

AUTOMATION OF WORKFLOWS AS A WAY OF LEAN TRANSFORMATION

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Abstract: (1) **Background:** Lean manufacturing is a type of production when manufacturing process is based on an ideology of maximizing productivity while simultaneously minimizing waste within a manufacturing operation. According to the lean principles a waste is anything that doesn't add value that the customers are willing to pay for. James Womack and Daniel T. Jones in their book "Lean Thinking: Banish Waste and Create Wealth in Your Corporation" defined lean as "a way to do more and more with less and less - less human effort, less equipment, less time, and less space - while coming closer and closer to providing customers exactly what they want." Summarize the general meaning of lean is to identify and eliminate waste, from which quality and production times can be improved and costs reduced. This is one method of approaching lean manufacturing, but it can also be approached using the "Toyota Way", that is focused on improving workflows rather than waste. Both methods share the same principles, including: automation, continuous improvement, flexibility, load levelling, perfect first-time production or service quality, production flow and visual control, pull processing, supplier relationships, waste removal. Lean transformation is the process of introducing changes in manufacturing to maximize the flow of value produced for the customer. The research was focused on applying of automation in particular manufacturing workflow in order to introducing lean transformation via one of the lean principles. (2) **Methods:** The workflow analysis was used as a main method in the research. It was the process of examining a manufacturing's workflows, generally for the purpose of improving operational efficiency. As a result, the manufacturing workflows were divided into 3 categories depending on value adding and the possibility of withdrawal. Also, the conducted analysis allowed to complete the manufacturing workflows analysis template of current state. After eliminating the workflows that don't add any value it was developed the manufacturing workflows analysis template of future state based on it. (3) **Results:** Through research the degree of improvement of the main indicators was determined: the time of workflows was decreased; there was a need for fewer staff; the consumption of electricity was reduced. (4) **Conclusions:** In this way, the main indicators of lean transformation were achieved - wasteful activities are identified, removed and optimized for the help of applying of automation in particular manufacturing workflow.

Keywords: lean; waste; manufacturing workflow; manufacturing workflows analysis template.