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e-mail : basudev44@gmail.com
basudev@vsnl.com

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N K Bhattacharyya

Editor
e-mail : nirmalb26@hotmail.com

P H Bhawe

Joint Editor
e-mail : phbhawe@gmail.com

Editorial

WORLD QUALITY DAY

Quality is liked by every one in all walks of life. But all are not ready to work for it. We appreciate excellence and like to possess everything good, but are not attentive to produce good work all the time. Expectations have no boundaries. To achieve excellence, we either shy away or avoid to give a priority to it. We do not search our soul to examine why we do so, but find it easy to compromise.

It is not the prerogative of developed countries only to have a quality of life using benefits of knowledge of science and technology. Even in jungles, nomadic tribes struggle to improve their quality of life with their basic common sense whereas in urban metros, so called educated class start compromising with quality of life when one loses zeal for an achievement or is possessed by absolute greed. Quality improvement takes a back seat.

By and large, it has been seen that education imparts an urge in human mind for excellence provided the quality of education teaches him to be a human being to have a cause for living. Otherwise, we do not even maintain the quality of whatever we have. It is easy to neglect, compromise and waste. But hard work for refinement comes from strength of mind which can only be built up with quality of education.

Quality of education comes from the values of the family one belongs to, quality of teachings one gets from the school in the formative years of his life, quality in food and water that one consumes and quality of the surrounding society in which one grows and lives. Pride of a nation comes from the quality of people who impart strength, govern and administer for the welfare of the country.

Quality is not business. But quality business sustains. It earns confidence of people and convenience in transactions. Momentary gains are not sparks of quality. The foundation of quality has to be robust and unshakable by frivolities of a few. Quality can not be sustained unless there is discipline in life. History of the world tells us that whenever a particular nation was most disciplined, its empire left a mark in the history of civilization and that nation could take a pride of it. Abuse of discipline leads to collapse and the then qualities of life remains as stories of by gone eras. Unless discipline is inculcated in all walks of life, a nation can not rise neither the quality of life can improve for all.

Concept of quality originates from the mind of people. It is obvious that the mind has to be healthy and imaginative swimming in the ocean of endless knowledge. Thus quality has no age or boundaries. It undergoes a continuous process of improvements through millennium.

In 1990, United Nations fixed second Thursday of each November, **World Quality Day** for raising awareness of the important contributions quality makes towards a nation and/or organization for its growth and prosperity. It is the day, professionals and organizations celebrate their achievements throughout the world. 12th of November 2009, Quality Forum of Mumbai meets to deliberate on quality of education in an evening get together. Let us hope that seeds of quality will germinate in the minds of all who attend the programme to make India a great nation in the world.

CUSTOMER ORIENTATION

*by G. Natarajan**

Gone are the days when manufacturers could take shelter under “suppliers’ market” and pass on whatever they wanted to or could make, irrespective of whether the goods met the customers’ needs and expectations. A typical example of this approach is a statement attributed to Henry Ford :- “Customer can have car of any colour as long as it is black”.

With the globalization of economy and liberalization of imports, access has opened up to the customer to goods of international standards and quality at affordable prices. There is no longer any need to smuggle goods of foreign origin or buy these from customs notified shops.

This scenario has brought the manufacturers on their knees. They are now forced to find out what the customers want and provide the same – quality and price.

The earlier approach – a reactive approach – of responding to customers only when they complain, has now given way to a pro active approach of actively seeking the trends in customer’s preferences and choices. This may be called **customer focus**.

Although many people feel that Mahatma Gandhi is not relevant in today's political and economic scenario, his statements on customer, which are used merely as wall hangings in shops (and sometimes used to hide defects on the wall?) have now become stark reality, from which there is no escape, if one has to survive in business.

Companies engaged in manufacture and distribution of consumer goods, fast moving as well as white goods, have realized the need for customer focus to the maximum extent, since their business has been subjected to the onslaught of cheap but good quality imported goods. These companies now offer a wide choice of selection for the customer, be it toilet soaps, color or perfume, shampoos to suit different types of hair, televisions or refrigerators with a wide choice of features including payment facilities.

