Transforming Product Development with AI

PLM Road Map™ & PDT North America 2025

PLM's Integral Role in Digital Transformation From Strategy to Execution

Elevating PLM to an Enterprise Business Solution,
the PLM Professional's Road Map to Success

May 7 & 8

Henrik Weimer
May 2025

CIMdata®

eurostep

AIRBUS

Content

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Aviation: An irreplaceable force

4.5 billion
passengers

+48,000
routes served globally

+3,700
airports with scheduled services

82.5%
cabin occupancy

2019 statistics by ATAG

AIRBUS

Airbus is a global leader in aeronautics, space and related services

Airbus, Airbus Defence and Space and Airbus Helicopters

157 K
Total workforce

€629 bn
Order book

€69bn
2024 revenue

Annual press conference 2025 and monthly press updates

AIRBUS

Passion to create better ways to fly

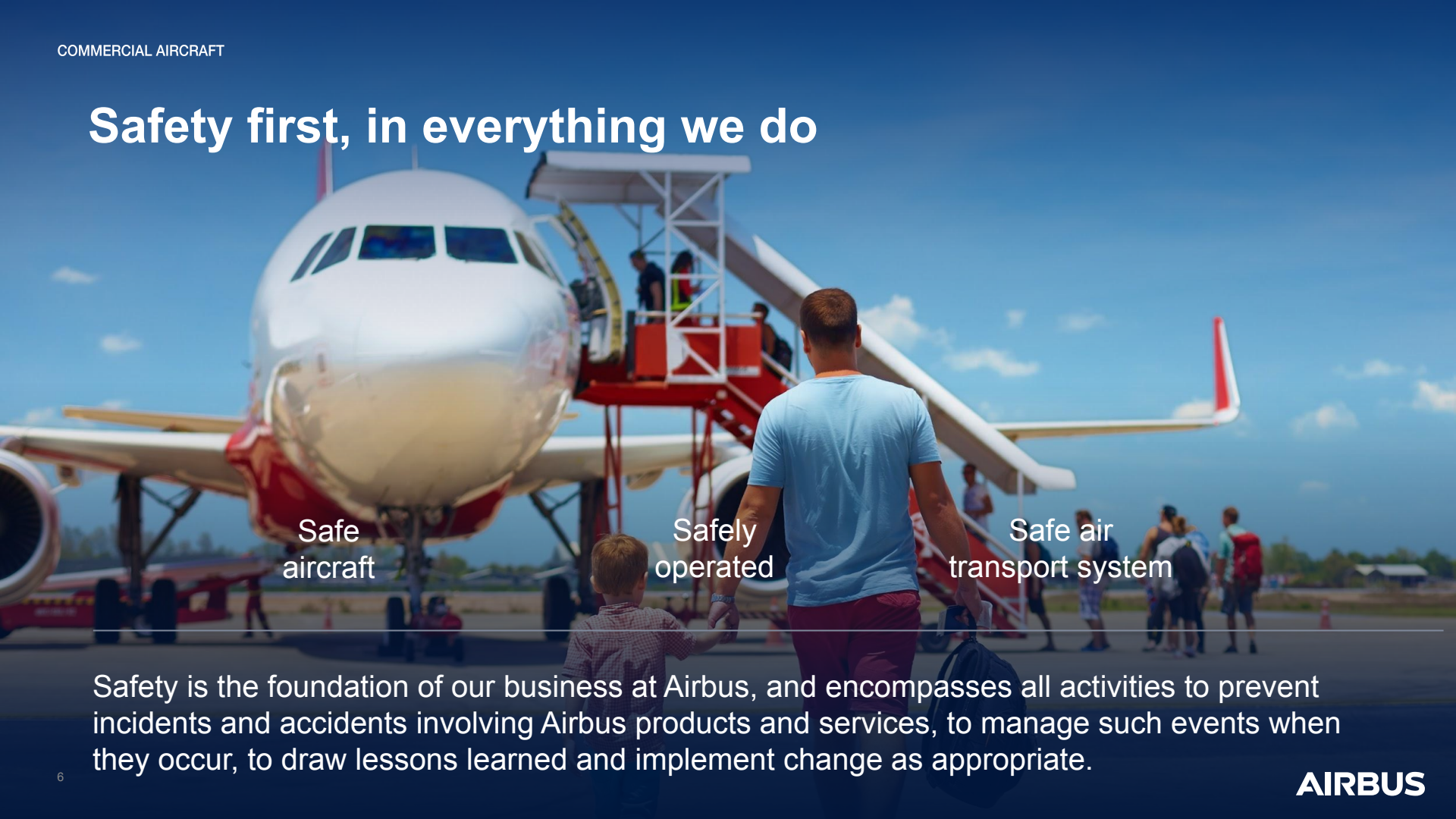
Commercial Aircraft

8,684
Commercial Aircraft backlog

97.4k
End 2024 Employees

€50,6bn
2024 Annual revenue

Safety first, in everything we do



Safety is the foundation of our business at Airbus, and encompasses all activities to prevent incidents and accidents involving Airbus products and services, to manage such events when they occur, to draw lessons learned and implement change as appropriate.

