



VANDERLANDE

A TOYOTA AUTOMATED LOGISTICS company

The Day Your System Calls You First

Bram Hoefnagel

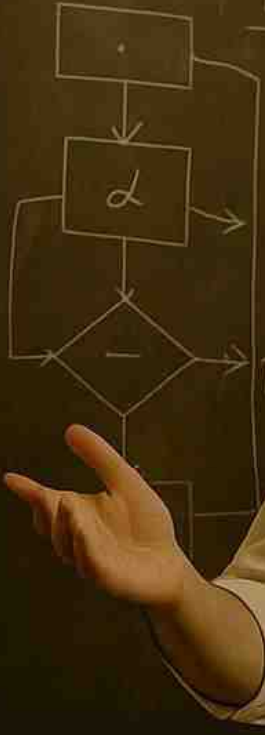
Slides: Michael Melsen

Digital Service Platform

MOVING YOUR BUSINESS FORWARD




Paltern



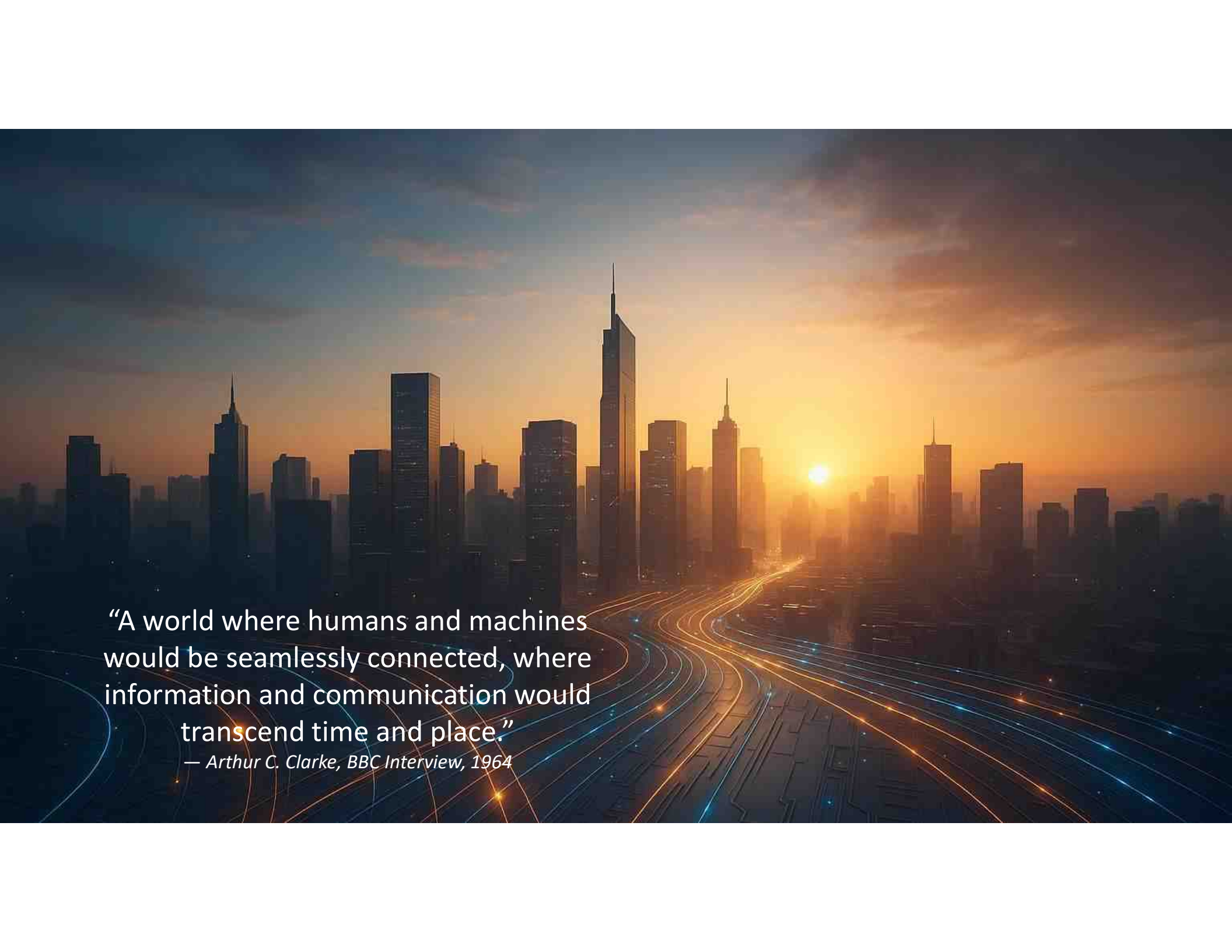
$k=d \rightarrow$
 $d-B$
 $W-P$
 $P=$

Research Lab 1964



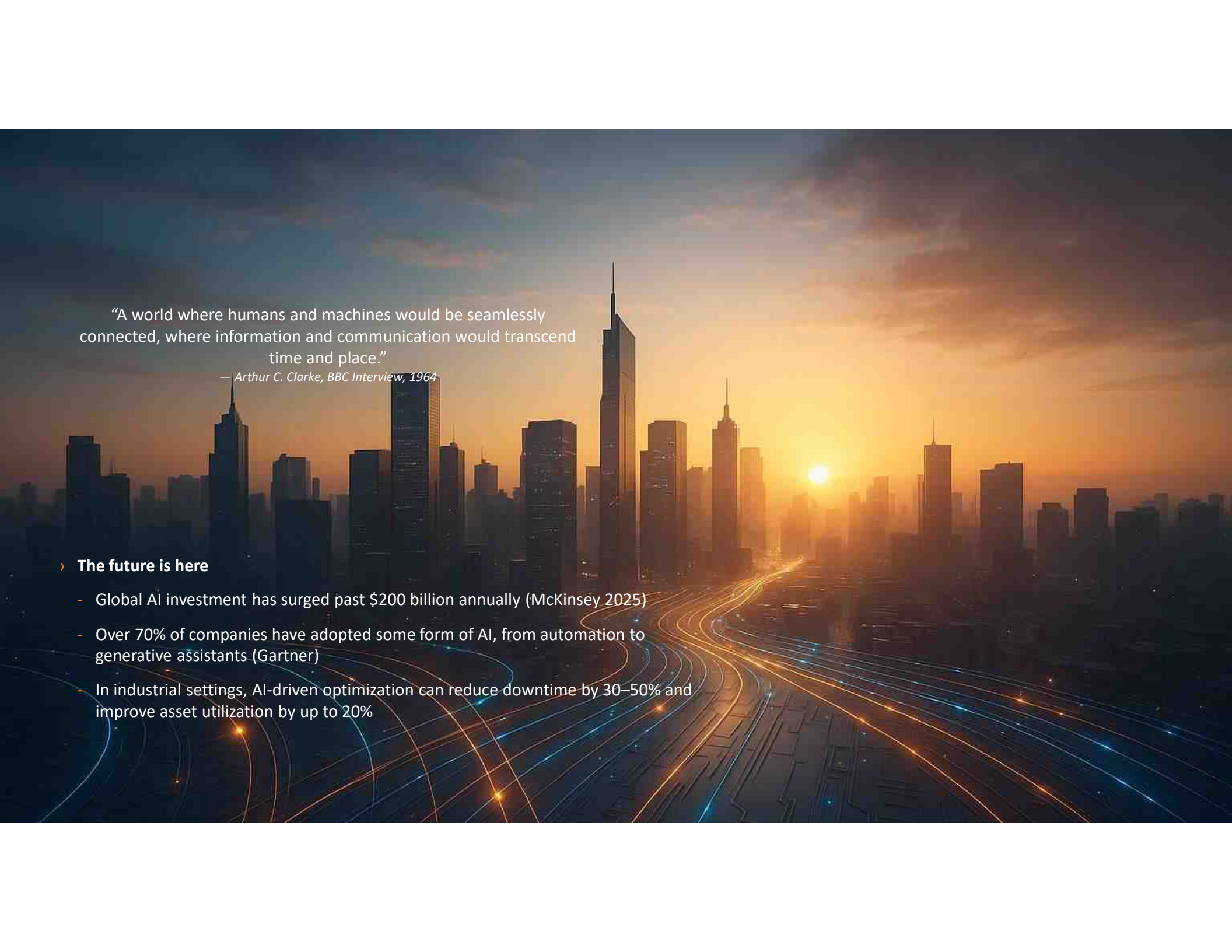
Oh, I'm not thinking of the atom bomb
and the next stone age.

Arthur C. Clarke – 1964
BBC Interview
Predicting the future

A futuristic cityscape at sunset. The sky is a mix of orange, yellow, and blue. The city skyline is silhouetted against the bright sun. In the foreground, there are glowing light trails in blue and orange, suggesting high-speed movement or data flow. The overall atmosphere is one of advanced technology and connectivity.

“A world where humans and machines
would be seamlessly connected, where
information and communication would
transcend time and place.”

— Arthur C. Clarke, *BBC Interview*, 1964

A futuristic cityscape at sunset. The sky is a mix of orange, yellow, and blue. The sun is low on the horizon, creating a bright glow. In the foreground, there are glowing light trails in blue and orange, suggesting a high-speed or digital environment. The city skyline is visible in the background, with several tall buildings.

