**TRUMPF**

TruConnect

Your Smart Factory

Your strategy for the digital revolution

Within just a few years, digitalization has come to impact upon more and more areas of our lives. It is gradually transforming not only our private and social lives, but our working lives as well. Whether we're ordering books, transferring money, booking a trip, or searching for the way to an unknown destination: We reach for digital technologies as a matter of course nowadays. This same principle is now also revolutionizing the manufacturing industry.

One thing is certain: In the face of increasingly volatile markets, an increasing number of product variants, and shorter delivery times, sheet metal manufacturers need a robust strategy to ensure their success over the long term. Closing oneself off is simply not an option. Instead, industrial companies must build upon their strengths and take advantage of the opportunities offered by the digital world.
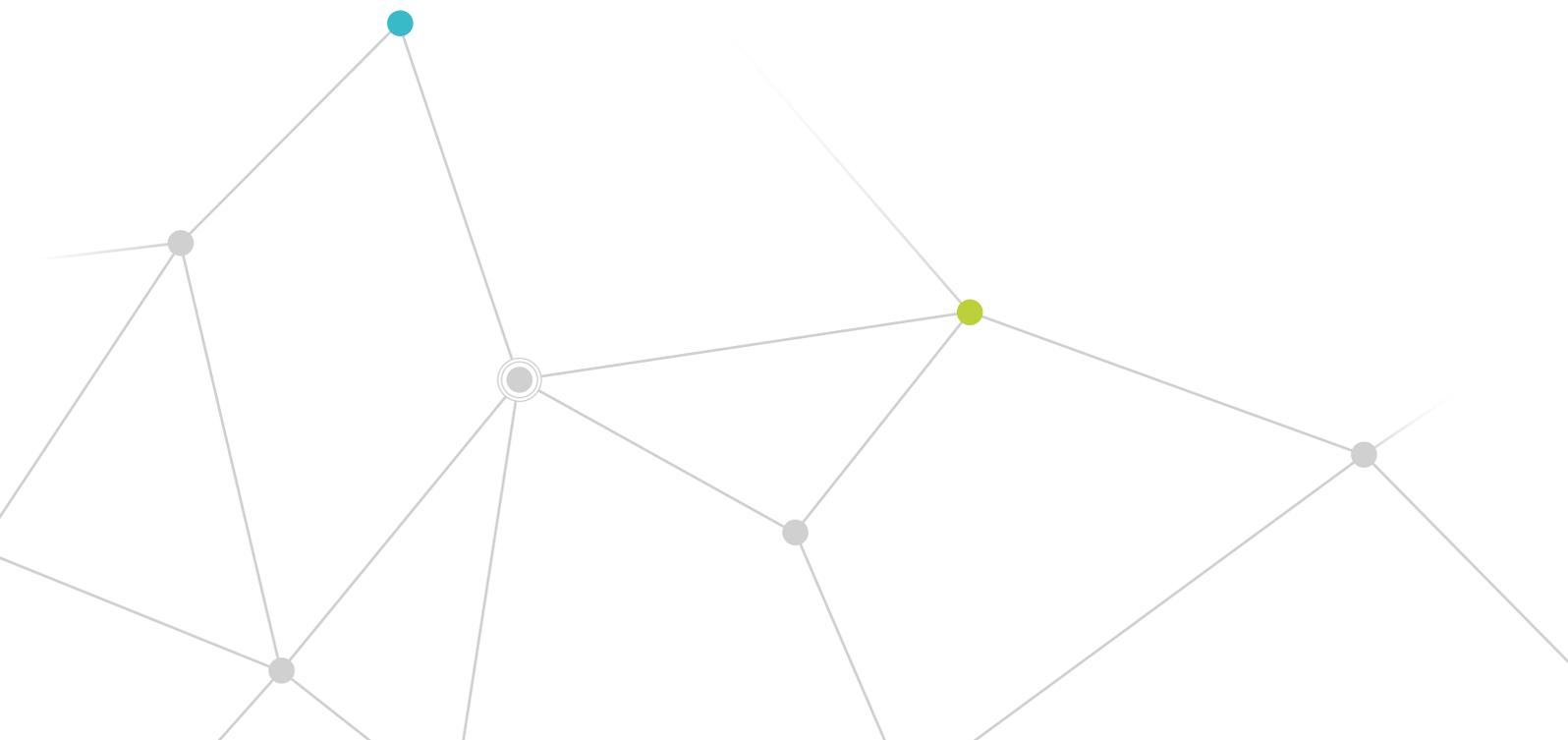
TruConnect: Climb on board