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Ethics and Compliance: doing business with integrity

Robust Compliance programme matching the highest international standards

Code of Conduct underpinned by annual employee objectives to drive exemplary behaviour

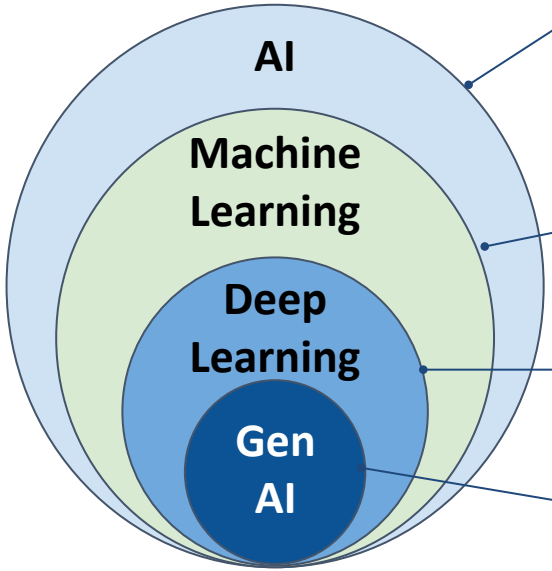
Airbus OpenLine to encourage speak up and address compliance problems early

A professional, dedicated team of 150 full time compliance officers to implement and sustain progress

What is Artificial Intelligence?

An artificial system designed (by humans) for handling of tasks which were thought to be solvable only by means of human intelligence.

John McCarthy, 1956



AI is a broad field of computer science focused on **creating machines that can perform tasks that typically require human intelligence**, e.g.:
Knowledge Representation, Multi Agent Syst., Search & Optim., Probability & Statistics, (Machine) Learning…

dealing with **algorithms that learn from data**, rather than relying on predefined rules

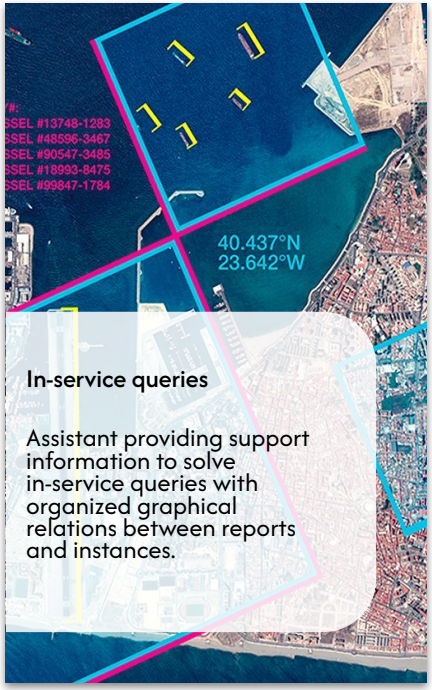
Utilizing **neural network** architectures

Generation of new content based on large pre-trained models and language understanding

Example **Application Cases**:
Computer Vision,
Natural Language Processing,
Pattern Recognition,
Time Series Analysis,
Hybrid modelling,
Decision making …

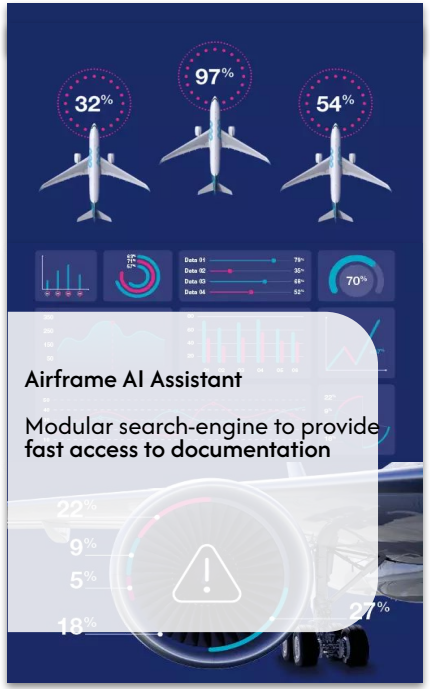
Ref: Presentation of Sergei Bobrovskyi, Between Hype and Application, 2019

