QUALITY STRIVING FOR EXCELLENCE

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President's Message | Santosh Khadagade

Hope all our members are doing fine during this difficult time on several fronts. We all have been challenged to come out of the crisis. The pandemic has forced us to change the way we navigate through the daily chores, the way we work, the way we deliver products and services to our customers. In the situation, the Board had to take some painful decisions. As already communicated, Board had to suspend the operations temporarily and make use of this period to rethink on the strategy to serve the members post the pandemic.

The strategic group appointed to work on the future ready plan for NCQM is in the process of identifying the key areas where we need to focus. Some of the obvious areas could be Quality 4.0 requirements in line with the requirements of the Industry 4.0 Smart Factory, revising the BEQET Award Criteria and upgradation of the diploma program into an online program.

The current Industry 4.0 is driven by the Operations function with the objective to lower cost, better reliability, higher capacity utilisation, improved productivity, better quality and enhanced performance. It's an integrated process approach, regardless of business area that creates industrial production completely automated and interconnected in which machinery, people and devices communicate with each other for an intelligent management system.

Automation of manual processes is one of the key areas for organisations. In the wake of this, simplification, standardization, streamlining ahead of automation would be beneficial for the organisations to reduce all types of waste.

Quality professionals need to continue focusing on elimination of inefficiencies, excessive audits/inspections/tests, faster feedback loops, use of connected devices to track and resolve the cross functional issues. There are no new tools and techniques, what would be required are the new ways of implementing these tools and techniques in the changed scenario.

Effectively, we are looking to a course correct in the face of the new scenario keeping in view the NCQM vision to make Brand India known for quality.

We wish all the members safe working and good health. For any queries, feedback or requirements, please feel free to contact us at president@ncqm.com.

Problem Solving

Everyone of us are faced with problems in our personal and professional lives. There is constant endeavour on our part to solve problems to achieve success. There are a number of tools, techniques, and methodologies such as Lean, Six Sigma, Kaizen, TRIZ, etc. to solve problems. The technology age has added Design Thinking and Innovation to this exhaustive list of problem-solving techniques. Despite all these tools and techniques available, organisations struggle to solve problems. What also compounds the issue is that people do not have the luxury of time or reliable data to solve problems. So how do we ensure that we are able to surmount our problems and achieve our business goals?

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He is a Consultant in Quality Management with over 20 years of rich experience in leading Quality Management, Six Sigma, Business Excellence, Operations Management and Customer Service Management programs. He has been associated with reputed organizations like Citigroup Global Services, Fullerton India, DCB Bank, KPMG, Nielsen in India and Middle East.

He is a Machine Tool Engineer by qualification and holds a Post Graduate Diploma in Business Management majoring in Finance.

Problem Solving process

Let us start with our understanding of the Problem-Solving process. The typical steps in a problem-solving process are as follows:

1. Define the problem
2. Understand the process, system, and current situation
3. Identify the root causes
4. Identify solutions
5. Implement solutions
6. Integrate the solutions into your organisation's management system.

These basic steps are defined by different stages/names, are expanded or contracted, and deploy a host of management, quality and statistical tools at each step to solve the problem. Most organisations adopt a specific problem-solving methodology or technique (e.g. Lean, Six Sigma, etc.) to solve all their problems.

Problem Types

To better understand problem solving, let us use the concept of "Four Types of Problems" by veteran lean practitioner Art Smalley. Art, in his new book, *Four Types of Problems: from reactive troubleshooting to creative*

creative innovation, explains why settling on a favourite problem-solving technique or two is a mistake. According to Art, there are 4 types of problems encountered in business.

