

Red Bin Analysis - The Art of Problem Solving in Manufacturing Industry

Sumit Shandilya

School of Management

BML Munjal University

Gurgaon, Haryana, India - 122413

sumit.shandilya@bmu.edu.in, sumit.shandilya.15pd@bml.edu.in

Dr. Jaskiran Arora

School of Management

BML Munjal University

Gurgaon, Haryana, India - 122413

jaskiran.arora@bmu.edu.in

Dr. Kalluri Vinayak

School of Engineering & Technology

BML Munjal University

Gurgaon, Haryana, India - 122413

kalluri.vinayak@bmu.edu.in

Abstract

The problem solving, especially in the manufacturing sector has a very diverse and rich background. Be it the Ford era or the Bell's lab where Dr. Shewart developed the Statistical Process Control (SPC) or the epic 1950 research by NASA for development of Failure Mode and Effect Analysis (PFMEA), the problem-solving approach has taken leaps and have stretched to become an essential function and role of any successful manufacturing industry. Today, the survival of any corporate entity would be difficult and would be full of Risk, if, the problem solving is not an integral part of their ecosystem. In the manufacturing industry, problem-solving was used to be done as soon as an abnormality/failure/defect has been found or introduced. The team used to do the root cause analysis using why-why analysis, fish-bone methodology or 8D problem-solving approach etc. Such methodologies are very strong and still are used very efficiently. If the scale of the problem is very large or it is chronic problem, then strategies like Six Sigma, Total Quality Management, Lean Manufacturing or Total Productive Maintenance are also used. Now through Kaizens, Poka-Yoke and other approaches, problem-solving have seen a phase shift from reactive to a preventive one. The problem is now being prevented even before the occurrence.

The concern and a question over these strategies and methodologies are that these are meant to be for everyone and here, everyone means every type of industry irrespective of their market and size. They can be large, medium, small or even micro-enterprise. Large enterprises can afford to do all the quality training, up-gradation and they can also spend on automation. Even medium enterprises can also bear those expenses for a while but what about those small and micro-enterprises. Most of the supply-chain of OEM manufacturing industries are medium, small and micro-enterprises. Largely the quality of the final product is also the responsibility of the supply chain. How these enterprises will be able to cater to such increasing quality needs and dimension? How will they be able to become a problem-solving enterprise without investing much on this front?

The answer to this is the "Red-Bin Analysis". It is a different problem-solving methodology based on quality control circle method focusing on the problem occurrence, detection and solving at the source of generation. This method highlights and explains the problem selection and its solution which is very efficient in case of problem-solving of sub-assemblies or sub-components at the supply chain tier-1, tier-2 or tier-3 level.

Biographies

Sumit Shandilya is an Adjunct Professor – Operations and a Ph.D. research scholar at School of Management, BML Munjal University. He is full-time consultant and a corporate trainer in the field of operations, quality assurance, business excellence, supply chain and reengineering. He has more than 9 years of industrial experience with corporate giants Like HERO MotoCorp Limited, Maruti Center for Excellence and VISA Steel Limited. He has supported and mentored various organizations for activities related to implementation of tools like SPC & MSA, FMEA, IATF 16949, APQP & PPAP, Six Sigma, Lean Manufacturing, TPM, Problem Solving, DOE, and TQM etc. He has been a recipient of numerous prestigious awards for his contribution in Industry like National merit award, speaker of the session award, best researcher award, best trainer award, best consultant award and so on. Academically, Sumit is a Ph.D. research fellow, M.B.A. in Operations, M.Sc. in Statistics, PG Diploma in Project Management and a B.E. in Mechanical Engineering. He is also a Master Black Belt in Lean Six Sigma, Lead Auditor of ISO 9001, ISO 14001, ISO 45001, ISO 27001, Quality Council of India empanelled Lean consultant and a certified ZED consultant.

Dr. Jaskiran Arora is a Professor in the area of Accounting and Finance and is the Assistant Dean for Academic Operations for School of Management at BML Munjal University. She brings with her over 17 years of industry and teaching experience with reputed institutions. She takes accounting and finance specialization courses with UG, MBA, Executive MBA and PhD classes. She is also an Independent Director on the board of an infrastructure company. Prior to joining BML Munjal University, she has held senior positions in reputed academic institutions and corporate houses. She is an accomplished scholar who obtained high distinctions in all her higher education qualifications. She holds the Postgraduate Certification in Academic Practice from Lancaster University, UK. She conducts training programs for domestic and international participants on areas like Finance for Non-Finance, Spreadsheet Modelling for Business Decision Making, Risk Analysis and Mitigation, Personal Finance and Performance Measurement of Mutual Funds in India. She has also published widely in scholarly national and international referred journal articles, conference papers and book chapters in the field of accounting, finance and education. She has received appreciation for book reviews done by her for Tata-Mc-Graw Hill and Pearson Education.

Dr. Vinayak Kalluri is an Associate Professor, and Assistant Dean in the School of Engineering and Technology, BML Munjal University. He has over 10 years of experience in teaching various mechanical engineering courses, particularly in the fields of Design engineering at both the undergraduate and graduate levels. Before BML Munjal University, he was a faculty in Department of Mechanical Engineering, BITS-Pilani for more than 7 years. In BITS-Pilani, he was Warden, Nucleus member of Student Welfare Davison, Coordinator for BITSAT and In-Charge for first degree reporting for admission to BITS Pilani, Pilani campus for five years. He has rich experience in engaging and delivering expert lectures in Product Design and Development practices to several Indian organizations like L&T Vadodara, NTPC (Ramagundam, Talcher, Farakka, Kahalgaon), THDC- Tehri, Bharat Forge etc. He is a Life member of the Indian Society for Technical Education (ISTE). His research interests are mechanical system design, new product development and rapid prototyping.