

## DEVELOPMENT OF LEAN LINE TRANSFORMATION TO REDUCE GAS TURBINE PARTS REPAIR LEAD TIME (STUDY CASE FOR PT XYZ)

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### Abstract

As the gas turbine market business will grow significantly by 6.2% from 2022 to 2030 globally and will grow 4.9% per annum from 2021 until 2030 in Indonesia, PT XYZ as a Gas Turbine repair centre of excellence shall improve productivity to serve the local and global market. On the other hand, the global political situation is quite dynamic and involves tension between US and China, since PT XYZ is a part of US company, the global direction is to move some of the volume from the China repair shop to the Indonesia repair shop by 13K by utilizing the existing facilities. PT XYZ experienced high repair lead time due to the waste of the repair process, the existing repair processes were still in batch instead of single piece flow, the repair stations were scattered in the shop and required manpower travelling back and forth from one place to another in a significant distance, the operator workloads were unbalanced and lead into a bottleneck and long waiting in the process. The lean principles to be applied to tackle the issues that are to identify the root cause of the issue and to define the sequence of the improvement step. The lean tools to identify the root causes of the issue are value stream mapping, drill down trees, spaghetti chart and fishbone, hence the tools to define the sequence of improvement process are Takt time identification, Yamazumi levelling, 7 Ways Layout, layout development, improvement process and run the new repair line with a single piece flow process. The result of the improvement is the repair process runs in a single-piece flow instead of the batch, the load of the operator is also balanced, the layout is optimized, and the repair waste is reduced as well, such as waiting, inventory and travelling. On top of that, the lead time was reduced by 35% per set with repair hours saving by 15K yearly or USD 0.3M. Hence, PT XYZ are confident to accept the global challenge including an additional volume 13K from China

**Keywords:** Gas Turbine, Lean Transformation, Takt Time, Lead Time, Yamazumi Levelling.

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