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Applications of  
**AI in Aerospace**

# The Scope

What is the scope of artificial intelligence based products and services in the aerospace industry?

**Read on to find out!**



# Applications of AI in Aerospace Industry

- Predictive Maintenance and Machinery Inspection
- Automated Quality Control
- Data Security
- Weather Forecasting
- Supply Chain Optimization
- Flight performance and Crisis Management
- Auto-Pilot
- Training

# Predictive Maintenance and Machinery Inspection

Predictive maintenance allows for faster identification and reporting of potential failures in real-time. It predicts the repair timeline and ensures that the process schedule is smoother and faster.

A huge amount of data is given as the input and with use of AI and predictive maintenance solutions, data points and meaningful insights are deduced as output. The entire process helps in fixing an issue before it arises.

# Automated Quality Control

Quality assurance is about ensuring that the desired level of quality in a product or service is maintained. This is done by giving a special level of attention during each and every stage of the process of production.

By automating the QA with the help of an autonomous AI solution can save a lot of time and resources. Automating quality testing with the help of machine learning has increased the rate of defect detection by almost 90%.

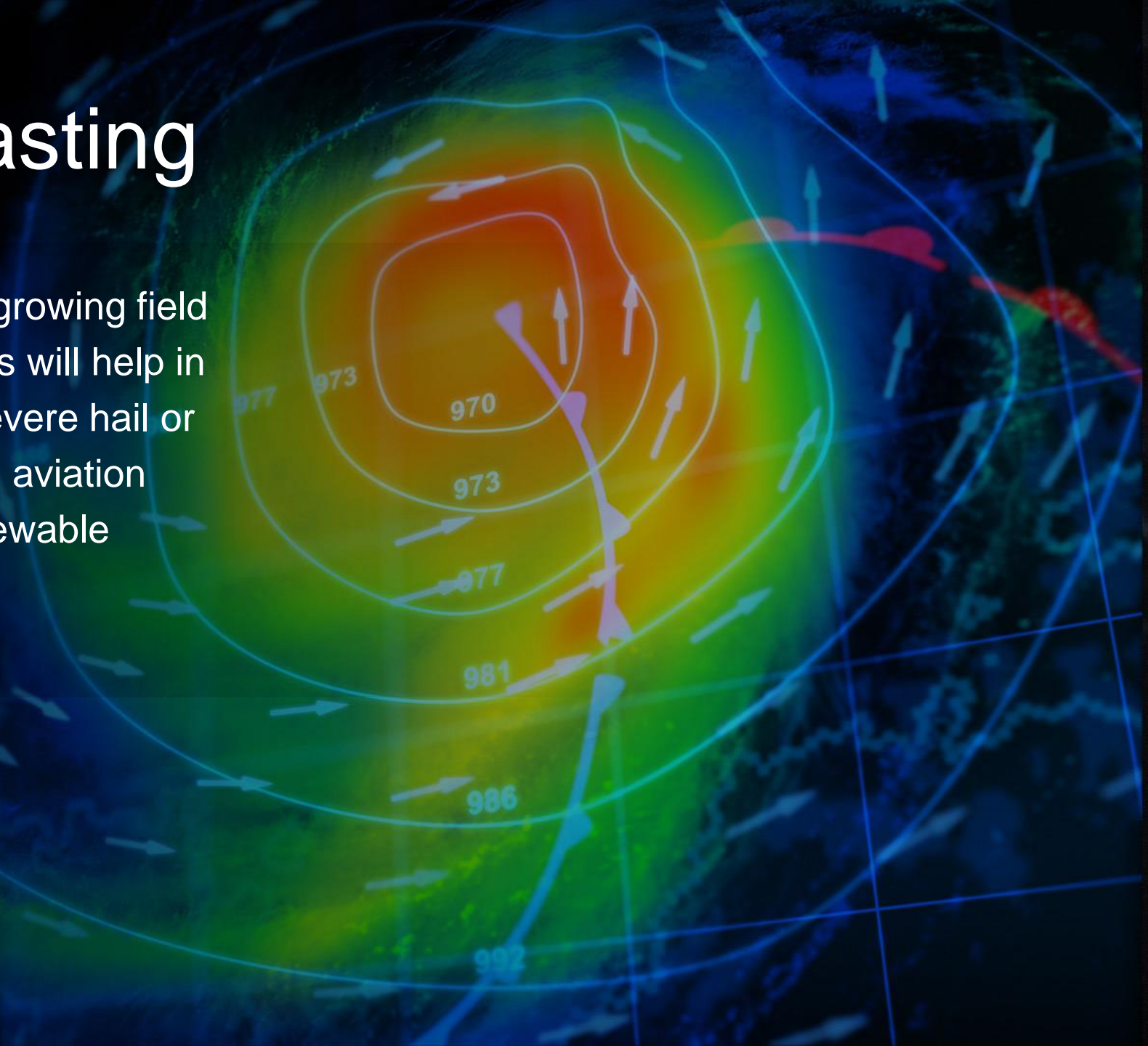
# Data Security

Data security involves protecting the systems and information from major threats like cyber warfare, terrorism, and espionage. The security software enabled by AI is designed to alert the administrator automatically when there is a malicious activity happening or the security policies are violated.



# Weather Forecasting

AI is seen as a contribution to the growing field of computational sustainability. This will help in the prediction of storm duration, severe hail or wind, classification of precipitation, aviation turbulence and forecasting for renewable energy.



# Supply Chain Optimization

Increased supply chain efficiency enables maintaining the equipment and its regular repairs much easier than doing it manually. It also saves money and cuts the downtime as it is known in prior as to when to conduct the repair tasks. Automated data collection makes it easy to improve the efficiency of supply chain management.





# Flight performance & Crisis Management

Fuel efficiency is one of the top parameters of aerospace OEMs and this can be optimized with the help of artificial intelligence. Any minor improvement in fuel efficiency can have a major impact on the aircraft's emission and this is achieved by manufacturing lightweight aircraft components.

AI is helping pilots during flights by analyzing critical data like the fuel system, system status, weather conditions as well as other major parameters that can be assessed in real-time to optimize a flight path. Additionally, AI helps in optimizing time-consuming activities in the aerospace industry and paves the way to better human-machine collaboration.

# Automation of Airline

Automating the airline cockpit will help in freeing the attention of the pilot from strenuous control tasks. Automation also helps in improving the flight path control, system monitoring displays along with diagnostic assistance systems can enhance the support and maintenance of the aircraft system states.

# Training

Artificial intelligence can be used to enhance pilot training facilities with pilots being provided with a realistic simulation experience. This is done with the help of AI-enabled simulators coupled with virtual reality systems. These simulators can also be used to collect and analyze several data with regards to training for creating personalized training data with biometrics to track an individual's performance.

# Summary



Today, AI and machine learning are not just providing the best customer experience with automation but also self-service solutions. The employee workflow is being optimized and higher air safety is ensured with predictive aircraft maintenance. Through the smart use of data, it also allows the aerospace companies to make informed decisions about the price and market positioning. The integration of machine learning in the aerospace industry guarantees cost-effectiveness and safety.

The aviation industry relies heavily on data that are derived from a great deal of research, design, and production of its products and services. AI has played a major role in developing the aerospace industry by providing valuable information that might otherwise be difficult to be obtained via conventional methods.