
Transforming
Product Development
with AI
Airbus Amber
Henrik Weimer
November 2025
PLM Road Map™ & PDT Europe 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
5 & 6 November
CIMdata
eurostep
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Airbus Overview
AI: Some Definitions
AI in Product Development: Examples
Strategic Perspective
AI in Product Development: Challenges & Solutions
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COMMERCIAL AIRCRAFT
Aviation: An irreplaceable force
4.5 billion
passengers
+48,000
routes served globally
+3,700
airports with scheduled services
82.5%
cabin occupancy
3
2019 statistics by ATAG
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COMMERCIAL AIRCRAFT
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
4
Annual press conference 2025 and monthly press updates
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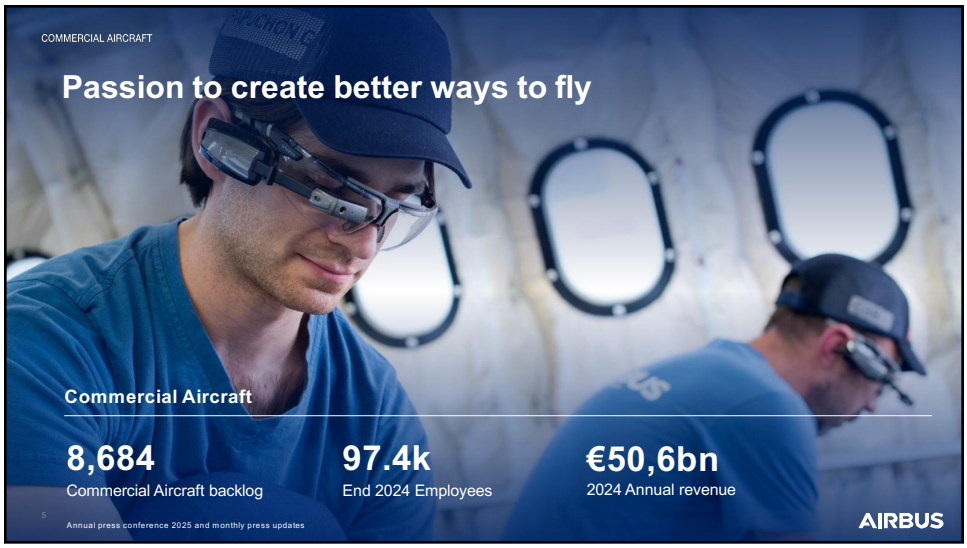
COMMERCIAL AIRCRAFT
Passion to create better ways to fly
Commercial Aircraft
8,684
Commercial Aircraft backlog
97.4k
End 2024 Employees
€50,6bn
2024 Annual revenue
5
Annual press conference 2025 and monthly press updates
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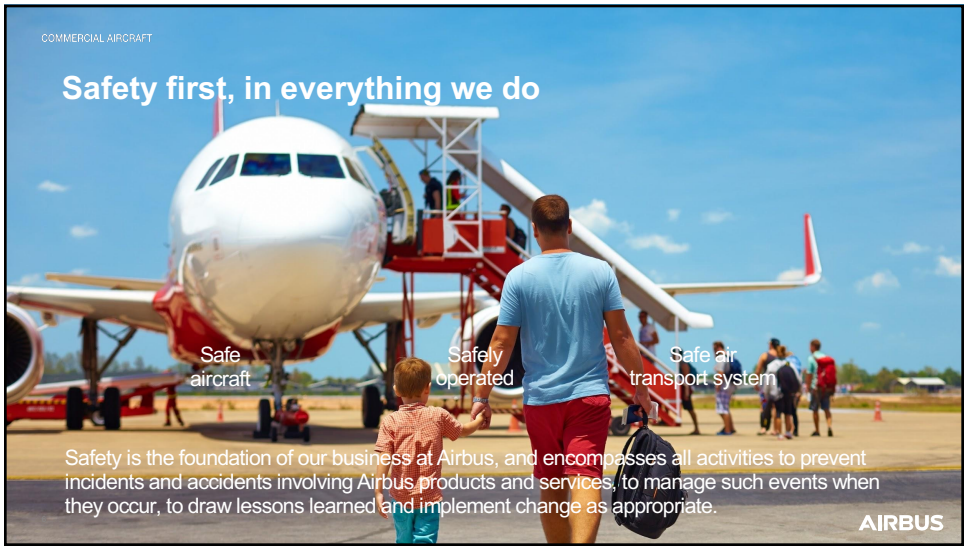
COMMERCIAL AIRCRAFT
Safety first, in everything we do
Safe aircraft
Safely operated