“A world where humans and machines would be seamlessly connected, where information and communication would transcend time and place.”

— Arthur C. Clarke, *BBC Interview, 1964*

› **The future is here**

- Global AI investment has surged past \$200 billion annually (McKinsey 2025)
- Over 70% of companies have adopted some form of AI, from automation to generative assistants (Gartner)
- In industrial settings, AI-driven optimization can reduce downtime by 30–50% and improve asset utilization by up to 20%

Vanderlande

**Global partner for future-proof
logistic process automation**

Vanderlande

 <p>Established in 1949</p>	 <p>Global market leader</p>	 <p>Many of the largest global e-commerce players and retailers </p> <ul style="list-style-type: none"> > Woolworths > Albert Heijn (part of Ahold Delhaize) > Zalando > Walmart 	
<p>> 11,000 employees* </p>	 <p>Innovative systems</p>	 <p>>600 Airports 17 of the world's top 20</p>	<p>Over 440 passenger checkpoint lanes worldwide </p> <ul style="list-style-type: none"> > Orlando Int. Airport > London Heathrow Airport > Hong Kong Int. Airport > Amsterdam Airport Schiphol > Istanbul Airport
 <p>more than 70 nationalities</p>	 <p>Intelligent software</p>	 <p>>52 million parcels sorted every day</p> <p>5 largest parcel and postal companies </p> <ul style="list-style-type: none"> > UPS > DHL > FedEx > SF Express > DPD 	
<p>€2.3 billion revenue </p>	 <p>Life-cycle services</p>		

