the chains in the blockchain.

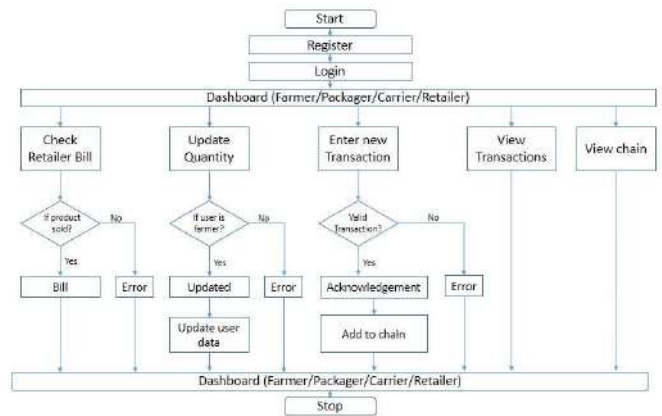


Figure II. Flowchart

Experimental Conditions

The final cost of farm produce sale is known. Bills showing from farmers to retailer for specific purchase, this bill copy will be forwarded to Farmer as well as customer.

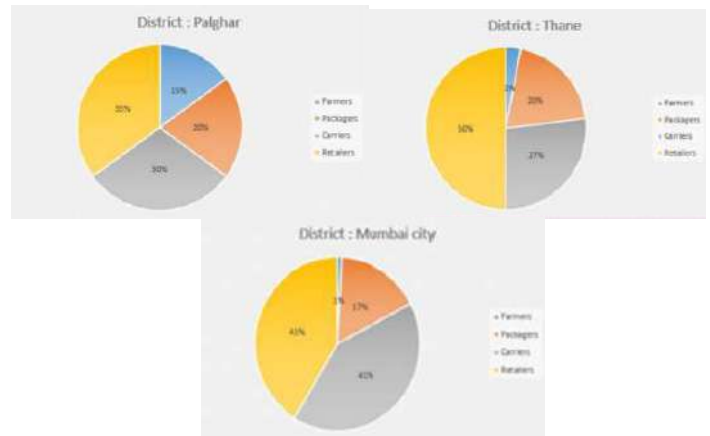


Figure III. Pie charts for total number of clients in different regions.

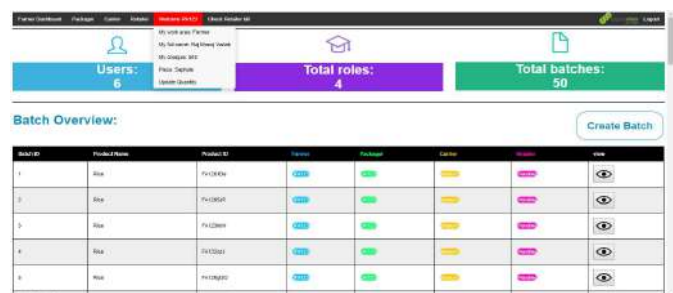


Fig IV: Dashboard UI

Users include the total number of clients registered on the web page which may include either Farmer/Packager/Carrier/Retailer.

Total roles includes the total number of roles for a client; i.e. the client may have the role of a 1. Farmer or 2. Packager or 3. Carrier or 4. Retailer .

Total Batches are the total number of chains added in the blockchain. A single chain includes a Farmer, a Packager, a Carrier and a Retailer. Batch overview

displays all the chains in the blockchain. Every single batch/chain has a unique Product-id. Product name, the usernames of Farmer, Packager, Carrier and Retailer are also displayed. Also the view button displays the details as well as transactions of the Farmer, Packager, Carrier and Retailer in proper format as shown below in fig 02, 03. It also shows the status of the product chain. The green tick means the transaction is complete while red cross indicates the transaction is incomplete or not yet started.

All Users Transactions includes all the transactions the sender hash, Sender username, Receiver username, the Product name with id and quantity and at what price it was sold by the Farmer / Packed by the packager/transported by the Carrier / sold to the customer by the Retailer. The New Transaction helps the Farmer/Packager/Carrier/Retailer to create new Transactions based on the availability of product left with him/her.

Conclusion

Target Benefits: Maximum Profit to farmers for their produce.

Achieved Benefits: In Palghar region we had tried this supply chain and farmers are happy to know the direct cost at which their produce getting sold.

Tangible Benefits: If Farmers gets appropriate selling price for their produce, and in turn reduce the loan burden on farmers.

Intangible Benefits: Maximizing the awareness of this system.

Using blockchain technology a transparent & tamper proof supply chain system for Farmer crop was made on a local platform. The system generates a bill at end which includes the commissioning prices & the total price at which the product was sold by the retailer in the market.

NCQM NEWS

WELCOME ABOARD - NEW MEMBERS

Senior Member

Mr. C. J. Iyer (SM0160)

Mumbai

Individual Member

Mr. Anil D. Joshi (MI0571)

Navi Mumbai

Mr. Atul S. Wagh (MI0572)

Nashik

Mr. Siddhesh A. Gite (MI0573)

Nashik

NCQM Training Calendar

April - June 2020

Dates	Program Title	Objective	Who should attend	Course Fees Rs.
11-12 May 2020	IMS Internal Audit Certification Training	Role and Skills required for effective IMS Audit	Functional Managers and Executives, IMS Coordinators	7500/-
20 May 2020	Root Cause Analysis	Understanding application of RCA Tools and Techniques	Functional Managers , Product and Process Engineers , Quality Managers / Executives	3500
26 May 2020	5S – Work Place Management	Understanding 5S, Implementation and Certification	Production/Operations /Maintenance / Quality Managers and Executives/ Supervisors	3500
29-30 May 2020	Lean Six Sigma	Understanding Lean and Six Sigma, Implementation Road Map	Senior Executives, Dept. Heads, Quality Managers / Executives	3500
05-06 Jun 2020	IATF 16949 Awareness	Understanding Requirements of IATF 16949 and Implementation	Automotive Supply Chain , Dept. Heads, Functional Managers / Executives	7000/-
12 Jun 2020	ISO 45001:2018 – Awareness Training	Purpose and benefits of OH&SMS, Requirements of the new standard	Functional Heads, Functional Managers, SHE & Quality Managers / Executives	3500/-
19-20 Jun 2020	Statistical Process Control	Implementation of SPC Tools & Techniques for process control and improvement	Functional Managers , Product and Process Engineers , Quality Managers / Executive	7000/-
26-27 Jun 2020	TPM Tools & Techniques	Purpose & benefits of TPM Tools & Techniques and Implementation	Production / Operations / Maintenance / Quality Managers and Executives	7000/-