Connecting your company to the digital sphere means you gain a lot of freedom. In fact, even after taking the very first step, you can already see improvement in the transparency of your production system. Automate your processes with TruConnect, the range of solutions from TRUMPF designed to get the most out of Industry 4.0. You can do just that in three simple steps, tailored exactly to your personal business situation: from **getting started** and **improving gradually** through to being **entirely connected.** So why not climb on board today?

Getting started

FBT Feinblechtechnik GmbH
Dahlewitz, Germany – 10 employees. Contract manufacturer for laser cutting, bending, and welding. Specialist in stainless steel, aluminum, copper, and brass.

"Step by step to a Smart Factory together with TRUMPF at our side – that is my motto, and we've successfully taken the first steps in this endeavor."

Ralf Stirl, CEO,
FBT Feinblechtechnik GmbH

Improving gradually

KNOLL Maschinenbau GmbH
Production in Bad Saulgau, Germany – 1,000 employees. Supplier of conveyor and filtering installations as well as pumps for metal processing.

"In the past four years we have increased productivity in sheet metal processing by about 25% – probably even more. As a result, we've got off to a great start."

Joachim Riebsamen,
Head of the Shell Construction department,
KNOLL Maschinenbau GmbH

Entirely connected

Shandong New Beiyang Information Technology Co., Ltd.
Fully automated production in China. Contract manufacturer for ticket printers, scanners, ATMs, and packing stations.

"Customers are impressed by our manufacturing expertise. So our investment has paid off, although we're still at the start of our journey towards Industry 4.0."

Liu Bo, Production Manager,
Shandong New Beiyang
Information Technology Co., Ltd.

The building blocks of your Smart Factory

No two production facilities are the same, which is why your path to a Smart Factory needs to reflect your individual circumstances. Modular solutions from TRUMPF are designed to help you make your entire process more transparent, more flexible, and above all more efficient.

Hardware

TRUMPF machines

+

Software

Offer preparation
TruTops Calculate

The software quickly calculates the anticipated times and costs for parts and entire assemblies produced using TRUMPF punching, punch laser, laser, or laser tube cutting machines.

Programming
TruTops Boost

Move from the geometry to the NC program faster than ever be- fore. A unique software program for 3D design and pro- gramming for laser, punching, and bending machines, designed to take your performance to the next level at the touch of a button.

Control
TruTops Fab Quickjob Module

You can manage and keep an eye on all machine jobs. The machines automatically report back the order status, which enables you to manage your orders more efficiently.

+

Services

Consulting   **Implementation service**

TRUMPF processing cells

Fully networked production systems

Monitoring
TruTops Monitor

Record and analyze machine data, such as idle states, error messages, fault causes, breaks, and maintenance periods, from all workstations in your production facility.

Store management
TruTops Fab Storage Module

Whether it's stock management, a manual store, or an automatic large-scale store, you can control your material flow and automatically manage your inventory.

Administration management
TruTops Fab Purchase and Customer Modules

Simplify your raw materials management and your purchasing process. You can easily process customer orders from the offer right through to the invoice.


Training

Technical Service

Go with the flow

By intelligently linking all the different elements in your production system, they unite and enable you to exploit their full potential. This includes subsystems, software solutions, the machines and automation components, right through to management of suppliers and customers. As a result, you waste less time and effort managing the various elements, and you benefit from lean, economical processes – which ultimately makes you more productive.

