SEW EURODRIVE

# Lean Sm@rt Factory according to the approaches of Industry 4.0

## The road to automated, modular and adaptable factories

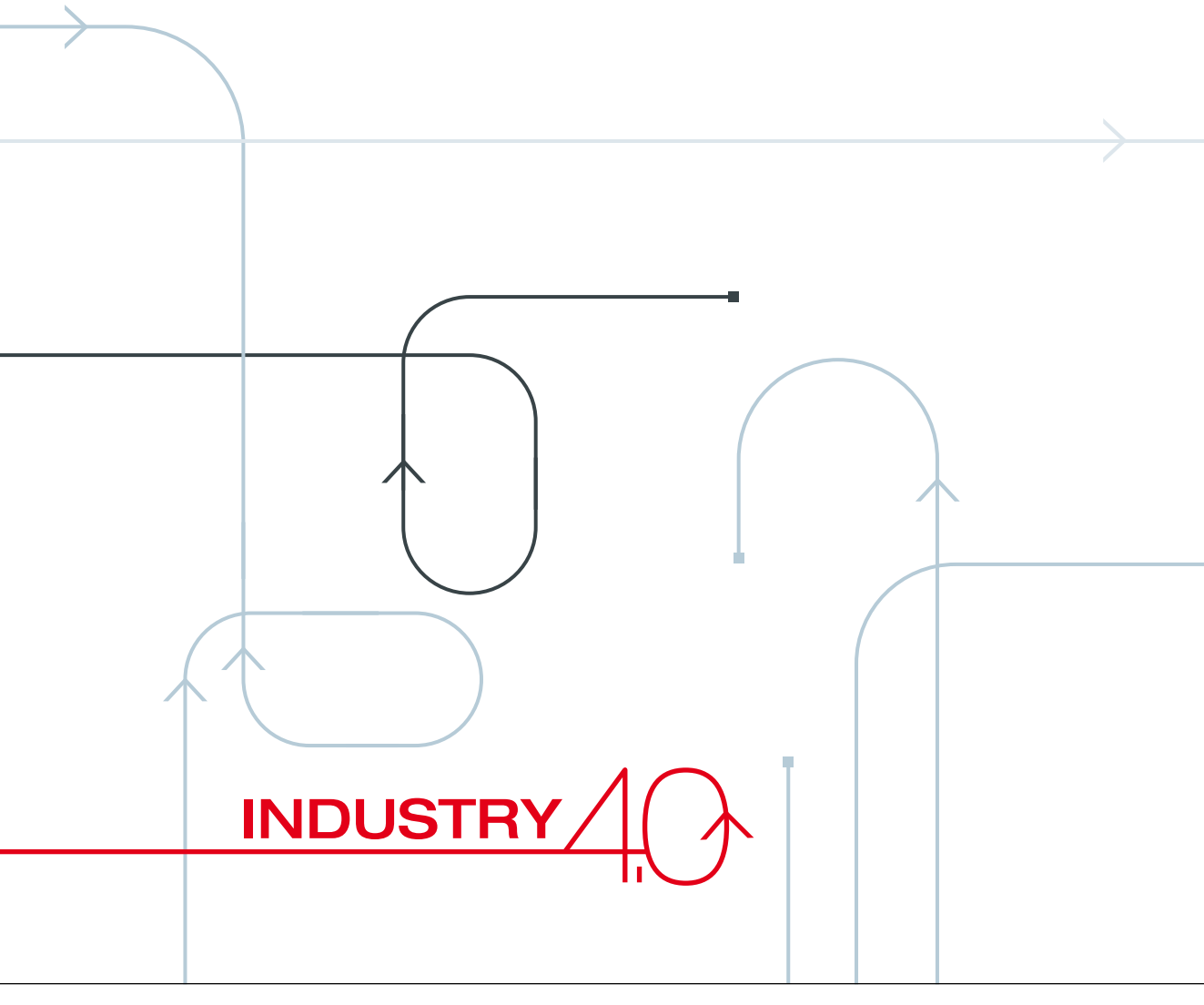
INDUSTRY 4.0

# Smart factories – a paradigm shift

The advent of new technologies like big data, embedded computing, mobile Internet and cloud computing in the production environment heralds the fourth industrial revolution. Now the task is to find the right formula to make best use of the new technologies in this new age of industry. The recipe for success developed by SEW-EURODRIVE is called “The Lean Sm@rt Factory – A Collaboration of Man & Machine” and points the way into the future.

The basic precept of Industry 4.0 is leveraging information technology to tightly mesh business and engineering processes in order to allow production to be more flexible, efficient, and time-independent while maintaining high quality and low costs.

SEW-EURODRIVE’s approach combines the “new” concepts of Industry 4.0 and established lean management principles to make possible a new kind of cooperation of man, machine, and product – with the focus on humans and their creation of value.



# Learning requires experience

**Nothing demonstrates our vision of Industry 4.0 better than our showcase factory at the company production and assembly plant in Graben-Neudorf.**

There we are constantly developing and testing new models for performing logistics, assembly and manufacturing tasks according to the principles of “one-piece flow” and “small factory unit” – under real-world conditions. The showcase factory implements only real customer orders. We know that only exhaustive testing and actual experience are the key to optimally supporting our customers in their future transportation and handling tasks.

As a mobile, intelligent workbench, the mobile assembly assistant provides both information and ergonomics for the employee.


