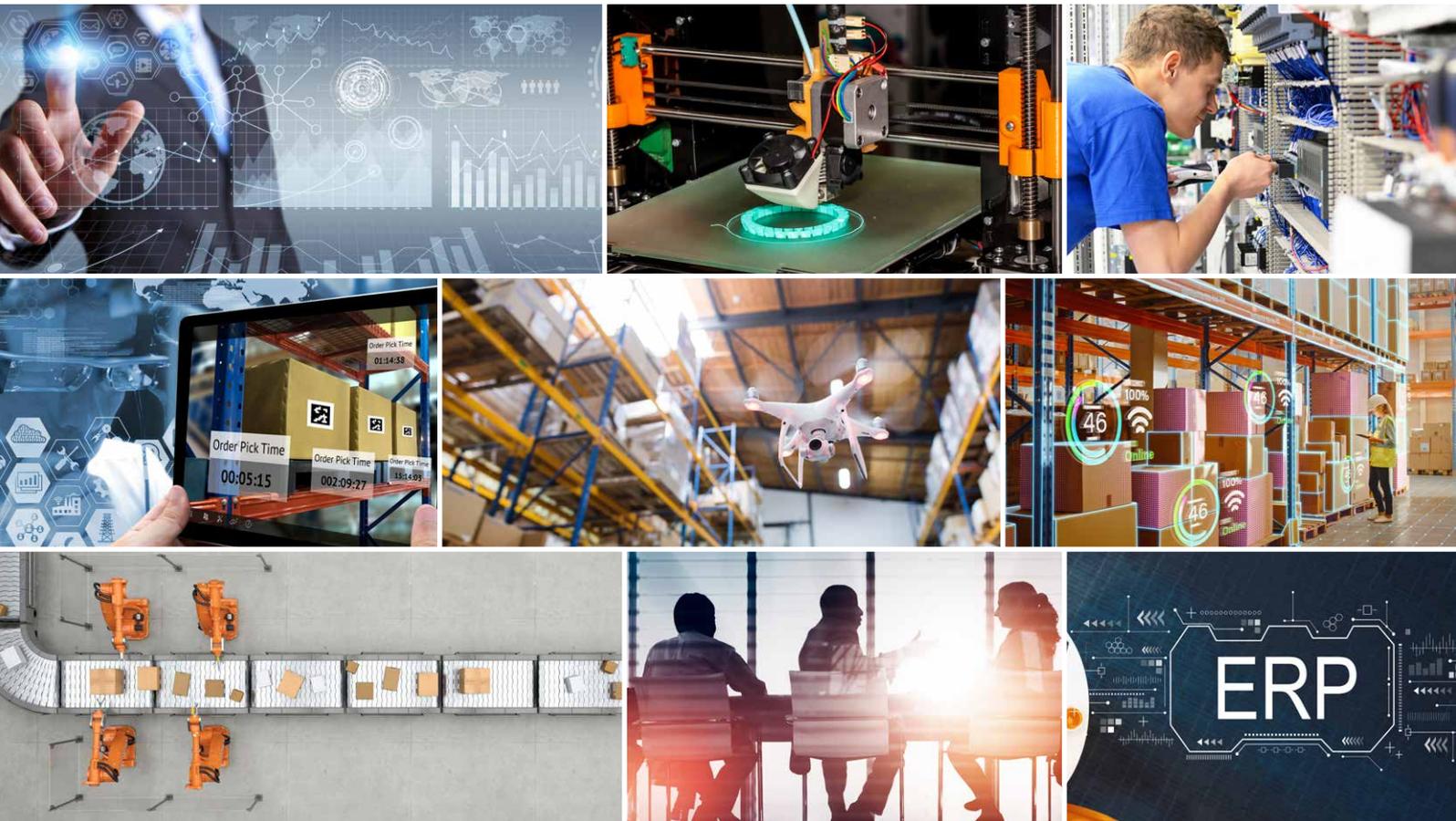

Our services for industry





About us

The IPH – Institut für Integrierte Produktion Hannover gGmbH is a production technology service provider. Our main fields of work are research and development, consulting and training.

Led by the institute's three partners – Professors Peter Nyhuis, Bernd-Arno Behrens and Ludger Overmeyer (photo, from left) – we are constantly working to advance and implement new, innovative ideas in the fields of production automation, process technology and logistics – always with an eye on the big picture. The IPH also focuses on research in digitalisation, artificial intelligence and additive manufacturing.

We see ourselves as mediators between theory and practice. Our solutions are developed in interdisciplinary teams consisting of mechanical and industrial engineers, specialists in business information systems, technical business administrators, cultural theorists, science communication experts and technicians. Together, we are able to develop pioneering solutions and incorporate unconventional ideas into our efforts.





Research. Development. Consulting.

