

ECG Spring Congress
23.05.2025 | Cascais, Portugal



Fraunhofer-Institut für Materialfluss
und Logistik IML

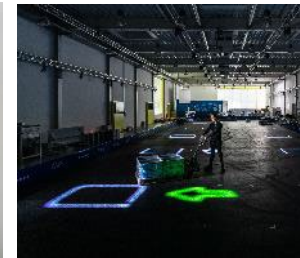
AI in Logistics



M.Sc. MSIE Anike Murrenhoff
Intralogistics and -IT Planning @ Fraunhofer IML
Scientific Coordinator @ Lamarr Institute for Machine Learning and Artificial Intelligence



Dortmund is not only known for great soccer.



100% Logistics at Fraunhofer IML in Dortmund



Fraunhofer-Gesellschaft

~ 32.000
employees

76 institutes
and research institutions

3.4 billion
research volume

Main locations
Branches



Fraunhofer IML, Dortmund

~ 400
employees

~ 300
graduate students and
student assistants

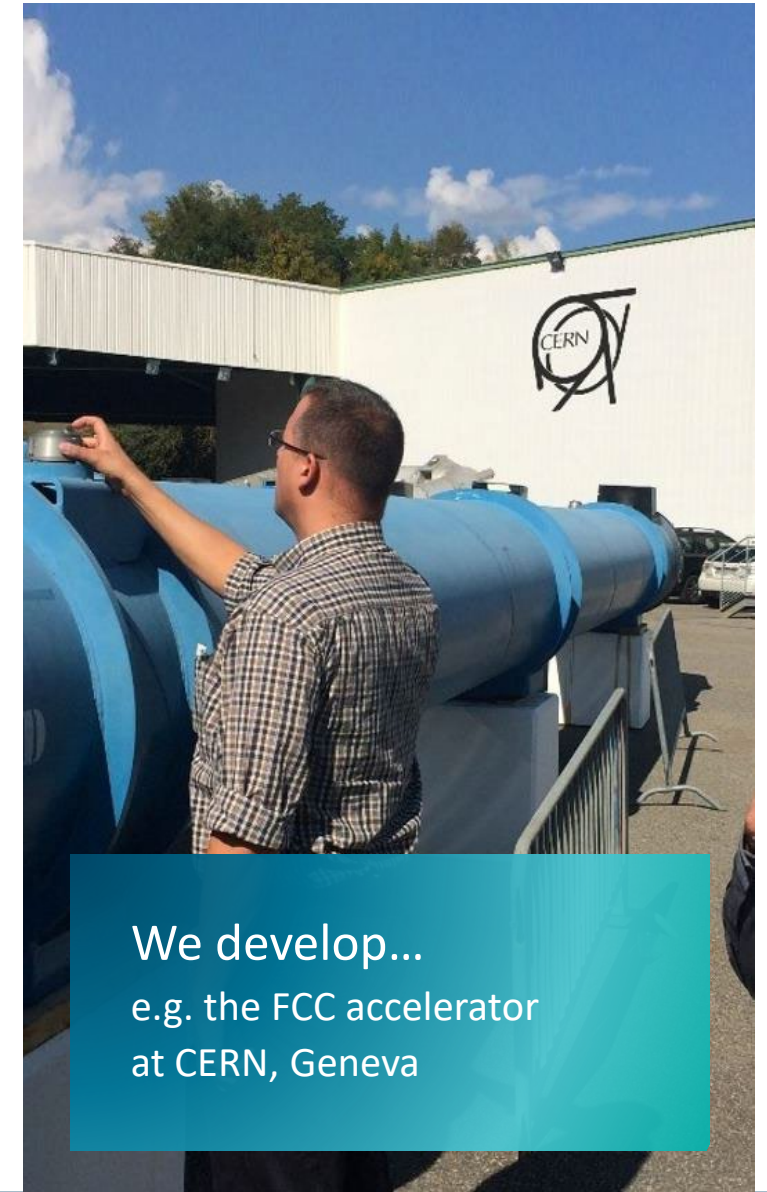
~ 55 million
turnover, 30% of which is made
with industrial partners



We do research...
in-house and industrial
contract research



We support...
companies of all sizes and
from all industries



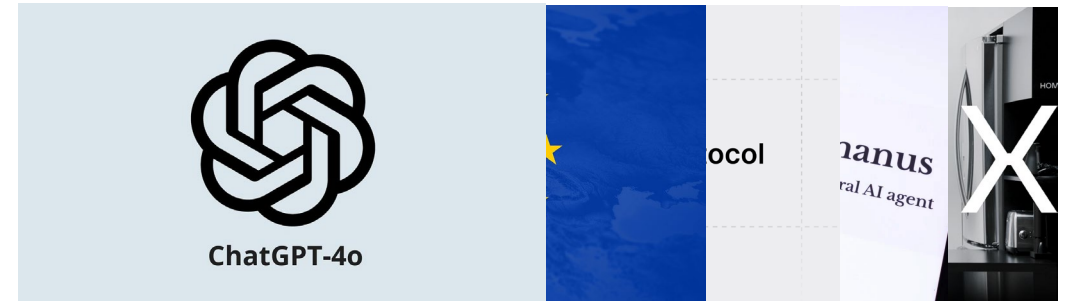
We develop...
e.g. the FCC accelerator
at CERN, Geneva

Anike

RESEARCH ASSOCIATE
AI AND INTRALOGISTICS



Milestones in 2024 and 2025



May 2024: OpenAI's multimodal model GPT4o



ChatGPT-4o



August 2024: EU-AI Act



ChatGPT-4o



Source: CID, <https://cid.com/blog/eu-ai-act-a-framework-for-responsible-ai-use-and-compliance/>

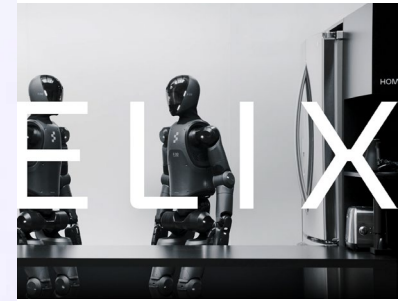
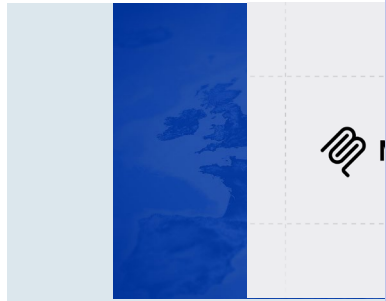
November 2024: Anthropic releases MCP



