# Redefining Industrial Decision-Making by exploiting Agentic AI

## AgenticAI

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# Background and Initial situation

Complexity of Industrial decision-making increases, due to…

…more advanced production processes with sophisticated setups

…more diverse product portfolios with tighter tolerances

…more available product and process data to consider

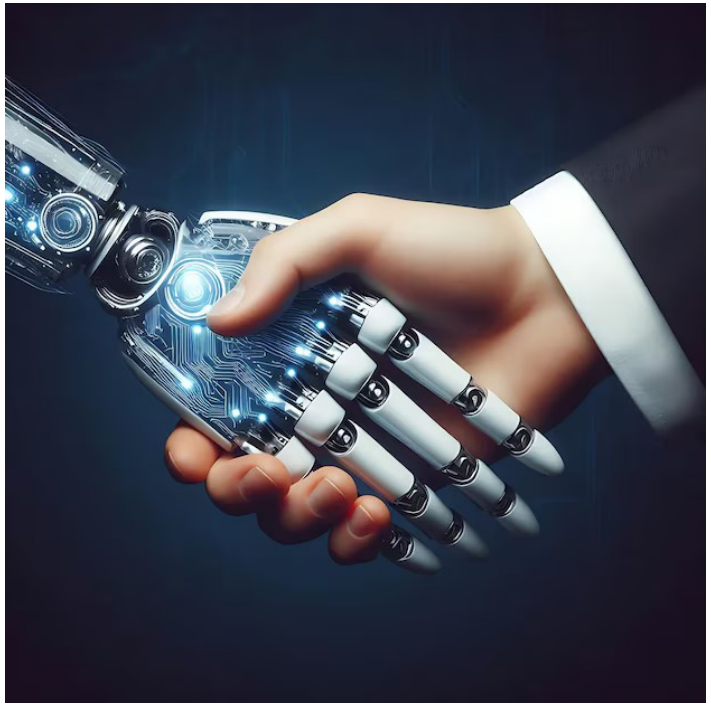
…and less decision-makers

# Background and Initial situation

But: More data enables the use of advanced AI-driven solutions

What-if we could build a decision support system, able to…

- …solve problems autonomously
- …plan actions
- …learn from experience
- …interact with humans in a natural way

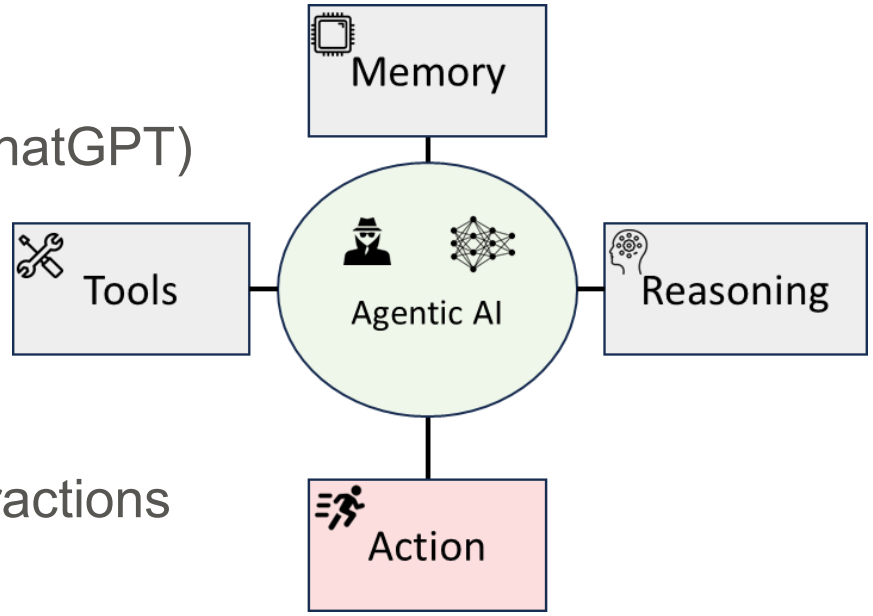


# Methodology

Traditional AI models simply respond to prompts or execute predefined tasks

Agentic AI systems add a degree of autonomy making them

- Perceive – by gathering all available product and process data from the running production
- Reason – by exploiting large language models (like ChatGPT) as reasoning engine and orchestrator
- Act – by integrating external tools for real-world interaction
- Learn – by memorizing data generated from its interactions



# Objectives

- Combine continuous monitoring of production processes with complex reasoning and rapid decision-making to enable more efficient industrial decision-making processes.
- Provide personalized information and support interactive discussions of production problems to improve effective industrial problem solving.
- Implement flexible adaptation to dynamic situations in the complex environment of steel production.
- Develop autonomous AI agents that complement rather than replace human capabilities.

# Benefits

- Significantly improve operational efficiency and reduce costs by processing vast amounts of data and making real-time decisions.
- Improve industrial problem solving by combining machine learning capabilities with goal-oriented behavior and tackling complex challenges in novel and efficient ways.
- Improve transparency and explainability of the provided results by means of advanced AI reasoning capabilities.

# Working steps

- Definition of industrial decision processes to be supported by the AI system.
- Development of test data and suitable KPI to measure and improve the trustability of AI supported decision processes.
- Implementation of an Agentic AI system operating with minimal human intervention and able to prove trustworthy, human-centered assistance and reasoning.
- Software deployment and operation at the pilot sites, along with use case specific agents.

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