Intelligent, autonomous, self-organizing logistics assistants handle the task of delivering materials to workspaces just in time.


In manufacturing processes involving machining, a mobile handling assistant relieves personnel of the task of mounting and removing workpieces.

## The cornerstones of our approach

– We believe in dissolving rigid production structures in factories and developing active, autonomous, self-organizing production units instead – modular factory structure

– Networking of all machines, both with each other and with the pieces they're working on

– Humans as "directors" of value creation – intelligently supplying people with technology so that it is not a tool, but a partner

– Developing new, mobile assistance systems (logistics, assembly, and handling assistants) to support human workers along the entire value production chain

– Developing self-driving transport units that interact autonomously with other systems and close gaps in the logistics chain

## Potential benefits that speak for themselves

– Quick and cost-effective reaction and adjustment to externalities (such as changes in capacity utilization and product portfolios)

– Reduction of fault potential in every assembly sequence through visualization of relevant data and providing interactive instructions

– Supporting and relieving human "resources" in executing repetitive or ergonomically straining tasks

## Mobility and intelligent networking for the factory of the future

A production process of the future, fully networked with information and communications technology, that represents the entire value creation chain, from product configuration by the customer to the delivery by the shipping department, might look something like this:

1 **Mobile assembly assistants** support the employees in their work. In accordance with the Industry 4.0 philosophy, they become cyber-physical systems, equipped with all necessary product- and customer-related data.

2 **Mobile logistics assistants** supply the assembly cells with just the right components at just the right time. They can carry up to 1.5 tons and freely navigate the space.

3 **Mobile handling assistants** relieve the operators by taking over uniform, repetitive tasks, such as assembling the machines.

4 The employee acts as **"director of the value creation chain"** and takes over the control, monitoring, and optimization of processes. He does not just assist the system, but is rather a director with decision-making powers that link up the various process steps with one another, depending on what is specifically needed.

5 **Self-driving, standardized goods transport capsules** interact with the other systems and autonomously take care of transporting goods within the plant as well as in urban areas and thus provide a thorough logistics chain. The capsules can be loaded and unloaded manually, are capable of indoor and outdoor transport, and they can even be loaded as cargo into trucks, trains and containers.

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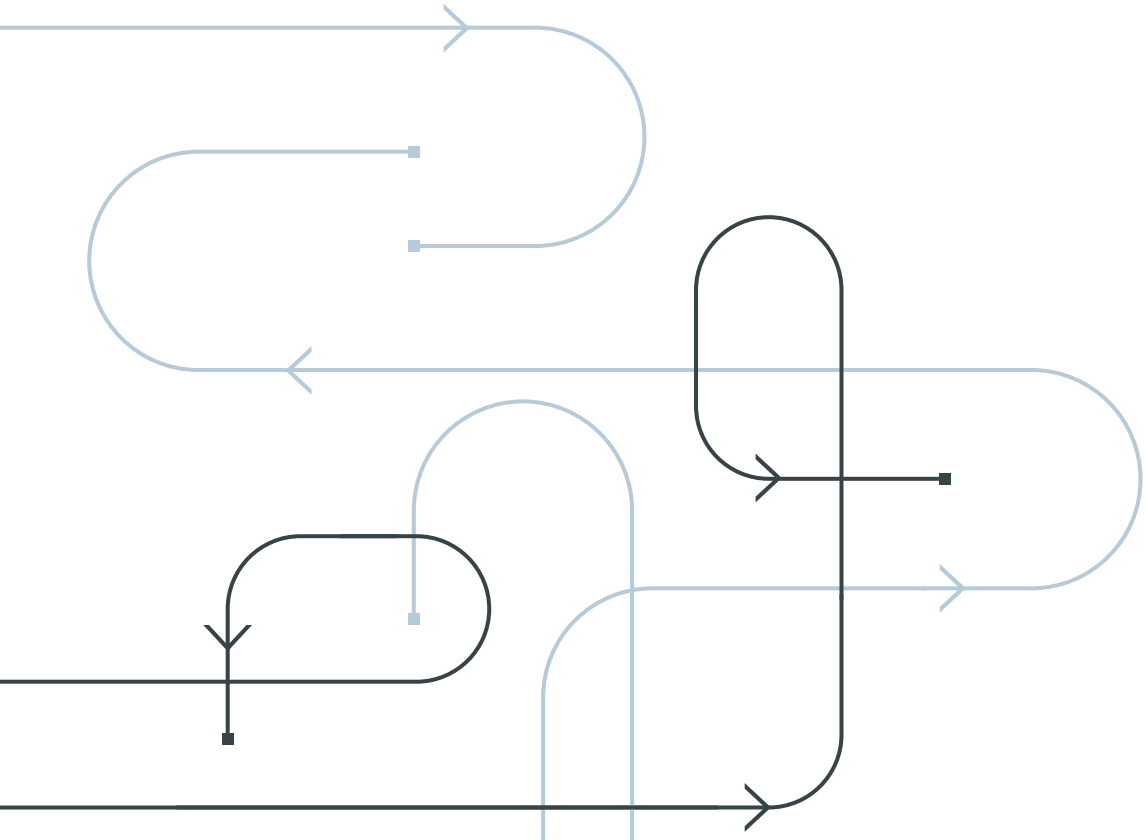
For more information go to:

www.sew-eurodrive.de/en/smart-factory



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