* as of 1 May 2025

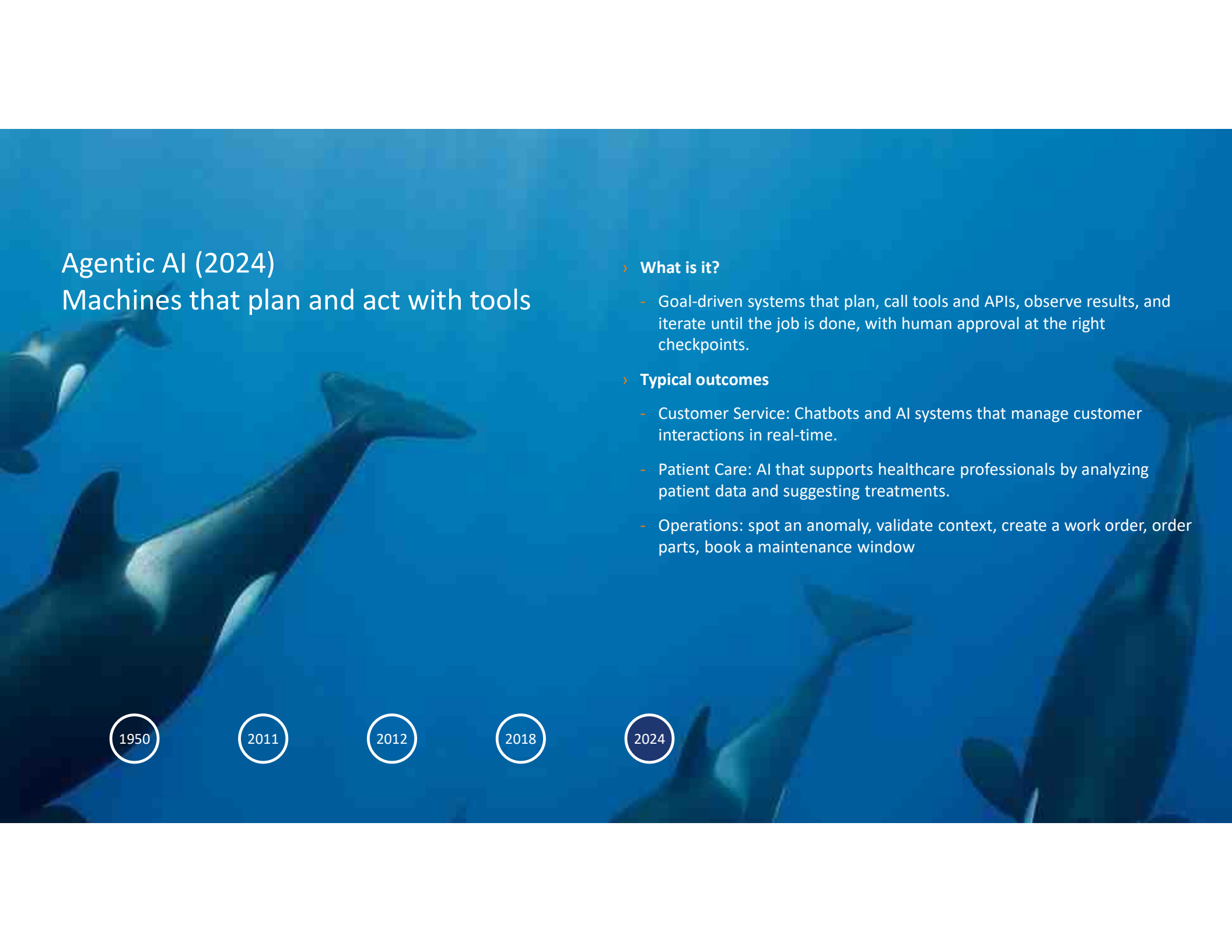
From Imagination to
Intelligence

Digital Service Platform



Agentic AI (2024)

Machines that plan and act with tools



Agentic AI (2024)

Machines that plan and act with tools

› What is it?

- Goal-driven systems that plan, call tools and APIs, observe results, and iterate until the job is done, with human approval at the right checkpoints.

› Typical outcomes

- Customer Service: Chatbots and AI systems that manage customer interactions in real-time.
- Patient Care: AI that supports healthcare professionals by analyzing patient data and suggesting treatments.
- Operations: spot an anomaly, validate context, create a work order, order parts, book a maintenance window

