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AI Adaption within SMEs:

Analysis of Impedances and Suggested Approaches

Celeste Chudyk, Damian Läufer, Simone Braun, and Tobias Hagen

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Overview

- AI LABS INTRODUCTION
- WHY AI
- CURRENT ADAPTION RATES
- CHALLENGES FOR SMES
- AI MATURITY MODEL
- SUGGESTED SOLUTION
- TYPES OF PROGRESS
- QUESTIONS

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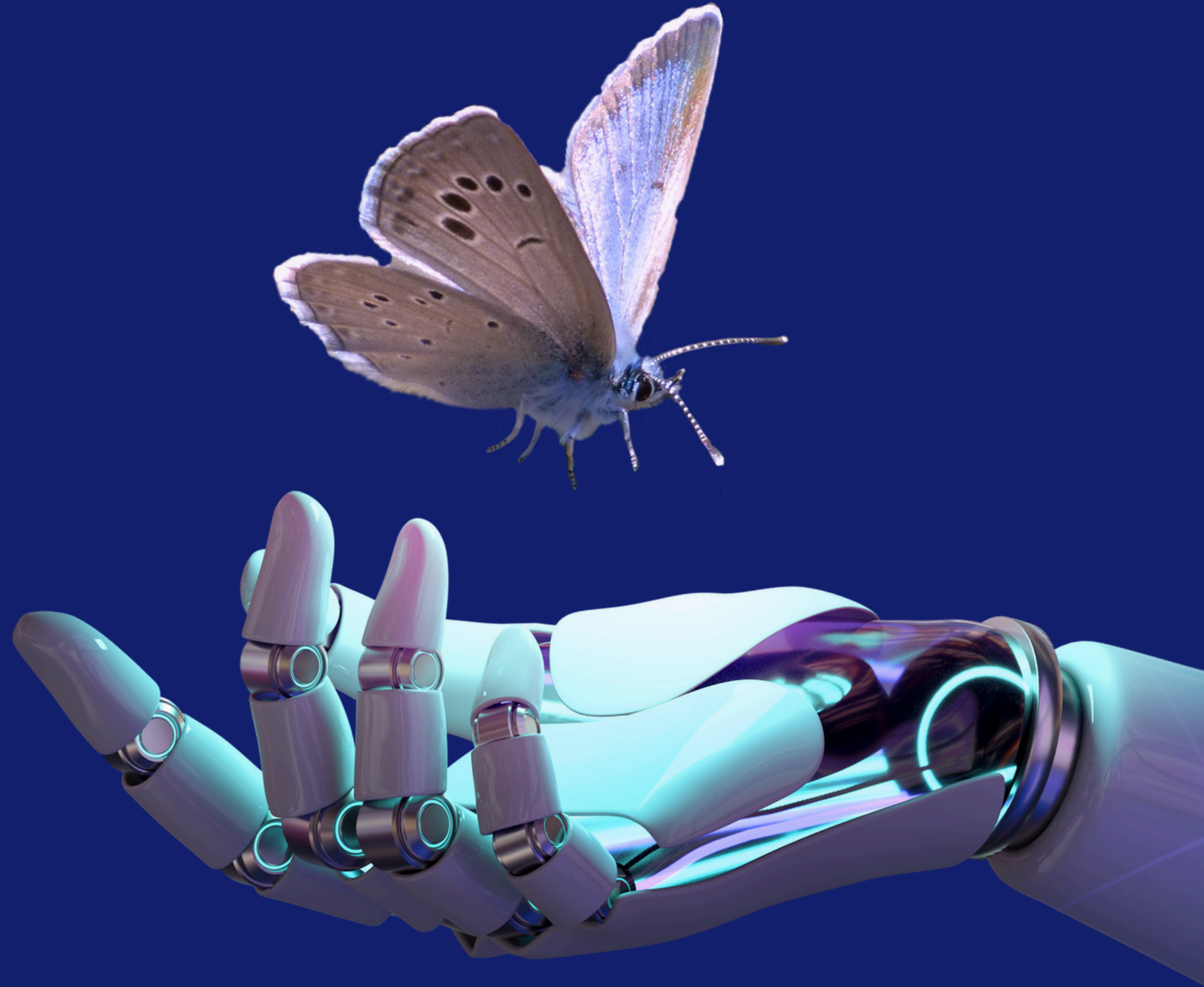
Regional AI Labs of Baden-Württemberg

