

Summary

In business the term Lean is named more often, especially when better results from processes are desirable. Lean started in the production industry, and spread from there to many other industries, like construction and healthcare. An interesting question is whether there are differences in the implementation of Lean in different industries.

When we mention Lean, we mean the philosophy that is originally developed by Toyota in the '50s, soon after world war II. This philosophy is named *Lean* by American investigators, who published a book about the production methods applied by Toyota in Japan.

In literature many different descriptions about the content of Lean are given. The Lean principles which are described, can be expressed by 3 main principles, which should be pursued when running a Lean business:

- Always add value for the customer
- Avoid waste
- Pursue perfection by continuous improvement

The methods to apply Lean principles in organisations, the Lean tools, are also described in many different words. There is made a selection of 28 Lean tools, which represent the most applied Lean tools in literature well.

To analyse the implementation of Lean in different industries, there is made a selection of 5 industries: *production industry, construction industry, IT industry, retail industry and healthcare industry*. The applications of Lean principles and tools in these industries are carefully analysed, and therefore linked to the different processes in an organisation, in which the tools are applied. To illustrate this visually, for every industry a PROPER model on general processes is composed. This shows us in which process, which Lean tool seizes. In order to compare the applications of Lean principles and tools drawn in PROPER models directly, a general PROPER model is composed, which is one aggregation stratum higher, and therefore the same for every different industry that is described.

The implementation of Lean in different industries is diverge. Although the applied Lean principles are the same in the 5 industries, the application of the Lean tools appear to show big differences. The production industry applies all Lean tools. Of the 28 selected Lean tools, 4 are solely applied in the production industry and only 5 tools are applied in all 5 industries. The other Lean tools are applied in more industries, but not all.

The Lean principles and tools applied in general processes in different industries are displayed in a table, which gives a clear vision of the different applications of Lean in the different industries. Next to this, the table shows which Lean tools can be promising to be adopted by other industries. The table

can be useful as well for industries where Lean is not yet or little applied, because they can compare their industry to the analysed industries and easily determine whether some Lean tools are useful for them or not. Some tools are especially useful for specific industries, others can be adopted, maybe with some modifications, by other industries.

In the analysis, big differences are observed in the implementation of Lean. Both industries which already work with Lean, and industries where Lean is completely unknown, can learn much from the application of Lean in other industries.