Model Context Protocol

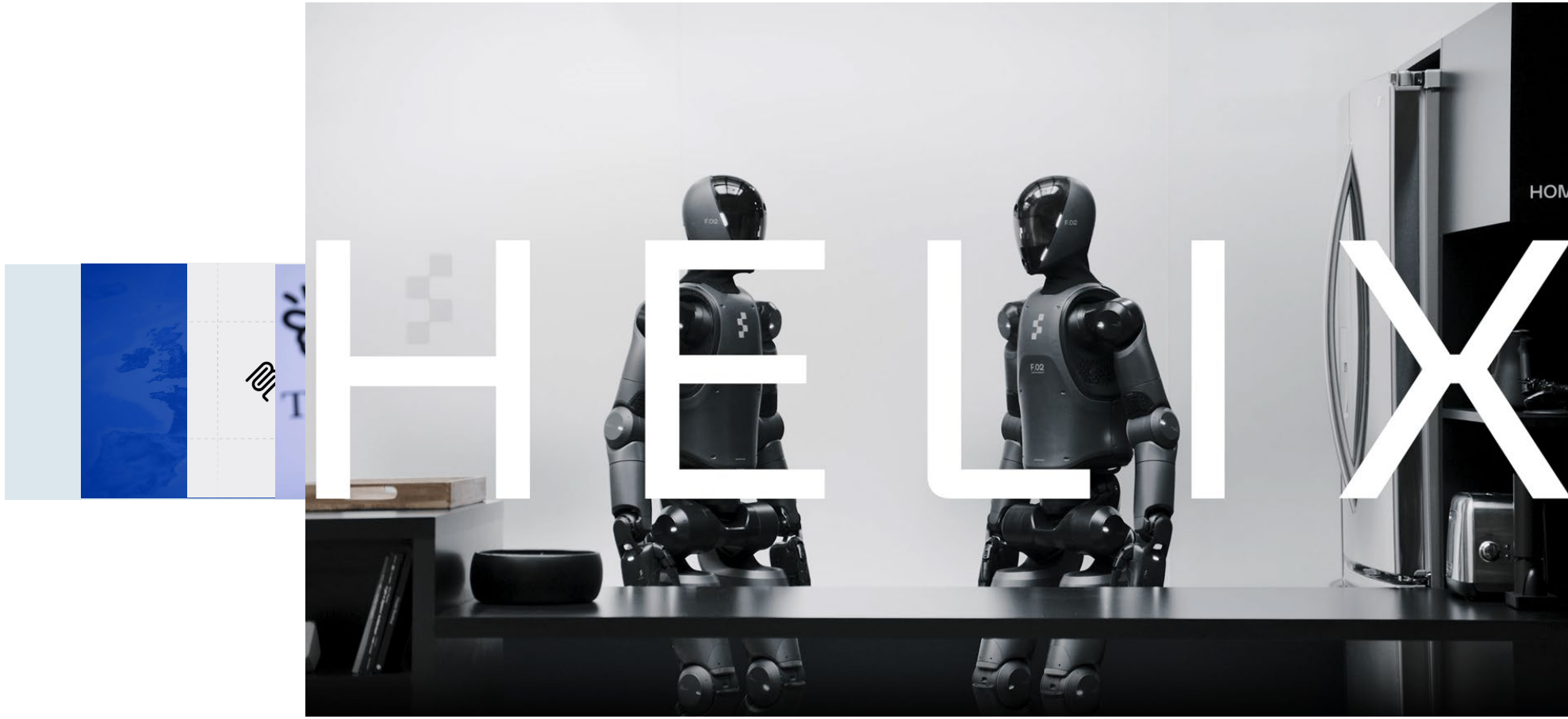


March 2025: „The Age of Agentic AI is here“



Source: <https://hyperright.com/is-manus-chinas-answer-to-chatgpt-exploring-rise-of-the-ai-agent/>

Planned for 2025: Humanoid robots in the home

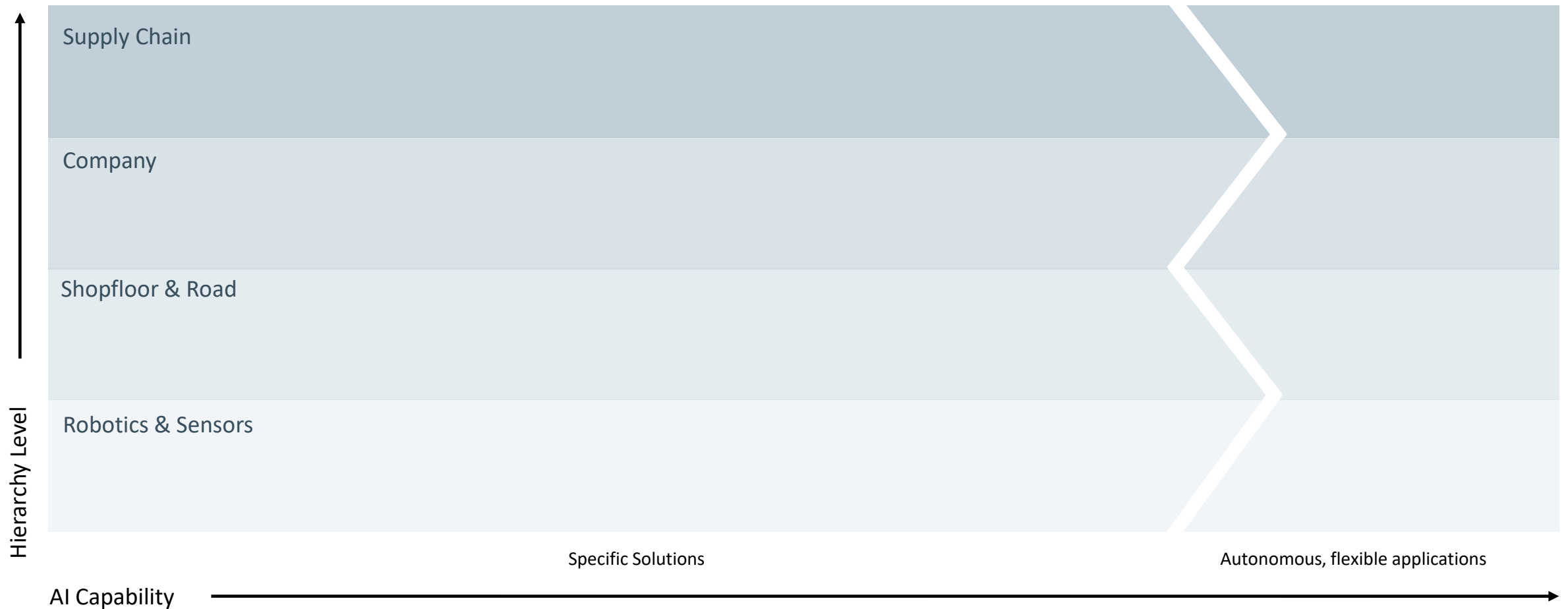


Source: <https://the-decoder.de/figure-ai-zeigt-roboter-der-endlich-den-kuehlschrank-einraeumen-kann/>