Similarly organizations in the service sector such as banks or air lines or telecommunications have changed the entire scenario to such an extent that it is now a pleasure to deal with many of the private sector banks, travel by the private air lines or avail of the comforts of the electronic gadgets provided by the telecom companies.

Customers, in general, are not very communicative. They rarely express their needs and expectations of their own.

Here is a story of a company engaged in making chocolates and biscuits, deciding to introduce biscuits for dogs. Extensive advertising campaigns were made showing dogs with bright eyes and lustrous flowing hair after eating the biscuits made by this company. After the product was launched, the sales graph went soaring high for about six months and thereafter it had a nosedive.

The Managing Director who had taken a keen interest in the project was so rudely shocked by the negative results that he appointed a consultant to study the whole project and report in a month's time. After one month, the consultant called the MD over phone to say that his study is over and he would like to meet the MD. The MD kept all his other engagements aside and called the consultant right away. At the appointed time, when the consultant entered the MD's cabin, the MD was surprised to see the consultant without any fat reports. The consultant smilingly said, “Sir, I have a one line report on the debacle – **“Dogs did not like the biscuits”**”.

Although a story, this illustration drives home the need to meet the potential customer to assess his requirements and you can not take him granted.

It is therefore left to the manufacturers, to actively approach and persuade the customers to talk about their preferences. Persons who design and produce the goods in an organization are far away from the customers who are expected to use these goods and hence, many times, products introduced without proper assessment of the customer’s needs and expectations, have to be withdrawn or modified.

A well structured questionnaire and a knowledgeable field staff for survey are the keys to elicit appropriate response from the customer and use this response to design the product or service.

The concept of customer orientation is not restricted to the external customers, customers who buy the products or services; it is also applicable to internal customers within an organization wherein one department is the customer of the other department such as marketing is the customer of design and production departments, production department is the customer of the inputs given by purchase department and so on.

While the marketing personnel may do all in their capacity to woo and retain customers, their efforts need continuous and transparent support from key functions viz. Production and Quality Assurance.

Production pressures must not cloud the prime objective of giving the customer what has been promised or agreed to by the organization. Phil Crosby's in his book – “Quality Is Free” - sums up this issue as – **“You have no mercy on the people who supply the things you buy; why do you expect your customers to treat you differently ?”**

Absence of customer complaints or repeat orders cannot be considered as evidence of customer satisfaction. Some organizations have the practice of the Chief Executive. (sometimes accompanied by key personnel from Manufacturing and Quality Assurance) meeting customers at regular intervals with the objective of getting customer's assessment of the supplier organization's performance of its positive as well as negative aspects.

The proactive approach to customer focus requires an intimate knowledge of the customer's business environment.

Supplier organization needs to look upon itself not as a product provider, but as a solution provider to the customer and this calls for high level of technical skill related to the customer's business, on the part of the concerned supplier's representatives. Some organizations have separated routine sales from business diversification to prevent the technical personnel from being burdened with routine sales target achievement, but concentrate on understanding customer's plans better and give focused inputs to design department, so that the instances of rejection at the customer's validation stage, and need to go back to the drawing board again are minimized.

**G Natarajan (Consultant – QMS / EMs,
Indofil Chemicals Company, Thane.)*



FAILURE MODE & EFFECT ANALYSIS

“Failure Analysis Beats Murphy's Law”
Mechanical Engineering, September 1993

What is Failure Mode & Effect Analysis?

Failure Modes and Effects Analysis (FMEA) is a methodology for analyzing potential reliability problems early in the development cycle where it is easier to take actions to overcome these issues, thereby enhancing reliability through design. FMEA is used to identify potential failure modes, determine their effect on the operation of the product, and identify actions to mitigate the failures. It is an analytical technique (*a paper test*) that combines the technology and experience of people in identifying foreseeable failure modes of a product or process and planning for its elimination. In short it is to :

- Recognize and evaluate the potential failures
- Rank failure according to relative impact
- Identify the actions to eliminate or reduce above and Document it

Purpose of FEMA

- To anticipate causes of failure, and prevent that happening
- To provide guidance for setting up a process in a certain manner

When do we use FMEA?

