



# AI IN 12 MINUTES FOR AEROSPACE

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# MOTIVATION - WHY AI?

Enhancing flight safety and efficiency.  
Streamlining manufacturing processes.  
Improving aircraft maintenance and diagnostics.  
Advancing space exploration capabilities.  
Personalizing passenger experiences.



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# 2/24 INDUSTRY

Commercial Aviation  
Military Aviation  
Space Exploration  
Unmanned Aerial Vehicles  
Aircraft Manufacturing



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# STRATEGIC TRENDS

Sustainable aviation fuels

Electric and hybrid propulsion

Advanced materials for lighter aircraft

Autonomous flight systems

Satellite mega-constellations

Reusable space launch vehicles

AI in air traffic management

Drone delivery services

Enhanced in-flight entertainment

Predictive maintenance using AI



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# WHY CHANGE?

Carbon footprint reduction

Airspace congestion

Maintenance cost savings

Passenger demand for comfort

Space debris management



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# LEADING THE CHANGE

Boeing

Airbus

SpaceX

Lockheed Martin

Northrop Grumman

Raytheon Technologies

GE Aviation

Blue Origin

Thales Group

BAE Systems



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# DIGITAL TRANSFORMATION

3D printing for aerospace parts

AI-driven simulation and design

Robotics in assembly and inspection

Augmented reality for maintenance

Quantum computing for optimization

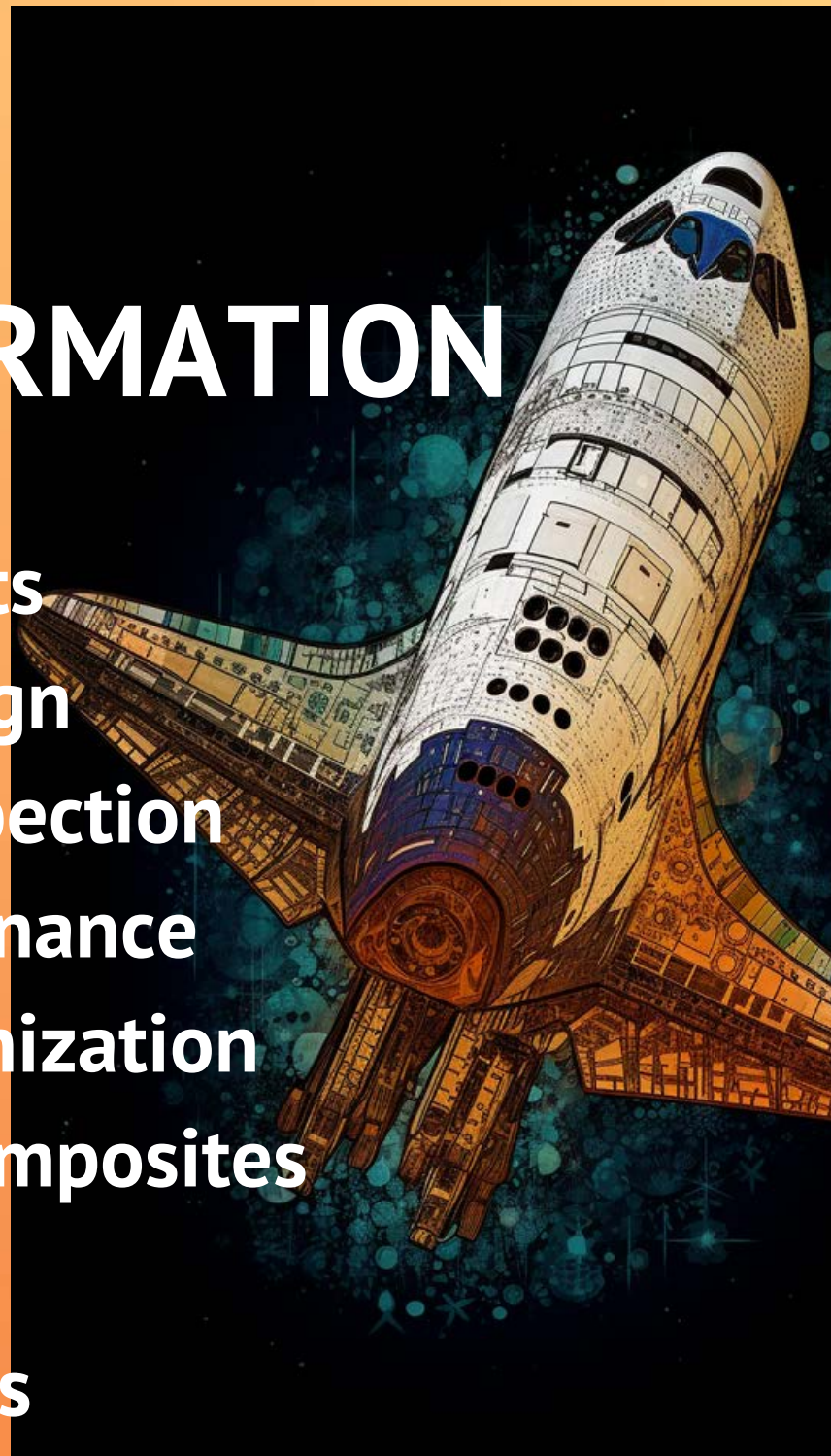
High-strength, lightweight composites

Electric propulsion systems

Advanced avionics and sensors

Big data analytics for operations

Satellite navigation advancements



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# AI DISRUPTION

Predictive analytics for component failure  
