

Pillars of Quality and Excellence: An Introduction to Basic Concepts and Lean Six Sigma Tools

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Abstract

Today's world is becoming increasingly interconnected, to the point it is often described as a small village. Customers can access the global marketplace and order products or services by a simple click of a button. This has formed a new reality which is creating fierce competition among organizations for not only meeting the market demand, but also improving customer experience and innovating ahead of others to ensure the sustainability of their businesses. An essential way to ensure that, is by setting up a solid foundation for an understanding of what quality pillars are about. Without these basics, many organizations would lose a lot of potential for achieving higher rates of improvement and higher levels of success. Total Quality Management (TQM) has been a fundamental management concept for continuous improvement (CI) utilizing Deming's basic approach of Plan-Do-Check-Act (PDCA). The measurement of efficiency and effectiveness, cost of quality, loss to society, quality assurance (QA), innovation, change management, effective communication, and quality culture are all critical aspects of quality management (QM). Six Sigma is a well-disciplined and structured methodology used to improve process quality and performance. It is based on the deployment of an effective program using various graphical and statistical analysis tools to achieve process stability and capability. TQM and Six Sigma share similar goals of pursuing customer satisfaction and business profit. Another state-of-the-art process improvement methodology is Lean which is proven to help organizations achieve timely delivery while reducing the various types of waste. It focuses on streamlining processes using value stream mapping and various other tools such as kaizen and visual management. Lean and Six Sigma can be integrated and thought of as tool-boxes filled with various tools that can be selected depending on the nature of the challenges faced. Management systems (MSs) are ways to run a business which are developed to meet requirements of quality management, health, safety, environmental management, *etc.* Recently, different MSs have gained more attention as they form a critical infrastructure for improving and controlling the different operation systems of an organization. Numerous studies pointed out that most of the implementation efforts of CI methodologies had failed. One important foundation for an effective CI implementation lies in the set up of an Integrated Company-Wide Management System (ICWMS) which is based on a framework for formulating and modeling an integrated approach for all management systems in any organization. This includes strategic quality management, management commitment, and the adoption of self-assessment quality models. There is a genuine need for returning to the basics of quality so that improvement efforts for processes, products and people's lives can be further enhanced. The lack of the understanding of such basic tools and pillars would lead to limited improvement which will not be optimal or effective as lots of waste and redundancy would still exist. The pillars covered in this work consist of various interconnected ideas of financial significance and real business value. The above topics are easy to understand or implement, and thus worth considering and evaluating. Moreover, focusing on quality basics paves the way for another important phase explored as part of this work which is related to future quality trends including advanced technologies of Industry 4.0 and Quality 4.0 such as big data, blockchain, robotic process automation (RPA), artificial intelligence (AI) and virtual reality (VR). These topics cover various pillars and tools which are introduced, explained and illustrated using real cases and stories based on the author's literature review and own experience.

Keywords

Lean Six Sigma, Total Quality Management, Continuous improvement