Safe air transport system
Safety is the foundation of our business at Airbus, and encompasses all activities to prevent incidents and accidents involving Airbus products and services, to manage such events when they occur, to draw lessons learned and implement change as appropriate.
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COMMERCIAL AIRCRAFT
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
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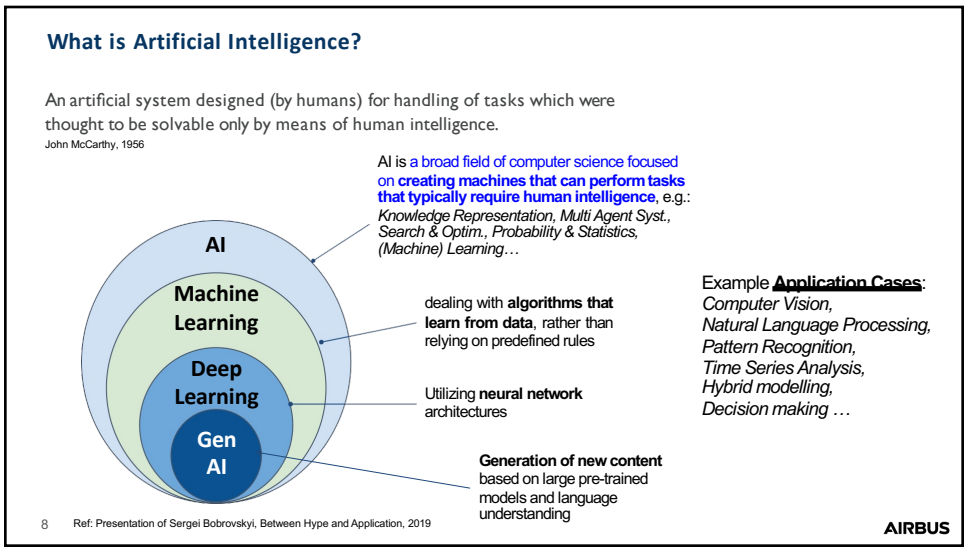
What is Artificial Intelligence?
An artificial system designed (by humans) for handling of tasks which were thought to be solvable only by means of human intelligence.
John McCarthy, 1956
AI is a broad field of computer science focused on creating machines that can perform tasks that typically require human intelligence, e.g.:
Knowledge Representation, Multi Agent Syst., Search & Optim., Probability & Statistics, (Machine) Learning…
AI
Machine Learning
Deep Learning
Gen AI
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 …
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Ref: Presentation of Sergei Bobrovskyi, Between Hype and Application, 2019
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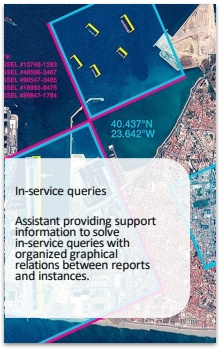
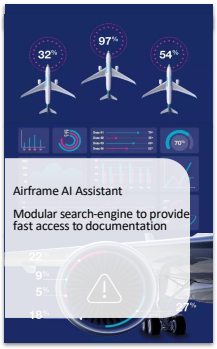
Example Use Cases