2 year initiative to assist regional development

Focused on providing AI consultation to SMEs

Direct regional focus, with flexibility to taylor services based on locals needs and resources

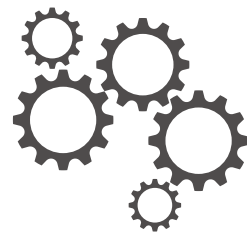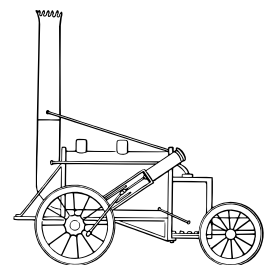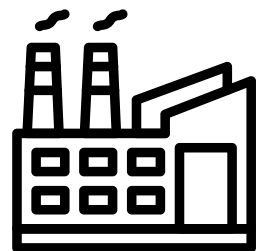Celeste Chudyk, Damian Läufer, Simone Braun, and Tobias Hagen

Why AI?

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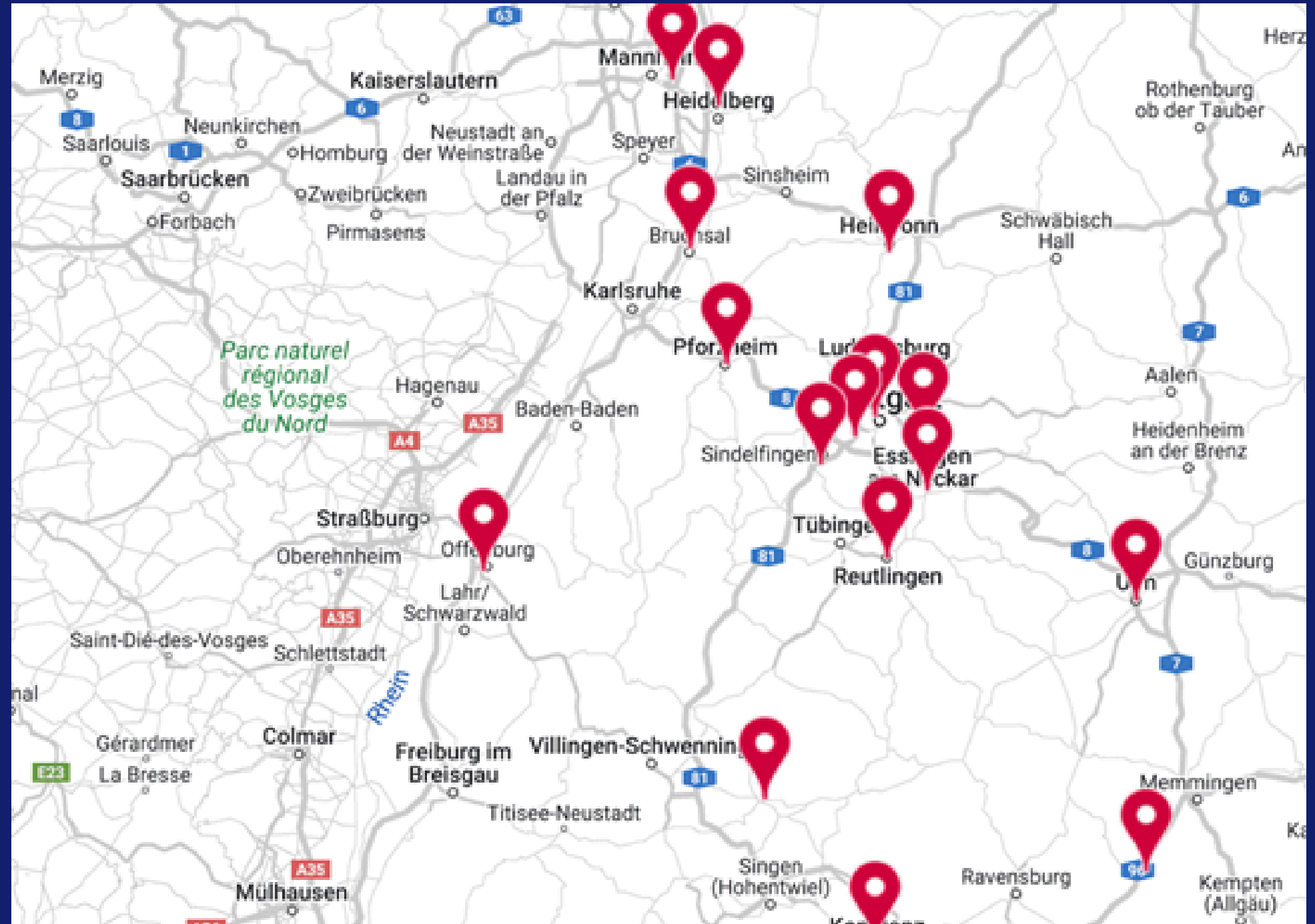
4 Industrial Revolutions