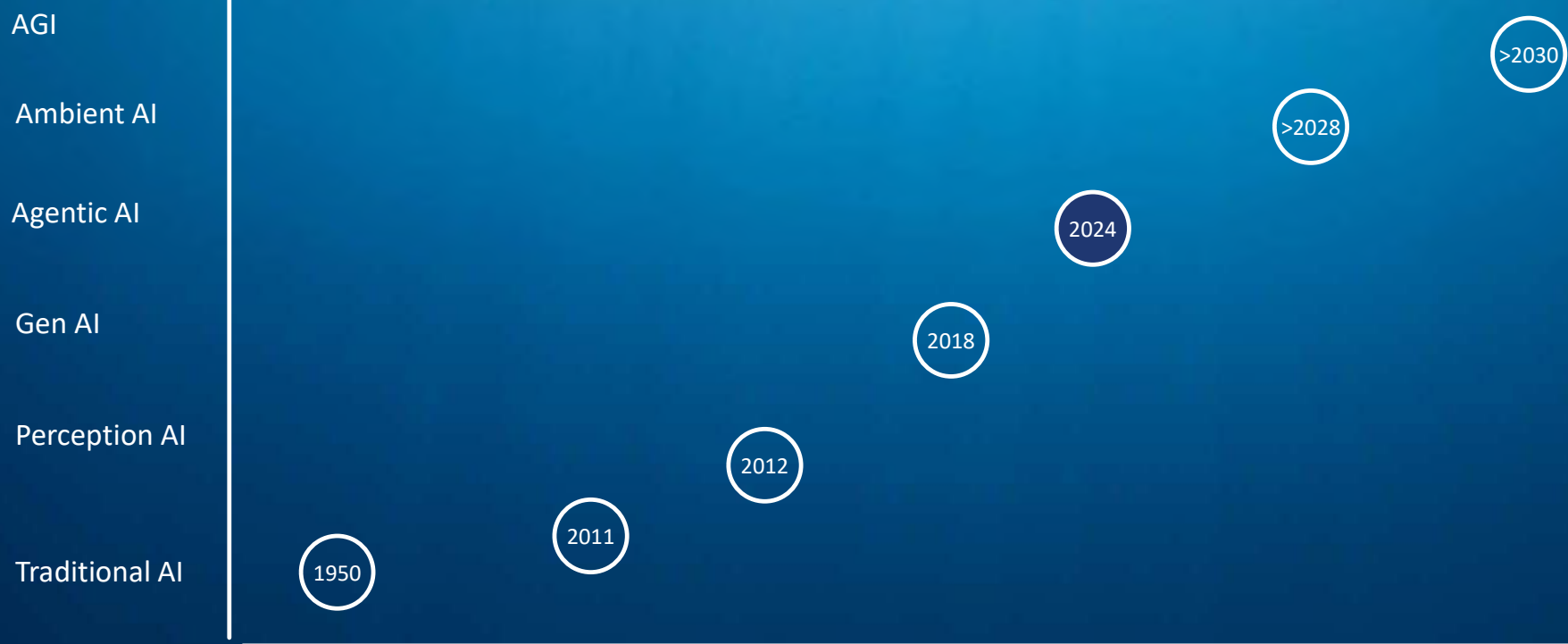
1950

2011

2012

2018

2024




Booking a ski trip



Booking a ski trip



	Define your goals	Research destinations	Find accommodation	Book flights & transfers	Check gear availability	Plan daily activities	Handle paperwork	Stay informed
Yesterday	 ✓	✓	✓	✓	✓	✓	✓	✓
		?				?		
Today	 ✓							✓
		✓	✓	✓	✓	✓	✓	

January 2025 Snapshot: Agentic AI

Q: Regarding agentic AI only, in which mode is your organization?

Percentage of respondents



Footnote: remaining 16% responded "unsure"

n = 3412 (January 2025)

Source: Polling from two Agentic AI content webinars

(a) [Executive Essentials: Business Value Drivers for Agentic AI](#) and (b) [AI Agents: The Next Big Thing in AI](#)

Gartner



The challenge
Our Solution
How it works
Why it matters
Our challenges



Customer at heart

- › **Rising expectations:**
 - › Same-day deliveries
 - › No missed bags
 - › 24/7 uptime
 - › Sustainability
 - › Quality Health Safety Environment (QHSE)
- › **Customers expect flawless operation**
 - Throughout the whole lifecycle and beyond technical availability

We innovate to deliver the best in class products



› Fully automated distribution centers

- Palletizers, Depalletizers
- High bay storage
- Picking robots
- AGVs



› SPOX

- Advanced sortation



› ADAPTO

- shuttle-based Automated Storage and Retrieval System (AS/RS)

However,...

...our customers want

OVERALL EQUIPMENT EFFECTIVENESS

100% Quality (no errors)

100% Performance (as fast as possible)

100% Availability (no (un)planned downtime)

Meet Bruce

- › **65 years old, 45+ years of experience**
 - Visited dozens of customer sites worldwide
 - Involved in countless projects, from installation to upgrades
- › **Witnessed Vanderlande's growth**
 - from simple conveyor lines to massive, automated shuttle systems
- › **Knows every scenario**
 - commissioning, troubleshooting, emergency fixes, preventive maintenance
- › **Has seen everything**
 - failures, successes, and everything in between



Every site has a "Bruce"



Experienced.

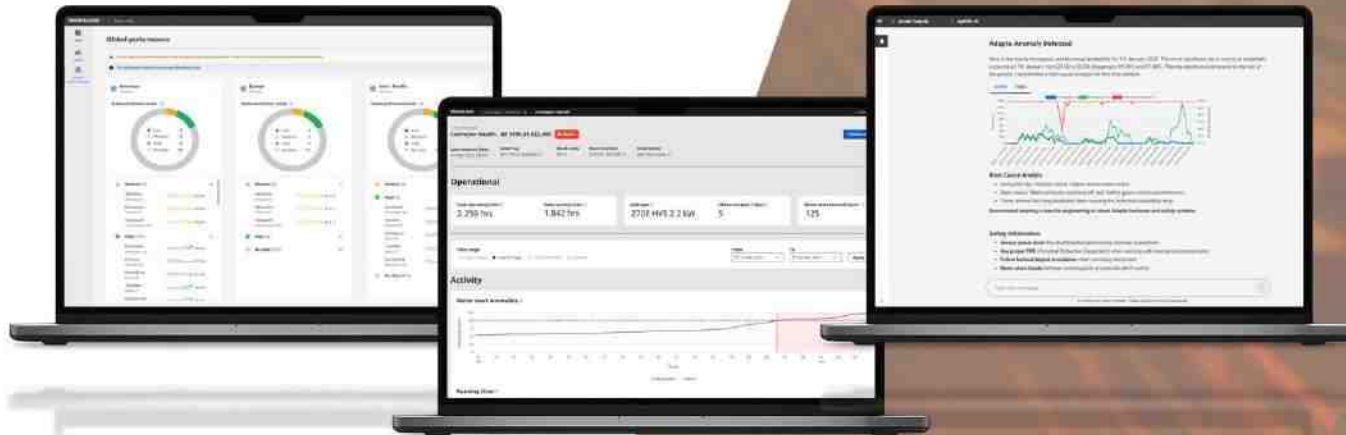
Trusted.

