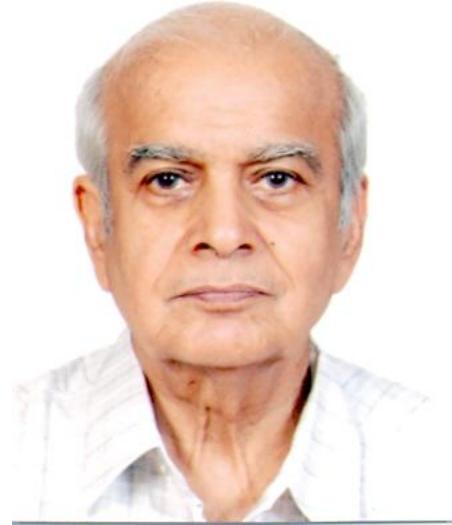


*Plenary Speaker*  
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*Maruti Automotive Center for Excellence*



## **ABSTRACT**

### **A Journey to Achieve World Class Performance through Lean Manufacturing in a Developing Economy**

Lean Manufacturing was developed at Toyota Motor Corporation in Japan and was based on some of the good practices and innovations of Ford Motor Company in the early 1920's. This Paper covers the work done to upgrade the performance of Tier I and Tier II vendors at Maruti Suzuki. Our experience has shown that many of the failures and recalls could be traced to negligence in the process and system failure at Tier-II vendors. A complete approach to this activity was developed over time, keeping in view the best Japanese practices being followed at Maruti Suzuki, including housekeeping, safety and continuous improvement of systems. This activity has been refined over the most recent five years with encouraging results. Sustained follow up is being done with Tier-I vendors of Maruti Suzuki to upgrade their performance in terms of defect reduction, productivity improvement, delivery performance, and energy conservation. In the beginning before starting the projects, a two day training program on Lean Manufacturing is given to staff from vendors. Sufficient details are provided about the SMED system and how each vendor should attempt to reduce changeover time in order to improve the availability of machines. Chronic problems which are difficult to resolve on day to day basis are also taken up for detailed process observation, data collection and further analysis is carried out to find out real root causes of existing problems. Design of Experiments [DOE], particularly component search and paired comparison based on John Tukey's method may also be used to find the root cause of problems. Hypothesis testing is also carried out in some cases to verify that there is a significant improvement after the countermeasures. During the whole approach, the emphasis is on evolving kaizens so that both the workplace and process improvements are distinctly visible before and after the improvements.

## **VITA IN BRIEF**

Dr. K. Kumar retired from Maruti Suzuki in 2007 and is currently working as Director MACE , an organization which helps vendors and dealers to achieve the highest level of performance & world class level of quality. Maruti Center For Excellence is a joint venture between Maruti Suzuki & 21 Vendors . Maruti Center For Excellence has been working with Maruti Suzuki

vendors to undertake Lean Manufacturing projects. Each year, 25 ~ 30 vendors are selected to initiate Lean Manufacturing projects. To date 104 vendors have been selected for Lean Manufacturing activity and 348 projects, each with substantive savings, have been completed.

Krishan Kumar earned a Phd in IC Engines from IIT Delhi, MSc in Engineering from UK, and graduated in Mechanical Engineering from Delhi University, India. He started his career in Indian Railways as Assistant Mechanical Engineer and rose to the position of Additional Director, R.D.S.O., Lucknow. In 1985, Dr. Kumar moved to Maruti Suzuki India, Ltd as Senior Deputy General Manager, responsible for setting up joint ventures. (MSIL is a leading and the largest passenger car manufacturing company in India.) He was posted as General Manager (Engineering) of the company in 1987 and in addition to his engineering responsibilities he headed the quality assurance and after sales service quality functions of Maruti Suzuki . As a result of his relentless pursuit of excellence in the engineering aspects of MSIL's products, he rose to the position of Director (Engineering). He was best known, however, as a champion of Quality Management at Maruti Suzuki . He was closely associated with setting up quality systems not only in the main manufacturing unit but also at a large number of vendors.

K. Kumar was totally involved in the initiative for the Confederation of Indian Industries (CII) Business Excellence Award which is based on EFQM Award and in 1998 MSIL was the second company in India to win the CII Business Excellence Award. K. Kumar was also associated with the certification of Maruti under ISO 9002 in 1995 and ISO 9001: 2000 in 2001. K. Kumar of Maruti was a driving force in collecting—with the assistance of CII—a group of ten companies who would work together learning the TQM methodologies under the guidance of Prof. Tsuda who is profoundly known for his passion for quality and is a Deming award winner as a individual . K. Kumar's hard work and perseverance also enabled a number of Maruti Suzuki vendors to win the prestigious Deming Award for quality.

K . Kumar's efforts in the area of Quality & After Sales Service Quality enabled his company win several JD Power awards for customer satisfaction in the Initial Quality Study & APPEAL Study . Maruti Suzuki became the first company in India to get the No 1 ranking in JD Power customer satisfaction award for eight consecutive years (2000 ~ 2007). Because of the robust systems which were set up under his guidance, Maruti Suzuki has maintained first position through the year, 2009.

K. Kumar is Member of the Society of the Automotive Engineers [ SAE ] . He was unanimously elected as the first SAE India President in the year 2001 & served as a president for two consecutive terms (until 2004). K. Kumar has been a member of ASQ since 1996 & Sr. Member from July 2004. Dr. Kumar promoted the concept of Lean Six Sigma amongst the vendors thru Maruti Center for Excellence and so far twenty-four people have received Black Belt certifications from Pivotal USA . Dr Kumar is a certified Lean Six Sigma Black Belt from Pivotal USA.

K. Kumar has won numerous awards such as “*Ashoka Award* ” for Outstanding Practice of Quality Management - 2009 at 6<sup>th</sup> Indian Society for Quality Conference, Mumbai on 11<sup>th</sup> Dec 2009 . He was also given “*Life Time Achievement Award*” from CII for his contribution to building competitiveness of India's Medium & Small Scale Enterprise Sector through the Cluster Approach at 2nd National Cluster Summit, Delhi on 11th Nov 2009 .He is an “*SAE Fellow Grade*” membership honored at the SAE World Congress & Exhibition held at Detroit on 14<sup>th</sup> April 2008. He received the “*Distinguished Service Award*” by Society of Indian Automobile Manufacturers (SIAM) in the year 2003 and the National Institution for Quality & Reliability, Chennai Awarded him the “*Bajaj Auto - NIQR Outstanding Quality Man Award*” 2002 .