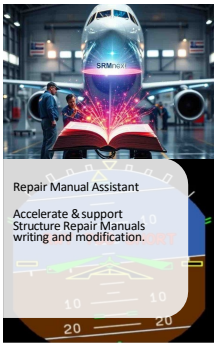
In-service queries

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

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AI Projects landscape

Flight Ops & ATM

Mission Planning

Space Imagery analytics

Avionics Software Engineering

Hybrid models

Robotics & Controls

Shop floor Computer Vision Visual Inspection

Decision Making: Planning & Scheduling

Predictive maintenance

Airlines science

Business intelligence

Engineering Assistants

Contract analytics

Cyber Risk threats analyses

Procurement optimisation

Customer Facing

Customer Services

Marketing

Sales

Everyday AI

Admin

Legal

IT

Finance

Boost productivity in **Front office**

Create new or enhance **Products & Services**

Boost productivity in **Back office**

Create new **Core capabilities**

Internal Processes

Game-Changing AI

Smart Automation

AI enhanced Products

AI enhanced Services

Massive Intelligence

Engineering

Operations

Supply Chain

Source: Gartner / Airbus

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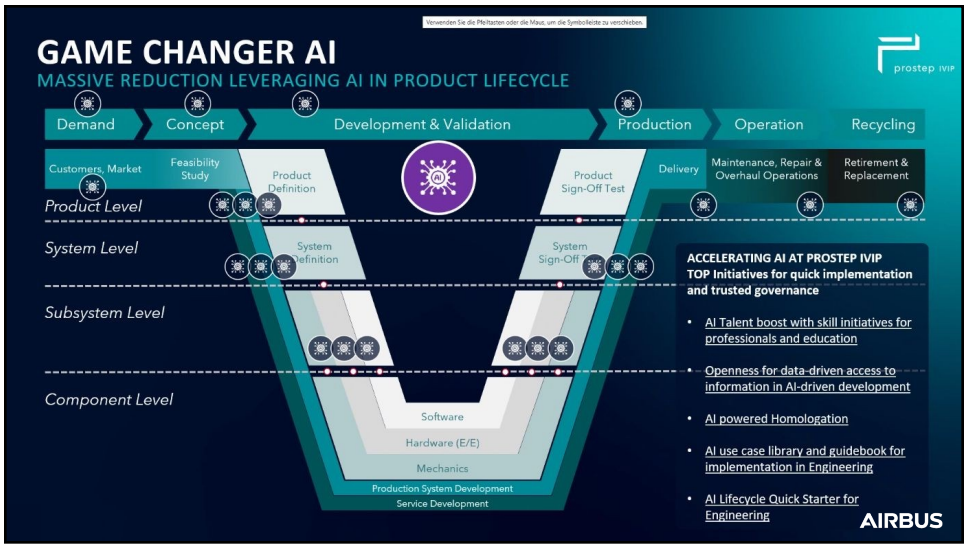
GAME CHANGER AI
MASSIVE REDUCTION LEVERAGING AI IN PRODUCT LIFECYCLE
prostep ivip
Demand
Concept
Development & Validation
Production
Operation
Recycling
Customers, Market
Feasibility Study
Product Definition
Product Sign-Off Test
Delivery
Maintenance, Repair & Overhaul Operations
Retirement & Replacement
Product Level
System Level
Subsystem Level
Component Level
System Definition
System Sign-Off
Software
Hardware (E/E)
Mechanics
Production System Development
Service Development
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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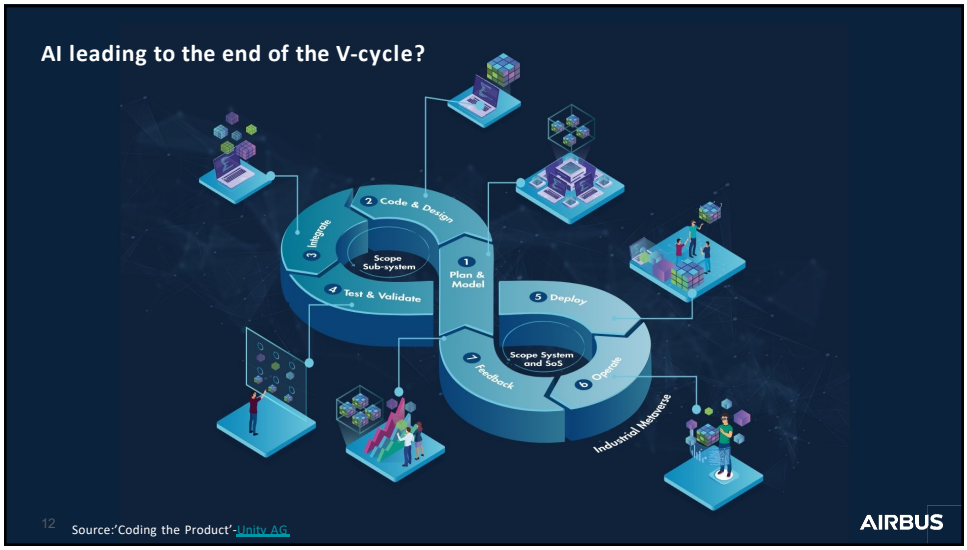
AI leading to the end of the V-cycle?
1 Plan & Model
2 Code & Design
3 Integrate
4 Test & Validate
5 Deploy
6 Operate
7 Feedback
Scope Sub-system
Scope System and SoS
Industrial Metaverse
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Source:'Coding the Product'-Unity AG
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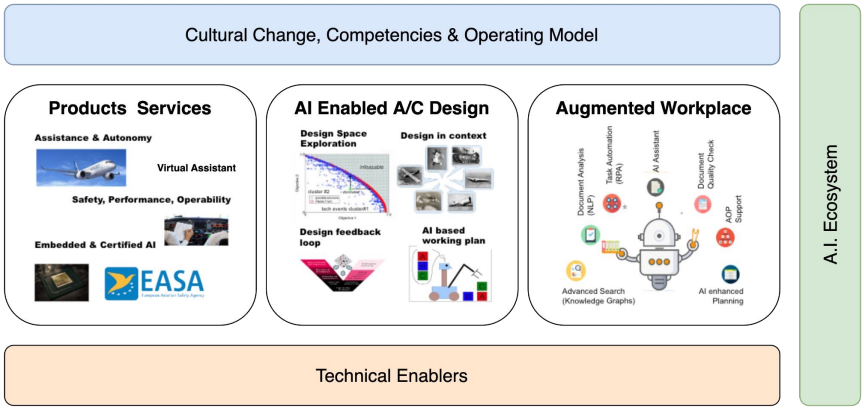
Strategic Perspective on AI



