

Using the Production Audit to Determine your Organization's Lean Maturity Level

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How "Lean" is your current production really? This question can be answered by ACTLean within only one week. To do so, ACTLean has developed a standardized production audit which considers the specific characteristics of an industry. During the production audit, the enterprise's Lean production system is compared to state-of-the-art results from research projects and practical experiences from many training and coaching activities. Furthermore, both hard and soft factors are evaluated. After the audit, participants will know where they stand and what to do next.

The production system of an equipment manufacturer is influenced by the products to be produced and the total market offering. These influences can best be described by terms like "dynamics" and "individuality", which means:

- High volatility of the sales volume makes it difficult to plan the work load and production
 - Changes of monthly order entry volume of 20 to 30% are very normal.
- A low percentage of purchased components makes the stabilization of the processes more difficult
 - Up to 85% of the value creation is actually manufactured by order.
- Product diversity creates process diversity
 - A broad range of qualifications is required of the production employees.
- Additional reduction of the vertical range of manufacturing
 - On average less than 50% of the value creation is done in-house.

The potentials are in the implementation of Lean Management

Successful enterprises in the equipment manufacturing industry cope with the challenges described above by using Lean management principles: Focus on customer orientation, performance visualization along the value streams, excellent coordination and reaction based on the flow and pull principles, standardized and stable processes, and actively designed in-house vertical range of manufacturing, as well as the continual search for perfection, are characteristics for successful enterprises.

This leads to significant competitive advantages that can be measured in quantifiable key performance indicators for the areas of efficiency, agility, and reliability. Enterprises that have introduced Lean production are characterized by

- high on time delivery rate of 85% and above,
- a low work in progress (typically below 25% of sales),
- and a significantly higher productivity of their personnel.

All in all, Lean Enterprises experience a balanced growth of both, sales volume and profits.

In order to recognize where the enterprise has its challenges and how it is positioned, ACTLean is providing a complete production audit. It consists of several building blocks that allow for the holistic evaluation of the production process in total. These steps are distinguished between a surface scan and a deep analysis scan. The surface scan allows for a quick benchmark with the Lean database and includes the measurement of relevant key performance indicators based on a series of interviews using standardized questionnaires. The database contains a vast amount of data from several studies regarding strategies for equipment manufacturers that were performed by several research institutes. To insure the actuality of the benchmarking the production audit uses relevant key performance indicators from the annual update of the VDMA KPI compass system. On top of that, the current results of consortium

benchmarking projects performed by the Laboratory for Machine Tools and Production Engineering are considered as well.

Of course such KPIs are only relevant if they are related to enterprises that are providing a similar process structure and also have a comparable leadership and personnel structure.

Soft factors are important for the achievement of challenging productivity goals as well

During the audit, not only are questions asked regarding the hard factors like the application of lean methods but also soft factors are analyzed like motivation, behavior, and change culture in production. Soft factors are normally not considered during analysis, but in order to achieve high level goals, they are really important.