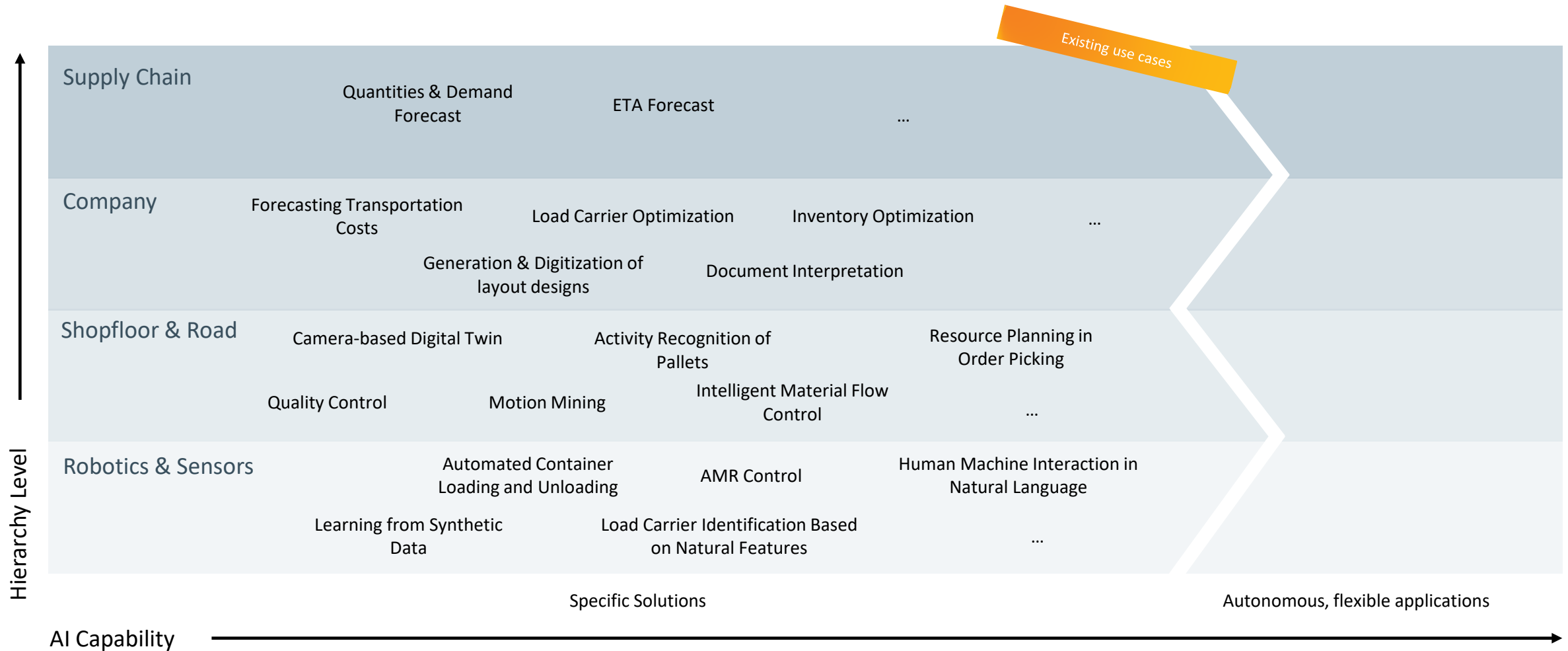
Logistics systems are still often characterized
by manual, time-consuming activities

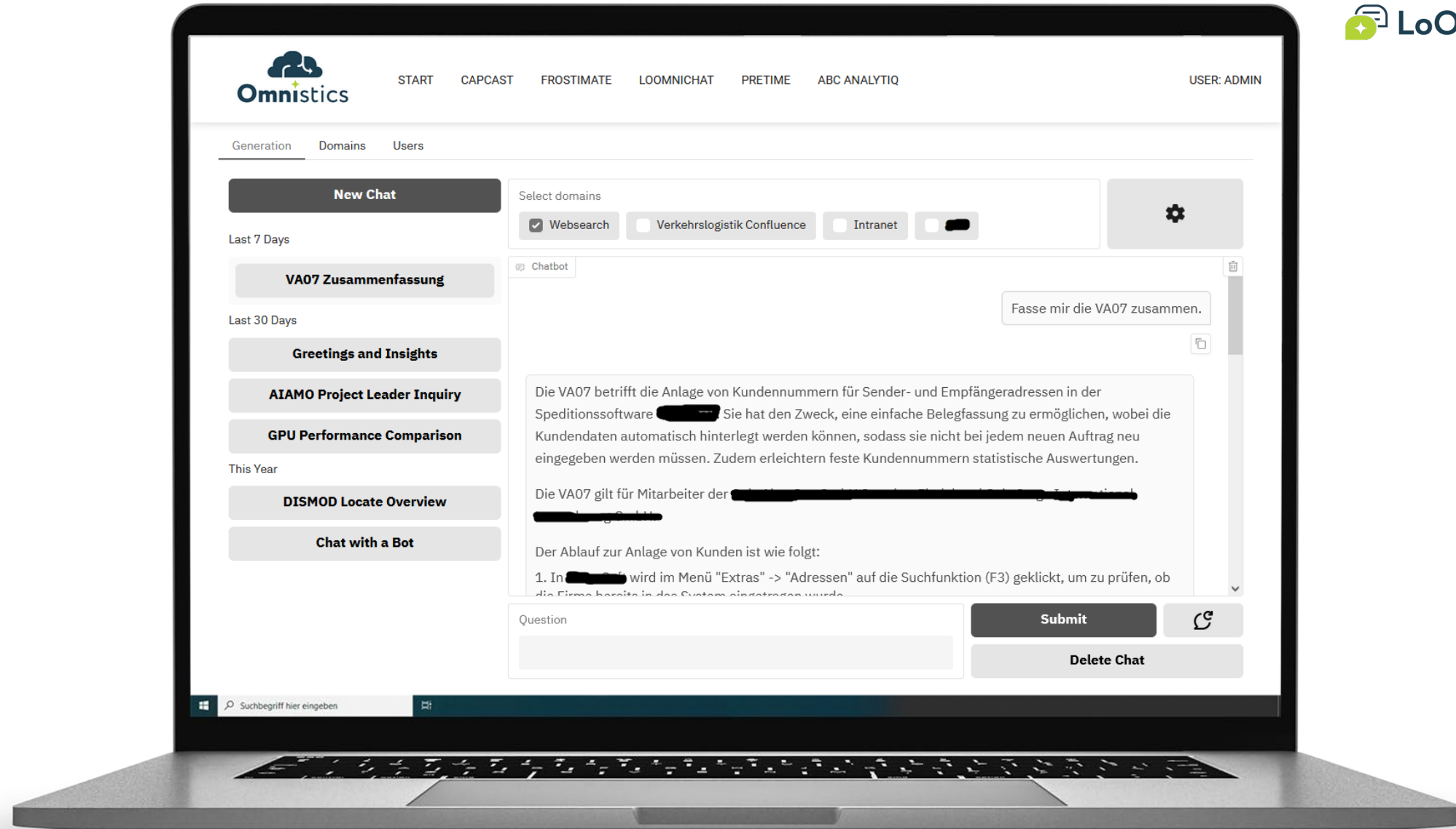


Today, supply chains are dominated by specific AI solutions to solve a specific challenge



Today, supply chains are dominated by specific AI solutions to solve a specific challenge