INDUSTRY 1.0

Industrial Revolution

Factories, water power, steam power

1760 - 1840

INDUSTRY 2.0

Technological Revolution

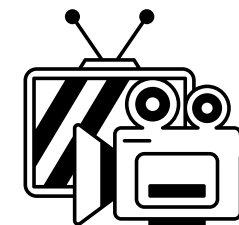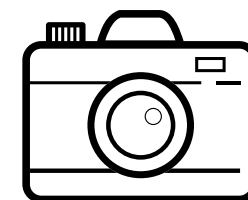Electricity, international travel and telegrams, first cars
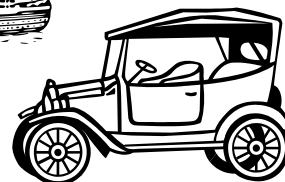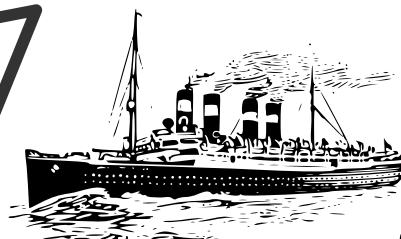
1871 - 1914

INDUSTRY 3.0

Digital Revolution

Personal computers, digital cameras, centralized mass media

1970s to present

INDUSTRY 4.0

Smart Revolution

Cloud computing, social media, smart phones, embedded devices, AI

present day

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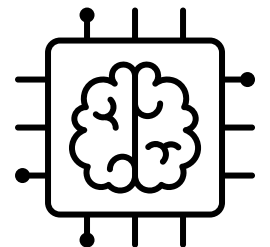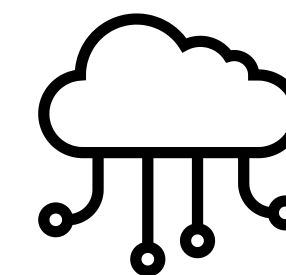
Kondratiev waves of development

transforming material   transforming energy   transforming information

Progress

Stone tools

Bronze tools

Iron tools

Water power

Steam power

Electric power

Combustion power

Communicating & storing information

Computing information (knowledge & algorithms)

Based on Hilbert (2020). Digital technology and social change: The digital transformation of society from a historical perspective. *Dialogues in Clinical Neuroscience, 22*(2), 189–194. https://doi.org/10.31887/DCNS.2020.22.2/mhilbert

2,000,000bc   3,300bc   1,200bc ...   1780   1848   1895   1940   1973   2008

From: https://en.wikipedia.org/wiki/Information_Age#/media/File:LongWavesThreeParadigms.jpg

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Current AI adoption rates

GERMANY

12%

GLOBAL

55%

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Current AI adoption rates

BUT WHY?