When :

- ✓ A new product or process is being initiated (at the beginning of the cycle).

- ✓ Changes are made to the operating conditions for which the product or process is expected to function in.
- ✓ A change is made either to the product or process design.
- ✓ New regulations are instituted.
- ✓ Customer feedback indicates problems in the product or process

Types of FMEA

There are several types of FMEAs, some are used much more often than others. FMEAs should always be done whenever failures would mean potential harm or injury to the user of the end item being designed. The types of FMEA are:

- System – focuses on global system functions
- Design – focuses on components and subsystems
- Process – focuses on manufacturing and assembly processes
- Service – focuses on service functions
- Software – focuses on software functions

FMEA Procedure

1. Describe the product/process and its function. An understanding of the product or process under consideration is important to have it clearly articulated.
2. Create a Block Diagram of the product or process showing major components or steps of process as blocks connected together by lines that indicate how the components or steps are related.

3. Use the diagram prepared above to begin listing items or functions. If items are components, list them in a logical manner under their subsystem/assembly based on the block diagram.
4. Identify Failure Modes. A failure mode is defined as the manner in which a component, system, subsystem, process, etc. could potentially fail to meet the design intent. Examples of potential failure modes include :
 - Corrosion
 - Electrical short or open
 - Torque fatigue
 - Deformation
 - Cracking
5. A failure mode in one component can serve as the cause of a failure mode in another component. Each failure should be listed in technical terms.
6. Describe the effects of those failure modes. For each failure mode identified, the engineer should determine what the ultimate effect will be. A failure effect is defined as the result of a failure mode on the function of the product/process as perceived by the customer. Examples of failure effects include:
 - Injury to the user
 - Inoperability of the product or process
 - Improper appearance of the product or process
 - Degraded performance
 - Noise
7. Identify the causes for each failure mode. A failure cause is defined as a design weakness that may result in a failure. Examples of potential causes include:
 - Improper torque applied
 - Improper operating conditions
 - Contamination
 - Erroneous algorithms
 - Improper alignment
 - Excessive loading
 - Excessive voltage
8. Enter the Probability factor. A numerical weightage should be assigned to each cause that indicates how likely that cause is (probability of the cause occurring).
9. Identify Current Controls (design or process). Current Controls (design or process) are the mechanisms that prevent the cause of the failure mode from occurring or which detect the failure before it reaches the Customer. Each of these controls should be assessed to determine how well it is expected to identify or detect failure modes.
10. Determine the likelihood of Detection. Detection is an assessment of the likelihood that the Current Controls (design and process) will detect the Cause of the Failure Mode or the Failure Mode itself will prevent it from reaching the Customer.
11. Review Risk Priority Numbers (RPN). The Risk Priority Number is a mathematical product of the numerical Severity, Probability, and Detection ratings:

$$RPN = (Severity) \times (Probability) \times (Detection)$$
 The RPN is used to prioritize items that require additional quality planning or action.
12. Determine Recommended Action(s) to address potential failures that have a high RPN. These actions could include specific inspection, testing or quality procedures; selection of different components or materials; de-rating; limiting environmental stresses or operating range; redesign of the item to avoid the failure mode; monitoring mechanisms; performing preventative maintenance; and inclusion of back-up systems or redundancy.
13. Assign Responsibility and a Target Completion Date for these actions. This makes responsibility clear-cut and facilitates tracking.
14. Indicate Actions Taken. After these actions have been taken, re-assess the severity, probability and detection and review the revised RPN's. Are any further actions required?
15. Update the FMEA as the design or process changes, the assessment changes or new information becomes known.