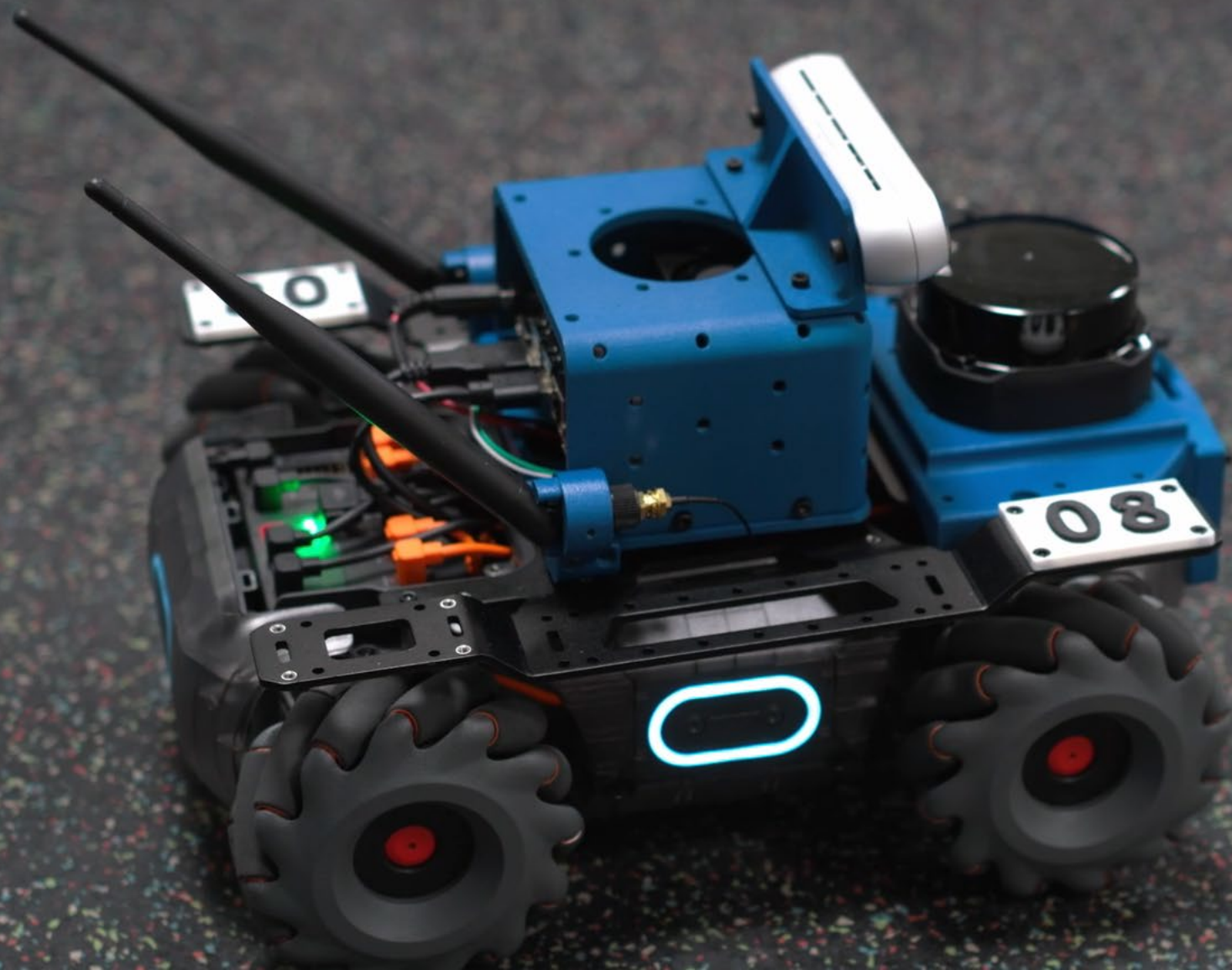
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LAGERPLATZ 344-346