GERMANY

12%

GLOBAL

55%

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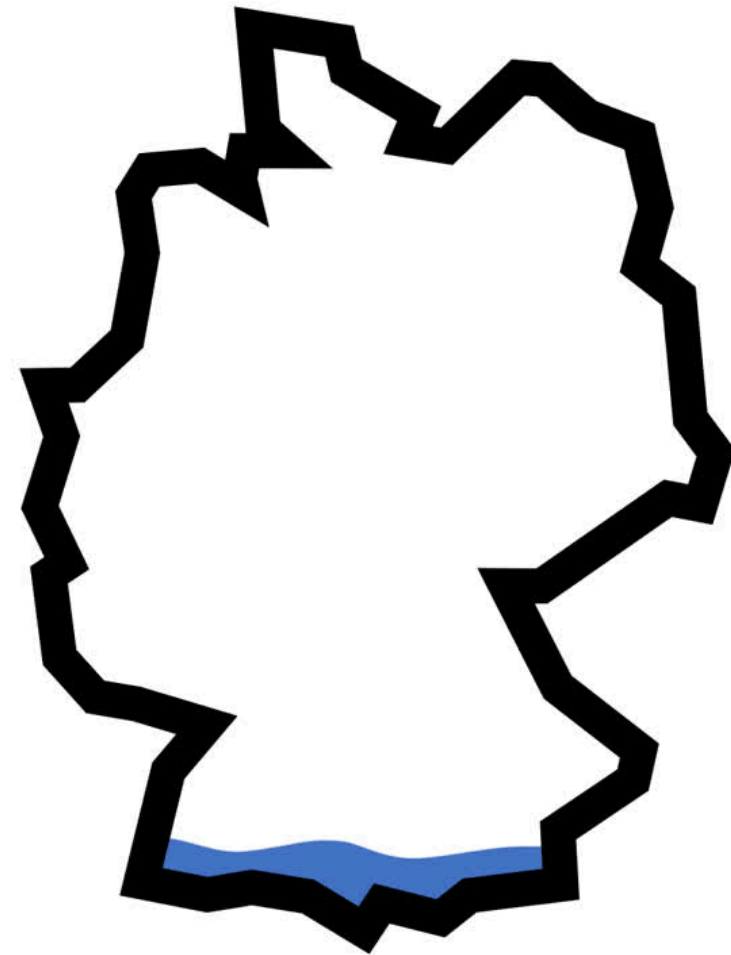
Percentage of companies that are SMEs

Germany 99.3%

Europe 99.8%

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Main Challenges for AI in SMEs

LACK OF KNOWLEGDE/ SKILLS

COMPLEXITY AND INDIVIDUALITY OF POTENTIAL AI SOLUTIONS

HIGH COSTS AND FINANCIAL RISKS
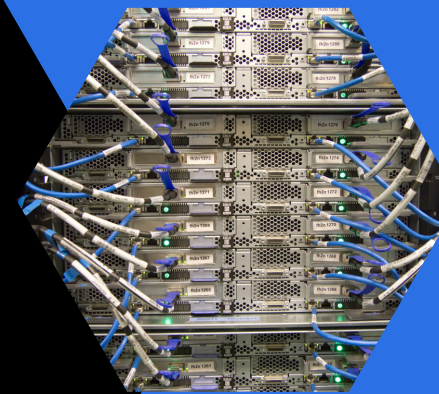
INADEQUATE IT INFRASTRUCTURE

LACK OF DATA (QUALITY, QUANTITY AND AVAILABILITY

DATA PRIVACY, SECURITY, AND REGULATIONS

LACK OF MANAGEMENT AWARENESS AND STRATEGY

ETHICAL AND SOCIAL CONCERNS

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Maturity Model Dimentions
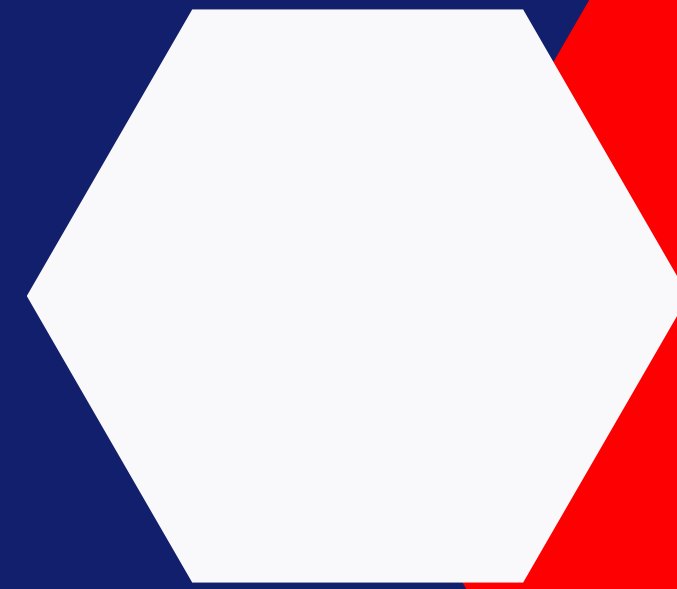
CULTURE/MINDSET	PRIVACY
DATA	STRATEGY
ETHICS	TECHNOLOGY
ORGANIZATION	