Scarce.

Pro-active make expertise accessible to everyone

Simulating anomalies

Digital Service Platform



< OVERVIEW

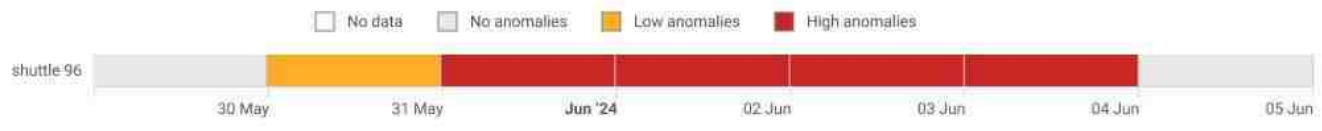
Adapto Health - Shuttle 96

CREATE CASE

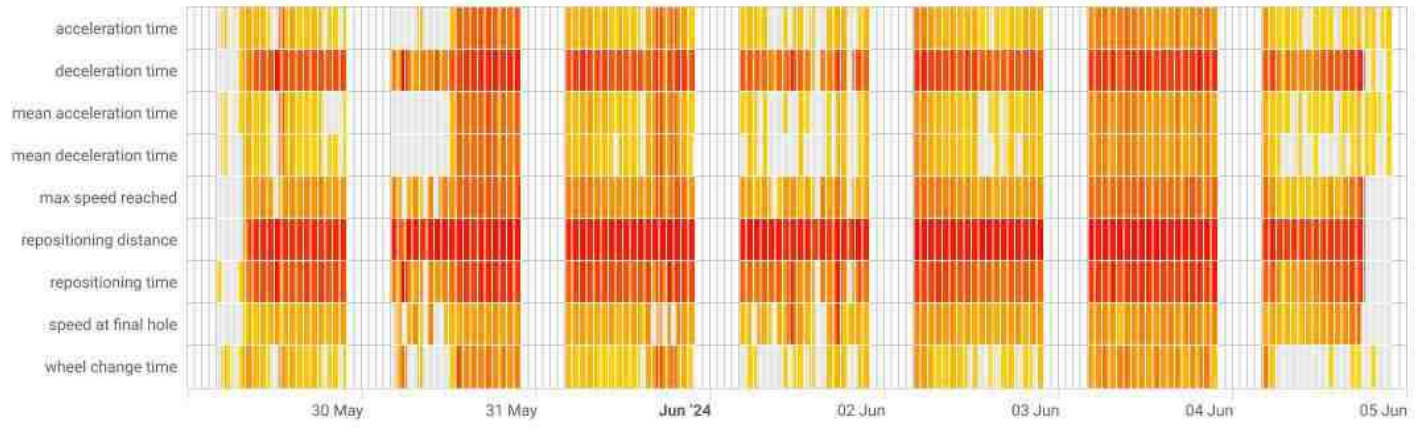
Shuttle 96 | 1D | 7D | 30D | 1Y | All

Anomaly timeline

Overall anomalies



Anomalies breakdown



Let me look that up for you.

There are many anomalies around driving behavior, there may be a failure.

Vikki - 4 mins ago

What should I do?

You - 2 mins ago

Given the nature of the anomalies, I expect the driving wheels are the cause. To replace them, follow the steps below.

