

Impact Technologies, LLC

Short Company Overview



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Core Competency and Mission



Impact Technologies is an equipment health management system development and engineering services firm dedicated to being a leader in providing advanced machinery diagnostics and prognostics solutions for the aircraft, sea, land-based, and power generation industries.

Our products and services include monitoring system development, application software modules, design analysis, equipment troubleshooting, and maintenance and logistics planning software for complex machinery.

Company Background



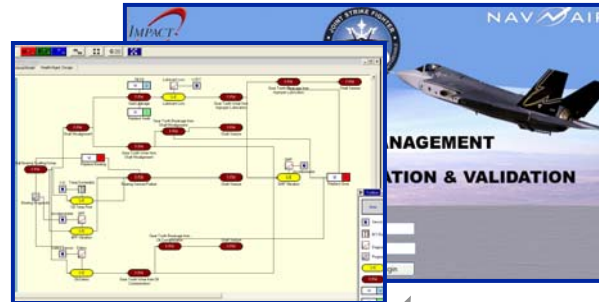
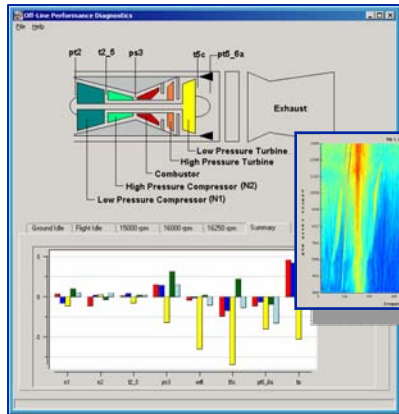
- **Founded in 1999, currently 80 employees, experienced Mechanical, Electrical and Software Engineers and Scientists dedicated to Predictive Equipment Health Management Technologies**
- **Customers and partners include: U.S. Navy, Air Force, Army, Marine Corps, DARPA, DOE, EPRI, Boeing, Lockheed Martin, General Dynamics, Northrop Grumman, General Electric, Honeywell, Rolls Royce, Pratt & Whitney, etc.**
- **Top DOD Small Business contractor in the U.S. for Automated Health Management technologies**
 - ❑ **Recipient of 2002 Tibbett's National Award**
- **Portfolio includes range of PHM R&D, product development, and Phase III engineering and integration programs**

Predictive Technologies

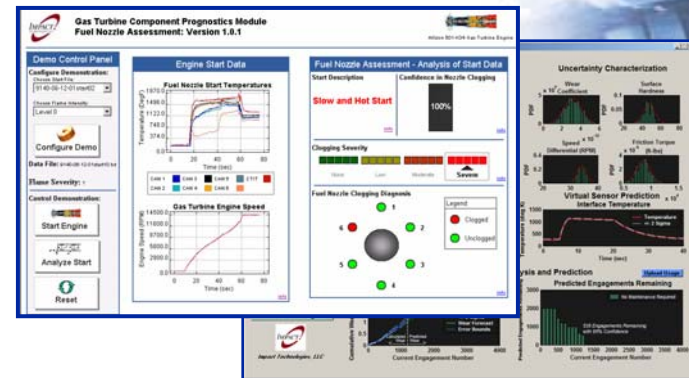


PHM Design, Development, and Validation

Automated Test and Equipment Health Monitoring



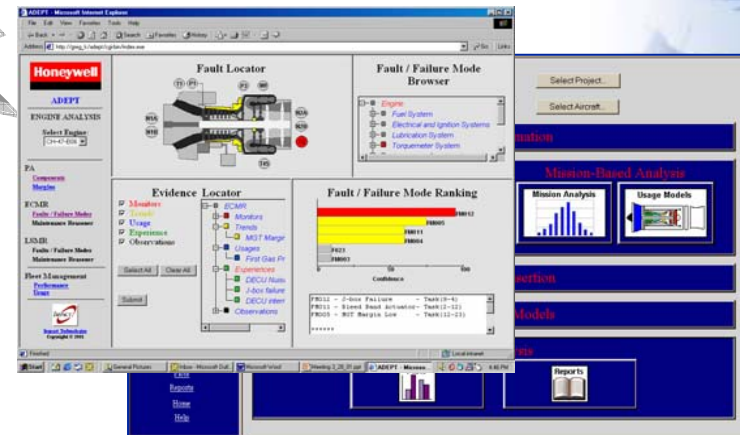
System Specific Prognostics



Embedded Monitoring and Operational Decision Aids



Integrated Maintenance & Logistics



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Integrated Vehicle PHM/CBM Technologies