Work preparation

Production planning

Offer calculation and preparation

Programming

Customer inquiry

Dispatch and invoice preparation

Cutting

**Forming**

Order completion and dispatch
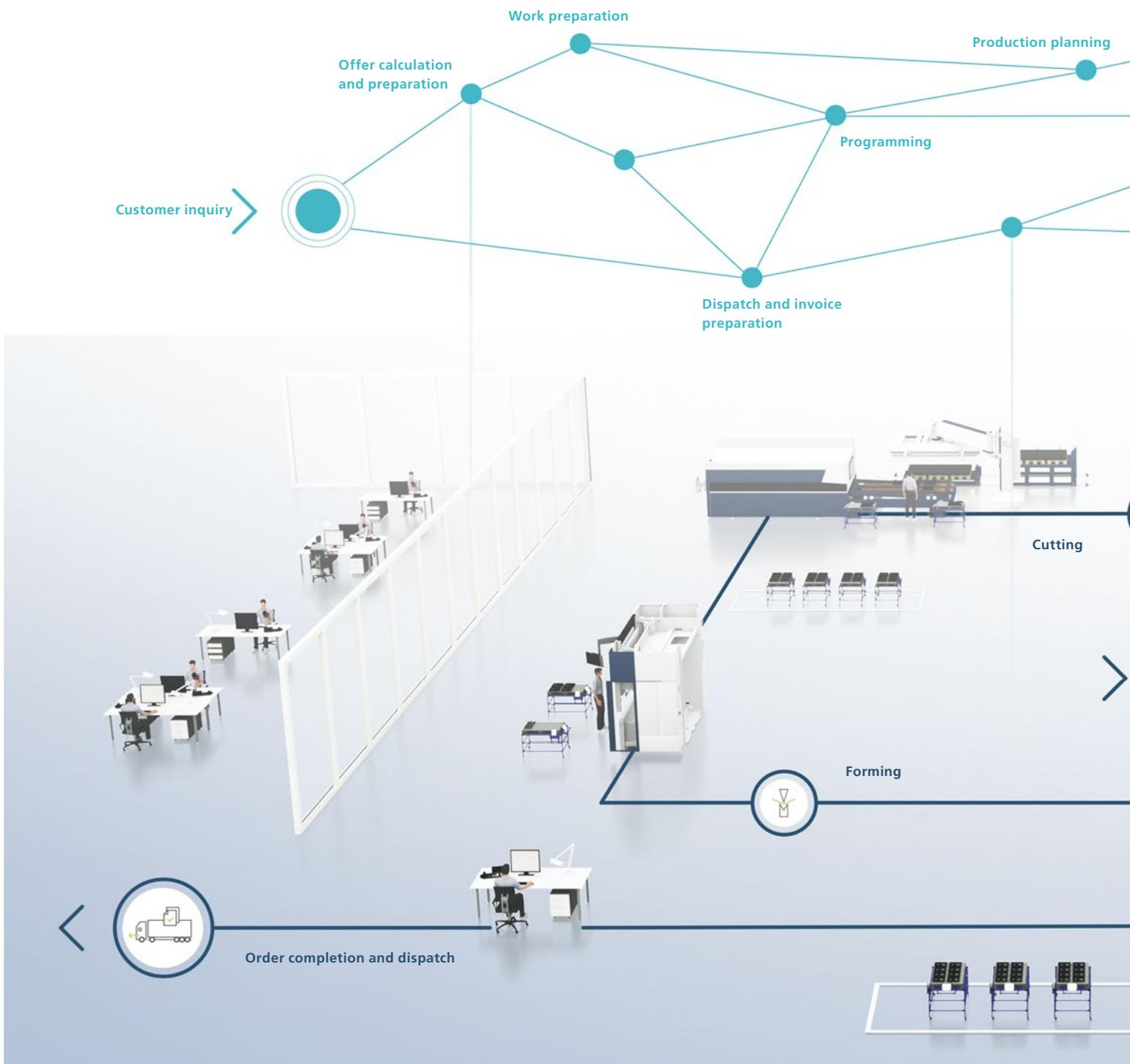
○ **Material flow**
The intelligent material flow with automated parts localization takes your productivity to the next level. This is based on an integrated storage and logistic system, designed to bring the raw material and parts you need to the right processing station at exactly the right time.

● **Information flow**
The machines report their production status to the central TRUMPF software. This is where you can monitor all your orders and automatically plan, manage, analyze, and optimize your production process.