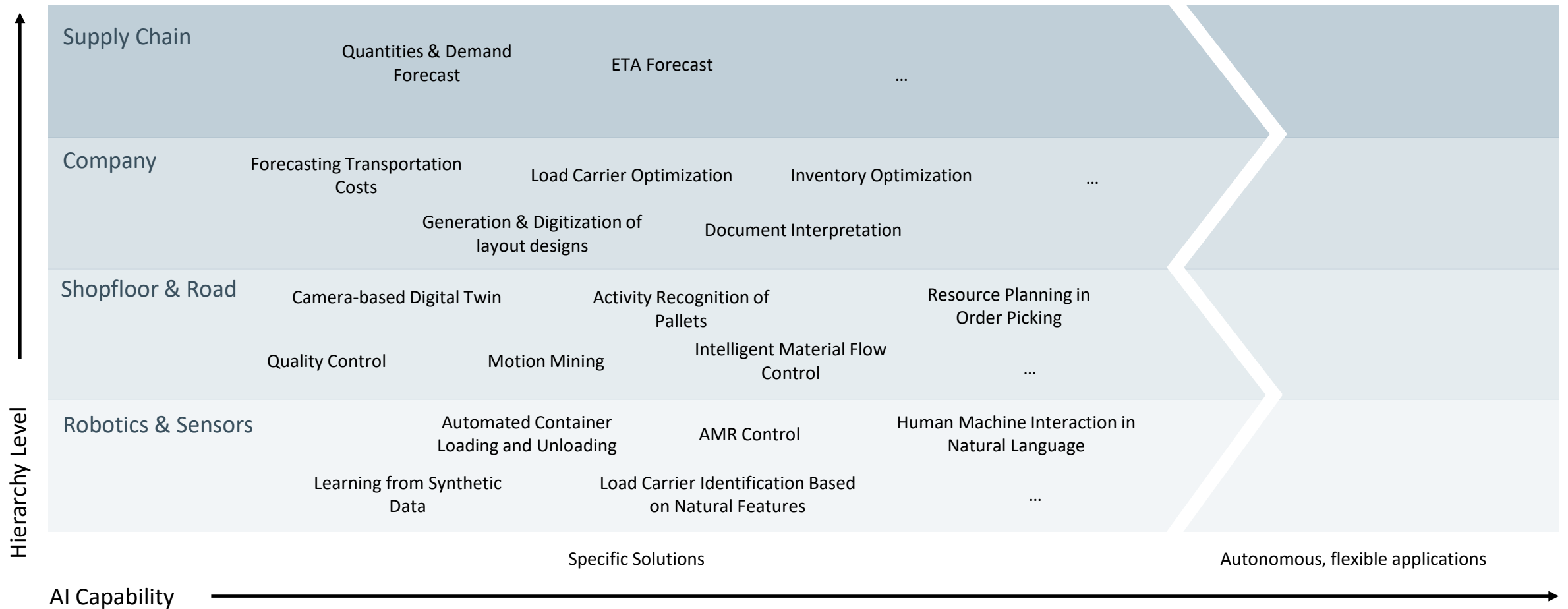
LÄNGE 120CM

HÖHE 114CM

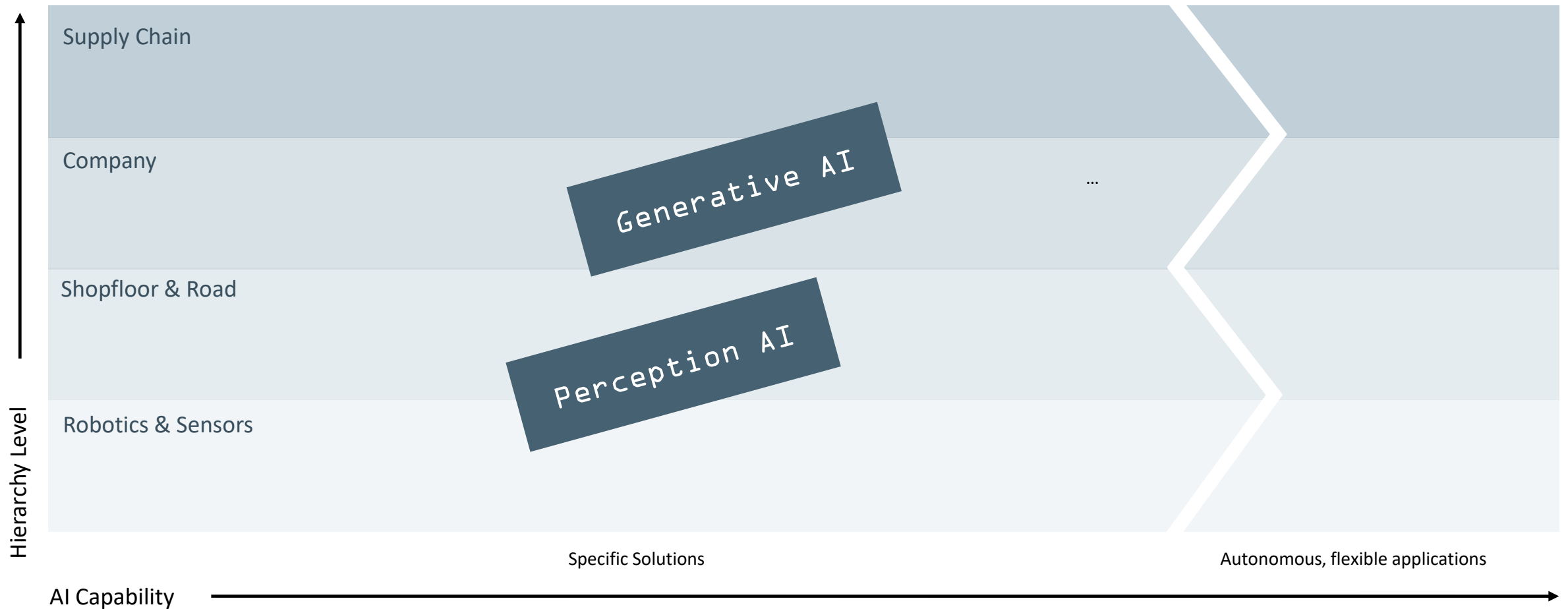
BREITE 80CM



Today, supply chains are dominated by specific AI solutions to solve a specific challenge



Today, supply chains are dominated by specific AI solutions to solve a specific challenge



Hello Peak. What can I do for you?

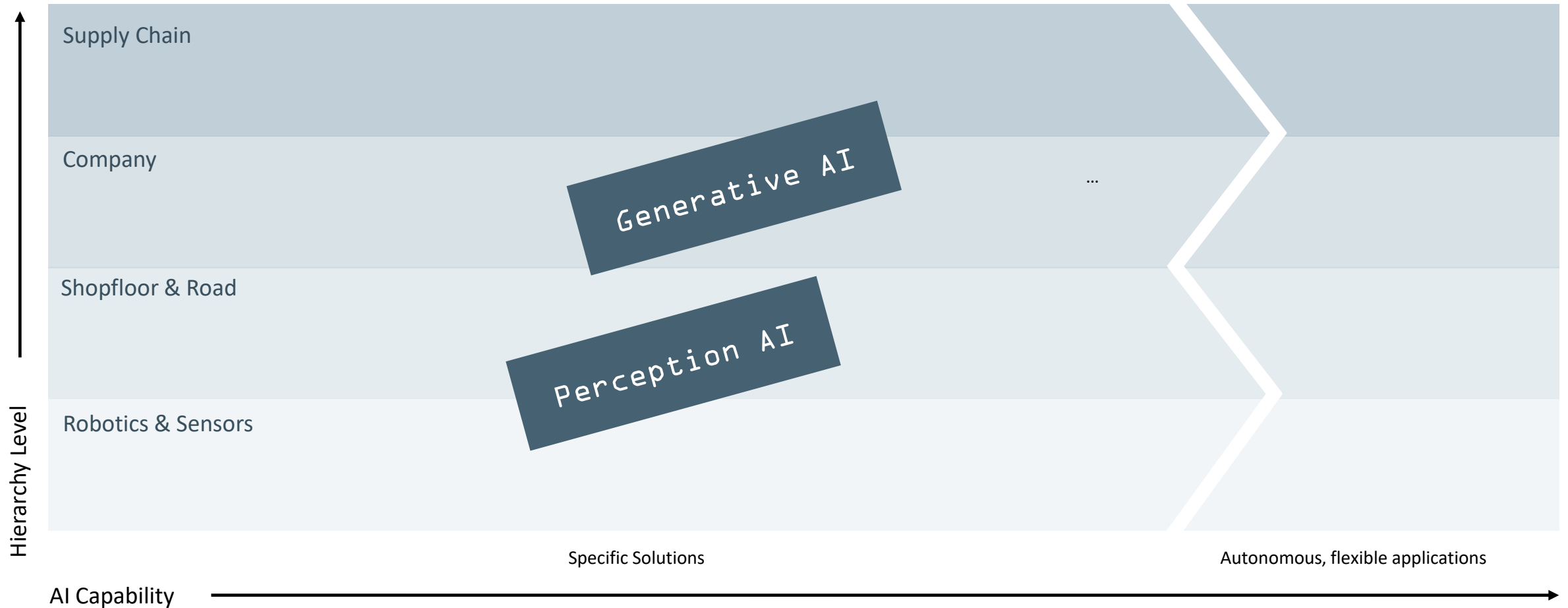
I'm looking to purchase a property in New York in a safe neighborhood with a low crime rate. I have two children - one in middle school and one in kindergarten - so access to quality schools is a priority for us. My wife and I have a combined monthly income of \$50,000. Please help me identify suitable properties that meet these criteria, provide comparative analysis of their listings.