We conduct application-oriented research in the engineering sciences and create innovative solutions for our clients. Ongoing high-level research is the key to the high standard of our consulting projects.

Our aim is to identify advanced solutions at an early stage, further develop new ideas and implement them in industry together with our clients. Cooperating with other research facilities ensures an interdisciplinary exchange of ideas and is the basis for establishing new research approaches in the scientific landscape.

We offer companies a wide range of opportunities for cooperation: As part of a **consultation**, we will rapidly develop a customised and needs-based solution to your challenge – exclusively for you. If a research topic is particularly relevant to you, we will develop strategic innovations on your behalf (**contract research**). Companies in the same sector or supply chain often face the same challenges – **collaborative research** can help you respond to them.

If you would like to benefit from new technologies that are about to hit the market, a **pilot application** is the way to go. If you are interested in regular updates on new application-oriented developments in research, we recommend **joining the project support committee** for a particular research project.

With minimal effort, you can be among the first to learn about the technology of tomorrow: join our **basic research** for regular briefings on the latest findings.



Image: IPH

Dienstleistungen für Ihr Unternehmen

The IPH: Service provider for industry

Are you looking for a tailor-made solution to your production challenges? With our cross-industry experience and interdisciplinary approach, we can respond to your needs with pinpoint accuracy.

Based on our areas of expertise, we offer various service modules, which you can combine to create service packages to suit your needs. Working on the basis of established modules and packages, backed by expertise, means that we can solve your individual challenges with proven approaches.

You can find out more about our areas of expertise in the following pages: our experts are only too happy to provide their support. Scan the QR code to go straight to our website for further information about the service you are interested in.





Image: IPH

Consulting services

Automation technology	6
Data science	8
Digitalisation	10
Ergonomics	12
ERP/MES	14
Factory planning	16
Manufacturing processes	18
Material flow simulation	20
Project support	22

Production technology services

Conveyor idler testing	24
Additive manufacturing	25
Optical and mechanical testing services	26



Automation technology

We have garnered extensive knowledge of innovative concepts and solutions in automation technology.

With your input, we will create a tailor-made, manufacturer-independent automation solution for your production and warehouse – from assessing the required degree of process automation through to selecting suitable automation solutions and supporting you with their roll-out.

Are you looking for an objective assessment of how your production can be automated cost-efficiently? Do you want to know what improvements are feasible? Or are you looking to completely automate manual processes? We will be happy to advise you on all these topics.

Our service modules

-  production process analysis
-  automation scenario development
-  material flow simulation
-  automation scenario assessment and selection
-  vendor selection
-  roll-out support for automation solutions



Our service packages

assessment of the degree of automation



automation study



automation solution development and roll-out



Are you planning to automate a manual process? Are you unsure as to what degree of automation makes sense? Do you lack the time to perform a systematic analysis and develop optimal automation concepts from an engineering and cost perspective?

Then we would be happy to support you.





Data science

In today's world, data is becoming more and more important – it is generated, stored and processed everywhere. By optimising your data analysis, you can improve your business processes, price your products and services correctly, and make forward-looking decisions. Analysing and evaluating existing data can also help your company achieve energy and resource efficiency.

Once the data has been collected and comprehensively processed, it can be analysed using data science technology (e. g. data mining). You can then identify correlations or trends from this evaluation and use them for your company's benefit, for example to optimise processes.

Our service modules

-  requirements analysis and goal definition
-  data-based potential analysis
-  data understanding and preparation
-  data mining
-  roll-out support
-  artificial intelligence (AI)



