

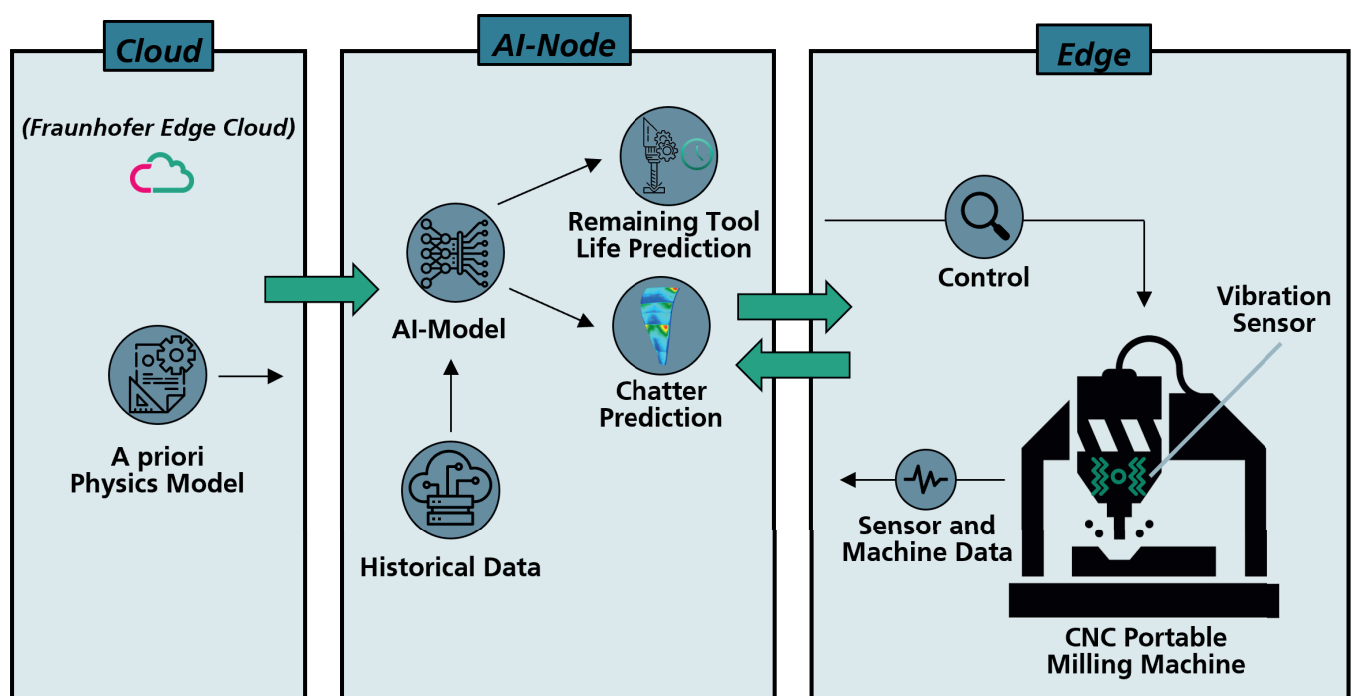
AI-driven machining process optimization

»Wise-Cut«: Retrofittable Condition Monitoring

Monitoring machining processes is essential to ensure consistent product quality, high productivity, and cost efficiency. Today, tools are often replaced based on experience, causing suboptimal use, while undetected failures or chatter can lead to scrap and high costs.

Wise-Cut combines vibration sensors, AI algorithms, and multi-physics simulations to accurately predict tool life and workpiece quality. This unique approach to simultaneous remaining useful lifetime prediction and chatter analysis is unmatched on the market.

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Schematic diagram of how Wise-Cut works. © Fraunhofer IMS and Fraunhofer IPT

Customer Benefits

- Predicts tool life and workpiece quality
- Maximizes tool utilization and minimizes downtime
- Supports long, unattended machining with real-time quality control

System Advantages

- Retrofittable vibrational sensors
- Generic and adaptable solution for multiple milling processes
- Applicable for single-piece production and complex processes
- Seamlessly compatible in to a wide range of manufacturing set-ups
- Improvement of product quality using physics informed AI

Application Fields

- Aerospace
- Automotive
- Medical devices

Use cases

- CNC-Based Precision Manufacturing
- Custom and Low-Volume Manufacturing
- High-Volume Production Lines
- Tool Condition Monitoring in Smart Factories

Contact IMS

Business Unit Industry
sales@ims.fraunhofer.de

Fraunhofer Institute for Microelectronic
Circuits and Systems IMS
Finkenstraße 61
47057 Duisburg

<https://www.ims.fraunhofer.de/en.html>

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