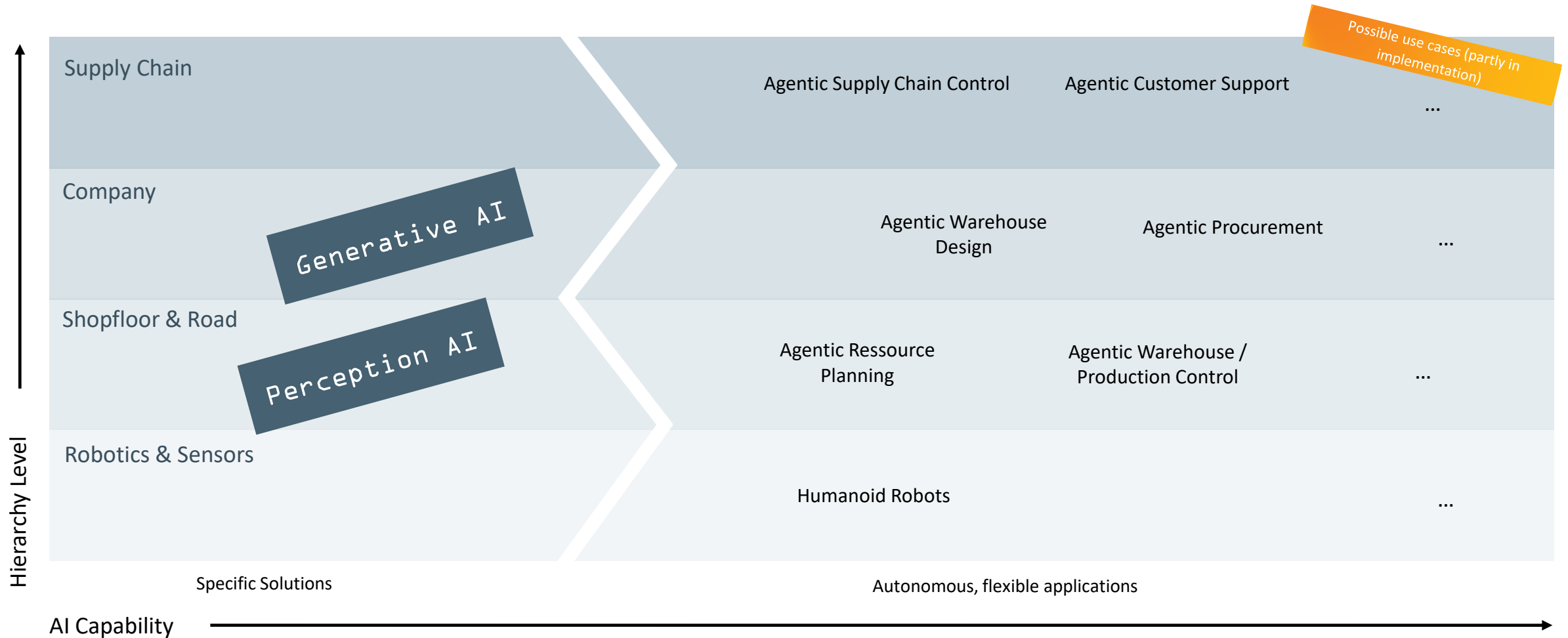
Standard ▾

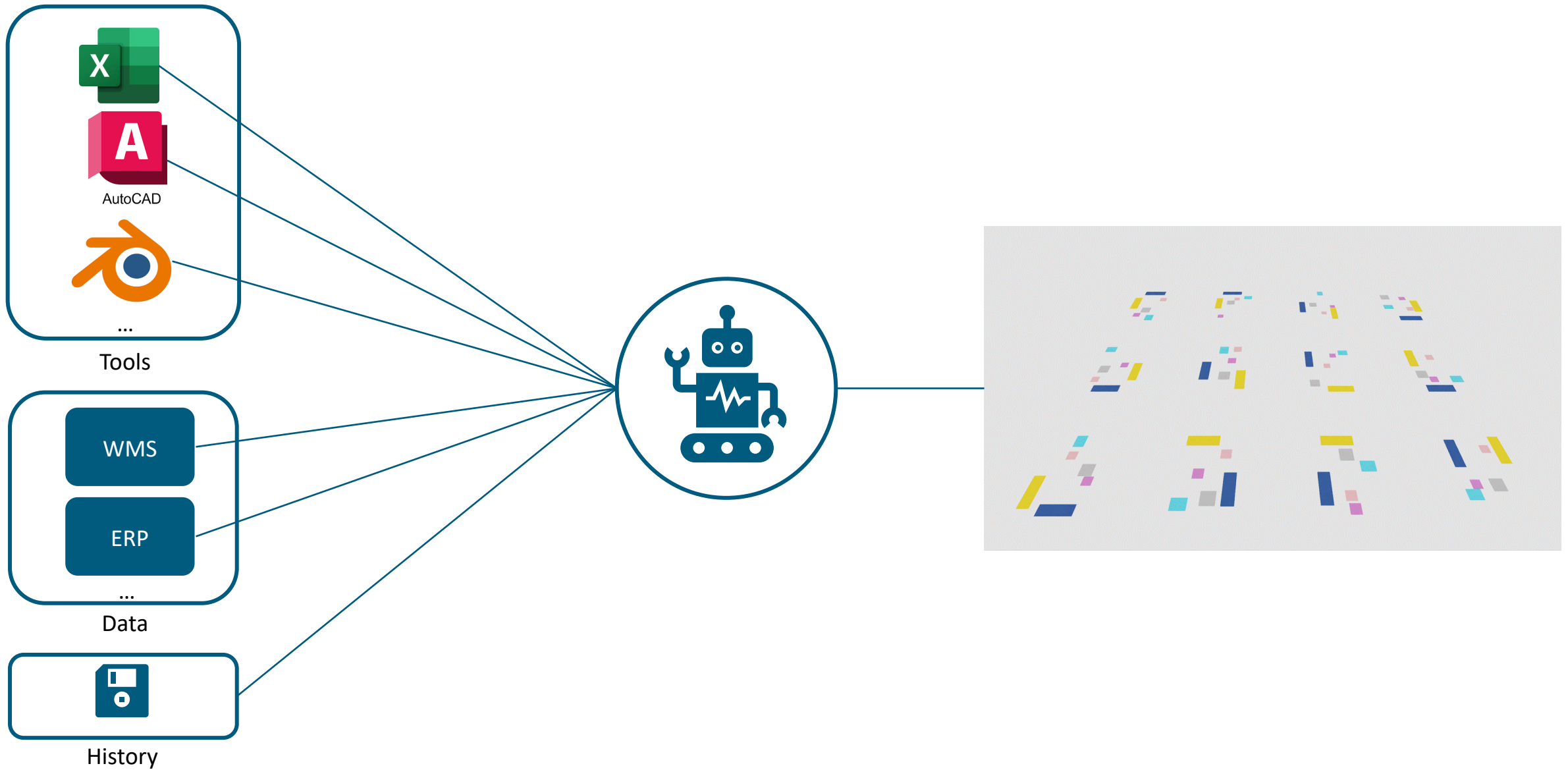


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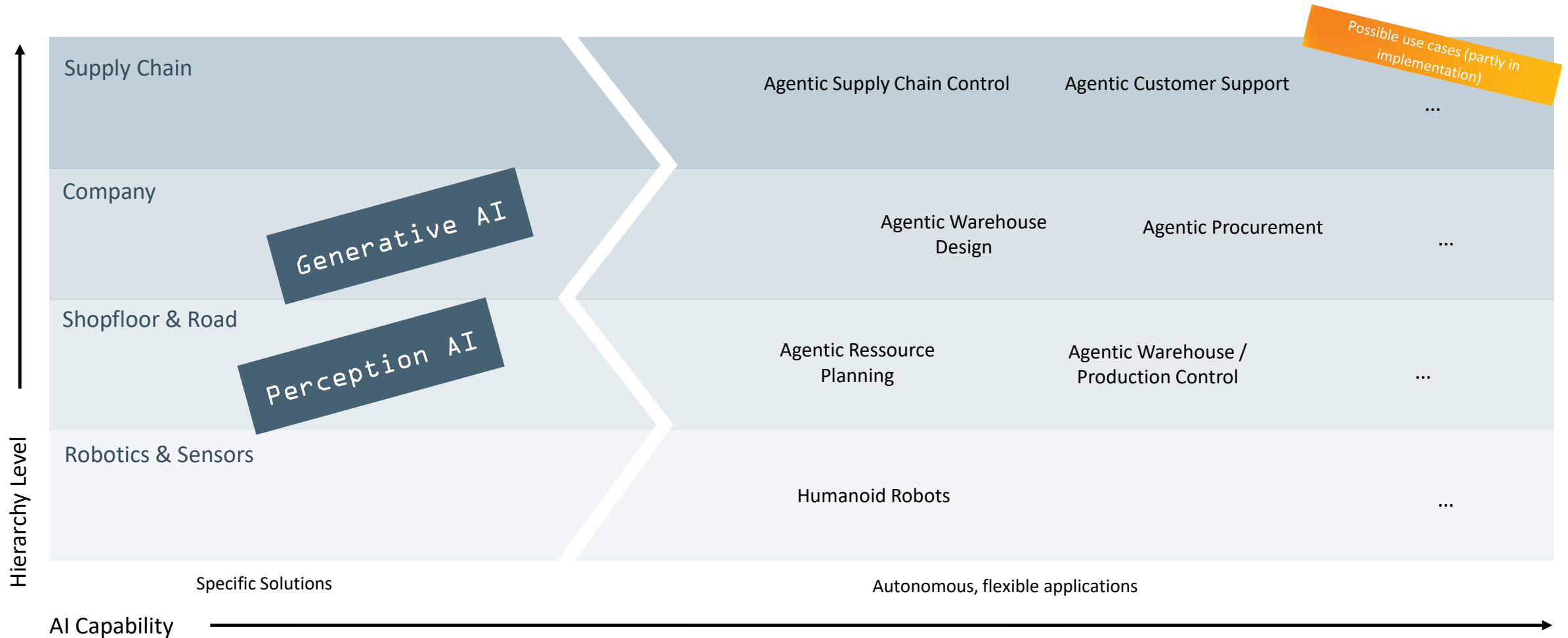