Our service packages

data analysis potential



data mining



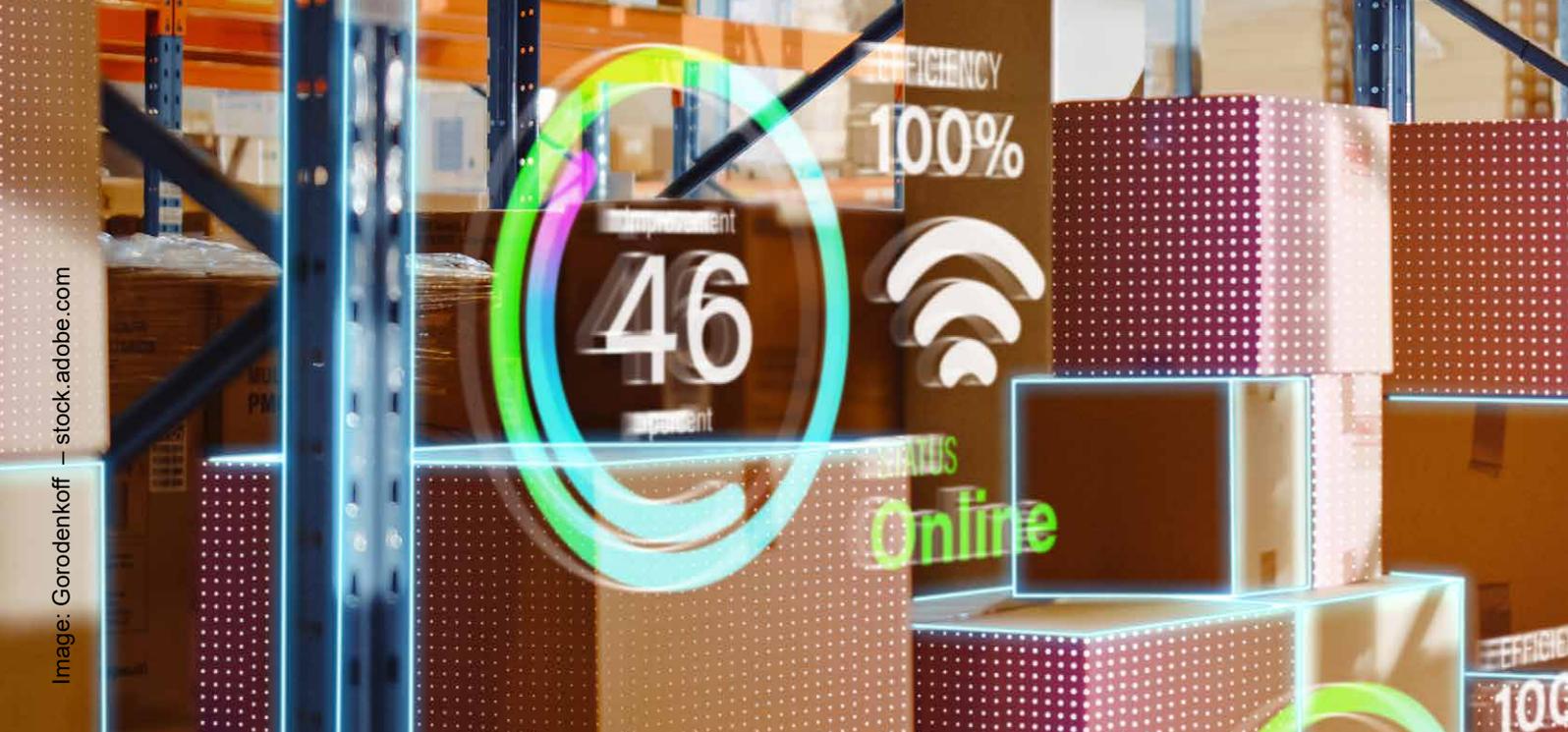
competence development and proficiency



Our service modules offer you all the steps you need to perform a comprehensive data analysis.

With their many years of experience in theory and practice, our employees are highly trained in these topics. They are happy to share their knowledge with you.





Digitalisation

The digitalisation of business processes is based on connecting people, products and production systems. The goal is to capture relevant information digitally, analyse it systematically and make it available as needed. This makes it possible to visualise production states in real time or to view cause-and-effect relationships between production steps – and much more.

Our approach is based on the latest research findings and well-founded practical experience gained during the roll-out and implementation of digitalisation solutions on numerous projects for various clients.

Our service modules

-  business process analysis
-  digitalisation scenario development
-  digitalisation scenario assessment and selection
-  vendor and technology selection
-  digitalisation solution roll-out and implementation



Our service packages

digitalisation specification



development and assessment of
concepts for Retrofit solutions



digitalisation solution development
and roll-out



Do you want to digitalise your business? Would you like to find out whether there is any potential for improvement in your processes and how to realise it? Are you unsure what scope of services a system should cover?

We would be happy to support you – from performing a requirements analysis all the way through to rolling out a digitalisation solution.





Ergonomics

Especially in times of skilled labour shortages, ergonomics in the workplace is crucial for employee health and productivity. It entails adapting work environments and equipment to people's needs in order to minimise physical strain and enhance well-being. Applying ergonomic design reduces sick days, increases efficiency and is a key factor in a business's long-term success.

By analysing and optimising your ergonomics, we enable your company to assess the impact of ergonomic adaptations on your production process from a quality perspective before the changes are implemented – and without interfering with ongoing production. This is just one example of how we can support you by conducting a comprehensive ergonomics analysis. Our service modules cover everything from surveying your current workplace to assessing planned new workstations or work aids.

Our service modules

-  requirements analysis and target definition
-  current state analysis
-  ergonomics concept selection
-  process optimisation based on ergonomic standards
-  ergonomics concept roll-out in production
-  economic efficiency analysis



Our service packages

ergonomics process analysis



development of an ergonomically optimised workplace



testing and review of ergonomic concepts



Do you want to set up a new workplace and assess it for potential sources of stress for your employees before it goes into operation? Would you like to know what potential for optimisation there is for existing workstations or aids? Would you like to test a new tool or an innovative work planning process without interfering with ongoing production?