1. **Troubleshooting** - In this type, an alarm or concern occurs, and an employee responds. If necessary, a supervisor responds too. You try to fix the problem in a few minutes. There is no report written up or six-sigma team responding. No documentation is created. This is what quality guru, Dr Juran used to call "Sporadic problems".
2. **Recurring or Chronic Problems** - The key here is that we recognize there is a quality gap or difficulty in meeting operational targets over a longer period of time. It cannot be solved by troubleshooting. There is a need to understand root causes to solve the problem. These are what Dr Juran used to call "Chronic problems".
3. **Continual Improvement Problems** - In this type, we are operating a stable process and consistently meeting our operational targets. However, there is a need to improve beyond our current performance level to create a competitive advantage or better productivity. This type of problems require a group with sufficient knowledge and expertise to apply creative thinking within the defined operational constraints to achieve improvement. These are most popularly known as "Kaizen".
4. **Innovation Problems** – Here we are focusing on fundamentally changing a product, service or business model. This generally spans over a longer time frame and is entirely new. Examples of such innovations abound from telephone to smartphones.

It is important for organisations to understand the type of problem and deploy the right approach to solving it. The organisation should therefore understand these various techniques of problem solving before they embark on solving the problem. The traditional approach of using "one size fits all" methodology (most popular being Lean and Six Sigma) should be avoided.

Not Every Problem Is a "Nail" But Companies Typically Reach for the Same Old "Hammer"

- Art Smalley

Define the Problem

Defining the problem is a key first step. In my experience this step is often "hurried through" without enough evidence or data being collected. Research shows that most improvement projects suffer because enough care was not taken to define the problem correctly.

An important reason why the problem is not defined clearly is the involvement of perceptions and some relevant data to support the same. However, this does not mean that the problem has to be defined unto the very last detail before we start to solve it. The idea is to define the problem from the perspective of how it impacts the output or key operational metrics.

Another challenge is influence of methodology-focused approach where every problem is handled using the same methodology. In such an approach, all problems are defined as per the methodology before being solved. It is important because my experience shows that more than 50% of the problems chosen to be solved with a Lean Six Sigma approach could have been easily solved through a Kaizen, Small Group Activity or Quality Circle approach.

Understanding Process, System and Current Situation

Once the problem has been defined, the next step is to gather an understanding of the

process, system and current situation. Again, there are shortcuts taken because everyone assumes that they understand the process, system and current situation very well as they have been working with it. Whether you discuss in a meeting room or shop floor, there is a bias in your understanding of the process, system and current situation if you have not observed how things work on the floor, data from the process and technology involved.

Taichi Ohno, the creator of the Toyota Production System, believed in the power of observation. He used a technique where a new recruit to the system was asked to stand in a particular place (demarcated by a circle) on the shop floor and observe what happened during the shift. It was a difficult task for the new recruit, but it taught him/her two lessons – (a) always go to the Gemba (where the action is), and (b) what happens on the shop floor changes based on different triggers. Observation is a powerful technique but needs to be deployed with honesty. If you remember, our elders always used to observe carefully before they started fixing anything.

Similarly, data collected from the operations need to be accurate and reliable. Therefore, it is important to verify the source of data, how and when it was collected and reported. Data generally gets aggregated before being reported in an MIS. Knowing the individual elements of the aggregated data will provide a clue to stratifying the data and ascertaining its accuracy. Sometimes, there is no relevant data available. In that case, it is important to verify as to how the problem was discovered. *Mckinsey& Co., as part of their training, ensures that a new recruit is largely tasked with collecting and verifying data for an initial period of 3 years so that when he/she goes to solve a problem, the first thing that comes to their mind is data!*

The weakest link here is the understanding of the system! Being very detail oriented, our general tendency is to focus on the parts and not the whole. Understanding the system requires a good deal of practice and should be typically handled at a Managerial level. The understanding of the system reveals the various interdependencies of processes, products and people. This can lead to two important findings:

- Whether the problem was created where it was found, and
- What would be the impact of the solution on subsequent processes or outputs.

Once we have a good understanding of the process, system and current situation, we will be in a position to define the problem more precisely.