Benefits of FMEA

- Improve product/process reliability and quality
- Increase customer satisfaction
- Early identification and elimination of potential product/process failure modes
- Prioritize product/process deficiencies
- Capture engineering/organization knowledge
- Emphasizes problem prevention
- Documents risk and actions taken to reduce risk
- Provide focus for improved testing and development
- Minimizes late changes and associated cost
- Catalyst for teamwork and idea exchange between functions





Dr. Avinash Kulkarni

Interview

Dr. Avinash Kulkarni, Chairman
M/S LITEX ELECTRICALS & M/S ARKLITE, PUNE

Interviewed by **P. H. Bhawe,**
Editor – Quality Quest

About Dr. Kulkarni : Dr. Avinash Kulkarni is a pioneer in the field of metal halide and specialty lamps. He is a chairman of 2 companies - M/s LITEX Electricals and M/s ARKLITE, Pune and a founder director of Lite Infra red systems.

Dr. Avinash Kulkarni is a current President of ISLE (Indian Society of Lighting Engineers) for a 4 year term from 2007 to 2011. He has also made immense contributions earlier to ELCOMA (Electrical Lamps and Component Manufacturers' Association) in a 2 years term as President.

Dr. Avinash Kulkarni graciously agreed for an interview to 'QUALITY QUEST' at Deccan Gymkhana Club; Pune.

QQ – Dr. Kulkarni; You have been a graduate in Metallurgy from the prestigious IIT Mumbai and later went to USA. There you worked for several years and had a bright career and comfortable life. Tell us what prompted you to come back.

Dr. Kulkarni – I graduated in 1963 from IIT, and worked in MN Dastoor for 2 years. I left for States to pursue my MS and later completed my Ph D from Pennsylvania University, Philadelphia. I worked in Westinghouse lighting division as a senior research engineer for 8 years where I had 5 research patents.

Around early eighties, I felt that I must do something challenging and come out of my zone of comfort. Entrepreneurship in India was thought by me as a good challenge to take up. So I returned to India in 1979.

QQ – Was it a smooth sailing in India?

Dr. Kulkarni – Not totally!

I came as a pool officer under the Govt of India scheme to attract overseas Indian talent. Then I went through trials and tribulations usually faced at the time by all new entrepreneurs. Conditions today are more conducive to establish a business.

QQ – Your happiest moments in this journey?

Dr. Kulkarni – In Sept 1983, I was conferred the Distinguished Alumni Award by IIT Bombay. Also, around the same time, I received the first President of India Entrepreneurship Award! While I have been the first generation entrepreneur in my family, I am very happy that my younger brother has also emulated my example.

QQ – We understand that you have a number of R&D inventions to your credit.

Dr. Kulkarni – More than 20 patents till date. I am happy to state that we are a preferred name today as a quality producer of Metal Halide lamps, quartz glass germicidal lamps and other specialty lamps.

QQ – Any threats?

Dr. Kulkarni – Of course! The Chinese imports!

We are on our toes all the time to continuously improve efficiency and reduce costs. We take it as a blessing in disguise!!

QQ – What are the future plans?

Dr. Kulkarni – We have quite a few new products on the anvil.

I do not mind sharing with you that we will shortly introduce new laser pumping lamps as well as systems such as Sun Simulators for color fading studies.

QQ – You have some innovative plans for ISLE which you will be heading for 2 more years?

Dr. Kulkarni – Yes.

1) We propose to start web based training courses for lighting engineers at 2 levels O and A. This will bridge a big gap between formal qualifications and desired skills in the industry.

2) We are also rejuvenating the ISLE branches and support them to ensure that each branch is able to organize at least one major program every year. And last but not the least, I want to have more synergy amongst the professional organizations in the field.

QQ – Thank you Dr. Kulkarni. Quality Forum is sure that under your dynamic leadership, both your business units as well as the ISLE will continue on their journey for excellence! We particularly look forward to future joint activities with ISLE and QF for promotion of quality in industry and public life.