AI in cockpit to assist pilots  
Machine learning for route optimization  
Autonomous drones for cargo delivery  
AI for satellite imagery analysis  
Robotics in spacecraft assembly  
Natural language processing for ATC communication  
AI-enhanced cybersecurity for avionics  
Virtual reality for astronaut training  
AI algorithms for air traffic flow management

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# GREAT EXAMPLES OF AI



Boeing's autonomous flight technology  
Airbus's Skywise platform for predictive maintenance  
SpaceX's Falcon rockets landing algorithms  
Lockheed Martin's AI in military simulations  
Northrop Grumman's autonomous UAV systems  
Raytheon's AI-driven air traffic control systems  
GE Aviation's digital twins for engine monitoring  
Blue Origin's New Shepard autonomous flight safety  
Thales's AI for airport security and efficiency  
BAE Systems' AI applications in defense aerospace

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# ECOSYSTEM REQUIREMENTS

Robust data sharing and analysis platforms  
Global regulatory standards for AI and drones  
Skilled workforce in AI and aerospace engineering  
Partnerships between aerospace and tech firms  
Investment in AI research and development



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# AI SUSTAINABILITY

Reduced emissions with AI-optimized routes  
Lightweight materials decreasing fuel consumption  
Efficient maintenance reducing resource waste  
Electric propulsion lowering carbon footprint  
AI in managing airspace for environmental protection



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# NEW RISKS - ETHICAL, LEGAL, SOCIAL



Cybersecurity threats to connected aircraft  
AI reliability and decision-making in critical systems  
Privacy concerns with drones and surveillance  
Job displacement in manufacturing and piloting  
Space debris risks from increased satellite launches