Identify the root causes

When there is sound understanding of the process, system and technology, root cause identification is much sharper and better. In my experience, I have found the Ishikawa diagram to plot the possible causes particularly useful when we solve chronic problems. However, the creation of a good Ishikawa diagram is rigorous process involving exceptionally good understanding of the process, technology and practices. The process and technology understanding should help in creating meaningful and practical causal chains. In case you still feel that you may have not identified the causes, you can get a lot of useful information from the internet.

Another issue is the standard template used in Ishikawa diagram. Prof. Ishikawa did not mandate the use of 5M (men, material, machines, methods and measurements). He said these should be considered while labelling the main branches. The way to create a good Cause and Effect diagram is to label the main branches after the main causes. They should be the answer to the first “Why” of the effect under consideration. Then, we should consider each main branch and delve deeper into sub-causes and sub sub-causes.

The other question which people have is when we should stop or how do we know that we have reached the root cause.

Prof. Ishikawa said that one should stop when a cause that can be acted upon is reached. Also, root causes can only be arrived at when we review data on these causes. In case data is not available, then the possible causes can be ranked in order of the influence they exert, based on their technical significance or as decided by a poll. The Nominal Group Technique (NGT) is a good tool to use in this case.

However, please note that the Ishikawa diagram is not a "one-time" exercise. It is a live document and should be updated every time there is a defect or change in process. An Ishikawa diagram on the shop floor where for every defect the identified cause is tally marked can provide useful information for quality improvements.

Cause and Effect diagram is not a one-time exercise. It should be updated every time there is a defect or change in process.

- Prof. Kaoru Ishikawa

Identify solutions

Once the root causes have been identified and validated based on data, technology or poll, we can start looking at solutions. However, we need not wait for root causes to be validated before identifying and implementing solutions. If the team agrees on a cause and its solution, then the same should be implemented without waiting for all causes to be validated. Also, there are certain process issues such as error in measurement, differences in practices, etc. that should be taken care of immediately.

One of the places where teams go wrong during solutioning is not involving all those who would be impacted by it. Otherwise, we may strengthen a process at the cost of other processes or support processes resulting in productivity loss. If you have wondered why Finance departments are not particularly interested in quality improvements, then you should realise that you are focusing on departmental improvements that may not be significantly benefiting the organization as a whole.

The other test that needs to be applied to a solution is failure analysis using the Failure Mode and Effect Analysis (FMEA) tool. This will help us create robust solutions. Pugh Matrix is another tool that is used extensively to prioritise solutions based on "ease of implementation" and "cost to implement".

Implement Solutions

The biggest challenge while implementing solutions is managing resistance to change. Most people believe that once it is mandated by Top Management, everybody will accept and implement the solution. This is far from the truth!

If the solution has not been agreed with all, particularly, those that will be impacted by its implementation, then you will notice a laxity and sluggishness in its implementation. No amount of strict follow ups or audits can substitute the whole-hearted acceptance of people. Over a period of time, the cracks will appear and there will be complaints about the solution not being effective.

Therefore, it is imperative that we involve all those impacted and secure their acceptance of the solution. Even if we are not able to resolve all their issues resulting out of the solution, an honest attempt to listen to everyone and understand their points of view will result in better implementation of solutions.

Change management is the key ingredient of successful improvement programs and involving people is the key ingredient of managing change effectively!

Integrate the solutions into your organisation's management system

This is the step that is mostly missed out in the euphoria of having solved the problem. To understand the importance of this step, we need to understand two types of solutions viz. Reversible and Irreversible.

Reversible solutions are those that involve change in human behaviour to implement the solution e.g. implementing a revised process, monitoring, practice, etc. Irreversible solutions are those that do not involve change in human behaviour to implement the solution e.g. Automation, Changes in ERP or Process Management Software, etc. Reversible solutions will require solution acceptance, training in implementing the solution and periodic monitoring/ audits till it becomes a standard practice.

