10th D L SHAH MEMORIAL LECTURE

Tata Motors Way to World Class Quality

Mr. Anil Kumar Sinha,
Head Quality, Tata Motors – Commercial Vehicle Business Unit, Pune

The 10th D L Shah Memorial Lecture was delivered by Mr Anil Kumar Sinha, Head – Quality, Tata Motors – Commercial Vehicle Business Unit on Mar 2, 2019. He took the participants through a detailed and interesting glimpse of Tata Motors journey towards business excellence.

Mr. Sinha started with a brief profile of Tata Motors before providing a history of their business excellence journey. He specifically focused his lecture on two key business excellence initiatives at Tata Motors viz. World Class Quality (WCQ) and Tata Business Excellence Model (TBEM).

Mr Sinha started by defining the role of Quality professionals as that of "trouble shooters" within organizations. He believes that quality professionals, armed

> ***"Benchmarking is a good strategy to have when you want to catch up with competition but if you want to excel, you need to switch the game."***

with their knowledge of problem-solving methodologies and tools, should be the ones resolving issues that trouble customers.

Tata Motors

Tata Motors' mission is delivering mobility solutions with a passion to enhance customers' quality of life while their vision is to be amongst the top 3 commercial vehicles manufacturers globally and top 3 car manufacturers locally. Integrity, Teamwork, Customer Focus, Accountability, Speed and Excellence are Tata Motors values that form the strong foundation on which their organization is built.

Their facilities include:

- 8 plants in India
- Joint venture with Daewoo Motors in India
- Design Studio in London (UK), Turin (Italy) and Pune (India)
- Several CKD Units in South Korea, Africa

They have a large portfolio of commercial vehicles starting from 0.5 tonne to 50 tonne capacity catering to various applications.

MANUFACTURING BASE AND R&D DESIGN

Manufacturing Excellence is a critical element of their strategy to achieve their vision. Tata Motors defines Manufacturing Excellence as excellence in Design, Engineering and Production. The focus is on ensuring that its facilities carry out every step in the manufacturing process backed by leading edge R&D and highest standards of quality. To emphasize the point, Mr Sinha quoted the example of their SUV – Nexon which became the first and only Indian vehicle to achieve Global NCAP Level 5 (highest safety) rating. Tata Motors also has the highest number of patents in the automotive sector in India.

World Class Quality

World Class Quality (WCQ) is one of their programs to achieve Manufacturing Excellence. It started with the basic objective of improving plant operations and plant efficiency.

One of their key challenges in implementing WCQ was to define *world class* such that even the average shop floor employee understood what it meant and what he/she needs to do to support the program. They came up with a very simple definition of *World Class* which the average employee could understand and appreciate (see below). The definition also contains key behaviours and actions expected from the employees. Mr Sinha elaborated on each of the acronym elements with examples to explain his point.

Definition of World Class

For example, when he was talking about Loyalty or Customer Loyalty, he talked about how Nokia the feature phone company commanded immense loyalty till the advent of smart phones eventually resulting in Nokia's bankruptcy within a year and half.

He also explained "Safety for All" by talking about Tata Motors credo for safety – "Nobody comes to work to get hurt!"

While talking about "Satisfaction of Stakeholders", he gave the example of IBM's success in laptops although laptop was invented by Apple. IBM succeeded because it ensured that it nurtured its entire value chain by allowing them to be part of their success while Apple tried to succeed at the cost of its stakeholders in the value chain.

WCQ journey comprises 5 levels and is aimed at achieving the following:

- Quality to be built into the process
- Built in Quality (BIQ) to be made DNA of the organization
- Involve all people to strive for Quality Excellence
- Prompt actions for abnormalities
- Quality culture building among all employees and suppliers