Production control

Order management

Purchasing management

Store management

Automated material flow

Joining

Intralogistics and setup

Marking
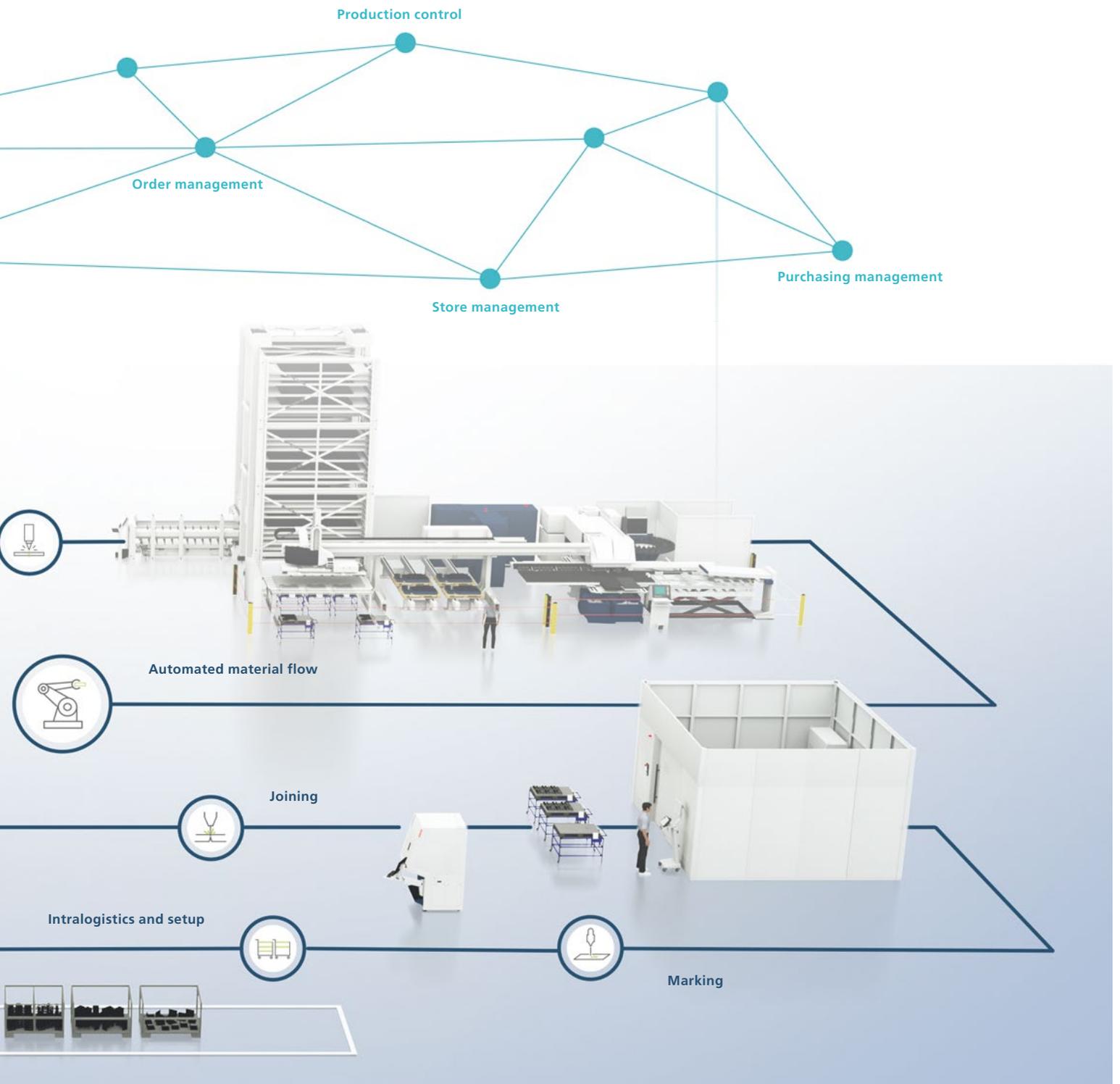
Making concepts a reality

If you think that an entirely connected production system is still merely a theoretical concept, simply come and visit us in Chicago. We'd be delighted to show you how an entirely connected production facility actually works in practice. TRUMPF's Technology Center, opened in 2017, is a prime, practical example of how people, machines, automation functions, and software can all work together in perfect harmony.

