

ABSTRACT

The growth of the Indonesian economy and the lower vehicle ownership levels compared to other countries, which is 80 vehicles per 1000 people is a potential market for automotive industry. Increasing demand of Indonesian automotive market should be fulfilled by increasing of production capacity. PT. XYZ is a manufacturing and assembly of car. PT. XYZ has positive demand pattern. To fit the demand, PT. XYZ should improve its production lines so the production will increase. PT. XYZ has six main parts: welding, painting, trimming, inspection, and delivery. Welding is the most crucial part because it is core point of all assembly lines. There are problems in the welding department include the queue on the conveyor before metal finish, the frequency of the random arrival and variability of processing time of each unit. These problems led to decreased production levels. This study will provide suggestions to improve production of welding especially cabin and chassis assembly. Problem solving is done using lean manufacturing approach. Cycle time data and other supporting data related to cabin and chassis production process used to map current state by Value Stream Mapping (VSM). The waste of cabin and chassis is reached by 23% of the time lead time of 1767.63 seconds. In the welding department the waste of waiting time reaches by 29.75% which is caused by many WIP exist. Furthermore, using lean manufacturing tools to analyze and plan for improvements that could be done. The results of the design will be mapped into the future state VSM as a proposed improvement. Based on future state VSM, waste of cabin and chassis production process can be eliminated by means of seeking continuous flow method by using heijunka, 5S, determining the pattern of scheduling point and apply the standardization work to reduce defects caused by operator.

Key words: *welding, lean manufacturing, value stream mapping*