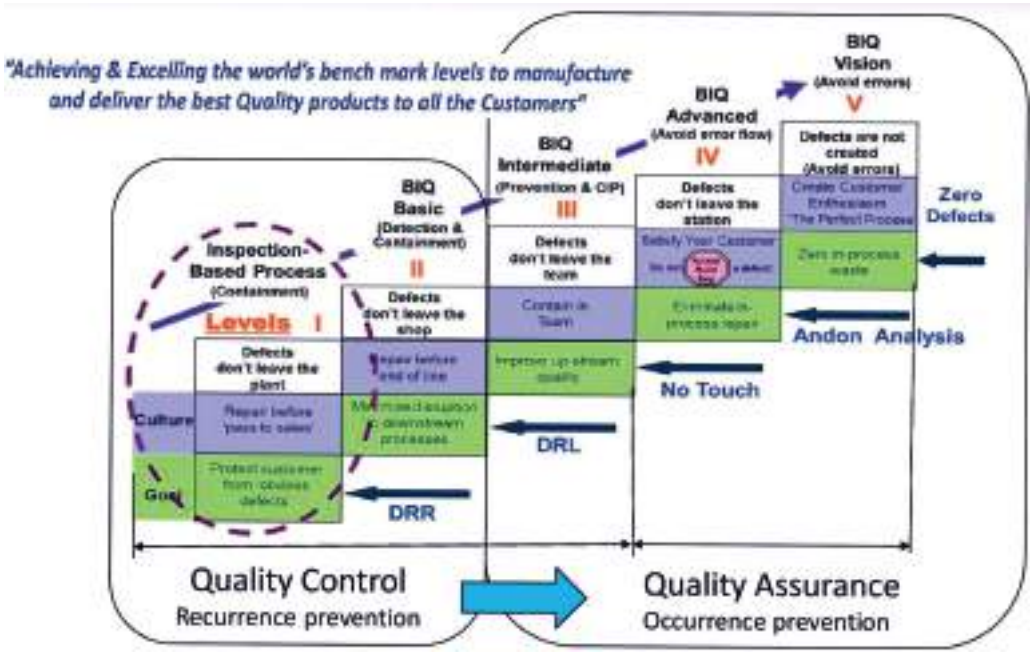
WCQ Framework

WCQ Framework has been defined in significant detail to ensure clarity and uniformity in comprehension. The structure of WCQ comprises the following elements:

1. **Goal** – Defines the goal of WCQ
2. **Principles** – WCQ is based on the following principles:
   a. ***People Involvement*** **(**Everyone is responsible for Quality)
   b. ***Standardisation*** (Pre-requisite for achieving Built-In Quality) - *While explaining the importance of sequence in standardisation, Mr Sinha shared a beautiful example. He said that all of us can easily recite the alphabets "A thru Z" but would struggle if we were asked to recite every 4th alphabet. He mentioned further that the issue is not knowledge but following a specific sequence in reciting the alphabets.*

WCQ Framework

Lean Design and standardisation of facilities have been undertaken resulting in reduction is spares inventory.



BIQ Migration Strategy

He gave an example of how a cross functional team comprising Engineering, Standardisation, Manufacturing, Quality and Supply Chain reviewed hardware requirements and helped reduce 6382 parts to 2659 for all plants. A reduction of 60%!

c. ***Built-In Quality*** (BIQ) (Do not Accept, Build or Ship Defects) - An innovative approach used in ensuring BIQ was adding Human Error analysis to Process FMEA. Another technique used was Quality Feedback and Feed Forward.

For example, any defect detected at a station is fed back to the upstream process. However, it does not stop here. The upstream station has to feed forward what it has done to eliminate the defect.

d. ***Short Lead Time*** (Reduce the time from customer order to delivery) - There is a relentless pursuit to reduce time taken to produce the part or overall product and delivery to depot or customer. A strategy used here is small lot packaging. They have adopted the lean philosophy of small lots production. Mr Sinha stated that at their Pune plant they produce about 2500 different vehicle combinations! Internal pull has replaced traditional "push" systems.

e. ***Continuous Improvement*** (Stabilizes the process so that continuous improvement can take place) - At Tata Motors, every 3 to 6 months depending on criticality of the process, Cp/Cpk analysis is repeated to ensure process stability and capability.

3. **Absolutes** – Main strategies within each principles that need to be implemented to ensure success of each principle.

4. **Requirements** – Detailed statements which define the requirements, expectations against each Absolute.

5. **Actions** – Activities and systems that are used to support core requirements.