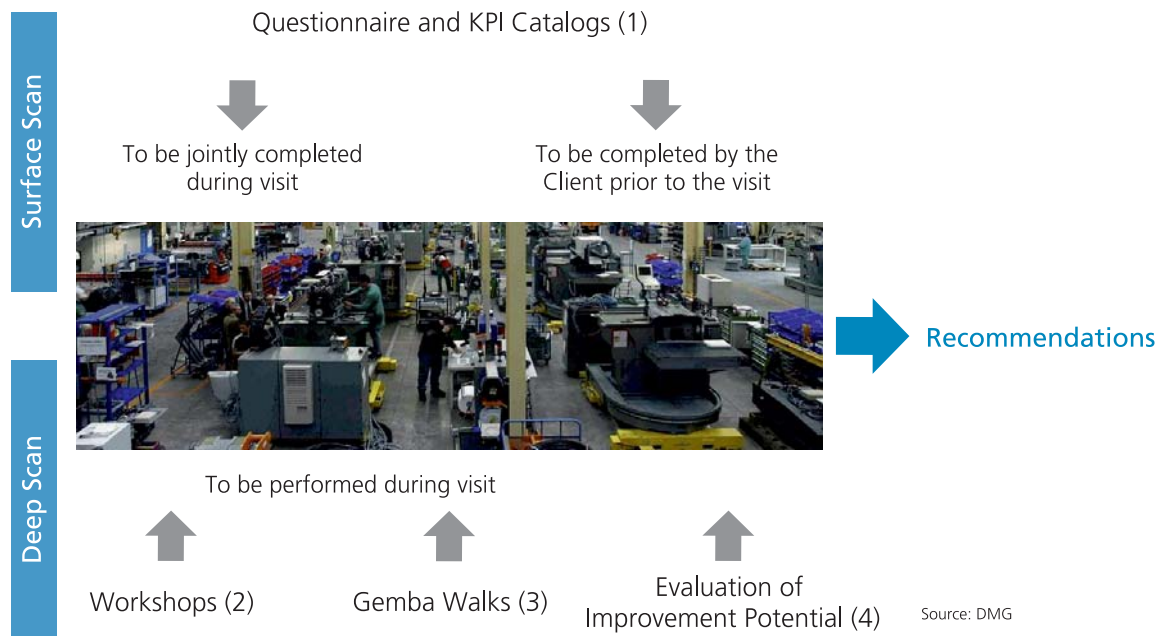


Figure 1: Elements of the Production Audit

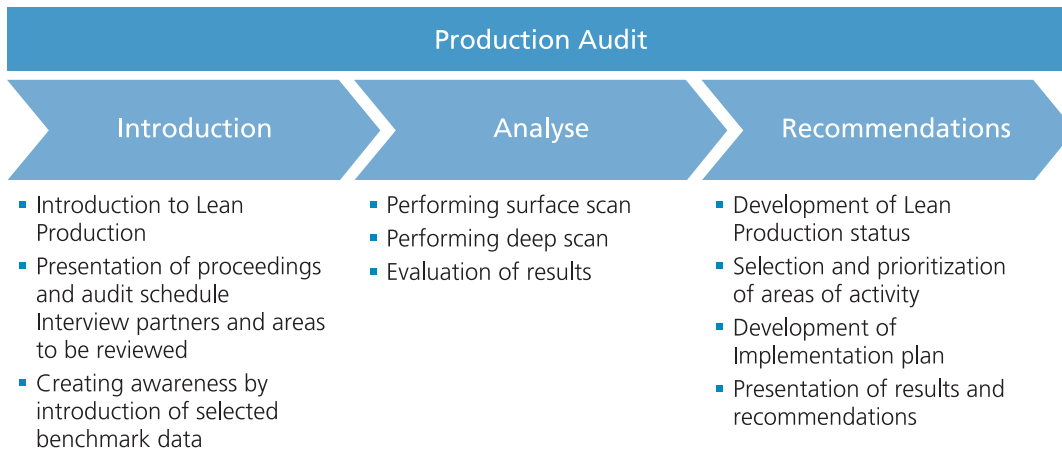


Figure 2: Proceedings Consist of 3 Phases

During the deep scan analysis the results from the surface scan are reviewed and detailed. Workshops regarding value streams and process interfaces are performed with employees from the production department. Gemba walks are also performed together with the employees to understand the production process better. The evaluation of potential combines those two analyses and brings achievable improvement possibilities to the surface. The lessons learned from the analyses are finally documented and transformed into recommendations for implementation.

The production audit provides an overview of the optimization potentials and the specific position of production between efficiency pace and reliability compared against lean production philosophy. The audit provides a true comparison with other enterprises within the industry. Therefore, it is possible to evaluate whether a company is an early adopter or lagging behind with the implementation of lean production. Overall, the production audit provides results in four areas:

1. Identification of their own position in comparison with the competition and top performers in the industry, which is based on benchmarking data.

2. The detailed evaluation of the implementation of lean measures within the company and compared to other implementations within the industry, with special focus on value-oriented coordination, ability to react to the market, simple stability, and orientation towards perfection.
3. Specific information about how to improve the readiness for change toward lean production and how to promote the corresponding leadership culture within the production system.
4. An evaluation of the potential improvements achievable with Lean. In addition, an implementation plan tailored to the specific needs with identification of activities to be preformed, necessary resources and core competences, implementation schedule, and identification of key performance indicators to measure success.

Three phases in one week

The first phase is organized as a kick off meeting. The entire audit team meets with all participants to provide an introduction to lean production in gen-

eral and discuss the proceedings for the upcoming audit. Furthermore, best practice solutions from enterprises within the industry are introduced in order to show participants possible implementation targets and to raise awareness.

The second phase is used to perform the in-depth and surface scan analyses. This includes detailed interviews of employees based on structured questionnaires and key performance indicator catalogs, as well as workshops and Gemba walks. All results are then discussed within the project team and are compiled into the final presentation.

A management workshop at the end of the audit is used to communicate the results and discuss them with the management team. Finally, an implementation plan is handed over to management.

Contact

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