Benefit from our many years of experience in theoretically substantiated and field-tested methods – we would be happy to analyse and optimise your ergonomics.





ERP/MES

Enterprise Resource Planning (ERP) and Manufacturing Execution Systems (MES) form the backbone of your business, thus ensuring its sustainable success.

With our team of qualified experts in business organisation, production technology, production planning and control, and information technology, coupled with our many years of experience in the manufacturing industry, we can support you with selecting and rolling out a new ERP or ME system. As experts in this area, we are also able to assist companies without production facilities.

As independent specialists, we place value on selecting a system tailored to your needs and in line with your requirements, time constraints and budget. To do this, we examine your business processes and work with you to optimise them.

Our service modules

-  business process analysis and optimisation
-  requirements analysis, including prioritisation
-  market analysis and supplier pre-selection
-  comparison of system functionalities and detailed selection
-  vendor presentation and final selection
-  contract negotiation assistance and system roll-out support

ERP

Our service packages

ERP/MES review



ERP/ME system selection



ERP/ME system roll-out



Do you want to implement a new ERP, MES or another business software solution, but don't know which of the numerous software solutions on the market is right for your company?

Or perhaps your company already has an ERP or ME system, but you are convinced that there are better solutions out there or that you could make better use of the system?

We would be happy to support you with your ERP or MES project.





Factory planning

In order to sustainably improve the logistics, production or resource management of your existing or planned factory and to guarantee the best advice on factory planning, you need well-founded, structured and holistic factory planning concepts and tools.

We have been successfully planning factories since our founding in 1988. We incorporate both advanced technology and the latest research findings into our work, applying innovations such as 3D visualisation, virtual reality (VR) and artificial intelligence (AI) in factory planning. Using drones enables us to survey factory layouts quickly and accurately.

We offer interdisciplinary planning services in cooperation with architectural firms. Applying a proven synergetic factory planning process guarantees fast and high-quality results thanks to the efficient collaboration of the disciplines involved – architecture, logistics and building services.

