

# **Decrease in Loading Times for Trucks at a Steel Company**

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## **Abstract**

Nowadays, the final customer requirements are more crucial and have taken a great relevance in suppliers, that relevance can be translate in quality, quantity and logistics efficiency. In this ambit, the logistics efficiency aims to load and send material to customer as soon as possible. So, the need to load and send material quickly have elevated in recent years. The deliver windows are getting shorter and the loading periods longer. We have identified an opportunity to reduce loading time of customize steel products such as profiles, sheets and coils.

Through our methodology inspired by the Deming cycle and lean logistics, we recognized different issues around the loading procedure. By applying lean logistics thinking, we were able to acknowledge and reduce time in every process that had waste in it. This paper proposes a step-by-step process of our intervention in the loading system and rearrangement of the warehouse. By reducing the waste of time, space and work force, we were able to reduce the loading time in 15% by preparing 10% of the future shipments. The occupancy of the warehouses were almost at full capacity. This resulted in the shutdowns of productive lines of 3.9 days per line per month because there were out of space. Another effect of the poor warehouse management was the shipments to external warehouses that resulted in extra costs.

By the standardization of the warehouse arrangement and process, we reduced the shutdowns of lines by 20% and the shipments to external warehouses by 15%. With the previous improvements, we reduced canceled orders because of not on time delivery, an average of 4 per month, resulting in \$315,790 dollars of extra profit annually. Finally, we achieved savings of \$39,473 dollars annually of not sending material to external warehouses.

## **Keywords**

Logistics efficiency, loading times, Deming cycle, warehouse

## **1 Biographies**

**Arturo Ortega Vila** graduated from the University of Monterrey. He loves to solve problems with different kind of thinking. He has a minor in logistics. He did his social service teaching adults that did not graduate from elementary school and want to take the certification exam. He worked in General electric and is currently working in Ternium sales department.

**Alejandro Jesús Cantú González** grew up in Monterrey, Mexico. Since he was a child, he was very interested in understanding the behavior of things and solving problems. Years later, he graduated from Industrial and Systems Engineering with a minor in logistics from the Universidad de Monterrey. During his studies he worked in General Electric and Procter and Gamble, companies that helped him to grow and perfect his selling skills.

**Manuel Alejandro Solís Martínez** studied industrial engineer at University of Monterrey. He has three certifications in topics such as Foundations of Business Strategy by the University of Virginia, Process Improvement by the University of Illinois and in Supply Chain Operations by Rutgers University. He has worked in many organizations like GE as manufacturing intern applying lean techniques in two production lines, he developed as process consultant intern identifying waste activities and implementing controls at Voltrak and he current works as production programmer and mill allocation analyst at Ternium.

**Jenny Díaz Ramírez** is currently a professor of the Department of Engineering at the University of Monterrey. She has worked previously as professor at Tecnológico de Monterrey, Mexico and Pontificia Universidad Javeriana Cali, Colombia. She is industrial engineering from Universidad del Valle, Colombia. She holds an MSc in industrial engineering from Universidad de los Andes, Bogota, Colombia, an MSc in operations research from Georgia Tech, US and the PhD in Industrial Engineering from Tecnológico de Monterrey. She is a member of the National System of Researchers of CONACYT, SNI Level I, since 2015 and recognized as an associated researcher by Colciencias, since 2016. She is the author and co-author of scientific articles on topics such as applied optimization and statistics in health systems, air quality, energy efficiency in transport and logistics.