

SUMMARY

The thesis topic is based on Threed Systems company's need to develop its production processes in order to remain competitive and maintain and grow its market share. The study aims to give an overview of the high-volume Threed production system development from the beginning of 2021 until April of 2022. In addition, the study will be analysed the implementation's impact on the production department.

Based on the above aim, the following tasks have been set:

1. To explain the concept of ERP and lean and their impact on improvement activities in the production;
2. To present the large-scale ERP improvement activities of production from 2021 January until April of 2022;
3. To identify observable performance indicators and analyse through changes in their values the impact of implementations on the production system;
4. To evaluate such methodology 's suitability for Threed production system.

During the implementations, the author worked out the necessities and capabilities to implement the found bottlenecks of the initial situation and carried out the process improvements. The effect of the implementations on the production system was analysed, and the appraisal of the production system was given.

1. Threed Systems total production capacity increased by 13,2%.
2. Threed Systems production data accuracy in the ERP system increased by 61,4%.
3. Production volume became more stable, and improvements created a more structured and manageable work environment.
4. The speed of the information flow on the production shop floor improved.

Although the implementations had a positive effect on the production system, the author evaluated during the implementation period that implementing a complex ERP system in the early stage of production development can be too restricted for such experimental production. Therefore, the author pointed out that a hybrid environment, which exploits the strengths of ERP and lean, can be more supportive of production development.

Keywords: Master Thesis; Enterprise Resource planning; Lean manufacturing; Production system automation; ERP and lean implementation.