ENISCO FORCAM

smart factory experts

10 TIPS FOR HIGHER ADDED VALUE IN PRODUCTION

MES and Lean Management

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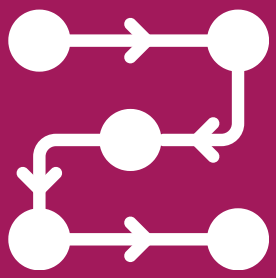
”OEE is important, the overall process is crucial”



Smooth order processing is crucial to the added value of a production facility. This requires strategic data management: It provides lean data as the basis for lean management measures. Individual key figures form a 'total work of art' as the basis for the overall process. The most important lever remains the digital empowerment of factory teams.

10 TIPS FROM ALEXANDER SCHLIESSMANN, LEAD VALUE ENGINEER AT FORCAM ENISCO

1

Smart data is the basis for smooth processes and lean management

The principles of ”lean management” are applied in many manufacturing companies. What role does data play in this?

Digitally recorded data is critical to the success of modern production. Production only creates added value in a company if it is organized transparently, efficiently and flexibly. The aim is to achieve the smoothest possible order flow, from order acceptance to delivery. This only works with smart data - also as the basis for lean management measures.

2

Goal: Ensuring added value through smooth order processing

The goal is: a smooth order flow?

The major strategic goal is value creation - through marketable products and satisfied customers. In production, the way to achieve this is through a continuous order flow, i.e. a smooth overall process. The overall process is crucial. The tools for this are lean management measures and smart data.

3

Path: Strategic data management for flawless data streams

What is the best way to organize such an overall process?

A smooth flow of data is required for orders to run smoothly. Flawlessly flowing order data makes it possible to make production more agile, avoid bottlenecks, improve responsiveness and ultimately produce in a customer-oriented manner. A flawless order data flow requires strategic data management. This must constantly keep an eye on the efficient collection and use of data for the optimal overall production process.

4

Cluster data according to benefit and classify it in the overall process

So another management task - strategic data management?

Yes, that is important. After all, data should not be collected in a meaningless way, but should be considered in advance: What data is needed when and for what purpose? Strategic data management integrates data into the overall process and thus contributes to the overall success of production - value creation.

5

Combining lean management with data management

Could we say: no more lean management without smart data?

Yes, that's how I see it. Experts also talk about 'lean data'. I like the term. It combines lean management thinking with strategic data management, i.e. the topics of data collection and data use.

6

Defining lean data: What benefits do I derive from which data for whom?

What is new about the term 'lean data'?

Traditionally, the lean management methodology focused on efficient value stream mapping according to the following categories

1. Optimize value creation,
2. Reduce secondary employment and
3. Terminate waste.

In line with the idea of lean management, it can be said that the lean data approach answers the question: What benefits can I derive from which data for which role? If this question is clearly answered, then data becomes 'lean' in the sense of the lean management methodology, then data becomes 'valuable' in the sense of higher added value.

7

OEE is important, but focus on the smooth overall process

Does this mean that key figures such as OEE are obsolete?

No, key figures such as overall equipment effectiveness (OEE) are not obsolete. The OEE indicator, for example, makes statements about the productivity of systems, but not about the productivity of production as a whole. Key figures should be seen as part of a larger whole and enable a successful order throughput as a 'total key figure work of art', so to speak.

8

Organize the entire process - with an MES and team empowerment

The fact is that every role in the production process has a different information requirement. In other words, a production manager must be able to react faster than a process optimizer. If a production manager has an on-time delivery problem, they need information in real time in order to find a solution. A process optimizer, on the other hand, primarily needs historical analyses.

How can every information requirement be adequately covered?

This is ensured by a powerful Manufacturing Execution System (MES). It provides all the data and analyses needed to control and optimize the overall production process. Key MES functionalities such as overall equipment effectiveness (OEE), traceability and energy monitoring should ideally be combined in order to maintain an overview of overall productivity.

As I said, because the overall process is crucial. This also includes a horizontal and vertical flow of order data between the shop floor and the top floor.

The most important thing of all is the digital education and training of people. Smart data and a smooth overall process can only be achieved if the factory teams are also digitally enabled. Companies must therefore continuously ensure that they have a 'digitally enabled worker': How do I react to OEE results? Which limit values or alarms are important? Every employee must know how to use data in their area of responsibility.

9

Develop standards such as digital twins in projects with partners

How will the topic of production control and optimization continue to develop?

Much is still being researched. Digitally optimizing the entire process and developing standards for it remains an ongoing task and is being addressed in various projects. FORCAM ENISCO, for example, is involved in the TwinMaP project funded by the Federal Ministry of Economics and Climate Protection (BMWK) together with partners such as Daimler Buses and Trumpf. The aim is to develop digital twins for a heterogeneous machine park as well as for the value stream and supply chain in bus and coach manufacturing.

When it comes to the important topic of data security, we have come quite far in Germany with the General Data Protection Regulation (GDPR) for the handling of personal data. I expect that something similar to the GDPR will also be introduced for the exchange of non-personal data between companies in the future.

10

Benefit from current and future apps with a modern MES solution

What does this look like in practice?

The bottom line is that even 14 years after the introduction of the term Industry 4.0, most companies have not experienced a revolution. However, an evolution towards data-driven production and automation is underway. This evolution is progressing ever faster, for example due to the rapid emergence of new IIoT applications such as artificial intelligence.

The coronavirus era has led to a renaissance of tried-and-tested solutions such as MES, which can now be usefully supplemented by new applications such as IIoT, AI or predictive maintenance.

BRIEF PROFIL
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Dr.-Ing. Alexander Schließmann is 'Lead Value Engineer' at FORCAM ENISCO GmbH. He has more than 35 years of professional experience in digital shop floor management. For more than a decade, he has been working as an honorary chairman in the German Engineering Federation (VDMA) - for working group 4 ("Data acquisition and preparation for manufacturing processes") and in the standardization committee NA 060-30-05 ("Architecture and communication"). Dr. Schließmann studied technical cybernetics and holds a doctorate in robotics.

We look forward to hearing from you!

Our experts will be happy to answer any questions you may have. Simply send an e-mail to:

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