The control room – the nerve center of the facility with large displays – shows visitors process parameters from live production in real time.

The skywalk enables visitors to see how the production systems, including the flows of information and material, work as one entire system.

Production hall: **55 m** long
with an area of **5,500 m²**

Discover how networked production actually works in practice.
On site from the skywalk above the production hall, or in our film:
www.trumpf.info/9bcope

Getting started

Brandenburg-based contract manufacturer FBT Feinblechtechnik turned to TRUMPF with a request to make their production system faster and more flexible. The solution was to improve their in-house production so that it met Industry 4.0 standards. Working hand in hand with TruConnect experts, FBT analyzed every process step and introduced specific measures to improve its processes. The result speaks for itself:

FBT Feinblechtechnik
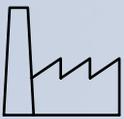
FBT Feinblechtechnik manufactures high-quality parts for the mechanical engineering, electronics, rail vehicle engineering, medical technology, chemical, and equipment engineering industries, as well as for apparatus, container, and system construction.
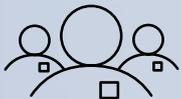
10 employees

FBT now only needs 24 to 48 hours to complete an order – a far cry from the 5 to 15 days it took previously.

Boost productivity in 3 steps

1. Analyze where the problems are

2. Find out what has to change

3. Address what is networked

See things more clearly and speed up production: After introducing a control system, the throughput time fell by 40%.

Interview with Ralf Stirl:
www.trumpf.info/p0va9c

Link to customer story:
www.trumpf.com/de_DE/produkte/smart-factory/kundenstory-fbt-feinblechtechnik/

Improving gradually

KNOLL Maschinenbau in Bad Saulgau was an early adopter of networking solutions to ensure their success over the long term and sharpen their competitive edge. The aim was to create enough storage capacity to meet future requirements while also boosting productivity. They succeeded on both counts.

KNOLL
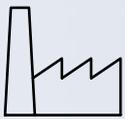
KNOLL is headquartered in Bad Saulgau and is a leading supplier of conveyor and filtering installations. The company's positive displacement pumps are used in sectors such as the chemical and food industry. Highly flexible assembly and transport systems round off their portfolio.
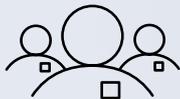
1,000 employees

Automation solutions measuring some 70 m save space and ensure an optimal material flow. A key element is a fully automated STOPA store with 1,200 storage locations and 13 loading and unloading stations.

A step-by-step guide to smart networking

1. Define the requirements
2. Fully automate the store
3. Intelligently control the material flow
4. Optimize the entire process

**A quick response and fast processes:
25% higher productivity in sheet metal
processing after the optimization measures.**

Interview with Joachim Riebsamen:
www.trumpf.info/umcylf

Link to customer story:
www.trumpf.com/de_DE/produkte/smart-factory/
kundenstory-knoll/

Entirely connected

Fully automated in record time: Following a major order, the Chinese sheet metal fabricator decided to evolve its production into an Industry 4.0 factory. Shandong New Beiyang Information Technology Co., Ltd. (SNBC) knew from previous projects that TRUMPF has no equal in reliability and innovative strength. Their efforts proved to be a big success.

SNBC
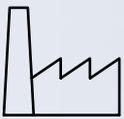
SNBC is a specialist in developing, producing, and selling products in the fields of thermal printing, identification, and intelligent system integration. The company has established itself as one of the world's leading suppliers of ticket printers and scanners.
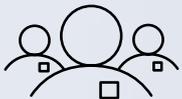
2,000 employees

126-m-long automation solution with STOPA store and fully automated machines, as well as an end-to-end TruTops software system.