Example Use Cases



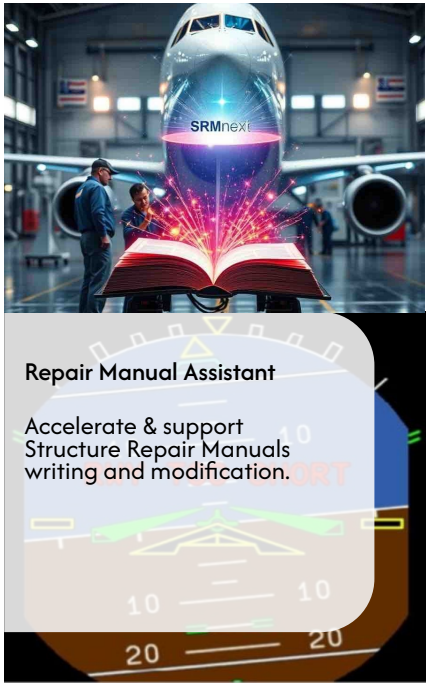
In-service queries

Assistant providing support information to solve in-service queries with organized graphical relations between reports and instances.



Airframe AI Assistant

Modular search-engine to provide **fast access to documentation**



Repair Manual Assistant

Accelerate & support Structure Repair Manuals writing and modification.

Seat Specifications

Virtual-chat assistant to support tasks of seat specifications, evaluating impact of design choices, and evaluating compliance to the requirements.

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Use Cases: A more Systematic Overview