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SME self-ratings for AI Maturity
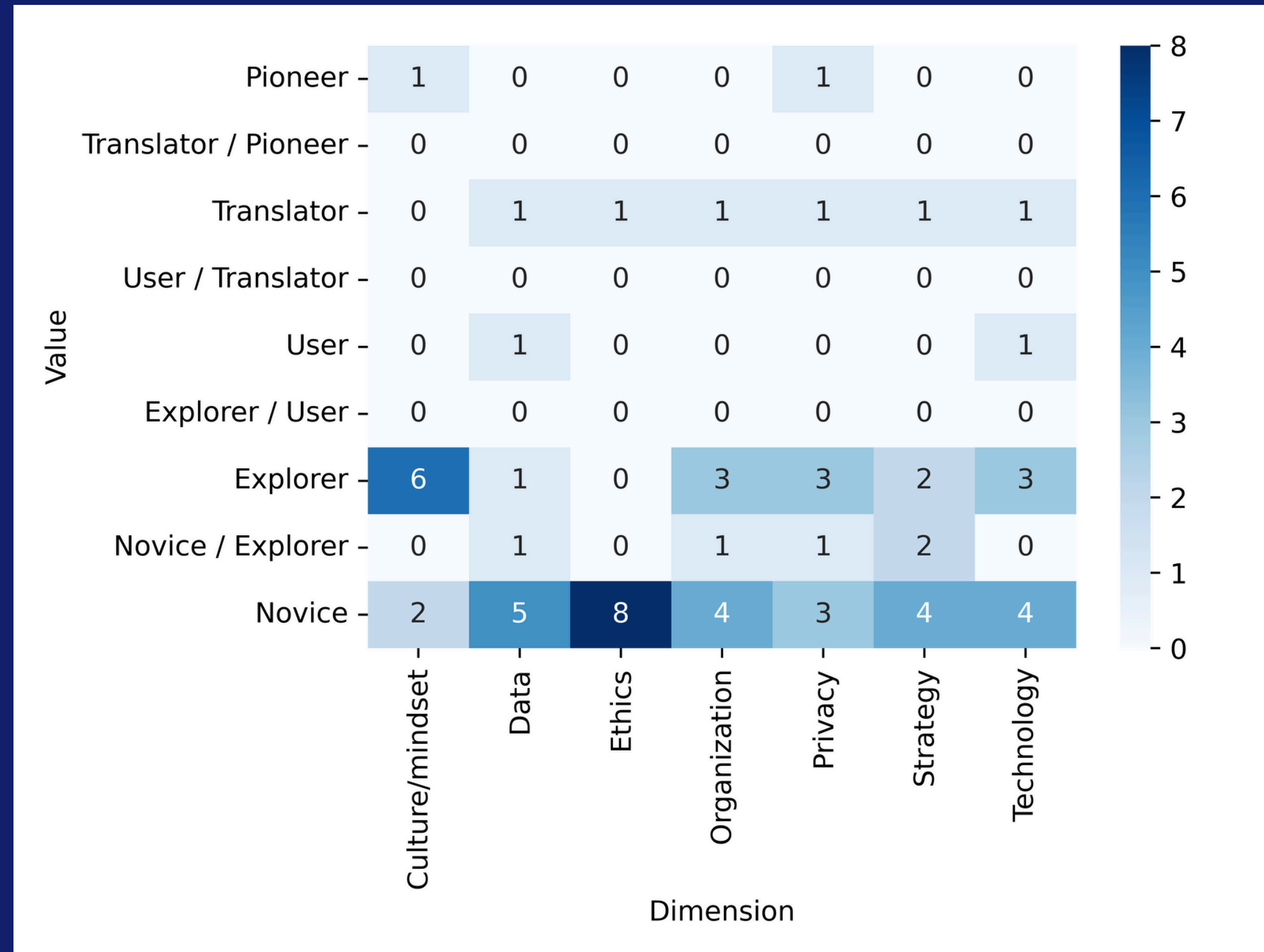
Very few self-rated above the "Explorer" Level for all areas

