

Ten Assertions about the Green Factory

The target area of sustainability is also playing an increasingly important role in factory planning and operation. In this context, it's particularly important to look at the field of sustainable factory design as well as the interface between production and energy flexibility. The following ten assertions represent the main guidelines for optimizing sustainability.

1 **Combination of Production and Energy Flexibility**

Production flexibility enables the development and use of renewable energy on a large scale. The only way to leverage the greatest potential is to coordinate energy and production flexibility. The focus here is on increasing the use of renewable energy sources by decoupling and flexibilizing nondeterministic processes.

2 **Paradigm Shift Thanks to the Green Factory**

In addition to the goal of reducing greenhouse gas emissions, a green factory encompasses, among other aspects, the extension of life cycles through adaptable and flexible structures, the integration of the circular economy, and the efficient use of energy and materials. As such, the path to a sustainable factory is not simply a one-off project. In fact, green factories are ushering in a comprehensive paradigm shift in business activity. In the future, sustainability will be integrated into various projects as a new, equally important target area.

3 **Profitability and Contribution to Objectives**

Green measures must be profitable, derived from regulatory requirements, and fit the corporate strategy, otherwise they will not be accepted and will not last. Sustainability isn't an end in itself in a business context either.

4 **The Production Process Is at the Core**

Efficient value creation is the linchpin of all measures; the production process is the foundation of the green factory. As a starting point for considerations, overarching measures are also oriented toward optimizing production. The rule of thumb is process before energy before building.

5 **The Factory Is Part of a Production Network**

Environmental impacts are not only local in scope. Likewise, the factory is also part of a larger whole. As an element of an overarching value chain, global and regional infrastructure measures must also be taken into account. The regionalization of the energy industry and the shift in thinking from "transport infrastructure" to "mobility concept" are key driving forces in this context.

6 **Green Greenfield Projects**

Revitalizing brownfield sites is preferable to paving over new land. The general rule is to avoid environmental impacts before compensating for them. Nevertheless, companies shouldn't dogmatically reject greenfield planning either. In the event of extensive overhauls, a corresponding level of growth, or technological leaps, new construction offers the opportunity to make fundamental technological decisions.

7 **Green Brownfield Projects**

By increasing the degree of utilization in existing buildings, condensing the area and space used to create value, optimizing the life cycles of factory structures, and implementing efficiency and energy measures, brownfields can make a significant contribution to sustainability. The key here is often the intelligent use of renewable energy sources by combining production and energy flexibility.

8 **Lean is Queen and Digital is King**

Implementing lean production and management structures, avoiding waste, and constantly striving to optimize efficiency – supported by digitalization and factory transparency – are the backbone of the green factory.

9 **The Factory Is a Sociotechnical System**

In a green factory, it isn't only a matter of implementing technical measures, but also of initiating a paradigm shift in business thinking. Ensuring that everyone involved has the right mindset is a key factor in achieving the objectives.

10 **Organization before Technical Structural Changes**

The transformation to a sustainable factory should be initiated with swift, successful, and visible measures. Organizational measures such as optimizing cycle times or decoupling and increasing the flexibility of nondeterministic processes can be used as a starting point before attempting to implement technical measures.



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