Tangible benefits:

- Productivity increased by up to 30%
- Modular solutions of any size
- Complete modular system of software modules
- Rapid response to new trends and customer requirements
- Less capital commitment
- Reduction in revolving stock
- Less space required in production
- Efficiency and transparency in data structures and sequences
- Efficient machines, efficient sequences, efficient software, efficient production

Albert Nopp, Technical Manager, Hall Office Furniture
"We are running an unmanned production process in batch size 1 with the shortest changeover gap in the world. Our production process is label-free and we have seen a 30% increase in capacity while still deploying the same workforce. When it comes to machine technology and software, we have a partner who can achieve anything; a partner that implemented everything we had hoped for, and ensured that the solution worked. We are proud of this achievement."

Dr. Rolf K. Halstein, Managing Director of Sedus Systems
"We need to move away from mass production and towards the manufacture of products that meet individual customer requirements and I think networked production will really help us to make this transition."

Manfred Schwellinger, Member of the ALNO Management Board
"Companies who do not implement this concept of networked production in the future will face a significant competitive disadvantage. The benefits are not just apparent in industry, but in trade too. The fact that customer requirements are increasing while the pool of skilled professionals is constantly shrinking means that the sector needs to completely rethink the way it works. Entering the world of networked production is the key to ensuring success in the future."

You can find more information at: networked.homag.com

A video on the topic: www.homag-group.com/networked
Industry 4.0 — A vision becomes a reality.

Digitization and networking of production even beyond the boundaries of companies and countries — this is the core idea behind the Industry 4.0 vision. The aim of the fourth industrial revolution — after steam engines, conveyors and automated production lines — is to enable a wide range of units to communicate with one another in the future and, eventually, even organize themselves. Today, machines in fully networked production already know precisely where each component is required at a specific point in time, how the component is to be processed, what the quality standards are and where bottlenecks may occur in storage. For this to work, all components involved in the production process, including machines, units, handling systems and storage systems, independently communicate with one another via sensors and networks. For a low price and where could delivery bottlenecks occur? Networked production systems, while responding to the results of these questions, also continuously optimize products on the basis of customer feedback and adapt them to requirements.

The factory of the future

Fully networked production around the world means that production can respond to changes in the market, customer requirements and external influences in an extremely flexible manner — constantly interacting with suppliers, partners, sales departments and customers.

How can companies produce in a more energy and resource-efficient way? Where can raw materials be purchased for a low price and where could delivery bottlenecks occur? Networked production systems, while responding to the results of these questions, also continuously optimize products on the basis of customer feedback and adapt them to requirements.

This constant exchange of information creates a production process that continuously organizes and optimizes itself, with intelligent products, machines and resources controlling each other. In this kind of process, consistent interfaces and standards for the exchange of data are essential.

With these measures in place, the fusing of the digital world and real world become reality: Industry 4.0 is born.

Networked production

Fully networking mechanics, electronics and data means that end products can be highly individual — and therefore meet customers’ continuously changing requirements — in a cost-effective manner and in batch size 1. A change requested by the customer can be implemented even during ongoing production — without the process being slowed down.

It is already apparent that the trend toward individual living spaces as a place of relaxation will continue to grow in importance. In particular, furniture manufacturers are focusing their production more heavily on the individual home requirements of end customers. The following pages give an insight into what awaits us and what is already possible today with networked production by the HOMAG Group.

The Internet of Things

Based on cyber-physical systems fusing real objects with information-processing virtual objects and processes via information networks (e.g., the Internet).

Industry 4.0: All areas involved in the process are interlinked globally via standardized interfaces.

Energy and resource efficiency as decisive competitive factors

• Shorter innovation cycles
• More complex products
• Larger volumes of data
• Customized mass production
• Volatile markets
• High productivity

Increase efficiency

Reduce time-to-market

Increase flexibility

Increase competitiveness
Optimally networked, with people taking center stage.

Networked production means individual production that is as efficient as possible and adapted to the customer’s requirements. It is essential that all components involved in the production process communicate with one another. A central production control system organizes and monitors the flows of information. People are the key success factor: People make sure that production runs smoothly and bring their experience to the table. People are the only universal sensor that we know; people are indispensable as decision makers in factories. Not everything can be automated — and employees continue to be a key part of production.

Networked production: Already a reality with the HOMAG Group

ecoPlus — Technology that really pays off
Efficient work, increase in productivity, reduction in the amount of energy and resources consumed — with ecoPlus, you can save up to 30%.

MMR (Machine Monitoring & Reporting)
MMR is a diagnostic system to analyze and optimize production (cause and effect relationship). It supplies evaluations of machine data on all levels: unit, machine and cell.
The advantages: Increased productivity, availability and flexibility.

Sales (point of sale)
How do you know what a piece of furniture will look like in your own home before you have bought it? Using the latest apps and the camera function on their smartphones, end users can position their customized furniture virtually in their home, turning furniture designs into something they can actively visualize. A quotation for the furniture is provided and the customer can order the item straight away — all via the app and the Internet.

Order processing
Order processing ensures that the furniture or parts to be manufactured are clearly recorded and defined. Parts lists, pricing and a description are provided for this purpose. The quality of the data is critical to the subsequent processes. All production data is generated efficiently from the order data, within a very short timeframe.

Production control system
A higher-level, intelligent production control system interlinks planning, production and the material flow. This means that the correct information always goes precisely where it is needed, exactly when it is needed. The production control system takes over control of the processes and provides specific and targeted data from the work preparation stage for the production stage.

powerTouch — Machine operation via a touch screen
Easy to operate — just like a smartphone. The standardized powerTouch operating system and powerControl control technology guarantees an optimum manufacturing process across all networked machines.
Pioneer of networked production.

The aim of networked production is to produce customized furniture on an industrial scale – in the most efficient way and at a similar cost to that of mass production. With networked production, the HOMAG Group offers an end-to-end flow of information. In addition, the intelligent workpiece plays a role, communicating to machines how it is to be processed. For this purpose, every workpiece is equipped with a digital identity that contains all specifications and production parameters.

The five fundamental elements of networked production:
1. The digital component
2. The intelligent machine
3. Vertical networking
4. Horizontal networking
5. The intelligent workpiece

The digital component
The digital component is clearly distinguished by dimensions, color, shape and processing steps.

The intelligent machine
The "intelligent machine" controls, monitors and optimizes itself. At the same time, the machine communicates with the production control system and the workpieces to be processed.

Vertical networking
In the sales area at the POS (point of sale), the customer’s requirements are recorded digitally. As part of internal order processing, this order data is supplemented with additional production data via automated guidelines. The resulting "digital component" is transferred to the machines in production via the production control system. Once there, the component controls the completion of the customized order. Working in this way means that errors as a result of manual intervention can be almost completely eliminated.

Horizontal networking
From suppliers and tool manufacturers to subcontractors and partners along the entire process chain in furniture production, there is absolute transparency. The "intelligent workpiece" passes through production independently, without any errors, efficiently and optimized for speed. In the process, all HOMAG Group units communicate with one another via standardized interfaces. The continued standardization of these interfaces is a central task in the current developments underway in Industry 4.0.