"Leanus-projektet" - DTU Orbit (06/12/2018)

"Leanus-projektet": Lean uden stress – udvikling af et bæredygtigt produktionskoncept

Title: "Leanus" - Lean without stress – Development of a sustainable production concept

Background: The literature on Lean and working environment show that Lean potentially may lead to a better working environment, but this may not always be true. Especially work processes based on Tayloristic principles may exhibit increasing pressure on the psychosocial working environment due to work intensification. Companies are at the same time experiencing difficulties with engaging the employees in Lean and establish continuous improvement and lasting productivity gains. Purpose and research questions: The purpose of this project is to study if Lean can be implemented in such a way that besides economic gains, a good psycho social working environment is developed. Methods: The project has been following the implementation of Lean in 10 Danish private and public companies. The 10 companies were selected from at pool of 45 companies, whom responded to the project call for participation. These companies were selected because the project required a wide variety of companies i.e. production, health care and administration, and because they were about to embark on a Lean implementation project. Such variety allows the project to capture the effect of Lean in very different settings. All participating companies underwent a baseline analysis consisting of a history workshop to uncover the course of events leading up the present situation. They further underwent a measurement of the psychosocial work environment using the COPSOQ questionnaire. The baseline was supplemented with a follow-up measurement of the psychosocial work environment (COPSOQ) approx. one year after the baseline supplemented by an evaluation of the effects and results of the Lean projects. Researchers visited the companies during the implementation to document the process and to interview employees. Based on the data collected, a case rapport was developed for each of the participating companies containing quantitative data, qualitative observations and analysis. Results: The researchers in the project have developed a new and nuanced understanding of Lean in Danish companies and its implications for the psychosocial working environment. Through, a uniform correlation between Lean and psychosocial working environment cannot be established. 5 companies showed a modest improvement of the psychosocial environment, 4 companies showed no change and 1 showed a deterioration of the psychosocial environment. This has lead to the conclusion that the relationship between Lean and psychosocial work environment is mediated through leadership and collaboration. Both factors are important for the outcome of using basic Lean tools such as value stream mapping. Managers and workers must work together in order to develop new and improved work processes, which may improve both the psychosocial and physical work environment. Lean is used very different across the analysed companies, with some companies only using few tools with a short term perspective and others using a wide variety of tools taking a long term perspective. Lean is easier applied in industrial settings than in administration and health care and in particular reactive processes pose a challenge to Lean. Companies which resembled industrial production obtained a higher degree of Lean and used more tools from the Lean toolbox. This of course has to do with the industrial context in which Lean was developed. It is possible to achieve productivity gains in both administration and health care. In health care the best results are obtained by splitting flows into planned, which lend themselves easily to Lean, and reactive flow with complications, because reactive tasks can’t use Lean principles. The change process to Lean induces change related stress. This may be alleviated by using reflection seminars, which was developed in the project. Overall it can be concluded that Lean as such does not lead to deterioration of the work environment. It depends on the quality of the leadership and collaboration in the company.

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