ABSTRACT

PT. Adetex Filament I. I. & II.I *is a private company which engaged in textiles in Indonesia that produces yarn into grey fabric. The type of grey fabric that observed in this study is a LAD-W grey. In the production process of gray fabric type* LAD-W, *there was found waste transportation that affects the delivery quality. Based on the obtained data, waste transportation is caused by unfavorable layout. Unfavorable layout can be seen from the laying of machines with similar functions are located very far apart. As for the manually material handlings equipment resulting large transport time are non-value added activities and spend a long time.*

In order to minimize the waste transportation, is used lean six sigma method. Steps that are taken is to the phase that define, measure, analyze, improve, and control on DMAIC *and use tools in lean to make improvements in the production process of* LAD-W *gray fabrics. Phase of define is performing SIPOC diagram depiction, standard time measurement and depiction of value stream mapping. Phase of measure, is the determination of CTD, KPI'S determination, calculation of cycle efficiency process, the existing layout depiction using spaghetti diagrams, and determining the total distance of materials transfer between workstations and warehouse. Phase of analyze is determine the root cause of the problem with fishbone chart. Phase of improve is proposed improvement from the results of analyze. Phase to improve the quality of the production process with improving the efficiency and performance of the LAD-W gray fabric production process. Phase of control is making visual control of waste transportation and value stream mapping future state.*

Based on the results of define phase, the waste that will be minimized is waste transportation in gray fabric production process. In the measure phase, it is known that there are discrepancies between the number of orders with their products. In the analyze phase, it is known that the cause of the waste transportation is the movement of material has many frequency, the location of the machine with same activity is in different places, and the road conditions in the factory that passed by material handling equipment is not in a good state. Improve in the next phase, the proposals that given of several recommendations, among other things, adjusting the number of machines with the production requirements, bring closer the machines which far from each other, repairing floor on the factory passed by the material handling equipment, and provide the help of material handling equipment with larger capacity.

Keywords: *lean six sigma*, *waste transportation*, DMAIC, *Value stream mapping, material handling*