

# **How ISO/TS 16949 Certification can Improve Performance Results through Lean Six Sigma Tools and Principles: A Case Study from Italy**

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## **Abstract**

ISO/TS 16949 is a technical specification, now in its new version IATF 16949:2016, dedicated to the implementation of a quality management system in the automotive sector. The standard is based on ISO 9001 requirements and embedded with specific addenda for the automotive industry. These addenda sometimes refer to processes, tools and principles derived from Lean Manufacturing and Six Sigma. For instance, IATF 16949 fosters a pull production system, 5S tool, the reduction of machine set-up times, preventive and predictive maintenance as well as variability and cost of poor quality reduction and problem solving. Therefore, it is expected that this automotive standard could offer performance results similar to Lean Six Sigma results, facilitating the integration with the two systems. Analysing what has happened in an Italian medium sized company which obtained the ISO/TS 16949 certificate about 10 years ago, this research wants to evaluate the real similarities with Lean Six Sigma tools and principles, trying to understand what kinds of performances are affected. Findings show how actually improvements in terms of variability reduction and cost of poor quality reduction can be achieved, while the kaizen principles of Lean Manufacturing are not so easily reached; even when the company has a push production system and many inventories can maintain its certificate of compliance. The results of this research can be useful for practitioners who are thinking of implementing a IATF 16949 quality management system integrating it with Lean Six Sigma.

## **Keywords:**

ISO/TS 16949, IATF, Lean, Six Sigma

## **Biographies**

Dr. Andrea Chiarini is a Visiting Professor at Ferrara University (Italy). Andrea Chiarini received a Master Degree in Electronic Engineering (100/100 cum laude) and a Post Graduate Diploma in Business Administration from Bologna University, Italy. He has also been awarded a Master of Arts (MA) in Social Science and Research Methods (Organisation and Management) at Sheffield Hallam University, UK and a PhD in the 'TQM and Business Excellence' subject. Dr. Chiarini is a senior member of American Society for Quality (ASQ). Dr. Chiarini has been working and researching on subjects such as Operations Management, TQM, Lean Six Sigma, Logistics, Production Management and CSR. As yet he has published more than 50 papers. He is also Managing Director at Chiarini & Associati, Italian consulting firm. This latter has been managing consultancy projects inside world-wide companies such as: ABB, Barilla, Bulgari, Bridgestone, Continental, Ducati Motor Holding, Lamborghini, Fiat, Ferrari, Scavolini, Tyco, Tetrapak, etc. Dr. Chiarini is on the Editorial Board of 4 peer-reviewed journals which include some prestigious journals such as: Business Strategy and the Environment, Journal of Manufacturing Technology Management, Leadership in Health Services, The TQM Journal. He is chief-in-editor of a Springer series dedicated to Operations Management (MEOP).

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