

Government Funded Wireless Sensing Initiatives

Open System Architecture - Condition Based Maintenance

Sponsors: PEO Carriers and OST Co-funding

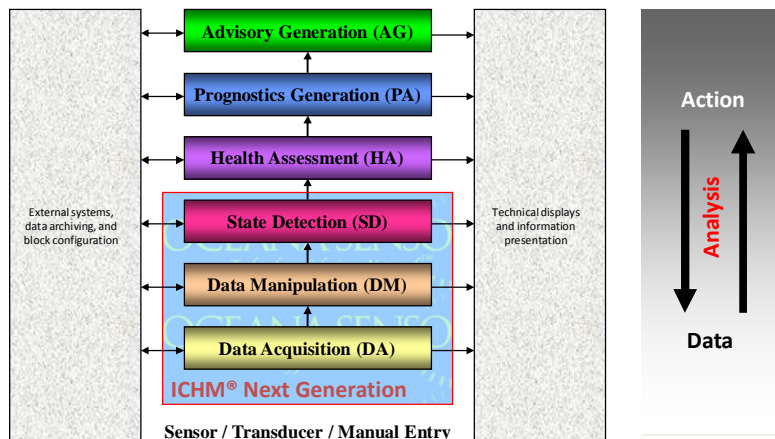
Start: October 1999 Complete: September 2001

Consortium partner with Boeing, Caterpillar, Newport News Shipbuilding, Rockwell Automation, and MIMOSA developing an information architecture and interface standards to enable fully open development of elements of a condition-based maintenance or prognostics and health management system for any application. OST role is to provide wireless smart sensor modules (ICHM@s) for demonstrations in industrial, aerospace, heavy equipment, and naval ship applications. This provides the opportunity to adapt OST technologies to a variety of applications and develop an open information architecture interface.

OSA-CBM Dual Application Program (DUAP) with Boeing

OST was involved with the writing of the MIMOSA standard for OSA-CBM seen here. ICHM processes data from acquisition to the state detection layer.

Open Systems Architecture for Condition-based Maintenance (OSA-CBM)



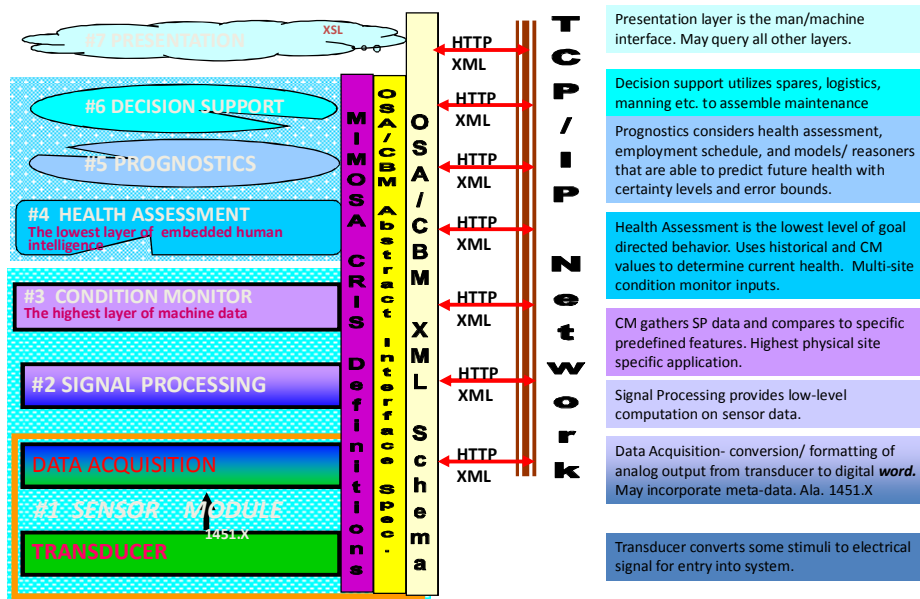
ISO-13374 Data Processing and Information Flows

OSA-CBM defines the data types used for processing and results reporting in a condition monitoring system as well as how that information is moved between process and storage points.

ICHM is a registered trademark of Oceana Sensor Technologies, Inc.

OST has been deeply involved in information model standard for open exchange of information and new technology plug-n-play capabilities. Teamed with Boeing, CAT and NNS, this project resulted in the UML definition of an abstract information model and interface description language (IDL), and reference implementations in CORBA, COM and XML over HTTP/TCP/IP.

MIMOSA-OSA/CBM Information Model



Accelerated Capabilities Initiative for Condition-Based Maintenance

Sponsors: ONR and CBM Program Office

Start: July 1996 **Complete:** September 2000

This program developed a hierarchical, wireless, network-based approach for distributed monitoring of machinery health at the component, system, and platform level. This effort defined the concept of the Intelligent Component Health Monitor or ICHM®. The program included a team of algorithm developers, Navy equipment experts, system integrators, and component manufacturer along with the original equipment manufacturer for the Navy's shipboard gas turbine electrical generator used as the target application for development. The effort gave OST their initial experience with the breadth of RF spread spectrum wireless networking technologies in industrial/military environments and formulated the framework of the systems OST is now developing. Specific wireless capability demonstrations were performed in shipboard fires, engineering spaces and high EMI environments from radars.

Wireless Vibration Sensor Commercialization

Sponsor: OSD Title III Program and OST CO-funding

Start: Sept. 2002 **Completed:** Dec. 2004

Title III program funds commercialization of defense critical technologies. Tasked with developing the production capacity and commercial markets for 10,000 wireless sensors per year. Funded activities include product design, production tool up, market study, quality system development, product documentation and beta-customer installations.

Flexible Security Wrapper for e-Diagnostics and e-Manufacturing

Sponsor: Dept of Commerce- NIST ATP and OST Co-funding

Start: Nov. 2001 Estimated Completion: Oct. 2004

Developed manufacturing enterprise distributed security agent to arbitrate access to data and information during electronic collaboration. Provided special consideration for wireless implementations in computer, PDA and sensor applications. Co-invented Flexible Security Wrapper architecture and configuration process.