- ### Avionics
- ✓ ReasonPRO™ BIT Reasoner
 - ✓ Power Supply Monitoring
 - ✓ RF and GPS Prognostics



- ### Fuel/Hydraulics
- ✓ Fuel System PHM
 - ✓ Hydraulic pLm™

- ### Flight Controls
- ✓ Real-time Control/Response Modeling
 - ✓ EMA/EHS Actuators
 - ✓ Model and Feature-Based CAHM™ Software



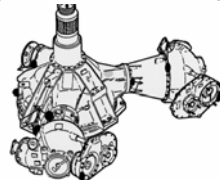
- ### Sensors/Data
- ✓ Steady State/Transient Mode Detect
 - ✓ SignalPro™ Sensor Validation Module



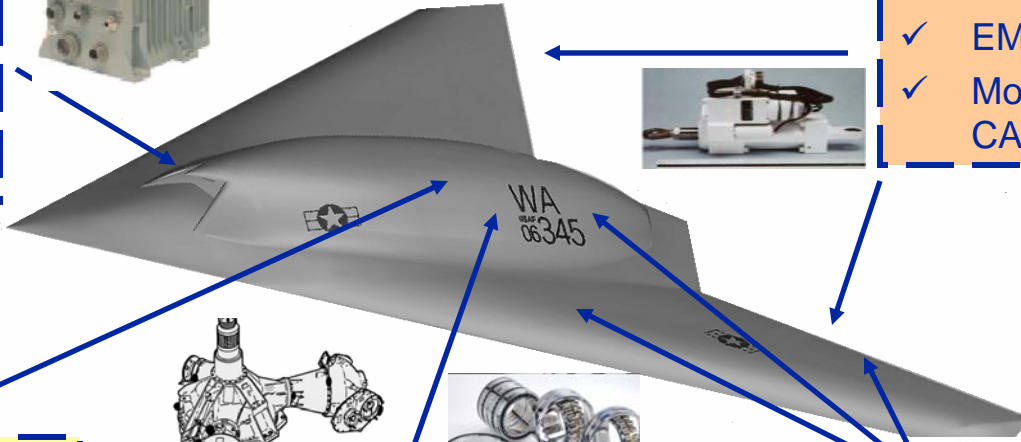
- ### Propulsion
- ✓ Performance Diagnostics & Prognostics
 - ✓ Blade/Disk Usage & Useful Life Remaining
 - ✓ Engine Fuel System Monitoring
 - ✓ SOS™ Smart Oil Sensor



- ### AMAD - Drive Train
- ✓ Vibration Monitoring
 - ✓ GearLife™ Prognostic Module
 - ✓ ImpactEnergy™ Early Bearing Fault Detection
 - ✓ Clutch Diagnostics
 - ✓ SOS™ Smart Oil Sensor



- ### Structures
- ✓ Damage Localization
 - ✓ Severity Determination
 - ✓ Continuous Monitoring of Structural Health