Most rates themselves as "Explorers" for Culture/mindset and "Novices" for Ethics

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Implementation

USE CASE SELECTED

INTERDISCIPINARY PARTICIPANTS INVITED

WORKSHOPS CONDUCTED

WORKING GROUPS

IMPLEMENATION

REVIEW OUTCOMES

PLAN NEXT STEPS

1 — Workforce informed that a prototype AI project is being tried; all workers are invited to participate in the process

2 — Workshops conducted addressing how to implement solution and opening up discussion on possible challenges.
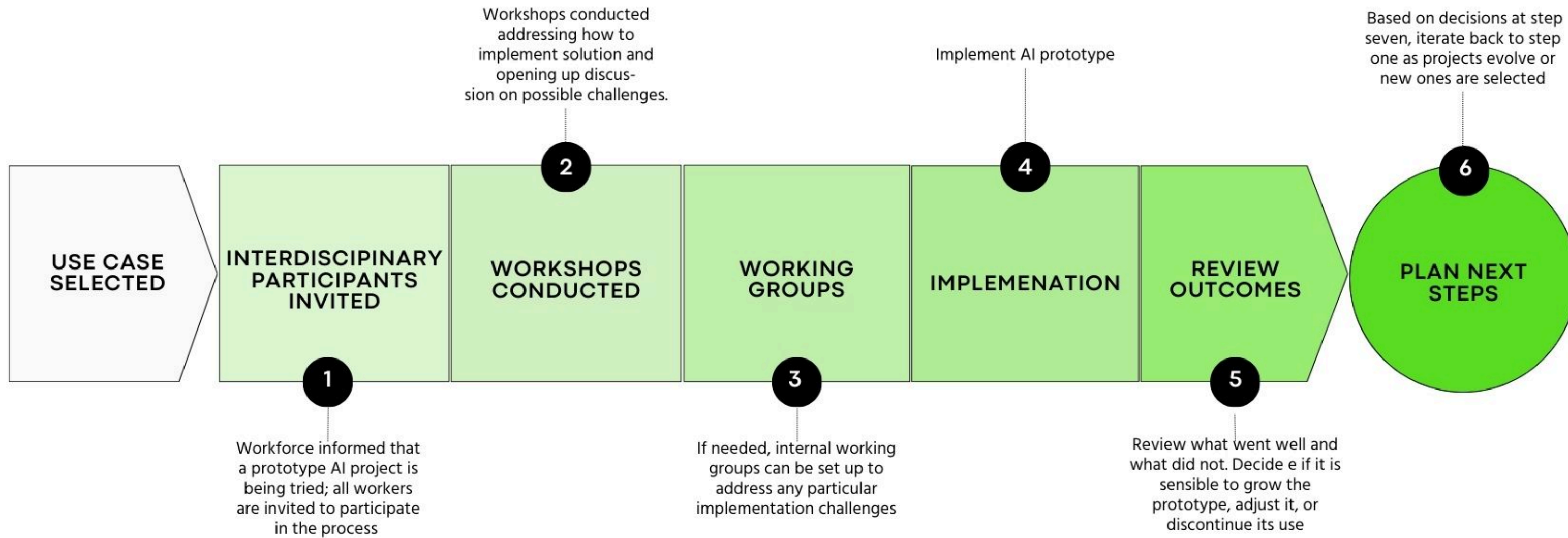
3 — If needed, internal working groups can be set up to address any particular implementation challenges

4 — Implement AI prototype

5 — Review what went well and what did not. Decide e if it is sensible to grow the prototype, adjust it, or discontinue its use

6 — Based on decisions at step seven, iterate back to step one as projects evolve or new ones are selected

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Adoption vs. Adaption vs. Innovation

image generated by FLUX.1 Schnell

Adoption

≠

Adaption

≠

Innovation

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Adoption vs. Adaption vs. Innovation