The trend is moving from specific solutions to autonomous, flexible applications

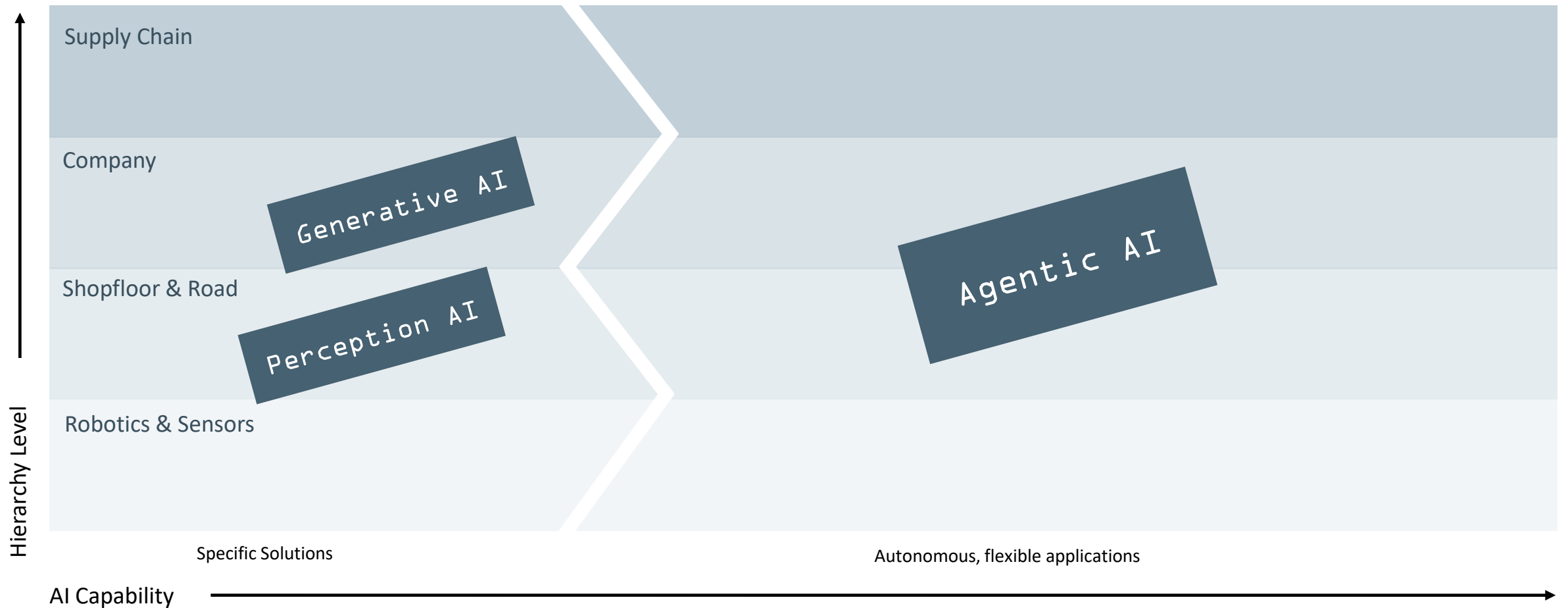




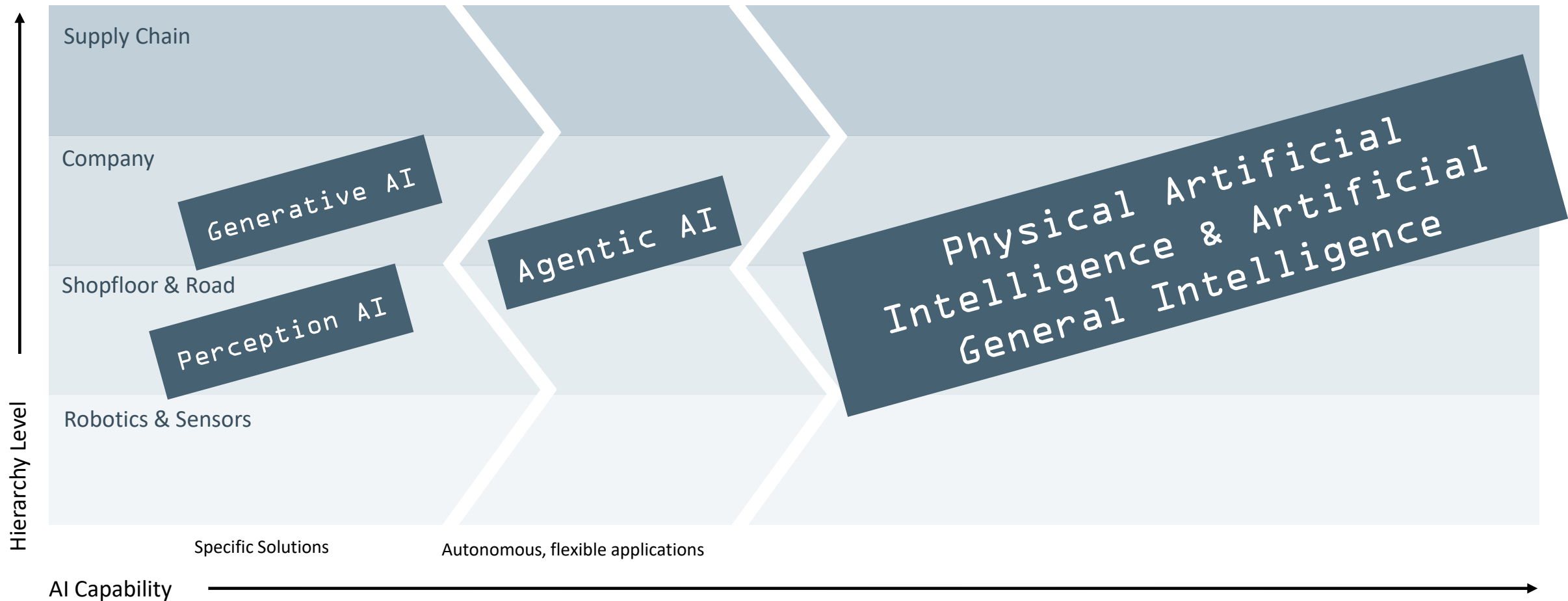
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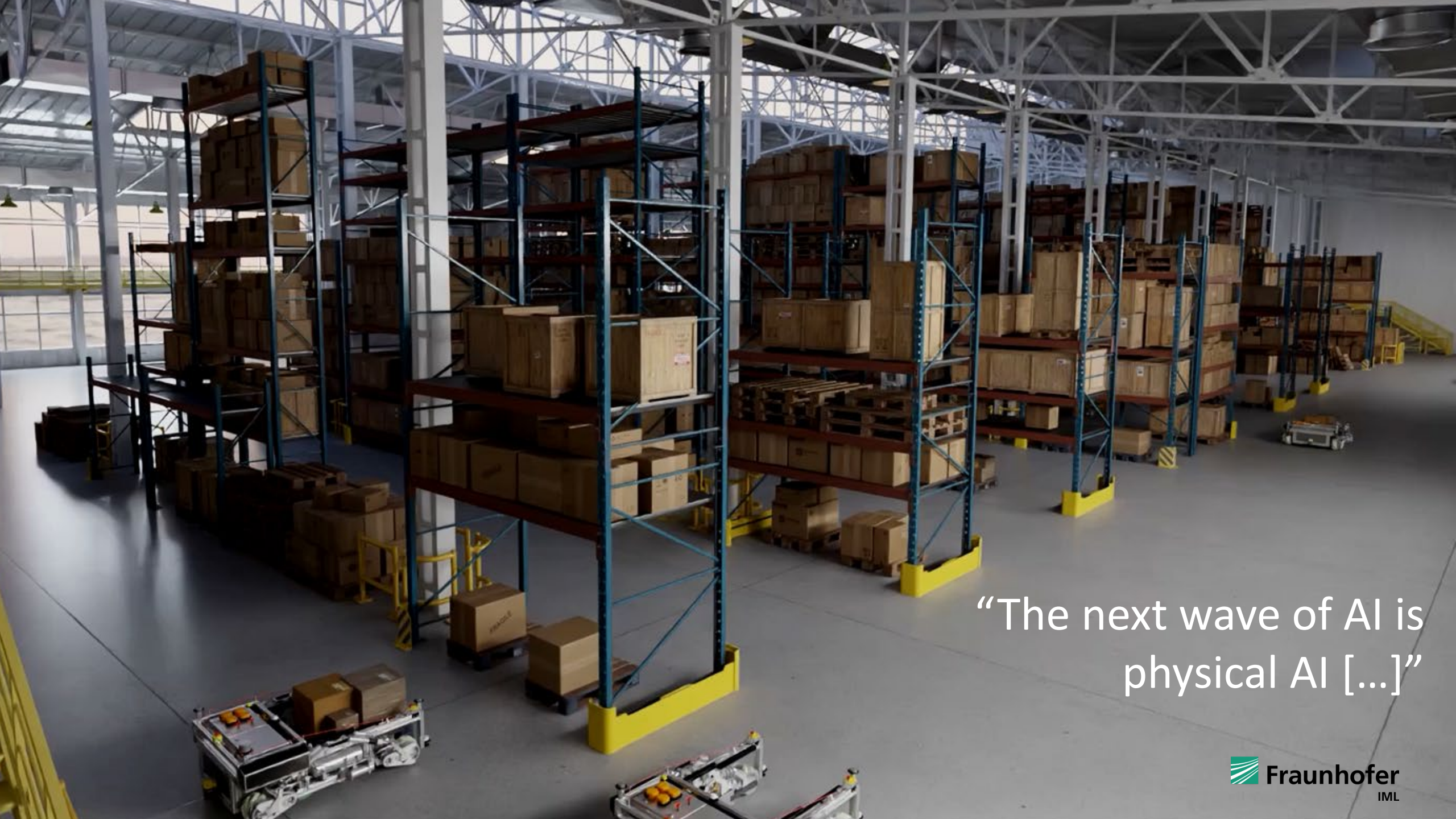


