

The Journey from Lean Manufacturing to Industry 4.0: The Rail Manufacturing Process in Mexico

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Abstract : Nowadays, Lean Manufacturing and Industry 4.0 are very important in every country. One of the main benefits is continued market presence. It has been identified that there is a need to change existing educational programs, as well as update the knowledge and skills of existing employees. It should be borne in mind that behind each technological improvement, there is a human being. Human talent cannot be neglected. The main objectives of this article are to review the link between Lean Manufacturing, the incorporation of Industry 4.0 and the steps to follow to implement it; analyze the current situation and study the implications and benefits of this new trend, with a particular focus on Mexico. Lean Manufacturing and Industry 4.0 implementation waves must always take care of the most important capital & intellectual capital. The methodology used in this article comprised the following steps: reviewing the reality of the fourth industrial revolution, reviewing employees' skills on the journey to become world-class, and analyzing the situation in Mexico. Lean Manufacturing and Industry 4.0 were studied not as exclusive concepts, but as complementary ones. The methodological framework used is focused on motivating companies' collaborators to guarantee common results, innovate, and remain in the market in the face of new requirements from company stakeholders. The key findings were that both trends emphasize the need to improve communication across the entire company and incorporate new technologies into everyday work, from the shop floor to administrative staff, to help improve processes. Taking care of people, activities and processes will bring a company success. In the specific case of Mexico, companies in all sectors need to be aware of and implement technological improvements according to their specific needs. Low-cost labor represents one of the most typical barriers. In conclusion, companies must build a roadmap according to their strategy and needs to achieve their short, medium- and long-term goals.

Keywords : lean management, lean manufacturing, industry 4.0, motivation, SWOT analysis, Hoshin Kanri

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