AI Projects landscape

Predictive maintenance

Airlines science

Business intelligence

Customer Services

Marketing

Sales

Customer Facing

Boost productivity in **Front office**

Create new or enhance **Products & Services**

Everyday AI

Game-Changing AI

Boost productivity in **Back office**

Create new **Core capabilities**

Internal Processes

Engineering Assistants

Contract analytics

Cyber Risk threats analyses

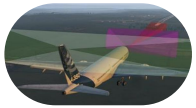
Procurement optimisation

Admin

Legal

IT

Finance



Flight Ops & ATM

Smart Automation

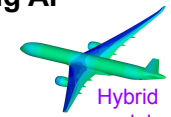
AI enhanced Products

Mission Planning

AI enhanced Services

Massive Intelligence

Space Imagery analytics



Avionics Software Engineering

Hybrid models

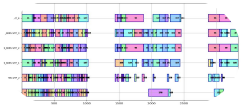
Engineering

Operations

Robotics & Controls

Shop floor Computer Vision Visual Inspection

Supply Chain



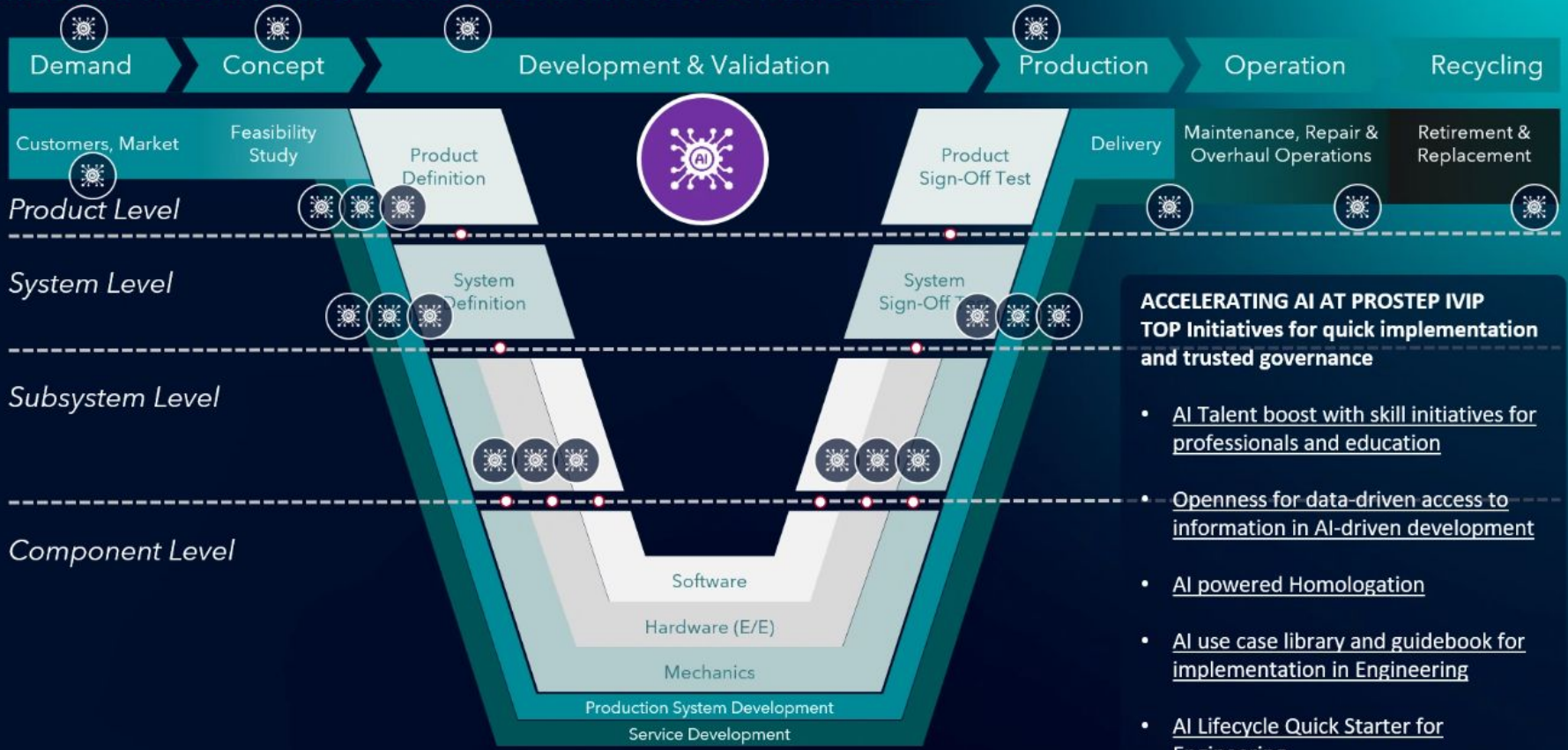
Decision Making: Planning & Scheduling

Source: Gartner / Airbus

GAME CHANGER AI

MASSIVE REDUCTION LEVERAGING AI IN PRODUCT LIFECYCLE

prostep IVIP



ACCELERATING AI AT PROSTEP IVIP
TOP Initiatives for quick implementation and trusted governance

- AI Talent boost with skill initiatives for professionals and education
- Openness for data-driven access to information in AI-driven development
- AI powered Homologation
- AI use case library and guidebook for implementation in Engineering
- AI Lifecycle Quick Starter for Engineering

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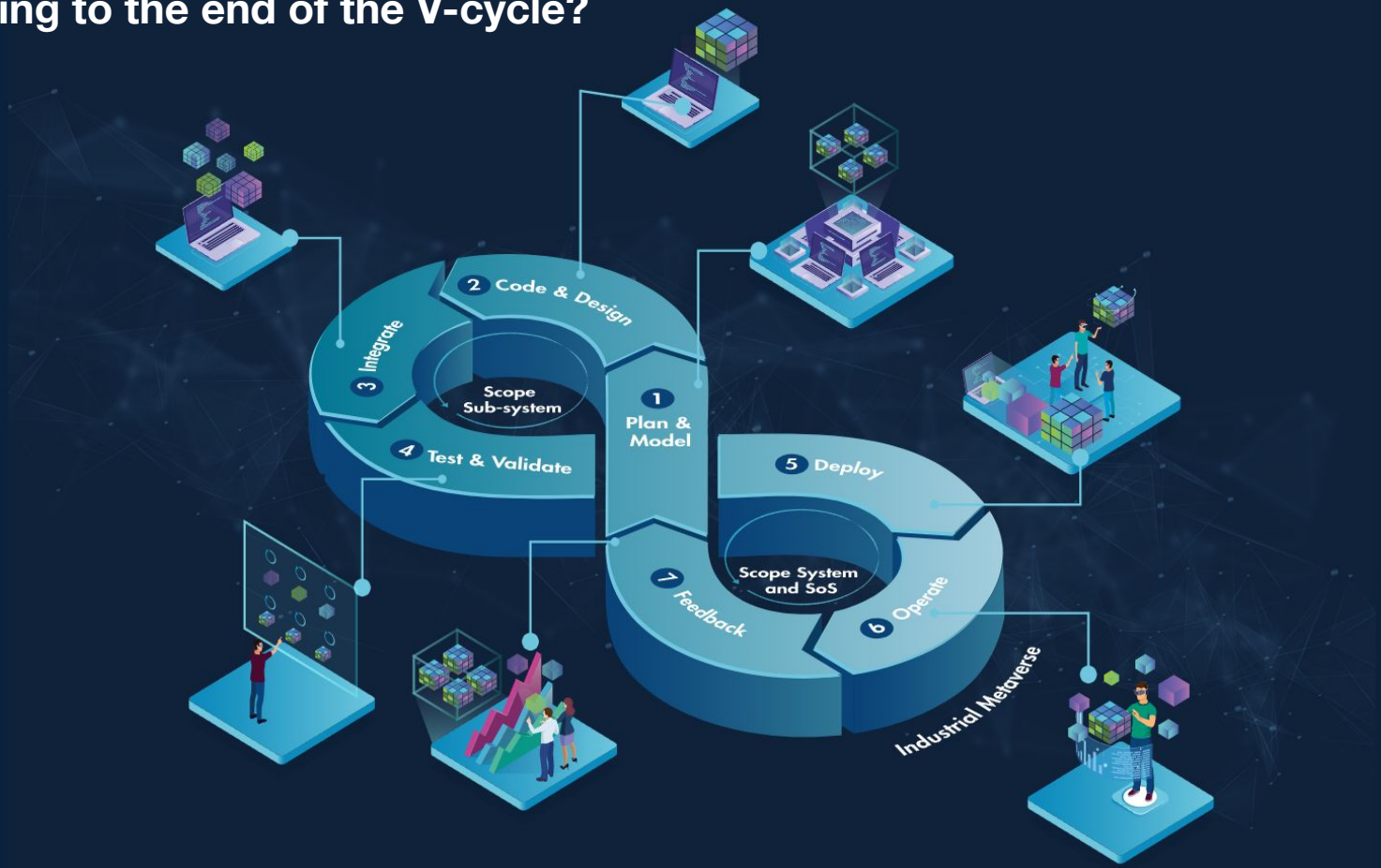
AI leading to the end of the V-cycle?



