

KUKA



Industrie 4.0_ **KUKA SmartProduction**



SmartProduction_management

Improves maintenance and operations by providing required and the latest information at right time and place



Basis

- Mobile availability of technical documentation
- Creating virtual layout of plant and data
- Presenting documents and data location based on mobile devices
- Tracking via QR Codes, RFID, OCR

Further packages available on request



Package 1: Indoor navigation / PLC online information

- Creating an interface to PLC for live information about technical devices
- Plant indoor navigation → user-friendly directions

Package 2: Augmented Reality asset recognition

- Augmented Reality support
- Identification of and focus on point of interest



Transparency



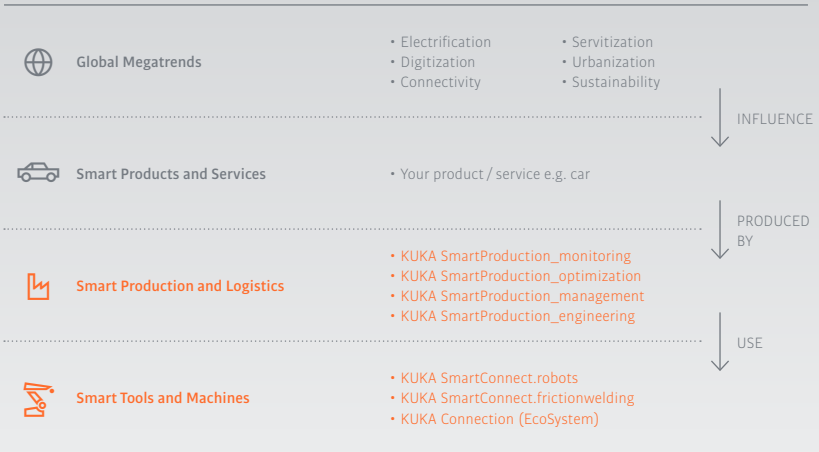
Availability



TCO

Global Megatrends and SmartProduction

SmartProduction by KUKA enables manufacturers of smart products and services to produce **efficiently, flexibly** and **sustainably**.



SmartProduction_get connected

SmartProduction_get connected seminars 2017



Get informed

Why should you care about Industrie 4.0?
Learn about what Industrie 4.0 entails,
its enablers and new business models



Get aware

A two-sided medal, Industrie 4.0 can be
both risk and opportunity. Identify your own
potential!



Get inspired

How do others do Industrie 4.0?
Learn from KUKA's experience with smart
production, its manufacturing EcoSystem
and human machine interaction



Get ready

Innovation Workshop:
Use KUKA's methodology to develop
innovations from ideas for your own strategy

Interested to learn more? Contact us directly
or via smartproduction.systems.de@kuka.com

SmartProduction_optimization

Smart analysis tool to identify bottlenecks and optimize according to individual preferences, e.g. cycle time, material, etc.

- Monitoring of real-time data, recognition and prevention of weak-spots and reduction of downtime
- Optimization based on results of SmartProduction_monitoring
- Decreasing of cycle time and increasing of overall production efficiency
- Avoiding material inefficiency, e.g. optimize glue cleaning cycles
- Reduction of CO₂ and energy consumption



Energy Use



Material Use



Efficiency

SmartProduction_monitoring

Cloud-based system that collects process data from the PLC to analyze errors, performance, technical availability, cycle time, long-term trends, and much more.

- Use SmartProduction_monitoring in order to optimize the ramp-up phase
- Reporting tool for your production performance
- Different views:
From Management Cockpit to shop floor level



Transparency



Cycle Time



Uptime

Your benefits...

Quality

Our solutions enable you to identify areas of improvement quickly and preemptively identify areas of improvement, thereby allowing you to continuously raise your level of quality.

Flexibility

The world is changing quickly because of digitalization. Thanks to our experience, being at the pulse of industry innovation, our solutions help keep you flexible and able to quickly adapt to changes.

Uptime

Produce more efficiently by decreasing your downtime/increasing your uptime. With our solutions you could decrease your downtime by up to 10%*.

Transparency

Our solutions collect and comprehensively visualize all significant areas of your production, thereby increasing overall transparency. This is the basis for our optimization processes.

Cycle time

Significantly increase your productivity through SmartProduction_optimization, which has shown to decrease cycle time by up to 10 – 20%*.

TCO

Optimize your Total Cost of Ownership (TCO) through efficient resource allocation and accurate predictive planning.

Time to production

The ramp-up phase can be accelerated considerably through e.g. Virtual Commissioning, even more so with our solutions, which use real production data.

Connectivity

The connection of all production data, from materials to production processes, allows for transparency and thus optimization.

* KUKA internal test

Find more information about KUKAs use cases in our brochure “Hello Industrie 4.0_we connect you”

SmartProduction_engineering

The Matrix Production is characterized by flexible production cells that are connected via freely programmable logistic components.

The Matrix Production is an answer to many challenges in production:

- ✓ Production of increasing amount of variants and models in fluctuating quantities
- ✓ Economical production of small batch sizes in volatile and global markets
- ✓ Short time scalability



Basic Matrix components:

AGV Pool: "parking garage" of production

Warehouse: all relevant components are stored here

Toolstore: type-specific tools and process means are stored here

Production cell: easily adapted and converted to meet versatile needs



Flexibility


















TCO



Versatility

KUKA SmartProduction

	SmartProduction <u>_get connected</u>	SmartProduction <u>_management</u>	SmartProduction <u>_monitoring</u>	SmartProduction <u>_optimization</u>	SmartProduction <u>_engineering</u>
DEFINITION	"Identification of your Industrie 4.0 perspectives"	"Digitalization of daily life in a shopfloor"	"Visualize existing processes"	"Creation of additional benefits"	"Creation of new solutions"
EXAMPLE	 Get informed Get aware Get inspired Get ready	 Mobile Data Management	 PLC Analyst	 Energy & Material Efficiency	 Matrix Production
KEY VALUE	 Ramp-up Time  Understanding	 Availability  Transparency	 Cycle Time  Transparency	 Resource Use  Efficiency	 Versatility  Flexibility

Connyun platform

For further information please contact us at smartproduction.systems.de@kuka.com

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