

Abstract

Al-Shilleh Packaging Factory is among the top food packaging factories in Palestine, located in the city of Nablus. It was established in 1990 and, over time, expanded to cover sophisticated production lines that package some of the required materials like sugar, flour, salt, and legumes. Despite expansion, the factory encounters serious operating challenges to its effectiveness that are primarily caused by a lack of systematic recording of information and monitoring of processes in time.

Due to the packaging process and their dependency on speed, accuracy, and consistency, inefficiencies such as random machine breakdown, faulty products, and irregular maintenance have become major obstacles. These are directly associated with typical forms of waste such as waiting, defects, and over-processing, which are sources of barriers to flow and increase costs.

The DMAIC approach (Define, Measure, Analyze, Improve, Control) is used by this project to enhance and assess Al-Shilleh Factory salt packaging line. Field observation, interviews, time studies, and sampling were employed to collect real-time data. Quality tools like SIPOC diagrams, process flowcharts, control charts, statistical quality control, and FMECA were used to identify the root causes as well as measure deviations from performance.

According to the analysis, several changes were implemented, including new production and maintenance document templates, revised maintenance practices, and more quality control inspections. All these changes are to provide optimal process reliability, reduce downtime, and facilitate easy implementation of a culture of data-driven operations. The project illustrates the potential of DMAIC structured problem-solving in achieving significant efficiency gains, eradication of waste, and inducing lasting working excellence for the food-packaging sector.