Source:'Coding the Product'-Unity AG

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Strategic Perspective on AI

Cultural Change, Competencies & Operating Model

Products Services

Assistance & Autonomy

Virtual Assistant

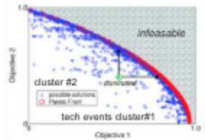
Safety, Performance, Operability

Embedded & Certified AI

EASA

AI Enabled A/C Design

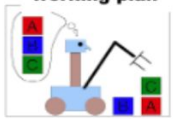
Design Space Exploration



Design in context

Design feedback loop

AI based working plan



Augmented Workplace

Technical Enablers

A.I. Ecosystem

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AI Business Compliance Challenges

Data Privacy

- Protecting personal information collected, used, processed, and stored by AI systems
- Important for ethical and responsible AI development and deployment

Intellectual Property

- Protecting creations of the mind (e.g., inventions, algorithms, data): one & third party
- Patent & Copyright, Trade Secrets, Data Ownership and Usage Rights, Licensing and Agreements

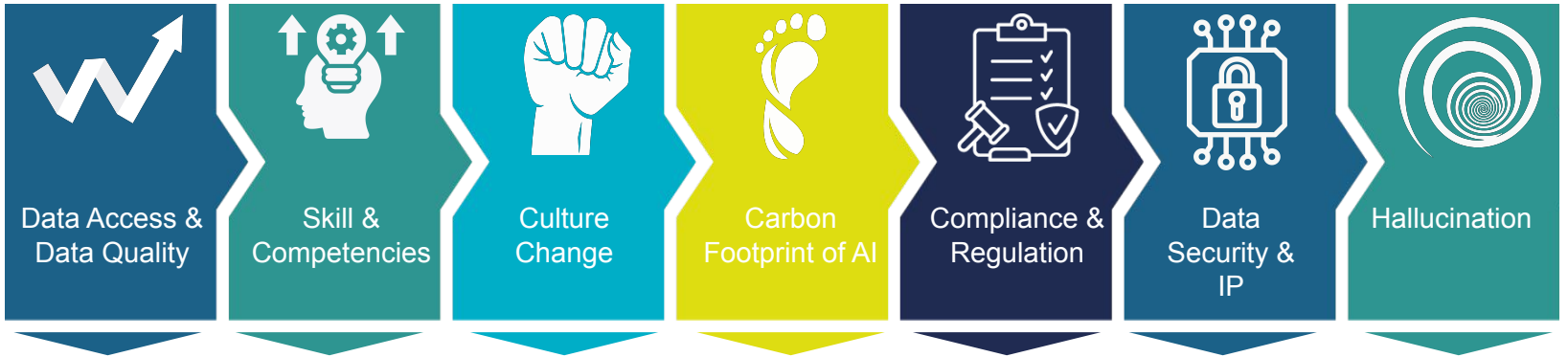
Data Security

- Ensuring Confidentiality, Integrity, and Availability
- Protecting data used and processed by AI systems throughout their lifecycle

Discrimination & Bias

- Systems can perpetuate and amplify existing biases present in the data they are trained on
- Can lead to unfair or discriminatory outcomes, disproportionately affecting certain groups or individuals

