Artificial intelligence offers outstanding new potential

Big internet companies are regularly using the latest artificial intelligence (AI) methods—such as machine learning—to improve their products and processes. Anyone shopping on Amazon uses the company’s AI, which suggests customer reviews, similar products, and potential sellers. Amazon’s AI controls in advance which products the logistics center stocks and how many of each. Algorithms forecast future demand. Goods on the shelves are optimally arranged in order to require as little space as possible and to incur only the lowest possible storage costs. Does this appeal to your company’s needs?

Artificial intelligence has enormous potential to change your company and your business model in the long term. It enables machines to produce more efficiently and sustainably. It supports employees when handling complex analyses and process control. In manufacturing companies, the applications made possible by AI range from process/logistics data analysis, quality assurance, and machine control to completely new digital, data-based business models. Artificial intelligence can therefore make a huge contribution to increasing the quality, productivity, and profitability of your company.

Artificial intelligence includes machine learning technologies that can be used to recognize correlations in complex manufacturing and logistics processes. Algorithms and methods are used to generate complex models from your company’s data that represent all existing knowledge. Using the latest analysis and interpretation methods, significant correlations can be identified and evaluated. AI applications can therefore improve your manufacturing and logistics processes as well as your business model in a targeted and sustainable manner.
What we can do for you

Our offer

We support you in determining the current AI level of your company and identifying the most suitable applications and products for you. We offer you a tried-and-tested analytical approach based on the latest findings from application-oriented science and technology. Work with us to find out what action is needed and which AI applications have the greatest potential for your company.

Our services at a glance

- Delivering expert know-how: Our AI experts will catch you up on the latest applications and emerging AI technologies from manufacturing companies and findings from application-oriented research.
- Conducting structured interviews and workshops on-site at your locations: We help you analyze the current state of knowledge and processes in your company in order to determine your AI level.
- Uncovering existing potential: Based on your level of knowledge, we take a step-by-step look at your manufacturing environment and your products. We tap the full potential by evaluating the results and prioritizing them for your company.
- Preparing a benefit assessment of potential AI applications: Find out where AI can increase productivity and reduce costs in your company. Equipped with this knowledge, you can drive innovation within your company, enhance sustainability, and seize growth opportunities.
- Boosting your AI goals: We collaboratively assess your current AI capabilities and tailor personalized goals. Plus, we provide specific recommendations for achieving your desired AI level.

What new opportunities does AI offer me?

Find out with the data analytics system and the AI level system by Fraunhofer IGCV

| AI potential | Question 1: Where do my potentials lie? | Added value 1: Identification of AI-related potentials | Question 2: Which AI applications would I like to implement? | Added value 2: Application roadmap for harnessing the potential of AI | Question 3: What data do I own and what value does this data offer for AI applications? | Added value 3: Transparency regarding available data | Question 4: What data-based correlations and recommendations for action can be identified? | Added value 4: Recommendations to improve processes | Question 5: What models are best suited to get the most out of my data? How can these results be visualized? | Added value 5: Rapid use of data in everyday life, new AI applications | Question 6: How can I train my employees and develop a data-based business model? | Added value 6: Generating knowledge and new earnings potential |
The AI Level Check at a glance

At the outset, you’ll attend an expert lecture introducing artificial intelligence. This will provide you with a comprehensive overview of the subject and its practical applications. Following that, we conduct the **AI Level Check**, utilizing structured interviews and workshops. The AI Level Check consists of five sections.

1. **In the first section**, we conduct a general assessment of the company. This involves capturing general information about personnel, the organization, business processes, as well as products and services. Later on, this data allows for a better comparison with other companies of similar size or within a similar industry.

2. **In the second section**, we analyze the current state of knowledge and structures related to AI within your company. This involves looking at how data is currently utilized in company processes, the vision and strategy being pursued, and the alignment of your corporate goals and metrics with these factors. Additionally, we assess how well employees and the organization, as well as your company’s adaptability and agility, correspond to these objectives. This process reveals potential strengths and weaknesses in your company’s AI implementation.

3. **In the third section**, we analyze the potential for using AI both in your manufacturing environment and in your products. The analysis reveals where particularly lucrative and/or easily achievable potential lies within your operational processes and your products.

4. **In the fourth section**, we examine specific application examples for your company. Illustrative use cases for AI include automated optical quality inspection, automated quality monitoring, and predictive maintenance. Through a benefit assessment, we identify the AI applications that strategically and sustainably enhance your manufacturing and logistics processes as well as your business models.

5. **Finally, in the fifth section**, we deliver an evaluation and a detailed analysis. You can use this information to assess the current state of your company and identify areas for action. Additionally, you will receive a benefit assessment of potential AI applications for your business.
Further training in digitalization and AI

With our educational concept—developed primarily for use in industrial settings—we aim to take your manufacturing environment to a new level. Learn to harness the transformative potential of AI to achieve smart manufacturing: As part of structured training courses, participants receive the knowledge they need to develop and implement their own AI applications.

Topics covered:

- **Digitization and data availability:** The availability of data plays a decisive role in realizing “smart manufacturing”. Thus, digitalization of existing and new systems using edge devices or standardized interfaces is the top priority.

- **Data preparation:** Captured system and process data often need to be structured or filtered in order to generate high-quality datasets, which are a prerequisite for high-quality AI applications.

- **What is industrial AI?** The fundamentals of machine learning and the workflow for applying AI to your system form the foundation for future manufacturing technology. Using best practices, you will learn how AI or machine learning models are trained.

- **Guided Coding:** This training element allows you to train and test your first custom model. Training content includes, among other things: machine learning frameworks, data ingestion and processing, library integration, model training and validation, error handling, and familiarization with metrics for evaluating the training process.

Further information

- **Artificial Intelligence in Manufacturing:** [https://www.igcv.fraunhofer.de/en/research/competences/artificial_intelligence.html](https://www.igcv.fraunhofer.de/en/research/competences/artificial_intelligence.html)


- **Practical Guide to AI (in German):** [https://s.fhg.de/ki-praxisleitfaden](https://s.fhg.de/ki-praxisleitfaden)

- **AI Production Network Augsburg:** [https://www.kiproduktionsnetzwerk.de/](https://www.kiproduktionsnetzwerk.de/)

- **IGCVirtuell®, our Digital Shopfloor:** [https://s.fhg.de/igcvirtuell-ai-production-network](https://s.fhg.de/igcvirtuell-ai-production-network)