Adoption

Playing catch-up, integrating current state-of-the-art, understanding the basics of what's possible as well as limitations

Adaption

Learning the tech well enough to modify it; individualization; contributing to current state-of-the-art practices

Innovation

Creation of new best practices; displacement of old technologies; redefinition of what "state-of-the-art" means
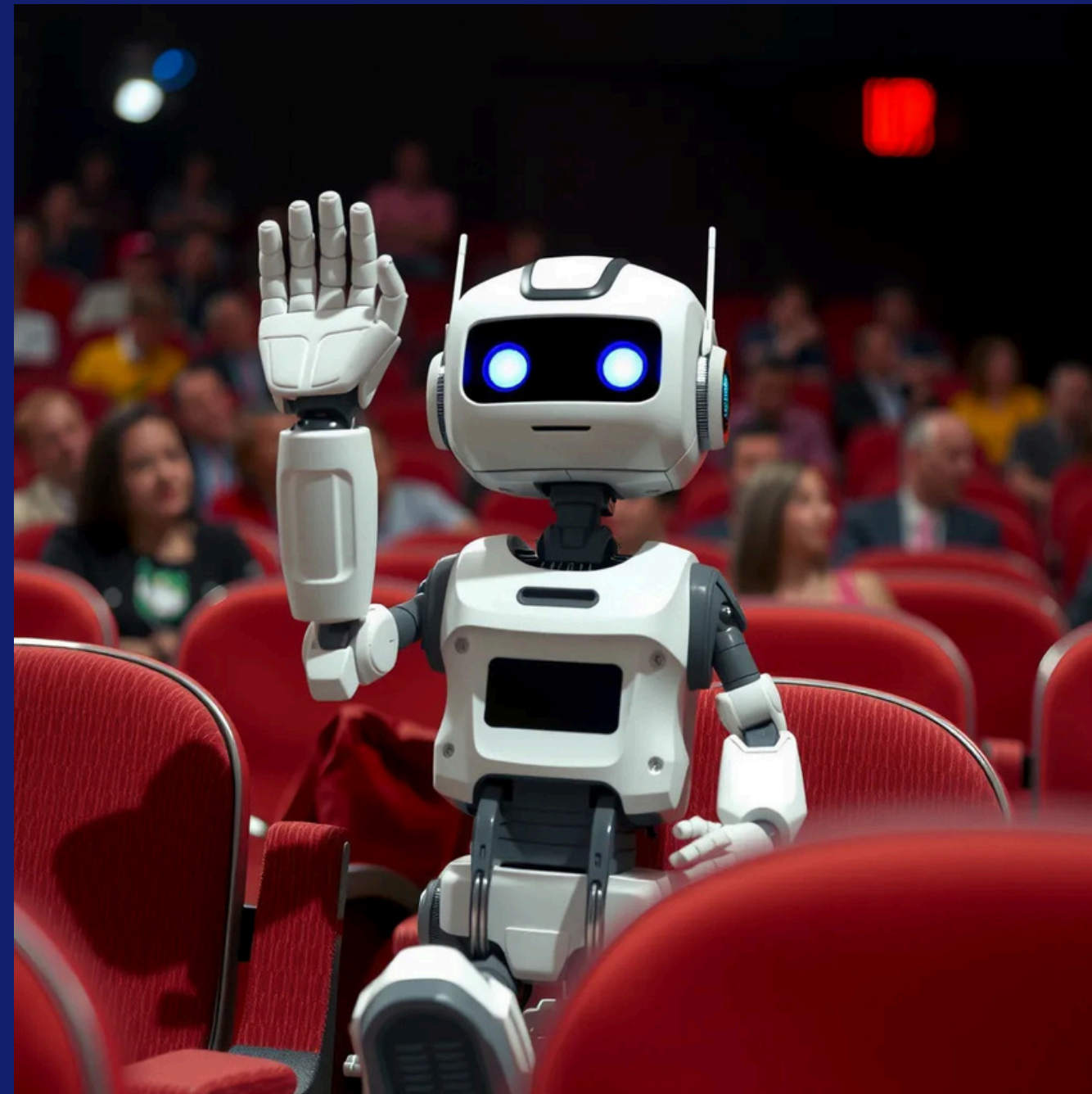
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Questions?

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