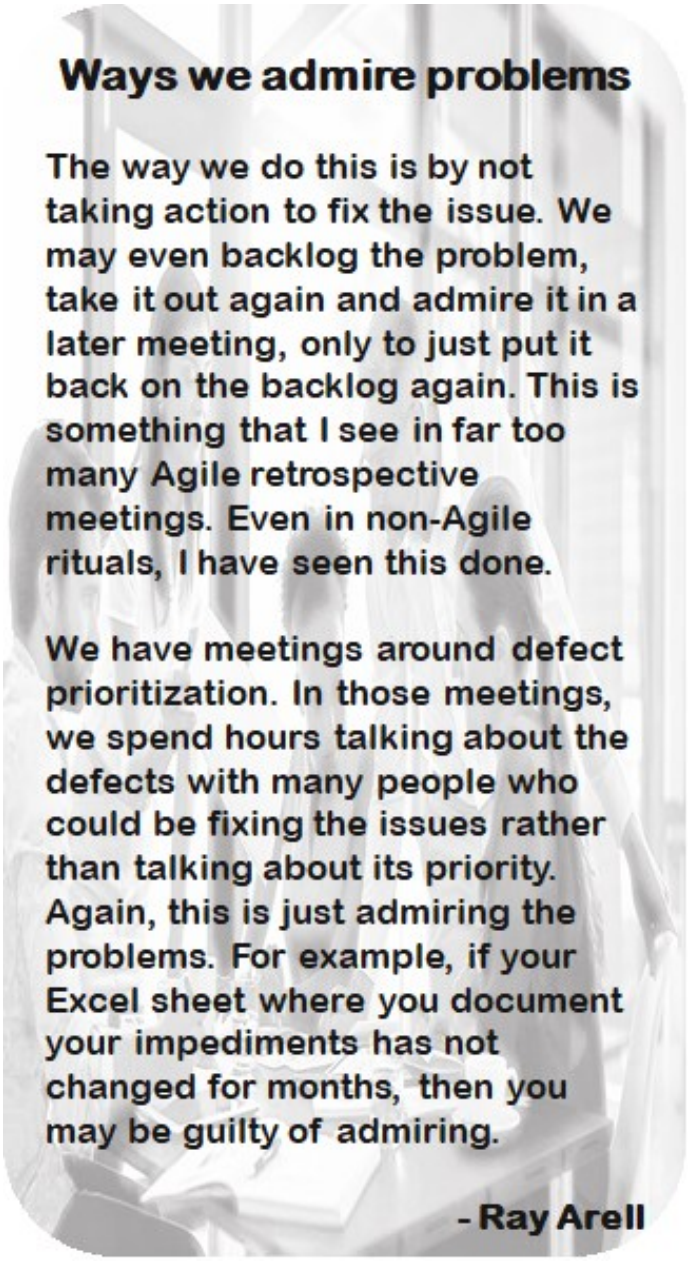
Irreversible solutions may be easier to implement but it will still involve solution acceptance and training in the new way of working. In both cases, appropriate measures should be taken to ensure that these are converted to standard practices as quickly as possible.

Most organisations fail to implement this step of the Problem Solving journey and end up paying a heavy price for it ! Problems recur after a period of time and energy is spent again analysing and solving them.

In the end, Problem solving is an industrious exercise involving a lot of hard work, application of concepts and tools, understanding of processes/practices, risk analysis and change management. The only way you can be good problem solver is by solving more problems and sharpening your technique of problem solving. Ability to work hard, good interpersonal skills, ability to learn quickly and resilience (ability to bounce back from failures) are some of the key skills that make successful problem solvers.

References

1. *Introduction to Quality Control – Dr Kaoru Ishikawa*
2. *Quality Planning & Analysis – Joseph M Juran, Frank M Gryna*
3. *Four Types of Problems: from reactive troubleshooting to creative innovation – Art Smalley*
4. *The Quality Toolbox – Nancy R Tague*



Remembering Dr. Kaoru Ishikawa

Prof. Kaoru Ishikawa was a Japanese organizational theorist, Professor at the Faculty of Engineering at The University of Tokyo, noted for his immense contributions to quality management in Japan as well as the World. All these contributions were an embodiment of his philosophy of “respect for the individual”.