Challenges associated with AI in Product Development



Data with Quality is the foundation of a successful AI Strategy

Engage teams to learn, recruitment, sponsorship, partnering

AI is the new Electricity

Consciousness about Energy & CO2 impact, ways to mitigate

Answering to a growing regulatory context, worldwide

Risk of leakage of sensitive data & IP

Architecture to prevent; education to recognize hallucinations

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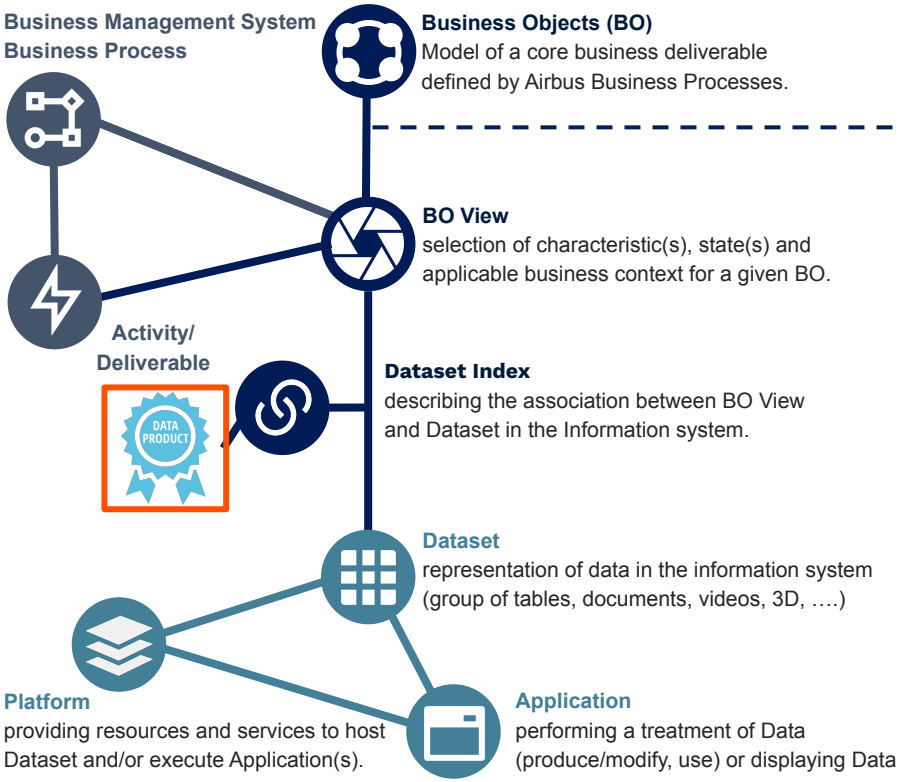
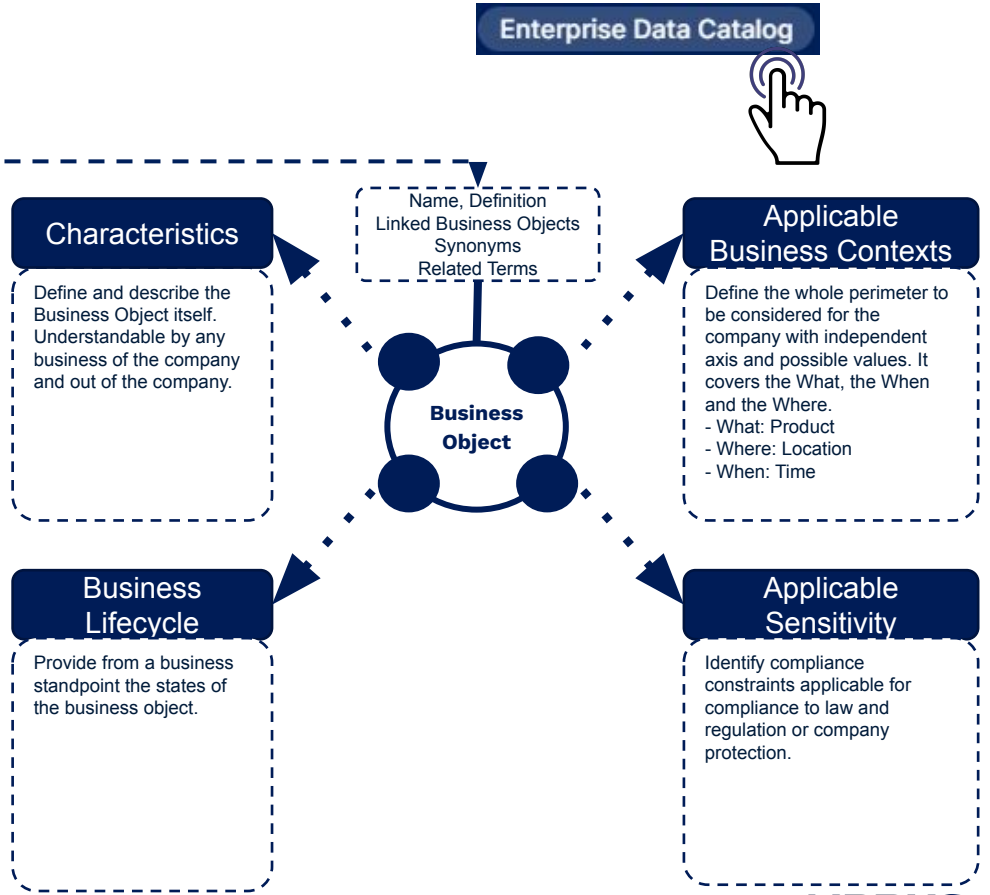
Data Governance: High-level concepts