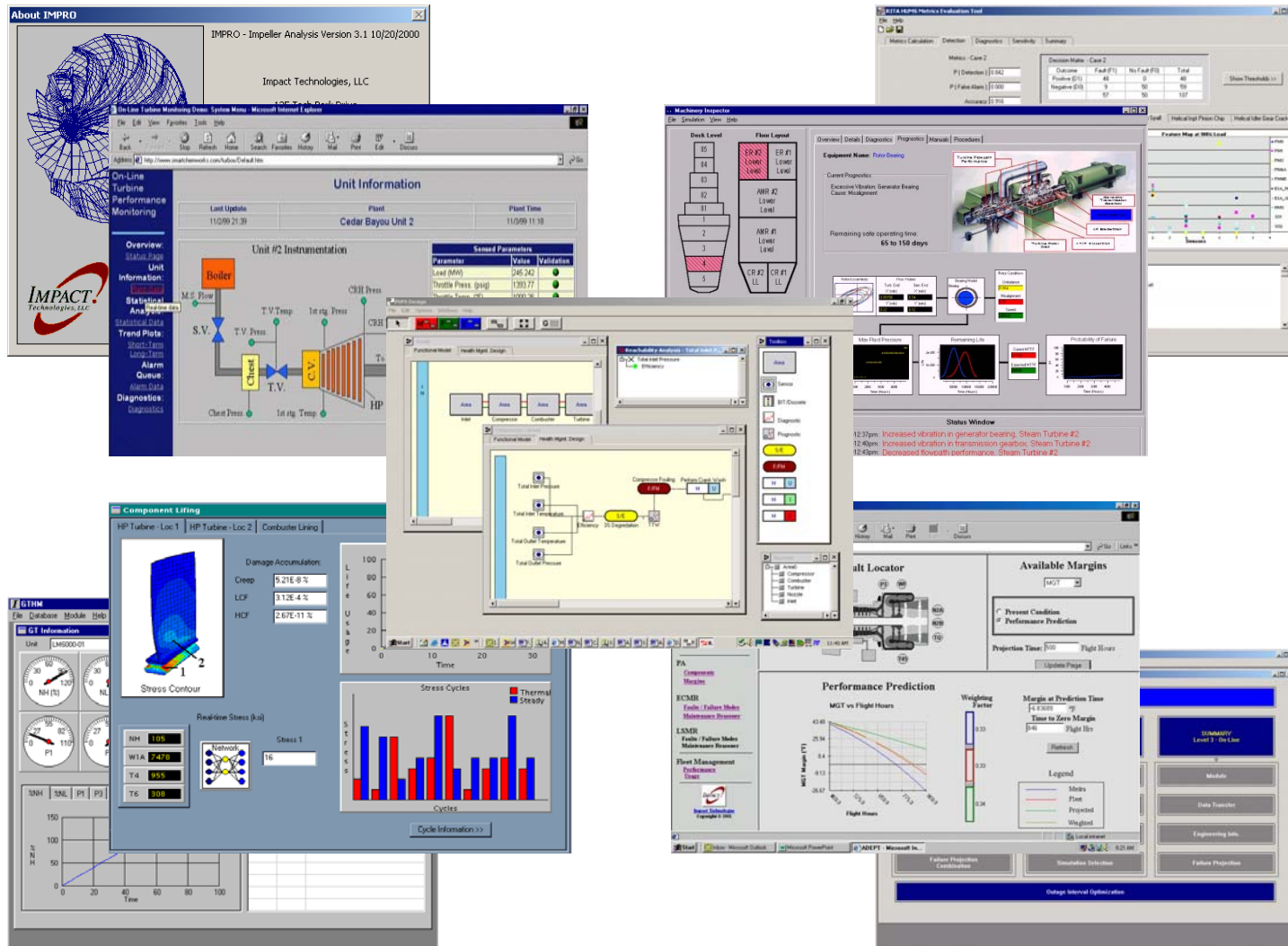
Joint Strike Fighter (F-35) PHM



- Engines & Lift Fan
- 3BSN and Actuation Systems
- Shaft Coupling
- Power Supplies
- RF Avionics
- PHM Design, Analysis and Verification Tools



Various Developed Applications



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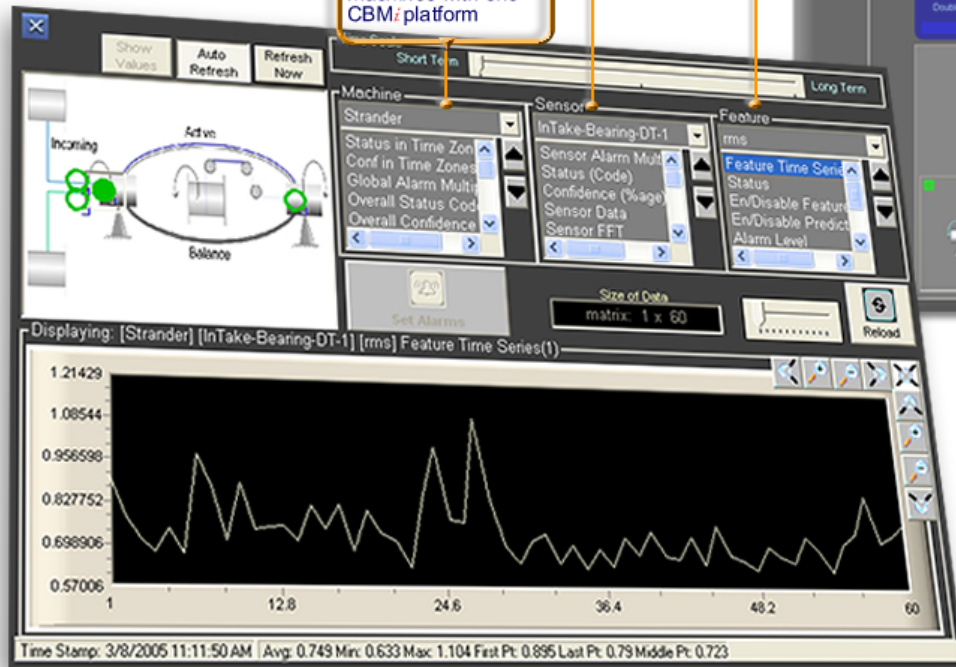
CBMi - Industrial Monitoring System



