

3 Types of Analytics

➤ **DESCRIPTIVE (Understand the Past)**

Onboard sensors identify gearbox **is damaged/failing**

➤ **PREDICTIVE (Forecast the Future)**

Data shows trend that gearbox **will soon fail**

➤ **PRESCRIPTIVE (Shape the Future)**

System identifies course of action to **avoid/delay failure**

TRANSLATED TO AVN MAINTENANCE

Emerging Capability in Aerospace

Phase IIE: Virtual Life and Performance Modeling of Aerospace Gears

Customer Objective – Reduce Cost and Schedule Risk of Designing New Gearboxes

- Build a better gearbox faster and for less money
- Reduce physical testing using virtual testing
- Optimize design through exploring design space
- Simulate the affect on gearbox life from:
 - ❖ Overload/over torque conditions
 - ❖ Manufacturing Process
 - ❖ Lubrication
 - ❖ Residual stress
 - ❖ Surface finish

Completed
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