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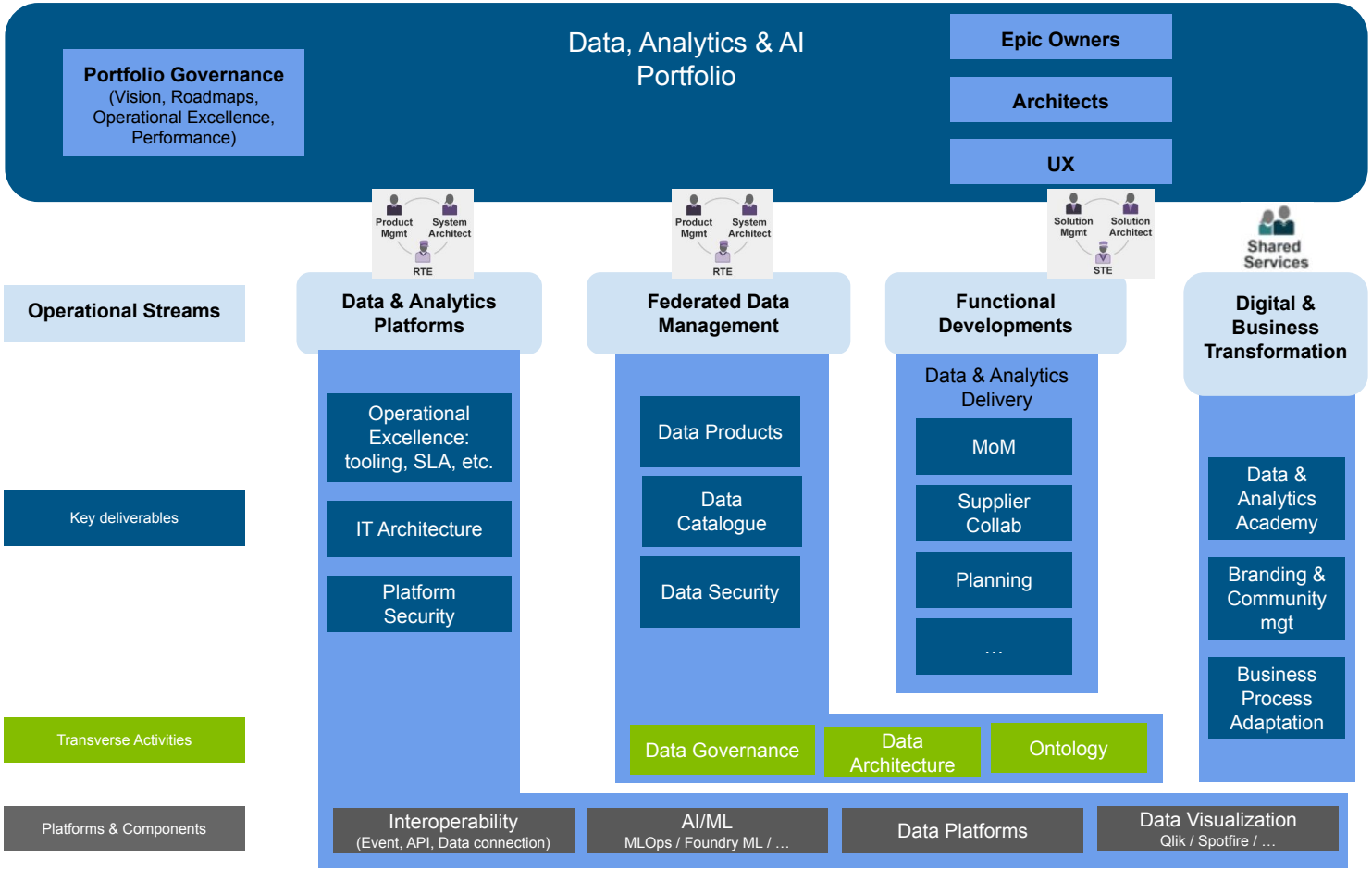
Data, Analytics & AI Governance Organization Example



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Evolving Regulatory Guidance

Trustworthiness as a core concept to ensure:

- Public confidence in AI-enabled products
- Certification and approval of advanced automation
- Ethical systems

"Only if AI is developed and used in a way that respects widely shared ethical values, can it be considered trustworthy.
Therefore, there is a need for ethical guidelines that build on the existing regulatory framework."

Source: EASA, Artificial Intelligence Roadmap 2.0,

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AI Ethics at Airbus

SAFETY FIRST

Safety is our top priority, at the heart of everything we do. We ensure the highest standards of reliability and dependability to protect lives and property.