Implementation

After having defined the framework in detail, generally implementation should be easier. However, implementing the WCQ framework across multiple locations presents its own sets of challenges. WCQ was initiated with a focus on Customer Experience. It started with measuring Customer Experience at four stages viz. Pre-Sales, Sales, Product and Post Sales.

Further, the implementation strategy adopted by Tata Motors can be summarised as below:

1. WCQ adoption steered by the Apex Steering Committee across all locations
2. Bottoms up approach – Each and every employee works on implementation
3. Top Down involvement – This is reviewed on a periodic basis say fortnightly or monthly by Senior Management
4. Ensure that key performance measures are standardized across multiple locations
5. WCQ driven by cross functional teams at each location
6. Implementation is achieved step by step starting at Level 1 and then progressing to subsequent levels. Implementation is defined as 10-step process based on PDCA cycle.

It has taken 10 years for Tata Motors to achieve Level 3 on their WCQ framework for all their plants. For Tata Motors this framework is not just an assessment criteria but a *way of life*! Achieving each level is very tough since it requires consistency of product quality and stability in process right from supplier to finished product and dealers.

Tangible and Intangible Benefits

Tata Motors have reaped various benefits out of implementing WCQ:

- Created a quality culture among employees through Built in Quality and Do it First Time Right.
- Built a culture that does not accept Build or Ship defects
- Changed the mindset from volume to volume & quality
- Migrated from containment to elimination of defects through strengthening upstream processes
- Achieved significant reduction in warranty claims and improvement in operational metrics
- Achieved optimisation of inventory levels.

Tata Business Excellence Model

Mr Sinha said Tata Business Excellence Model implementation was the next step in their manufacturing excellence journey.

Tata Business Excellence Model (TBEM) was established with the aim of supporting Tata Group's purpose – *Improve the Quality of Life in the communities we serve*!

Additional objectives included leveraging the Tata Brand (that stands for Leadership with Trust) and enhancing Group Synergy to become globally competitive. Eventually, this would help the Group in sustaining growth and achieving long term success.

TBEM is deployed through the JRD QV Award – a tribute to JRD Tata's quest for perfection in every sphere of activity. The award is modelled on the Malcolm Baldrige Award in the US and represents the highest level of excellence in Tata group. TBEM and Tata Code of Conduct are the instruments and standards that the group companies need to adopt in order to "earn" the right to use the "TATA" brand.

TBEM is unique to the Tata Group and is a glue that binds group companies. It is a platform which has brought Tata companies together, globally and enables synergies across its companies.

TBEM is a great aspirational leadership development movement. The Assessment provides an independent and holistic perspective of the company in a manner that is balanced across all stakeholders.

Finally, TBEM is a great platform to learn from best practices of Group companies as well as network with them and be recognised for Business Excellence.

TBEM Achievement Levels

Mr Sinha then concluded his lecture and responded to questions from an enthusiastic audience.

10th D L Shah Memorial Lecture's Snapshots

L-R Shri Mahesh V. Gandhi, Mr. Santosh Khadagade
Mr. Anil Kumar Sinha (Speaker) and
Mr. Khushroo Khambata, CEO, D.L.Shah Trust
garlanding portrait of Late Shri D. L. Shah

Mr. M. V. Gandhi, Trustee NCQM
briefing NCQM's
activities & achievements to the audience

Mr. K. Khambata briefing activities of
Shri D. L. Shah Trust to the audience

Mr. Santosh Khadagade, President NCQM
introducing the speaker

Mr. Anil Kumar Sinha delivering the lecture

A section of large audience

Question / Answer session is in progress

Mr. Khambata & Mr. Khadagade presenting
a silver plaque to Mr. Anil Kumar Sinha

All Dignitaries L-R – Mr. B. Banerjee, Dr. S. V. Viswanathan,
Mr. Santosh Khadagade, Chief Guest Mr. Anil Kumar Sinha,
Mr. Mahesh V. Gandhi, & Mr. Khushroo Khambata

Mr. Madan. Mandlekar, Chairman, Membership Committee &
Senior Faculty, NCQM proposing vote of thanks