The trend is moving from specific solutions to autonomous, flexible applications

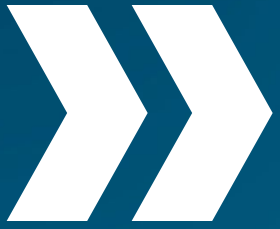


After Perception AI, Generative AI and Agentic AI comes Physical AI. The fusion of digital intelligence and the ability to act in the real world



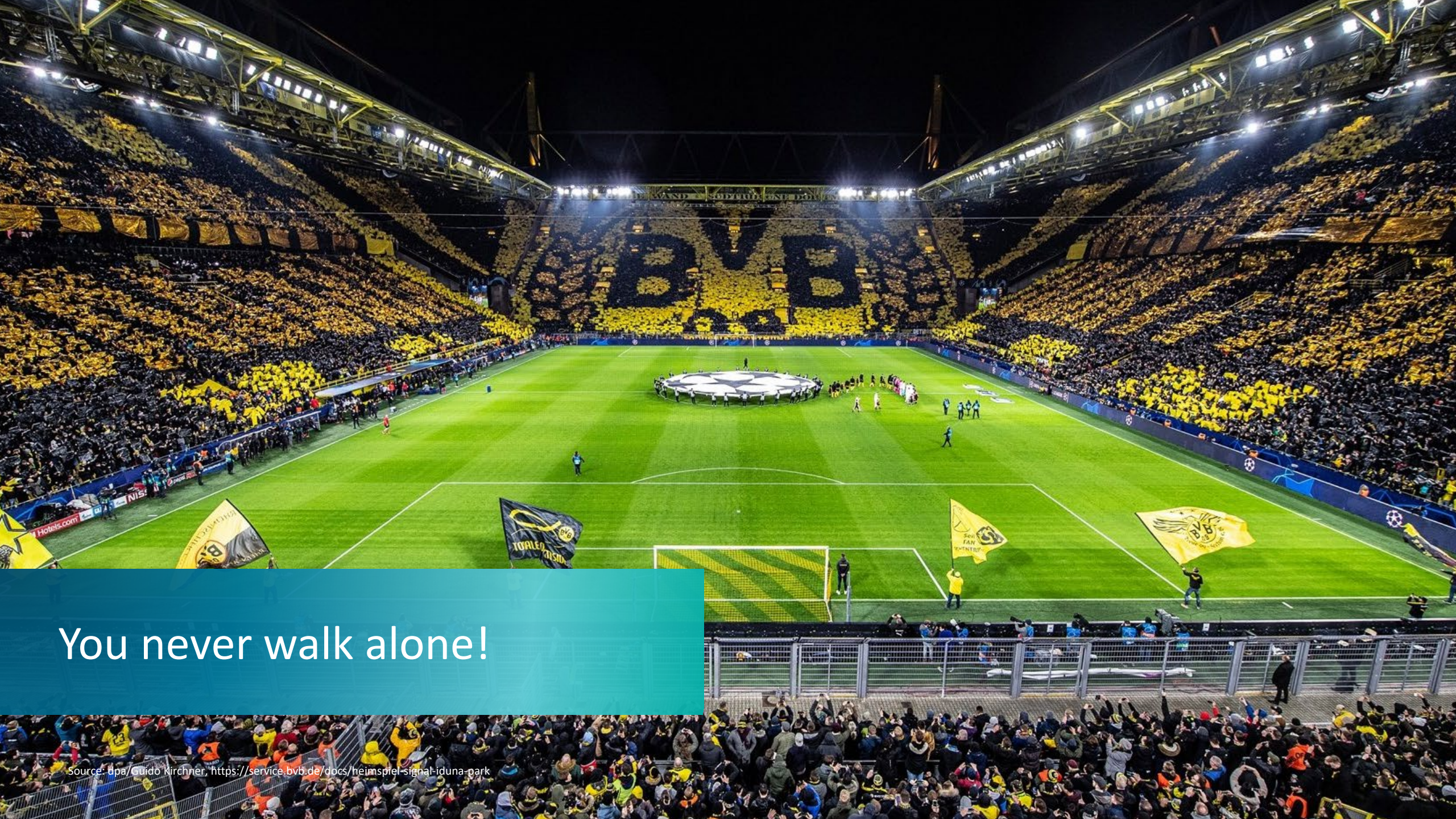


“The next wave of AI is
physical AI [...]”



The added value is where:

- Applications only become possible due to AI
- AI and humans are not competitors; where humans are freed up to perform higher dimensional tasks



You never walk alone!

Source: dpa/Guido Kirchner, <https://service.bvb.de/docs/heimspiel-signal-iduna-park>



Anike Murrenhoff

Fraunhofer-Institute for Material Flow and Logistics IML
Intralogistics and -IT Planning
Joseph-von-Fraunhofer-Str. 2-4
44227 Dortmund

anike.murrenhoff@iml.fraunhofer.de
+49 231 9743 – 202