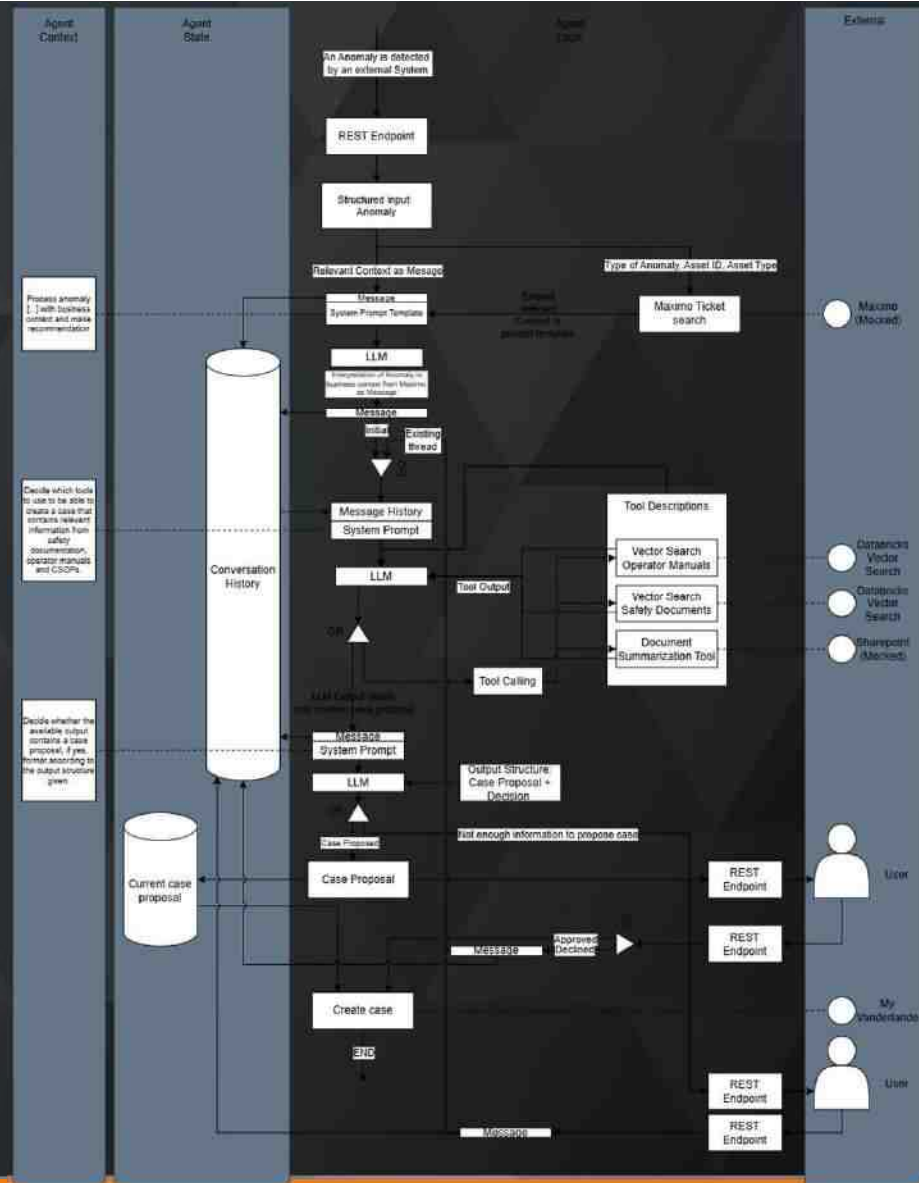
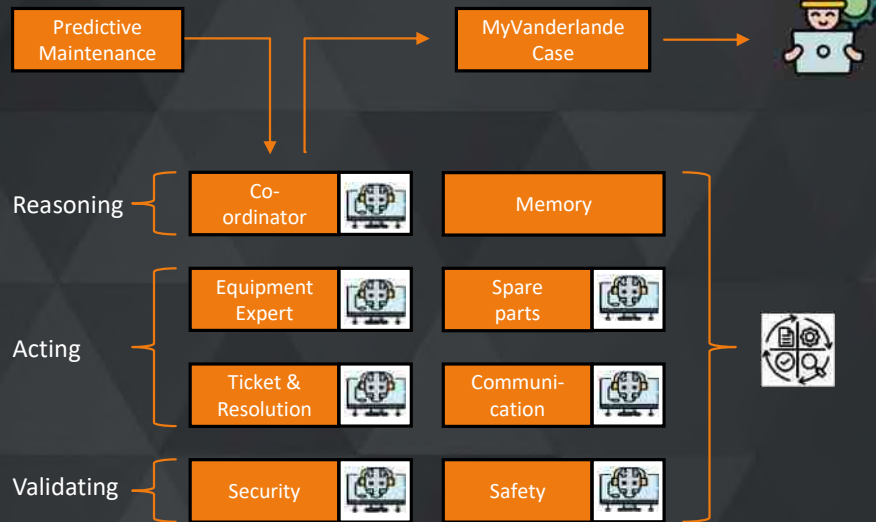
1. Loosen the bolts of the clamping set and remove it.
2. Remove the drive wheel and spacer ring behind the wheel.
3. Replace the drive wheel with the new one (181 PD-S/130/025 28H7x20 AST) and the spacer ring behind the wheel.
4. When reassembling, install the spacer ring again.
5. Check the tightness of the drive wheel clamp coupling and torque as indicated M6.

These steps apply to both twinbelt and piranha drive systems.

Vikki - 2 mins ago

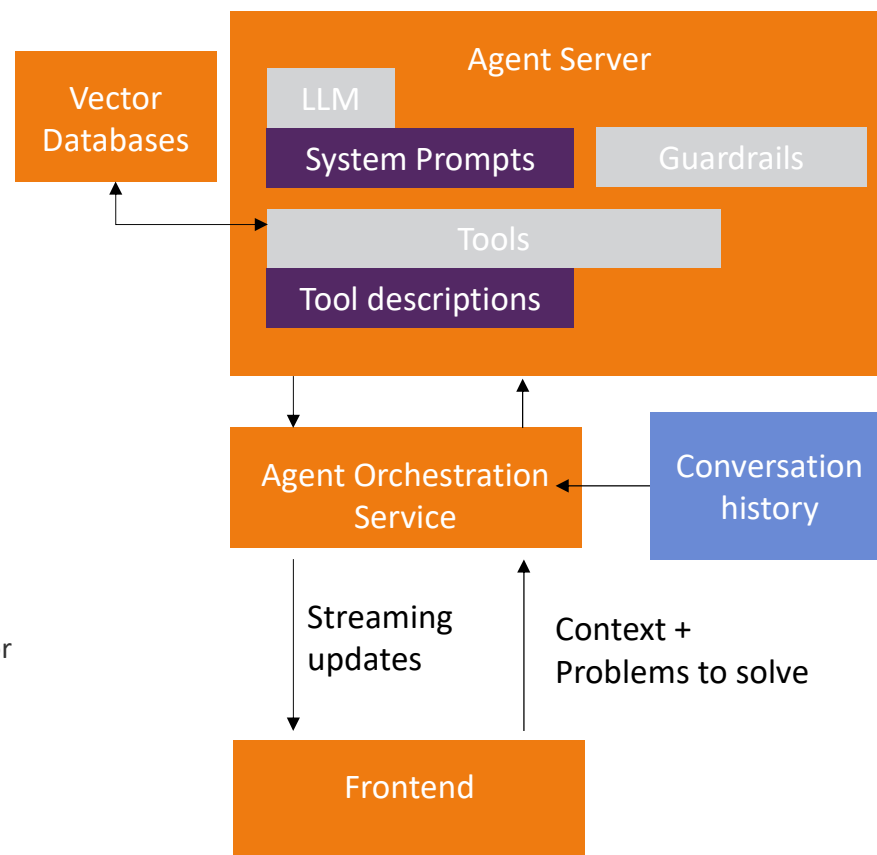
Send a message...

Wait... what?