Prof. Ishikawa’s stellar contributions to the field of quality management include:

1. Ishikawa Diagram - Also known as Cause-and-effect Diagram or Fishbone Diagram.
2. Seven Basic Quality Tools
3. Quality Circles
4. Internal Customer - Next operation (process step) is the Customer
5. Company-wide Quality.

Prof. Ishikawa was born in Tokyo and graduated from the University of TATIUC with an engineering degree in applied chemistry in 1937. After graduation, he worked as a naval technical officer from 1939–1941. Between 1941-1947 Ishikawa worked at the Nissan Liquid Fuel Company. In 1947 Ishikawa started his academic career as an associate professor at the University of Tokyo. He undertook the presidency of the Musashi Institute of Technology in 1978. Upon retirement, he was named professor emeritus of the University of Tokyo, Honorary Member of ASQ and the honorary member of the International Academy for Quality. Prof. Ishikawa served as president of the Japanese Society for Quality Control and co-founded and served as president of the International Academy for Quality.

Contributions to Quality Management

In 1949, Ishikawa joined the Japanese Union of Scientists and Engineers (JUSE) quality control research group. After World War II Japan looked to transform its industrial sector, which was then still perceived as a producer of cheap products. Prof. Ishikawa mobilized large groups of people towards a specific common goal that was largely responsible for Japan's quality-improvement initiatives.

Dr. Kaoru Ishikawa

July 13, 1915 – April 16, 1989

He translated, integrated and expanded the management concepts of W. Edwards Deming and Joseph M. Juran into the Japanese system. He developed and delivered the first basic quality control course for the Union of Japanese Scientists and Engineers (JUSE).

After becoming a full professor in the Faculty of Engineering at The University of Tokyo (1960) Ishikawa introduced the concept of quality circles (1962) in conjunction with JUSE. This was started as an experiment and many companies were invited to participate but only one company Nippon Telephone & Telegraph, accepted. Quality circles would soon become very popular and form an important link in a company's Total Quality Management system. Among his efforts to promote quality were the Annual Quality Control Conference for Top Management (1963).

He wrote 647 articles and 31 books, including two that were translated into English: "Introduction to Quality Control" and "What Is Total Quality Control? The Japanese Way". His book “Introduction to Quality Control” is still a classic reference guide in involving the front-line employees and deploying quality across the company. He also wrote two books on quality circles (QC Circle Koryo and How to Operate QC Circle Activities).

Recognitions

He was awarded the Shewhart Medal & the Order of the Sacred Treasure (Japan) for his outstanding technical leadership in the area of modern quality control. He received the Industrial Standardization Prize for his eminent writings on quality control.

The American Society for Quality Control awarded him with the Nihon Keizai Press Prize and the Grant Award for his education initiatives in the area of quality control. ASQ named a national medal after him, recognizing him as a distinguished pioneer in the achievement of respect for humanity in the quality disciplines.

In 1952, he was awarded the Deming Prize for Individuals by the Deming Prize Committee for his early achievements as a QC Research Group member.

Conclusion

The contribution of Kaoru Ishikawa stands tall and unquestioned in the area of quality control and process improvement. The cause and effect diagram is globally used even today in order to understand the causes behind the quality gaps and the effects of these gaps on the overall functioning of the organization.

Ishikawa propagated the concept of Quality Circles and Internal Customers thereby emphasizing the strategic importance of the employees of an organization. He stressed the equal participation of all employees rather than relying only on the specialists. This leads to the overall development of employees with respect to the processes in the organization.