MOTIVATION TO IMPROVE QUALITY : A VIEW

by *N. K. Bhattacharyya**

Every human being evolves his own standard and tries to impose it to members of his family. Concept of law and order is similar in nature. Governments enact laws and the civil society is supposed to follow the same. Industrial enterprises set standards, production schedule, cost limitations etc. It is the responsibility of the employees to keep up the standards. Frederick W Taylor in his system of "Scientific Management" adhered to same rule applied to workers' productivity to manage methods of work by "Science, not rule of thumb".

An average worker lacks education and expertise to make decisions on matters of technology. Even a Supervisor or Foreman has restrictions to make any change. "Improvement" is severely restricted, rather limited in the hands of a few rulers in power, the most trusted henchmen accustomed to say "Yes-Sir". The fear of risk and unforeseen consequences arrests any progressive improvement. The last word on improvement is not with their proficient managers or specialist technocrats, but with those who fear to lose the power to rule. Here the Taylor's philosophy does not fit into the system as working class lacks competence on technological matters.

Imaginative power to generate ideas for improvements is not the prerogative of only the hierarchy. Jurisdiction of operational boundaries does not shutoff human creativity. There are cases where frustrated employees demonstrated spectacular achievements in new enterprise which were rejected by their former employer. Creative capacity is a source of energy if harnessed successfully might pay handsome dividend to compensate effort and risk involved.

Japanese Quality Circle(QC) system is a demonstration of potentialities inherent in creative ideas of employees. It is a voluntarily formed group who trains fellow workers how to study and solve quality problems undertaking solutions of several actual projects per year.

The movement has given a fantastic growth of five million memberships to QC in a decade, solving on average three projects per year, and an estimated number of projects completed in a decade is over five million saving about \$5000 per project. Besides, it has given experience to deal with problems and arrive at solutions for problems of tomorrow. However, following broad and basic principles vis-a vis work culture of the working people need consideration and careful examination.

On principle, managers, union, and employees must agree to utilize creativity of work force as a means of making improvements in company performance. But the concept can not be practiced universally without understanding Japanese work culture. In other countries, employees' unions interfere with management prerogatives and create obstacles even more severely without having any responsibility for improving company performance whereas Japanese unions accept considerable responsibility.

Both supervisors and employees must be trained in the techniques of quality management. Japanese took it seriously and started it at the top of management and then worked it down. In other countries, only quality specialists receive quality management training. Though many countries have good training techniques, texts etc., problems arise if training is not imparted up down the line and training is not given within working hours.

Quality improvement programmes have to be specially designed to fit into the national work culture. It has to be initially designed to yield results making it compatible with traditional work culture and gradually upgraded for wider acceptability and intense performance orientation. Instead of making it random individual participation, skirting around union or supervisor hierarchy, it can be of short durations by rotation up down the line and gradually raising its standard eliminating incapable and unwilling participants. The team work always gives better performance.

Japanese started Quality Circles at the outset devoted solely to quality problems. It was gradually understood that the approach is harnessing the energy and creativity of work force. Once this was grasped, QC Circles later on started with non-QC problems. It became such an extensive programme, Japanese iron and steel industry coined a new name to reflect universal nature of this employee team effort ~ SELF MOTIVATION.

Training of work force is essential for quality and productivity. Solutions can be found other way around. Try one for one work in one department. Make it a success. It may be an impetus for other departments for other functions and the process leads to a point that the entire organization- wide solution emerges.

**N. K. Bhattacharyya, IDSE (Rtd.)*



WORLD QUALITY DAY

The World Quality Day was initiated by the Quality Organizations of Europe (EOQ), USA (ASQC) and Japan (JUSE) in 1989 and was appointed to be the second Thursday of November every year.

United Nations introduced World Quality Day in 1990 to increase worldwide awareness of the important contributions that quality makes towards a nation or an organisation for its growth and prosperity.

World Quality Day is also a chance for quality professionals and organisations around the world to celebrate how quality approaches have helped improve their business, to promote achievements to stakeholders and raise the awareness of the key role the quality plays in organisational success.

How can your organisation benefit?