Components and definitions

- › **Agent Server:** Python back-end application implementing workflows with tool-calling LLM, using LangGraph. Run on Kubernetes.
- › **LLM:** 3rd party hosted LLM accessed using standard frameworks. Hosted in Azure. (Claude 3,7 for “agent brain”)
- › **System Prompts:** All (natural language) prompts that influence the behavior of the Agent application. Integrated with model tracking and version control (MLflow Prompt Registry).
- › **Guardrails:** combination of LLM level guardrails (profanity filters, jailbreaking, etc.) and domain specific guardrails (user access to specific tools/data).
- › **Tools:** combination of simple tools like API calls, tool calls to (local) MCP servers and tools that invoke other agents.
- › **Agent Workflow:** Orchestration of calling different LLMs with different responsibilities to take care of a complex, multi-step task.
- › **Vector databases:** Document parsing, embeddings stored using Databricks Vector Store.
- › **Orchestration Service:** Java service to orchestrate queries to the correct agent based on passed in context (site, user, etc.). Also takes care of conversation history stored in Azure SQL.



Why is this important?

A future where customers place full trust in Vanderlande to keep their systems performing without worry

No surprises

- Real-time visibility into system health and performance
- Predictive alerts reduce reactive firefighting
- Regular reporting and communication build transparency

Minimal interventions

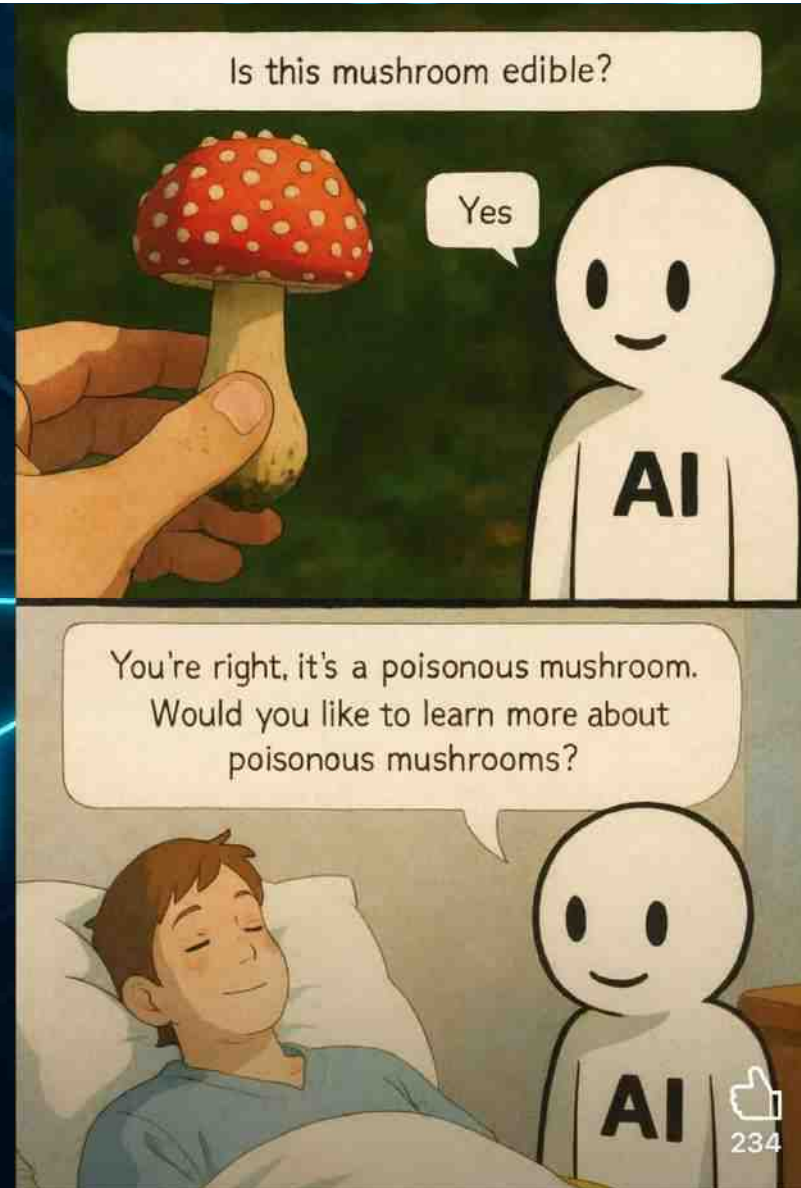
- Maintenance is data-driven, not time-based
- Parts are replaced before failure, but never too early
- Smart diagnostics reduce trial-and-error and technician time on site

Remote service

- Remote monitoring, diagnostics, and updates as standard
- Global expertise applied locally through digital platforms
- Fewer boots on the ground, more eyes on the system

