

**Prognostics and Health Management
Center of Excellence**



**Technology Needs Form
PHM COE Phase 1 Advisory Board Meeting
Summary**

<p>14 <i>Independent means of quantifying PHM technology and hardware performance</i></p>	<p>21 <i>Automated Trending and Prognosis (Prediction) of Failure (includes Sensing, Analysis and Prognosis of the System Condition Using: Vibration, lubricant quality, wear detection, functional parameters – temperature, efficiency, pressures, etc., electronic circuit waveforms, computed life usage for structures and life limited components, integrated condition assessment algorithms</i></p>
<p>15 <i>Prognostics Modeling & Simulation – complementary analog of the test & validation facility</i></p>	
<p>16 <i>Prognostic Data Library (source and repository) for future technology insertion and lessons learned data</i></p>	<p><i>Other Technology Needs which were specified:</i></p> <ul style="list-style-type: none"> • <i>Design-related impacts on prognostics (characterized)</i> • <i>Help with testability assessments and V&V through analysis</i> • <i>Help with new business case impacts</i> • <i>Data, information and knowledge management (integration)</i> • <i>Versatile machinery test rig for seeded fault and fault progression testing</i> • <i>On-line fluid debris monitoring - test and validation flow test stand that simulates operational flow conditions</i> • <i>PHM systems analysis</i> • <i>Model-based reasoning verification of prognostics</i> • <i>Vibration, lubricant quality, wear detection, functional parameters (temperature, efficiency, pressures, etc.), electronic circuit waveforms, computed life usage for structures and life limited components, integrated condition assessment algorithms</i> <ul style="list-style-type: none"> ▪ <i>For radars, lasers, electro-optics, cameras, infrared, electronics circuit cards, antenna, coolers</i> • <i>Computerized Maintenance Management Software (CMMS) with integrated PHM support</i>
<p>21 <i>Integration of PHM into the Maintenance Operation – Data Harvesting and Management</i></p>	
<p>12 <i>Innovative Smart Sensor Technologies</i></p>	
<p>20 <i>Electronics Prognostics Methodology & Algorithms</i></p>	
<p>12 <i>Machinery Prognostics Algorithms</i></p>	
<p>11 <i>Structures Prognostics Algorithms</i></p>	
<p>10 <i>Incipient Corrosion Detection and Prognosis Algorithms</i></p>	
<p>18 <i>Automated Detection of Incipient Faults – Replaces manual test and troubleshooting</i></p>	
<p>4 <i>Specialized Diagnostics Sensing Technologies in Acoustic Emission, SAW Detection/Analysis</i></p>	
<p>16 <i>Software Diagnostics and Prognostics</i></p>	