Our service modules



requirements analysis and target definition



factory analysis and basic evaluation



3D visualisation



structure design and rough layout planning



layout assessment and layout selection



detailed layout planning



Our service packages

3D current state mapping



reorganisation planning



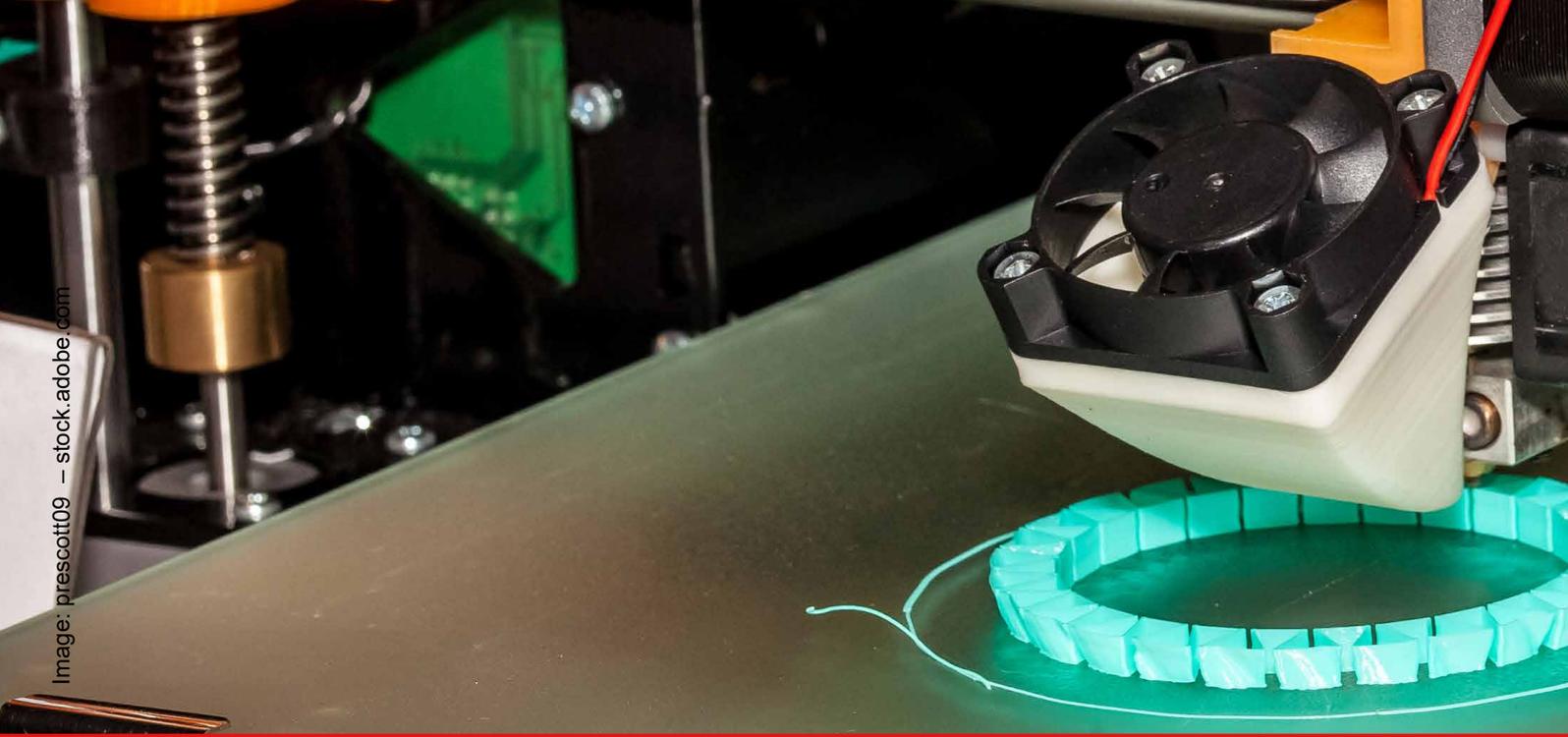
greenfield planning



Do you want to optimise your factory or warehouse? Is your factory capacity almost bursting at the seams? Are established structures limiting your options? Would you like to take a virtual tour of your future factory during the planning phase?

Whether you need assistance mapping the current situation in your factory, reorganising your layout or planning a new facility, we are happy to support you with your factory planning and to share the knowledge and expertise we have garnered over many years in this area.





Manufacturing processes

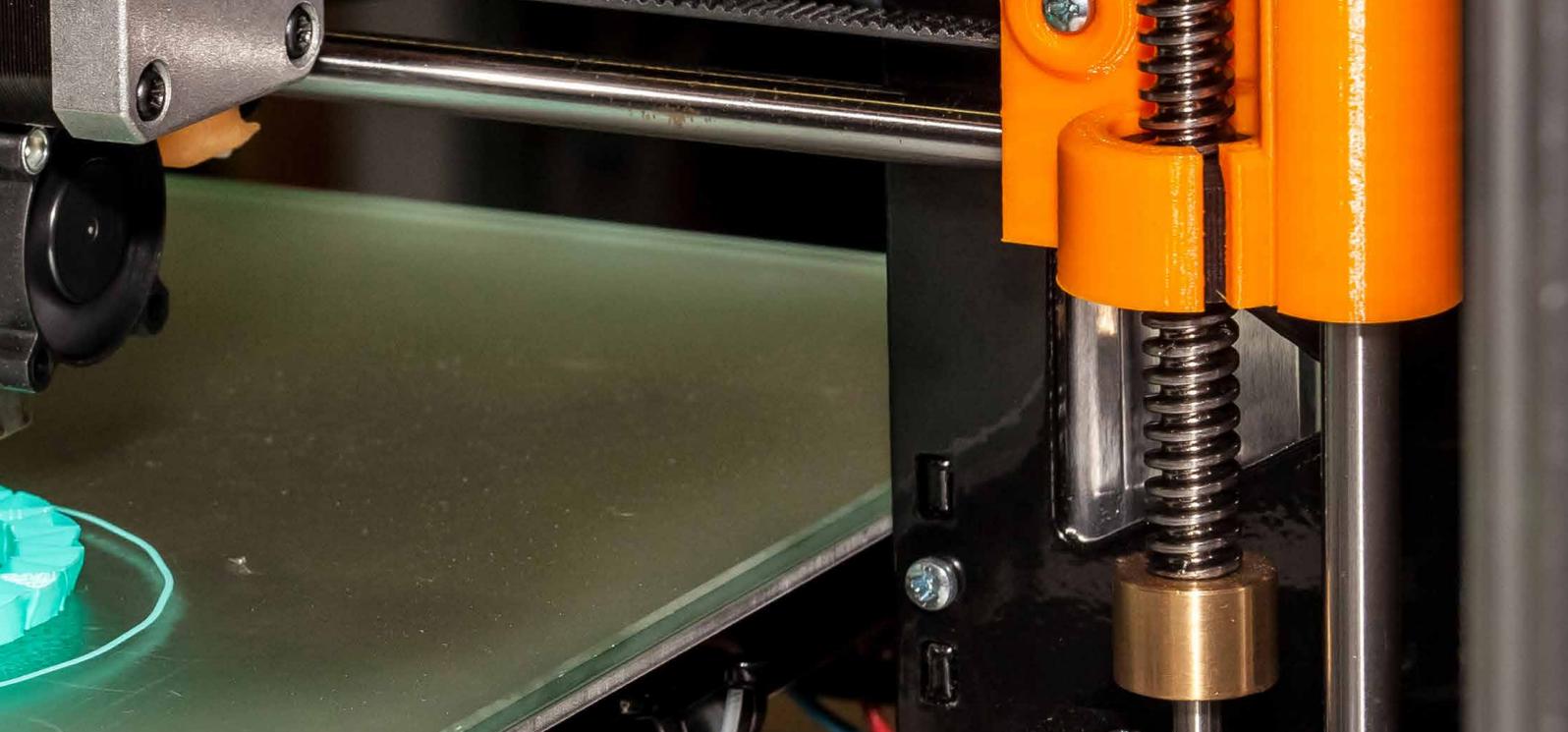
Our expertise in established and innovative manufacturing processes, such as casting, machining and especially forming, enables us to provide sound advice on how to optimise your processes. We specialise in resource-efficient forming technologies such as flashless forging and cross-wedge rolling.