World Quality Day is not just a day, but a process. Quality Forum encourages organisations to work towards the day itself in November. For many organisations this means embarking on some kind of project or event which may include :

- Using the day as a focal point for quality related projects, such as implementing an improvement project or achieving system certification.
- Communicating recent improvements and innovations to customers, staff and suppliers.
- Educating staff on quality approaches through workshops and events.
- Holding events on World Quality Day to celebrate successes.

The term quality is everywhere, in all aspects of life. For organisations, however, deploying quality approaches is a prerequisite for creating a sustainable business.

Quality approaches can benefit your organisation in many ways. It can :

- Improve customer satisfaction
- Reduce costs and improve profitability (see our recent YouGov survey for more information)
- Support improvement and innovation
- Help to identify and manage risk
- Ensure corporate care and responsibility

A survey was commissioned by the British Quality Foundation (BQF) and the Chartered Quality Institute (CQI) who examined. All figures are from YouGov Plc. and total sample size of 2,597 UK employees. Fieldwork was undertaken between 24th and 27th October 2008 and was carried out online. The figures weighted are representative of the UK workforce.

- 53 per cent of UK's workers are wasting up to 10 per cent of their time on mistakes

- Only 22 per cent of employees believe their organisations deliver what customers want every time
- Only 15 per cent of employees believe their organisations deliver on time, every time
- 38 per cent of employees say their organisations do not measure the cost of mistakes

The survey, which sampled over 2500 employees of all levels from a range of business sectors, also found :

- Only 39 per cent of respondents claimed performance improvement was very important to their organisation
- 81 per cent of managers claimed customer satisfaction was very important, compared to only 67 per cent of non management
- 52 per cent of organisations with 1000 + employees measured the amount of mistakes made, compared to only 30 per cent of organisations with less than 10 people
- Only 35 per cent of employees claimed that suppliers and partners consistently delivered what they needed
- 33 per cent of employees say their work is slowed down by mistakes and bottlenecks
- Companies with recognised quality systems in place perform significantly better in all areas - including error levels, customer service, internal communications, business improvement, risk management and waste reduction
- 53 per cent of UK's workers are wasting up to 10 per cent of their time on mistakes
- Only 22 per cent of employees believe their organisations deliver what customers want every time
- Only 15 per cent of employees believe their organisations deliver on time, every time
- 38 per cent of employees say their organisations do not measure the cost of mistakes

In India where we shall be if such a survey to carried out? ■ ■

Kochi Centre Celebrates World Health Day

Quality Forum, Kochi Centre in Association with Heart Care Foundation, Kochi and Medilab, Kochi observed World Health Day on 7th April 2009. A walkathon was organized at the Jawaharlal Nehru International Stadium with participation of around 200 health conscious walkers. Cine star Kunjacko Boban flagged off the walkathon. This was followed by a health awareness program. Dr. Jose Chacko Periyappuram, heart transplant surgeon and the President of Quality Forum, Kochi Centre gave a brief talk on the importance of walking and other aerobic exercises. He stressed that a life without exercise will be more prone to heart attacks. The risk is equivalent to cigarette smoking for heart attacks. Kunjacko Boban and T.A. Varkey, Secretary, Quality Forum and Director, Medilab addressed the gathering. Johnson and Johnson medical division, Mathewsons, Kochi and Medilab jointly sponsored the event.

SEMINAR IN MURBAD - 12th SEPTEMBER 2009



1. Dr. Ashok Pendse - Guest of Honour - Member - Planning Commission and Member - Forum of Regulators delivering his address.
2. Mr. P. P. Ramakrishnan - Hon. Joint Secretary - Quality Forum speaking about Quality Forum.
3. Mr. Rajan Jawle delivering his talk on Energy savings; looking on is the other faculty - Mr. Vrajlal Kanetkar.
4. Mr. M. Mhetre - Executive Engineer - MSEB - Kalyan delivering his address.
5. Mr. M. Mhetre - Executive Engineer - MSEB - Kalyan handing over the certificate of participation.
6. Section of the participants.