WELLBEING & SUSTAINABILITY

The AI systems we use should enhance societal wellbeing, expand our business, and promote a safe, united world. They also contribute to our sustainability goals by respecting the planet, valuing people and enabling prosperity.

HUMAN AGENCY & OVERSIGHT

Human oversight of AI systems is essential. It includes the ability to understand, supervise, and control their design and operation, as well as the capacity to detect deviations from intended behaviour and override AI decisions when necessary. Airbus AI systems respect individuals' rights to independent thought, decision-making, and action.

ACCOUNTABILITY & TRANSPARENCY

As providers, deployers, and integrators of AI systems, Airbus takes responsibility for their function and consequences. We achieve this by designing transparent and explainable systems.

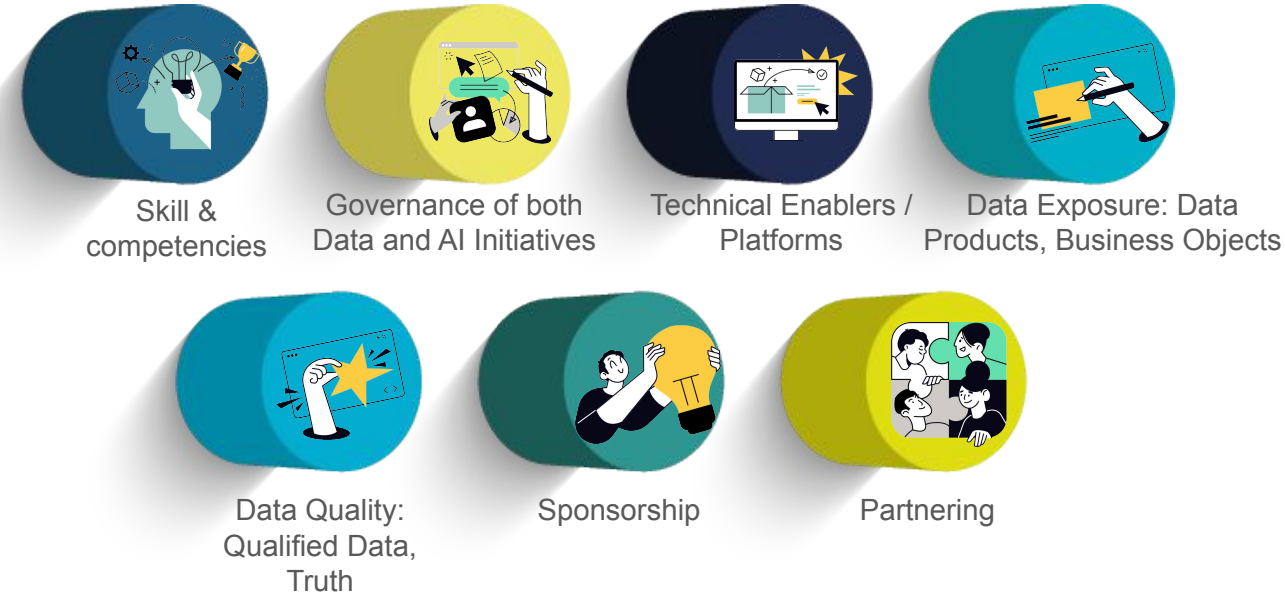
FAIRNESS

We believe in equal rights, opportunities, and fairness for all, without discrimination, and we support diversity and inclusion.

DATA PRIVACY & GOVERNANCE

Airbus adheres to strict data privacy and governance standards.

Summary: Levers Enabling the journey to AI in Product Development



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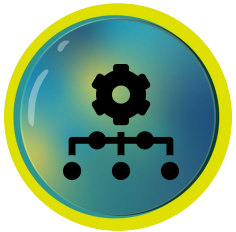
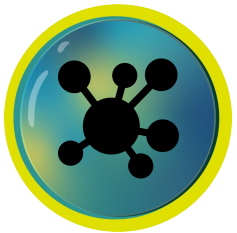
Look into the future

AI will be the infrastructure of decision making: optimization, design space exploration, …



Requires structured approach: System Engineering, Ontology-based

Data is the Code: Garbage in, garbage out

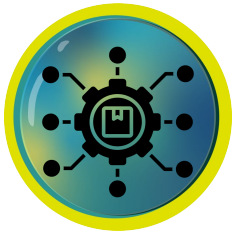


Distributed AI: different types: optimize engine, optimize battery, requires structure & clear input output, platform to do that, co-simulate the system of systems

Singular system cannot be efficient, enabling domain specialization: System of Systems

Human used to being in the silo: optimize my domain/system

AI is supporting the human, humans take the decision



AI enhances human capability to solve very complex problems

Thank you !

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