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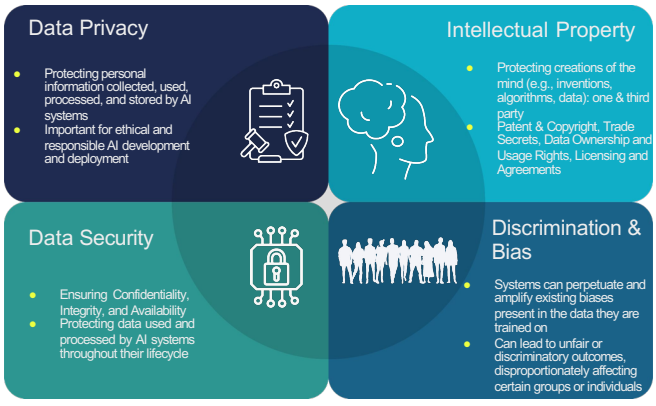
AI Business Compliance Challenges



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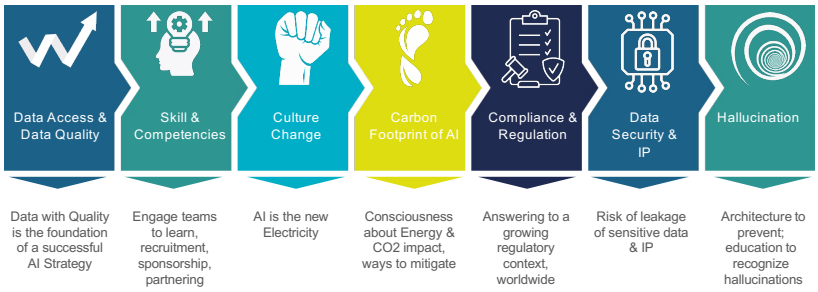
Challenges associated with AI in Product Development



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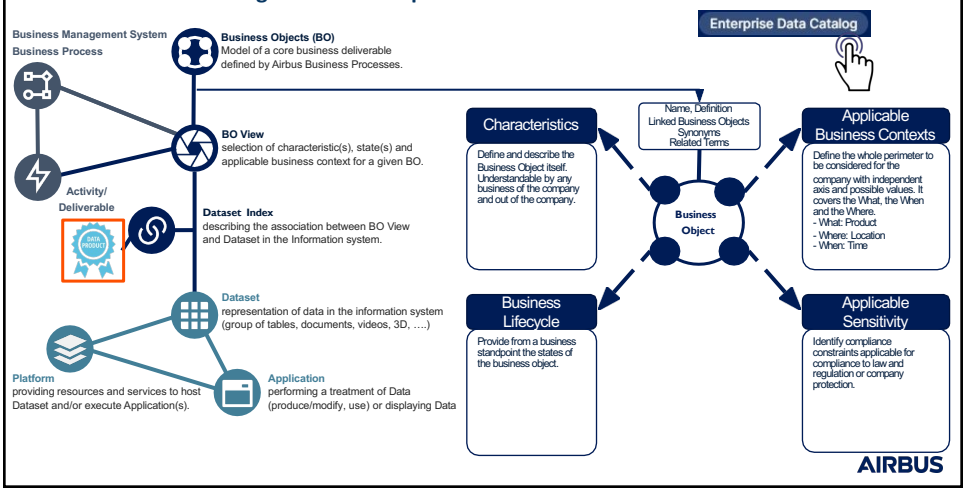
Data Governance: High-level concepts



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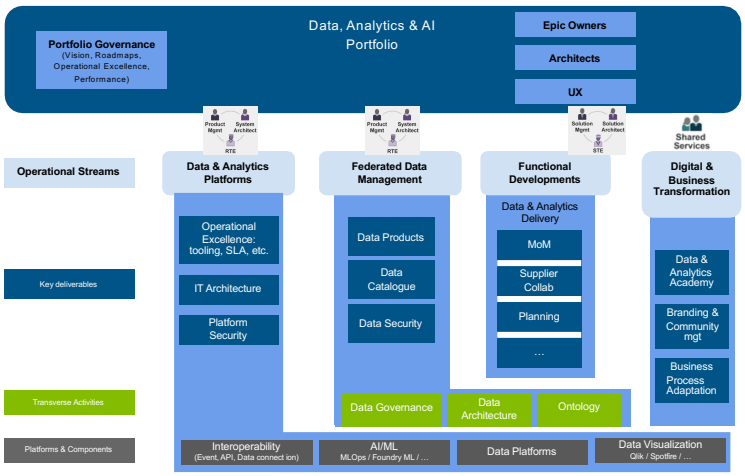
Data, Analytics & AI Governance Organization Example



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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

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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.

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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

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