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# AI MISUSE EXAMPLES



Drones for unauthorized surveillance

AI systems hacking in avionics

Misleading AI in air traffic management

Automated systems causing unintended harm

AI biases in security screening processes



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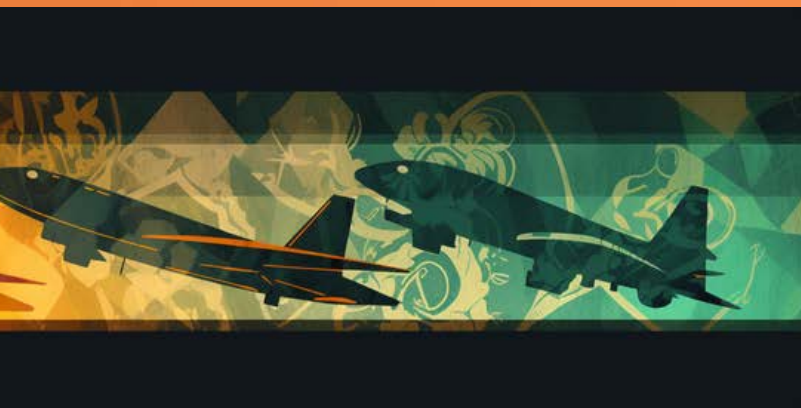


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# 13/24 THREE AI DILEMMAS

Autonomy vs. human oversight in flight safety?  
AI data collection vs. passenger privacy?  
Prioritizing investments: space exploration or  
environmental sustainability?



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# ORGANIZATIONAL REQUIREMENTS

AI ethics and safety protocols  
Continuous training in AI technologies  
Cross-disciplinary teams for innovation  
Cybersecurity measures for AI systems  
Sustainable design and operation practices



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# **STEP BY STEP APPLICATION**

**Identify AI opportunities in operations**

**Develop AI pilots in design and manufacturing**

**Scale AI across production and maintenance**

**Implement AI in customer service enhancements**

**Evaluate and refine AI applications continuously**

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# 16/24 BEST PRACTICES

Emphasize safety and ethics in AI use  
Collaborate globally on AI standards  
Innovate sustainably with AI technologies  
Engage with stakeholders on AI advancements  
Foster agility in AI adoption and adaptation



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# AI TOOLS & MODELS

Neural networks for design optimization  
Reinforcement learning for autonomous systems  
Decision trees in maintenance diagnostics  
Generative adversarial networks for simulation  
Cluster analysis for traffic management



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# 18/24 USEFUL DIGITAL TWINS

Digital twins of aircraft for testing  
Virtual reality simulations for space missions  
AI models of air traffic scenarios  
Digital replicas of satellites for monitoring  
Virtual launch platforms for mission planning



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# COOL NORWEGIAN CASES

Nammo: Aerospace and defense.

Kongsberg: Aerospace technology.

Andøya Space: Satellite launches.

Norsk Titanium: 3D-printed components.

Hexagon Purus: Hydrogen systems.

Roccor Norway: Satellite mechanisms.

Norse Atlantic Airways: Airline.

Hydrolift: Electric ferries.

Orbiton: UAV services.

Fieldmade: 3D printing for aerospace.



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# GLOBAL LEADERS

**United States: Space exploration, aerospace manufacturing.**

**Europe: Collaborative space agencies, aviation tech.**

**China: Rapid space mission advancements.**

**Russia: Historic space achievements.**

**Canada: Satellite technology, aerospace engineering.**

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# **FUTURE JOBS**

**Aerospace AI engineer**

**Space mission AI analyst**

**Drone traffic management specialist**

**AI avionics technician**

**Sustainable aerospace materials scientist**

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# THE FUTURE OF AI

Fully autonomous commercial flights  
AI-managed global airspace  
Spacecraft with AI life-support management  
AI for real-time satellite data analysis  
Enhanced passenger experience with AI



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# RECOMMENDED READING

"The Space Barons" by Christian Davenport

"Ignition!" by John D. Clark

"Rocket Men" by Robert Kurson

"AI Superpowers" by Kai-Fu Lee

"Lean AI" by Lomit Patel

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GOOD TED TALKS



"The future we're building -- and boring" by  
Elon Musk

"How AI can save our humanity" by Kai-Fu Lee

"What a driverless world could look like" by  
Wanis Kabbaj

"The thrilling potential for off-grid solar  
energy" by Amar Inamdar

"Adventures of an asteroid hunter" by Carrie  
Nugent

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**WHAT WOULD  
YOU ADD?**

*LET ME KNOW!*



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