(Source: Wikipedia, JUSE)

Glimpse of new ISO Standards released

Quality Management

1. ISO 10015:2019 - Quality management — Guidelines for competence management and people development
2. ISO 10018:2020 - Quality management — Guidance for people engagement

Environmental Management

1. ISO 14050:2020 - Environmental management — Vocabulary
2. ISO 14016:2020 - Environmental management — Guidelines on the assurance of environmental reports
3. ISO/TS 14092:2020 — Adaptation to climate change — Requirements and guidance on adaptation planning for local governments and communities

Energy Management

1. ISO 50004:2020 - Energy management systems — Guidance for the implementation, maintenance and improvement of an ISO 50001 energy management system

Risk Management

1. IWA 31:2020 - Risk management — Guidelines on using ISO 31000 in management systems
2. ISO 31022:2020 - Risk management — Guidelines for the management of legal risk

Automation and Digital

1. ISO 22739:2020 - Blockchain and distributed ledger technologies — Vocabulary
2. ISO/TR 23244:2020 - Blockchain and distributed ledger technologies — Privacy and personally identifiable information protection considerations

Innovation Management

1. ISO 56000:2020 — Innovation management — Fundamentals and vocabulary

Information Technology

1. ISO/IEC TS 33074:2020 - Information technology — Process assessment — Process capability assessment model for service management

Statistical Techniques

1. ISO 7870-9:2020 - Control charts — Part 9: Control charts for stationary processes
2. ISO/TR 11462-3:2020 - Guidelines for implementation of statistical process control (SPC) — Part 3: Reference data sets for SPC software validation
3. ISO 2859-4:2020 - Sampling procedures for inspection by attributes — Part 4: Procedures for assessment of declared quality levels

Data Management

1. ISO/TS 8000-65:2020 - Data quality — Part 65: Data quality management: Process measurement questionnaire

1. Internet of Things (IoT)

2. ISO/IEC 21823-2:2020 - Internet of things (IoT) — Interoperability for IoT systems — Part 2: Transport interoperability
3. ISO/IEC TR 30164:2020 - Internet of things (IoT) — Edge computing
4. ISO/IEC TR 30166:2020 - Internet of things (IoT) — Industrial IoT

For more news on the standards and their development, please visit https://www.iso.org/home.html

ASQ Team Excellence Awards

ASQ's Team Excellence Award is a premier team recognition program—awarding achievements in improved performance in businesses of all sizes.

Some of the most successful companies have participated in ASQ's South Asia Team Excellence Award (SATEA) Process. The finalist teams showcased their success story of using quality concepts within their organisations to make valuable improvements in areas such as customer satisfaction, waste reduction, and employee morale—all leading to improved profitability.

This year the awards are scheduled to be held in Bengaluru in Nov 27, 2020. For additional details please visit https://asq.org.in/team-excellence/

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New EFQM Model published

Since its inception, the European Foundation for Quality Management (EFQM) Model has provided a blueprint for organisations across and beyond Europe to develop a culture of improvement and innovation.

To co-create the new EFQM Model, they surveyed nearly 2000 change experts, facilitated 24 workshops internally, spoke face to face with leaders in over 60 diverse organisations and created a core team of experts and contributors from across industries and academia.

Built on design thinking, the new Model has shifted from being a simple assessment tool to one that offers a vital framework and methodology to help with the changes, transformation, and disruption that individuals and organisations face every day.

For more details please visit https://www.efqm.org/

Workplace Assessment for Safety and Hygiene (WASH)

For the benefit of citizens and industry, QCI, along with industry stakeholders, has developed a harmonized standard "Workplace Assessment for Safety and Hygiene" (WASH)" to help the organizations assess their preparedness to restart and run their operations safely.

This standard is applicable for assessment at any workplace which has been allowed to operate.

The assessment can be done as an on-site assessment or remotely through a virtual system of assessment by trained assessors. The assessment report generated will provide the applicant with an objective assessment of the safety and hygiene measures undertaken by them to mitigate the risk of COVID-19 infection.

For additional details, please visit https://www.qcin.org/WashScheme.php.