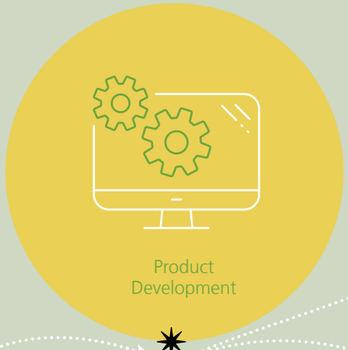
All-round Energy Savings

We develop assistance systems for energy efficient **product development** and **process planning.**

We support customers in the **sustainable strategic alignment** of their company.

Using integrated models, we analyse processes and resource consumption, and compile contextualized planning views and assessments.



As early as during **product development**, we help forecast how much energy will be used at which points in the product lifecycle.

We use digital product twins for energy optimization, develop semantic networks, and analyze data flows to map out decision-making of their energy efficiency from the very start of the production process pathways.

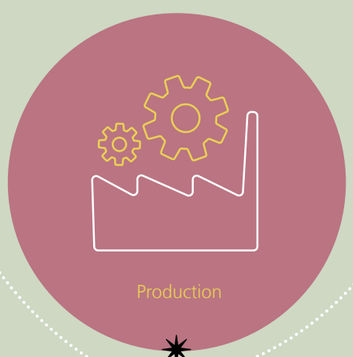
We empower companies to make energy efficient **production planning** for customized orders.

We provide methods for the ad hoc production planning of orders and assessment of their energy needs.

We develop IT system architectures, concepts and software prototypes that enable our customers to make data-supported production planning. We use feedback from running production and digital factory twins to simulate energy optimizing methods that cannot be tested on real plants and systems.

We empower companies to use open source hardware and software for **realization** of decentralized **urban production.**

In makerspaces and other innovative formats, we impart knowledge on the technologies and methods of environmentally friendly decentralized production.



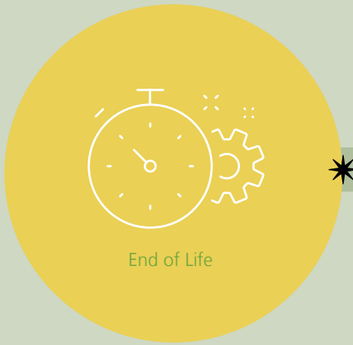
We make it easy for companies to **produce** with **maximum energy efficiency.**

We develop individual energy monitoring solutions based on flexible sensor and measurement systems. The gained data is the basis for optimizing the operations of machine tools and production systems.

We work together with our customers to develop solutions for the energy efficient automated regulation of technical supply systems. We analyze the movements of industrial robots, and optimize programs and individual trajectories.

We take close account of the **service life** and **end of life** phases of products in terms of their energy efficiency from the very start of the production process.

Feedback on energy consumption data flows into product development and product planning and is integrated on the process and IT systems level.



For many of today's companies, energy efficient manufacturing is a compelling sales argument. At Fraunhofer IPK, we are developing a broad spectrum of solutions that ensure transparency in showing that each stage of the product life cycle uses the necessary minimum of energy.