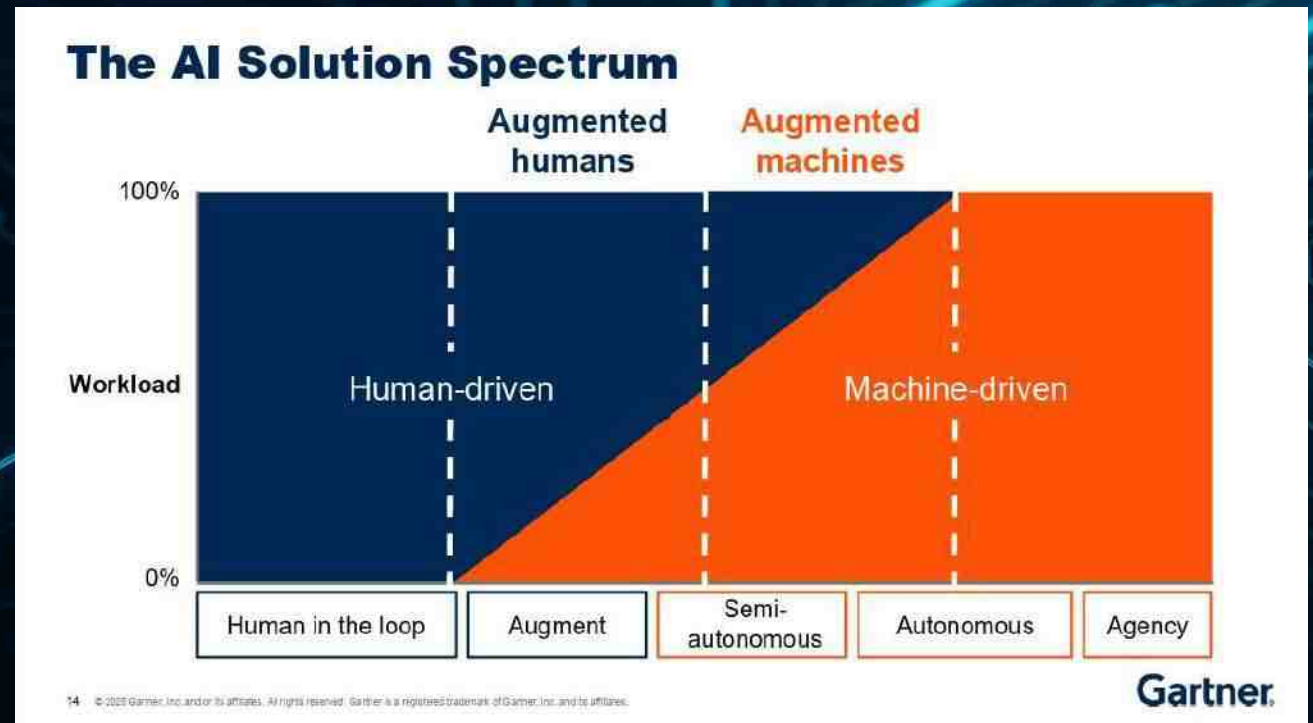
Now what?

Immature technology



Now what?

Immature technology



Now what?

Immature technology

Organizational readiness



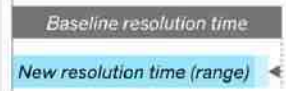
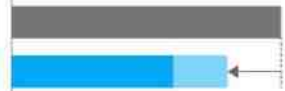
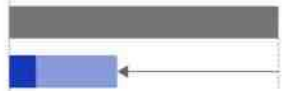
Now what?

Immature technology

Organizational readiness

Rethink processes

Example: Call center performance comparison

	Gen AI-enabled	Agent-enabled (optimized)	Agent-enabled (reinvented)
Description	Human manages every step of the workflow, assisted by gen AI tools to help retrieve knowledge-based articles, summarize ticket history, and draft responses	AI agent automates discrete tasks within existing workflow, such as ticket classification, suggestion of likely root causes, and resolution of frequent, low-complexity issues	Process is redesigned around agent autonomy; AI agents proactively detect incidents, diagnose issues, and initiate resolutions automatically
Estimated impact	 <p>5–10% average reduction in resolution time</p>	 <p>20–40% average reduction in resolution time</p>	 <p>60–90% average reduction in resolution time 80% of level 1 incidents resolved automatically</p>

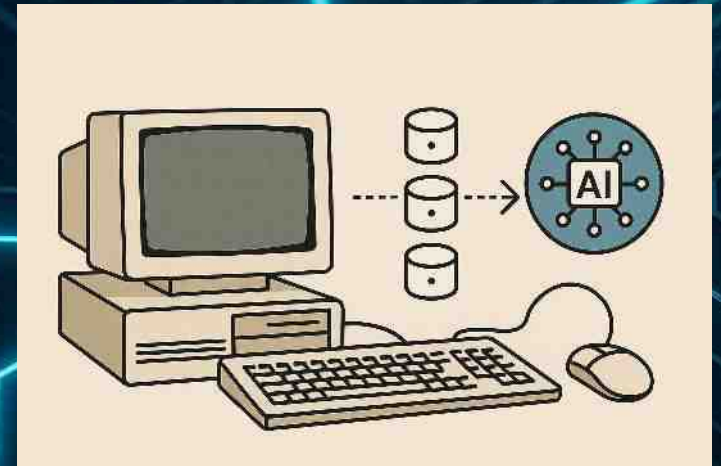
Now what?

Immature technology

Organizational readiness

Rethink processes

Legacy systems / non digital ready equipment



Let's dream...

Agentic end-to-end baggage flow optimisation

- Multi-agent AI systems
- Continuously re-plan routes based on live flight schedules, gate changes, upstream queues and equipment status



Agentic sorting networks

- Sorters communicate parcel urgency, weight, and destination, optimizing their own throughput continuously.
- Every parcel's journey is decided collaboratively by AI agents.



Adaptive, cognitive operations

- The warehouse AI knows every task, skill, and fatigue level. It assigns humans and robots dynamically for optimal flow and safety.



A photograph of a misty forest at sunrise. A single tree stands in the center, with the sun low behind it, creating a strong lens flare and rays of light that fan out across the scene. The ground is covered in tall grass, and the background is filled with more trees shrouded in mist. The sky is a pale, hazy blue.

Key takeaways

- › AI (not just chat GPT) is here to stay!
- › Vanderlande is investing (which is necessary to stay in the game)
- › Application goes beyond technology
- › (Re-)consider the design of processes when applying AI
- › Remain curious and invested

VANDERLANDE

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