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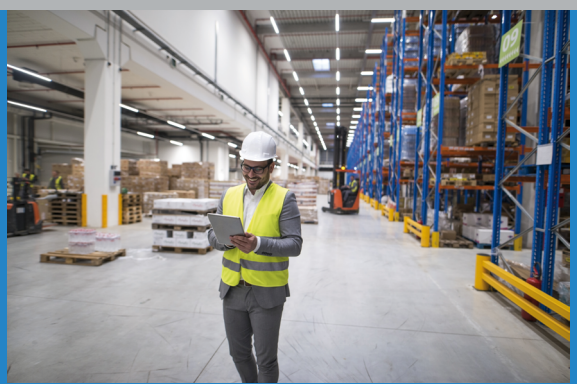

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1 *Source: ©littlewolf1989 – stock.adobe.com.*

MATERIAL SUPPLY IN ASSEMBLY

Current situation

When planning production systems, the focus is often on the manufacturing and assembly system. The design of the related logistics processes is usually given lower priority or is determined, in an inaccurate approach, by internal expertise.

Only rarely logistics systems are adapted to changing production volumes, increasing product variance, new products and other changes taking place over time. This inevitably causes problems, such as missing parts, insufficient space at the assembly site, wasteful processes such as underutilized transport systems, "fire fighting" to achieve short-term compliance. A methodical approach to achieve a suitable logistic system is needed.

Our approach and method

Analyze CURRENT system
Fraunhofer IPA analyzes and discusses the respective current logistics system with the aim of identifying and demonstrating waste in storage levels and logistics processes. The analysis focuses on the organizational and operational design.

One of the tools we use for our approach is a video analysis over a defined time period (from minutes to hours) or the installation of smart devices to document process steps simultaneously (hours to weeks). This not only makes the system which has grown over time more transparent, but also provides data-driven information to identify potentials.

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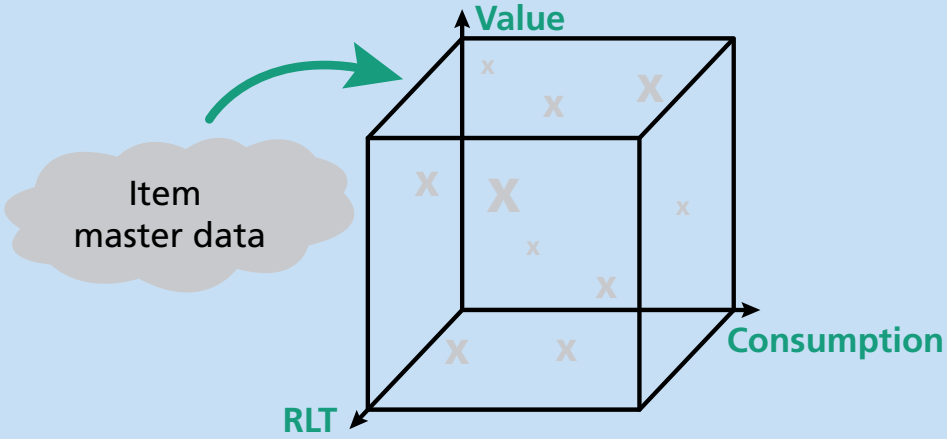

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Design TARGET system
The findings from the analysis are supplemented by company-specific requirements and set into context, if required. Further, the information are into logistics models, such as the KUBUS analysis model, which was developed at Fraunhofer IPA.

With the KUBUS analysis model (Figure 2), the properties of groups of items or individual items – replenishment lead time (RLT), consumption quantity and the value of the items – are first examined and then clustered. Depending on their relevance, further properties such as weight are also considered.

On the basis of the analysis, each cluster (e.g. low replenishment lead time, low parts consumption, high item value) is assigned to a suitable supply strategy. This enables for each item a suitable material supply and storage policy.

For example, an electric motor with a special coil, which has a high item value and low parts consumption, is usually assigned a Just-In-Time (JIT) strategy (depending on the RLT). Hence, the logistics effort, capital tie-up and space requirements are optimized in production system. Further planning will include the ergonomic supply of materials, the design of the warehouse and/or the transport system in detail.

Tailored system design

Every company is different depending on industry, size, experience, technology, organization etc.

The design of a system can only be effective in the long term if the specific situation is taken into account. Therefore, to be certain that we obtain a clear description of your system, close cooperation and discussions with you are a key element of our method. The goal is to design an optimal system that finds acceptance, and that all users are willing and capable of implementing.

Result

We assign a material supply strategy to each item. This includes storage levels, container management and the allocation of a supply area at the assembly system.

The developed system has been designed together with you and your employees, achieving understanding and acceptance.

Your advantages

Based on data, the methodical and step-by-step procedure identifies real potential and design fields, enabling a cost-effective system to be developed with little effort.

Furthermore, the transparent procedure leads to trust and acceptance when the system is implemented.

Our services

We analyze your existing logistics system as well as item data. From this, we first derive potential for improvement. Using this information, we work together with you to design a future-proof system that is tailored to your current requirements and general conditions.

2 *KUBUS model. Items are incorporated in the KUBUS model based on their properties and then clustered.*