Our areas of expertise include the assessment, selection and roll-out of alternative manufacturing methods, including additive manufacturing. We provide comprehensive potential analyses and technical feasibility studies, and optimise existing processes.

With over 20 years of experience, we also offer forming tests and FEM simulations in addition to process design. Our range of services covers both theoretical principles and practical applications.

Our service modules

-  requirements analysis and target definition
-  current state analysis of manufacturing processes
-  research and assessment of alternative manufacturing processes
-  manufacturing process optimisation
-  supplier selection
-  economic efficiency analysis



Our service packages

manufacturing process research,
evaluation and selection



economic efficiency analysis and
supplier selection



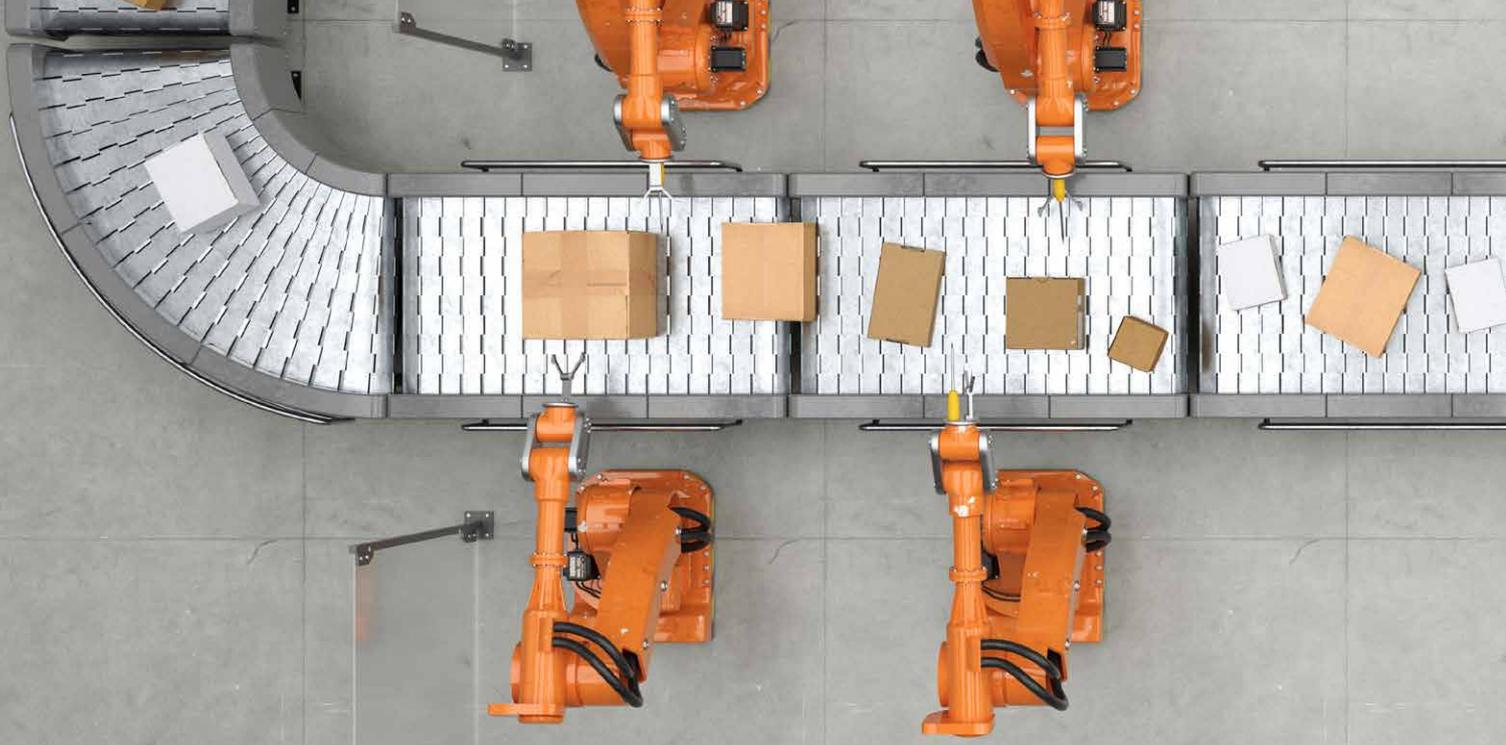
digital process design and
forming process testing



Are you looking for alternative ways to manufacture your components? Are you interested in the potential of other manufacturing processes and wondering whether they are more cost-efficient than the technology you are currently using?