Create a Smart Factory in just 4 steps

1. Analyze each part of the assembly
2. Intelligently network the STOPA store and machines
3. Involve all employees in creating the processes
4. More efficient management and production

> **Boosting transparency and productivity with 3-shift operation: 120,000 units produced each year.**
> **20% higher production output as a result of automation.**

Interview with Liu Bo:
www.trumpf.com/filestorage/TRUMPF_Master/Products/
Smart_Factory/Kundenstories/03_Kundenstory_SNBC/
TruConnect_Kundenstory_SNBC_Video_DE.mp4

Link to customer story:
www.trumpf.com/de_DE/produkte/smart-factory/
kundenstory-snbc/

Questions to safeguard your future

What strategy should you pursue in order to successfully implement a networked production system? The following questions are intended to help you determine your requirements and identify your goals. We can offer you personal advice, tailored solutions, and comprehensive support to implement your requirements in practice. Simply get in touch with us – we would be glad to assist you!

		Yes	No
1.	Is your manual work minimal in terms of indirect tasks (calculations, offer preparation, order creation, programming)?	☐	☐
2.	Do you optimize your direct and indirect processes in line with lean principles?	☐	☐
3.	Is your overall process sufficiently transparent for you to plan and control your production system with flexibility?	☐	☐
4.	Are you using automation solutions?	☐	☐
5.	Do you program your systems offline (not on the system itself)?	☐	☐
6.	Do you receive order-based feedback after each operation, and do you use this data to control and develop your processes further?	☐	☐
7.	Is your stock management (minimum stock, automatic orders) based on automatic logic?	☐	☐
8.	Do you check your master data regularly and do you know if you are producing each individual product profitably?	☐	☐

Did you answer no to one or more of the questions?
Then get in touch with our Smart Factory consultants – they will happily provide you with support and expertise on your path to highly productive sheet metal processing: smartfactory.consulting@trumpf.com

We will pave the way to networked production for you

TRUMPF will support you from the initial idea right through to the realization of your Smart Factory. Every company takes their individual path toward their Smart Factory, so our solutions are just as unique as you. Systematically plan the next steps for your networked sheet metal processing system together with our experts.

1.   **2.**   **3.**   **4.**
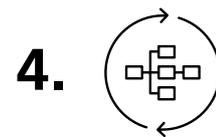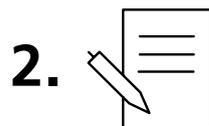
Analysis

Once your direct and indirect sheet processes have been analyzed, we will provide you with specific recommendations as to how you can best optimize your production.

Contents

- Analysis of the current situation of your process chain and parts range
- Determination of potential for optimization
- Creation of recommendations for action
- Definition of a road map

Planning

Plan the networked sheet metal processing system tailored to your needs to-gether with our experts. You will be provided with a layout plan as well as a concrete concept for implementation.

Contents

- Choice of technology
- Design of the flow of material and information
- Layout plan
- Creation of a plan for implementation

Support during implementation

You can rely on our experts providing you with expertise during the realization of your networked sheet metal processing system.

Contents

- Project management
- Implementation of your TRUMPF hardware and software components
- Support during implementation

Ongoing development

So that you can permanently drive your processes forward, we will be a partner to provide you with support in the long term.

Contents

- Production support
- Component optimization
- Development of shop-floor management and support during implementation
- Realization of measures to boost productivity
- Smart services for long-term value creation

Passion is what drives us

Whether it's production and manufacturing technology, laser technology, or material processing – we develop highly innovative products and services which are suitable for industry and absolutely reliable. We put everything we've got into giving you a compelling and competitive edge – expertise, experience, and a lot of passion.

Lasers for manufacturing technology
Whether on a macro-, micro-, or nanolevel – we have the right laser and the right technology to produce innovatively and cost-efficiently in every industrial application. Beyond the technology itself, we support you with system solutions, application knowledge, and consulting.

Power supplies for high-tech processes
From semiconductor manufacturing to solar cell production – with our RF and MF generators, the current for induction heating, plasma and laser excitation is given a defined frequency and power – with high reliability and repeatability.

Machine tools for flexible sheet metal and tube processing
Whether it's laser cutting, punching, bending, or laser welding – we offer tailor-made machines and automation solutions, including consulting, software, and services, for all processes in flexible sheet metal processing – so you can reliably manufacture your products to exacting quality standards.

TRUMPF
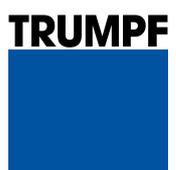
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TRUMPF Laser- und Systemtechnik GmbH
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