CBMi extracts 10 or more characteristics from a single vibration signal for thorough and predictive analysis

Multiple Sensor inputs to CBMi DataAcq Panel

Monitor multiple machines with one CBMi platform



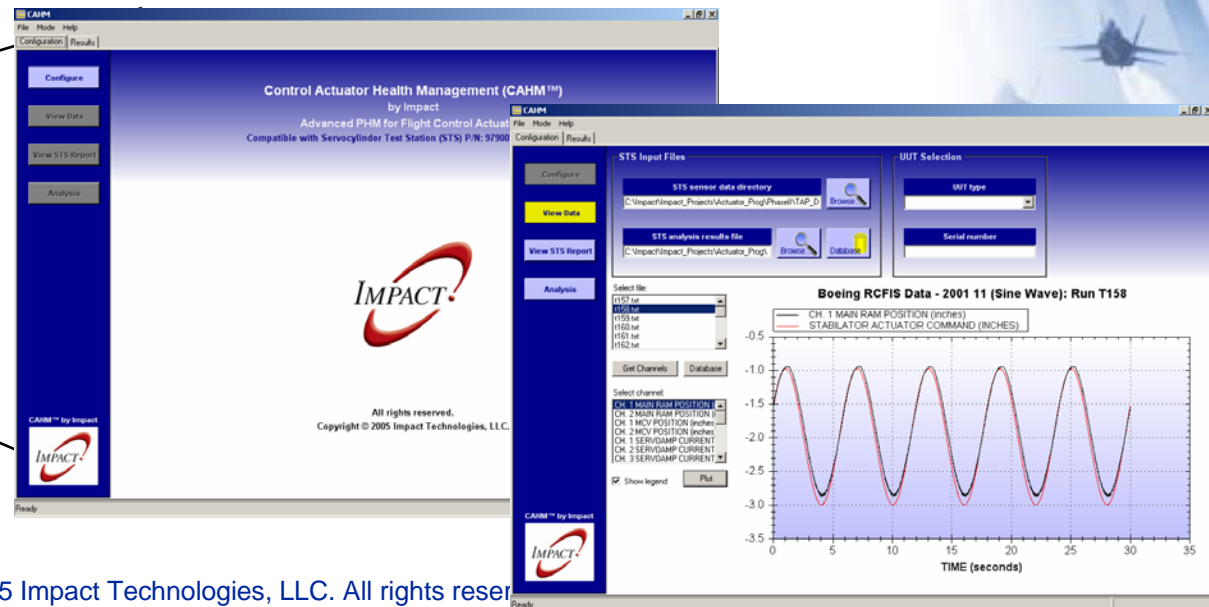
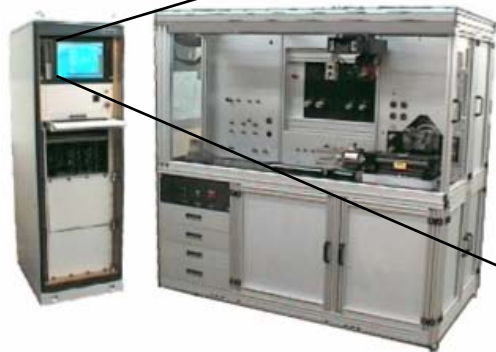
Summary Alarm Conditions

- Normal** Operating Condition
- Monitor** Elevated Operating Condition
- Alert** Maintenance Needed
- Alarm** Emergency Condition

F/A-18 Hydraulic Systems Health Management



- Control Actuator Health Management **CAHM™ Software**
- Developing new PHM capability for EHSV
- Upgrade capability to Navy Carrier test stand to reduce CND and NFF issues



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Summary



Impact Technologies developing CBM and equipment health management solutions for DoD and industry

- **Multiple mechanical and performance diagnostics/prognostics modules developed for aircraft engines and turbine generators**
- **Specific component modules for power transmission, actuator, pumps, and electronic components**
- **Tools, processes, and specific products integral to design and implementation of advanced PHM and logistics solutions**

Military

- Joint Strike Fighter, Expeditionary Fighting Vehicle**
- Future Combat Systems Ground Vehicles & Multiple UAV**
- H-60, Apache, CH-47, and other legacy helicopters**
- DDG and CG class ships, DD(X), LCS**

Commercial

- Electric power generation and processing industries**