Then we would be happy to help you research, evaluate and select manufacturing processes.





Material flow simulation

With the aid of material flow simulations, we enable companies to quantitatively review the effects of adjustments in their production processes before they are implemented, without affecting ongoing production. These adjustments might include rolling out drones or automated guided vehicles (AGVs) in intralogistics.

A material flow simulation can be applied during the planning, implementation and operation phases of production systems.

Our experts will be pleased to assist you in conducting a comprehensive simulation study – from sizing equipment to determining emergency response strategies in case of incidents and reviewing scheduling control procedures.

Our service modules

-  requirements analysis and target definition
-  equipment and process analysis
-  model variant development
-  simulation and variants using quantity scenarios
-  simulation result analysis
-  recommended actions



Our service packages

bottleneck analysis in variable load situations



plant capacity dimensioning



selection of alternative transport and production technologies



Would you like to set up a new production system and review your plant dimensioning or determine your staffing requirements before implementing it? Are you wondering where there is potential to increase your existing production or where temporary bottlenecks occur? Would you like to test a new control procedure or an innovative organisational design without interfering with ongoing production?

Then we would be happy to support you by conducting a comprehensive simulation study.





Project support

For a project to succeed, efficient project support is crucial: it provides structure, orientation and guidance throughout the entire process.

Our experts implement the services we offer, but we are also happy to support your company if you want to roll out your project yourself. We support you in defining goals and identifying and solving problems at an early stage. We also focus on promoting teamwork, which ensures clear communication and is a key factor in implementing your project in a structured and goal-oriented manner.

One valuable tool for project support is a Failure Mode and Effects Analysis (FMEA). In workshops, we identify risks and vulnerabilities at an early stage, which enables targeted risk minimisation and thus increases the efficiency and reliability of the project deliverables.

Our service modules

-  potential analysis
-  transformation roadmap preparation
-  project support for production technology projects
-  change management for production technology projects
-  increasing resilience
-  failure mode and effects analysis



Our service packages

individual project plan development



project coaching to support project implementation



complete project support from planning to implementation



Have you planned a project within your company, but you are still looking for the right project support to guide you through its implementation?

We will be happy to support you – whether this is by drawing up a detailed and realistic project plan or by facilitating and chairing workshops to establish the framework you need to achieve your goal for your project.





Conveyor idler testing

IPH has extensive expertise in intralogistics and the associated automation and conveyor technology.

