



Enabling the Future of the Factory

GPDIS

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Advanced Manufacturing

Advanced Manufacturing is the innovation that drives technology projects to create step change improvements in the production system

“Advanced Manufacturing means deploying standard manufacturing processes and advanced technologies at the right level to achieve repeatable manufacturing excellence.”

**Walt Odisho
Vice President
BCA Manufacturing and Safety**



The Opportunity of Advanced Manufacturing

Work that is required, or the service that it takes, to get new robotics or replacement machine tools into production and the production systems of Boeing with acceptable quality and productivity levels.

Safety

- Reduce injuries and make jobs safer

Quality

- Precise tools for reliable and repeatable quality
- Beneficial to Boeing and our customers

Competitiveness

- Improve productivity
- More efficient production rates
- Enhanced skills of employees



The Internet of Things (IoT)

The Internet of Things allows us to use the power of data to predict and manage issues before they occur in the production and maintenance of products.

Machine learning

- Drives improvements to our productivity

Large-scale data storage

- A single flight of our 787 Dreamliner can create half a terabyte of information

Tools for retrieval, analysis and reporting

- Enable real-time decision support & prognostics

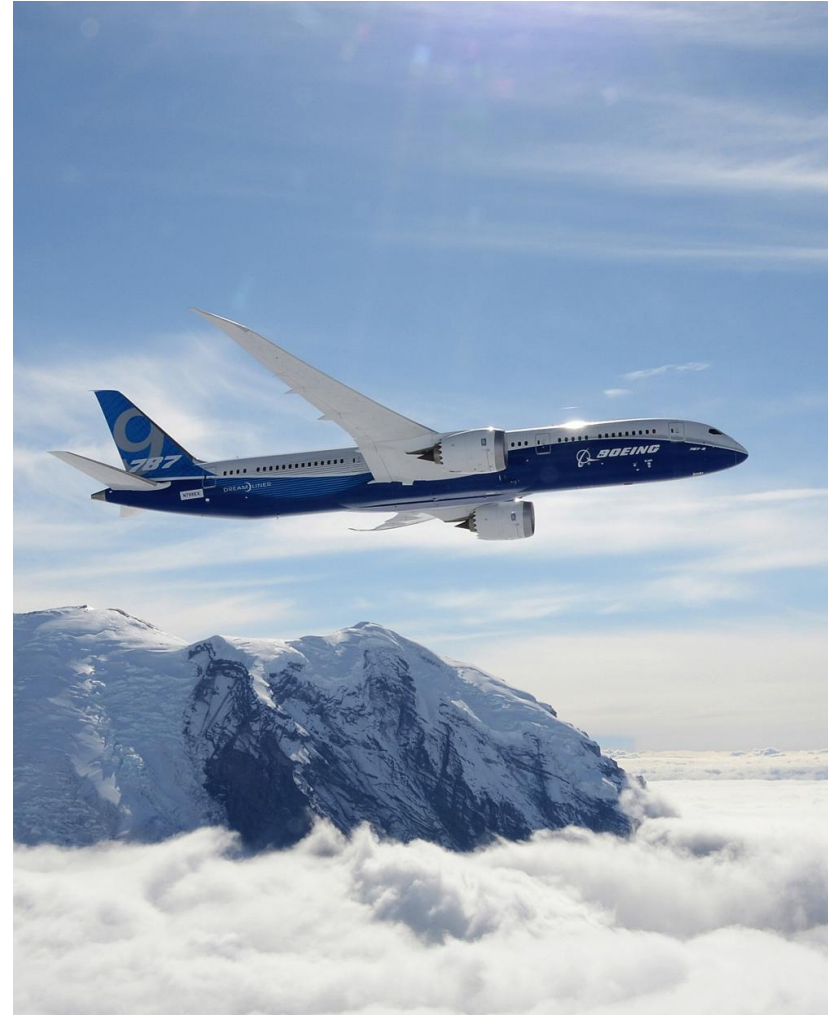


Airplane Programs & Advanced Manufacturing



Airplane Programs

- 737: Some 291 million parts and 20,370 miles of wiring were installed in 2014
- 747: It takes 6 million parts to build each airplane
- 767: 800 suppliers contribute to each airplane.
- 777: The wiring on each plane stretches 134 miles.
- 787: To date, the airplane has flown the equivalent of 913 round trips to the moon
- 787: Each airplane contains enough carbon fiber to stretch approximately 2,200 miles – the distance from Seattle to New York City



The Evolution Inspired by Automotive Automation

- A more producible airplane
- Transforming the way we deliver parts and tools
- Streamlining the system for flow
- Maximize mechanics' time on the airplane