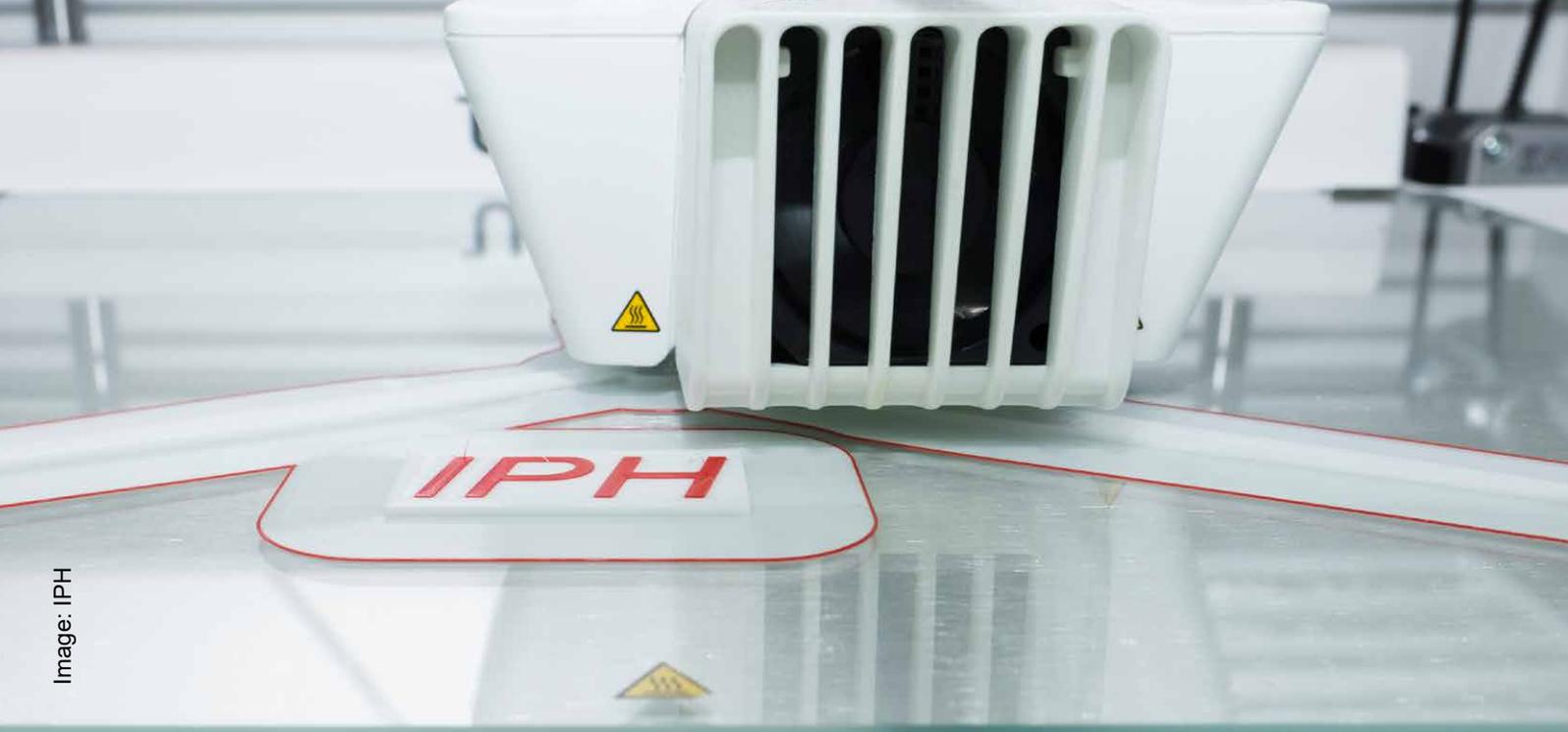
We offer independent testing of conveyor belt idlers, assessing their running properties in accordance with the testing standards DIN 22112, SAB 1313 and DIN ISO 21940-11. Our modern test rigs can measure properties such as running resistance, balance quality, concentricity tolerance, axial displaceability, and water and dust tightness.

The tests provide you with information on idler behaviour during operation, as well as an assessment of how idler properties influence the energy requirements of your conveyor belt systems.



Our testing services

- running resistance
- concentricity tolerance
- axial displaceability
- breakaway mass
- balance quality
- water and dust tightness
- testing services outside DIN specifications, in line with client requirements



Our service modules

- 
prototype development and production
- 
requirements analysis
- 
testing and analysis methods
- 
process development
- 
additive manufacturing process analysis
- 
additive manufacturing roll-out support

Additive manufacturing

IPH offers specialised additive manufacturing services, including 3D printing of prototypes, custom-made products and low-volume batches. We have various 3D printers that can process a large number of materials. Our XXL 3D printer is an in-house development and capable of producing particularly large components with an edge length of up to one metre.

To promote sustainability at IPH, we have introduced a recycling line. It shreds, dries and processes plastic waste into new filament. Direct printing from recycled granulate is also possible.

IPH also offers technologies for the surface treatment and mechanical testing of the printed parts to enhance the quality and functionality of your production output.





Optical and mechanical testing services

Accuracy is crucial – we offer you high-resolution measurement technology for testing your components. Our services include precise 3D measurement, which ensures quality assurance right from the development phase.

We have various measuring systems that enable us to take fast and precise measurements. In addition to checking tolerances and surface qualities, scanning technology also enables us to create digital images – for example, to produce a copy of a defective component in an additive manufacturing process.

With to our testing machines, we can test the mechanical properties of plastic components using standardised samples as part of a comprehensive assessment.



Unsere Dienstleistungsbausteine

-  requirements analysis
-  component geometry measurement & analysis
-  contour, flatness & roughness measurement
-  current and target geometry comparison
-  design data determination based on the measurement results
-  rapid prototyping



Legal information

IPH – Institut für Integrierte Produktion Hannover gemeinnützige GmbH
Hollerithallee 6
30419 Hannover
Germany

+49 (0)511 27976-0
info@iph-hannover.de
www.iph-hannover.de

Management: Prof. Dr.-Ing. Bernd-Arno Behrens | Prof. Dr.-Ing. habil. Peter Nyhuis | Prof. Dr.-Ing.
Ludger Overmeyer | Dr.-Ing. Malte Stonis

Chair of the Advisory Board: Prof. Dr.-Ing. Annika Raatz

Registered office: Hannover
Company registration: Hannover District Court HRB 50530

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IPH – Institut für Integrierte Produktion Hannover gemeinnützige GmbH
Hollerithallee 6 | 30419 Hannover

+49 (0)511 27976-0

info@iph-hannover.de

www.iph-hannover.de

www.instagram.com/iph_hannover

www.linkedin.com/company/iph-ggmbh