

JTEG Technology Forum: Asset Visibility; What, Where and Condition



Abstract

In order for DoD to make data-driven decisions, asset visibility is a must. One of the most complex and vital tasks facing the Department of Defense (DOD) is providing users and sustainment managers with timely and accurate information on the serialized configuration, location, quantity, condition, movement, status, and identity of equipment, materiel, and supplies. Gaining this asset visibility requires integration among all the DoD Components, and industry partners that operate DoD's supply chain, and includes asset tracking, in-transit visibility (ITV) and lifecycle management of assets (item unique identification (IUID)). The purpose of this forum is to examine how asset visibility can improve maintenance operations by effectively and efficiently providing spare parts, fuel, and critical supplies and maintenance in the right quantities to the right place at the right time, and at the right cost. Some of the tools we will discuss include IUID, radio-frequency identification (RFID), condition-based maintenance plus (CBM+), and other asset visibility capabilities to include innovations in industry. Please join us and participate in the exchange of information and ideas.

Agenda

1300-1309: Welcome and Overview – Greg Kilchenstein (OSD)

1309-1310: Administrative Notes – Ray Langlais (LMI)

1310-1330: Centralized Fleet Automated Management System (CFAMS) – Paul Smith (DLA – New Cumberland) & Mark Stanton

1330-1350 NSY Geolocation efforts – Steve McKee (NAVSEA)

1350-1410: NAVAIR CBM+ Analytics – Dewayne Cole (NAVAIR)

1410-1430: Automated Armory – Mike Ryan (HQMC) and Matt Edwards (Troika)

1430-1450: Item Unique Identification Cost Benefit Study for Legacy Gas Turbine Engine Fleet Maintenance – Matthew Juarez (StandardAero) & USAF (TBD)

1450-1500: Wrap-up and JTEG Principals Comments

Forum Minutes

Event: On 28 February, 2017, the Joint Technology Exchange Group (JTEG), in coordination with the National Center for Manufacturing Sciences (NCMS), hosted a virtual forum on “Asset Visibility; What, Where, and Condition”.

Purpose: The purpose of this forum was to examine how asset visibility can improve maintenance operations by effectively and efficiently providing spare parts, fuel, and critical supplies and maintenance in the right quantities to the right place at the right time, and at the right cost.

Welcome: On behalf of Greg Kilchenstein (JTEG Co-Chair), Ray Langlais (LMI) welcomed everyone to the forum, thanked the presenters and all the listeners for their attendance, and briefly previewed the agenda.

Administrative: This was an open forum. The presentations, along with questions and answers, were conducted through Adobe Connect. A separate audio line was used. Approximately 35-40 participants from across DoD and industry joined in the forum.

Centralized Fleet Automated Management System (CFAMS): Mark Stanton (ID Systems) discussed an intelligent fleet management system which provides total accountability for, and visibility of, industrial truck/operator activities; significantly reduced operating & capital costs for industrial truck fleets; improvements in workplace safety & security (fewer accidents, better compliance with safety policies); and significantly increased material handling productivity. CFAMS capabilities include providing accountability of who is using what MHE, when and where; maintaining the highest regulatory compliance for pre & post auditing, ensuring the highest level of safety is provided at all times, reducing the cost of maintenance and improving fleet uptime, significantly reducing damage, and assisting with ‘right sizing’ MHE assets.

Growing the Future Naval Maintenance Ecosystem Geolocation Efforts: Steve McKee (NAVSEA) briefed a Naval maintenance ecosystem consisting of 3 stages: 1) deploy independent passive RFID, geo-location, telematics, and sensors to create “live data streams”; 2) initial integration of the “live data streams” with deployment of unmanned/autonomous systems into a virtual collaboration world to create a “simple organism”; 3) simple integrations are refined and propagated to create a dynamic business system capable of adapting, growing, and integrating humans and automation to create the “ecosystem”. Steve stated that development and deployment of asset visibility solutions are an imperative for shore-based naval maintenance as part of the larger “ecosystem” construct. Efforts are currently underway

to create data streams for future integration and efficiencies

NAVAIR CBM+ Analytics: Steve Roesch (SAS) and Ted Kahn (Wyle) discussed a 9 month eCBM proof of concept on a closed loop Hadoop lab environment at NAS Pax River. The project objectives were: to understand what types of analytics can bring value to NAVAIR, to understand how Hadoop and SAS can integrate to make analytic tasks easier, quicker, and more efficient to execute, to understand how to integrate disparate maintenance and sensor data sources to discover new insights and build a predictive model, and to understand the range of SAS offerings and how NAVAIR might be able to utilize them. The lessons learned from the project include: 1) defining analytics use cases proved to be more challenging than anticipated which required thinking outside of traditional data size limits and analytical techniques; 2) three use cases provided actual or potential operational value; 3) SAS and Hadoop technical integration was challenging at times, in part because of the Hadoop configuration; 4) due to time constraints, NAVAIR was only able to evaluate a few SAS tools in depth.

Automated Armory: Mike Ryan (HQMC) and Matt Edwards (Troika) described the Asset Information Management Solution (AIMS) and AIMS-Automated Armory (AIMS-AA®). AIMS is an integrated platform with web applications such as AA®). AIMS capabilities include tracking assets from multiple locations, integrating modules and reports, exchanging data with external data sources (GCSS-MC, IUID Registry, TSOA), enterprise (cloud) or client deployable, and accommodates custom workflows and business rules. Benefits include modules for any inventory, visibility across the lifecycle of an asset, single version of the truth, faster, more efficient and paperless. The AA inventory module provides 3 forms of identification & access control (CAC, biometrics & digital signature), tracks check in/out of both serialized & non-serialized weapons & ordnance equipment, and operates connected & disconnected. AA's benefits include maintaining an audit trail, saving time/improving accuracy (check in/out process is hours vice days), reduces human error, and exportable reports. The proof of concept saw noticeable improvements in processing times, reporting accuracy, and data quality.

Item Unique Identification Cost Benefit Study for Legacy Gas Turbine Engine Fleet

Maintenance: Matthew Juarez (StandardAero) described the study purpose as evaluating the costs and benefits of implementing IUID into legacy engine maintenance operations, with the goal of improving engine time-on-wing (TOW) with optimal cost effectiveness. Workscope cost optimization tool is intended to reduce maintenance and operational costs and increase average time-on-wing (ATOW) by using mathematical Weibull analysis combined with time-tracked component data. The key features of the software include determination of time-on-wing (TOW) for each engine workscope, calculates cost of specific workscope, and determines optimal workscope options for the lowest estimated per flying hour (CPFH). The demonstration was successfully modeled at the T56 engine depot. Some of the results included better logistical tracking, adding more time-tracking components into USAF databases resulted in enhanced accuracy, 86% labor reduction, and ROI may be realized after overhauling as little as 1.6% – 12.6% of the total USAF engine fleet.

2017 CTMA Annual Partners Meeting – Debbie Lilu (NCMS) and CTMA Program Director briefly described the CTMA Partners meeting and the CTMA Technology Competition to be conducted 3-5 April at Hill AFB in Ogden, Utah. Registration instructions, lodging, and the

agenda can all be viewed at <http://www.ncms.org/events/2017-ctma-annual-partners-integrated-project-meeting/>.

Closing Comments: Ray Langlais thanked the presenters for their contributions and the audience for their participation. He commented on the quality of the presentations and the importance of asset visibility to the DoD maintenance community.

Action Items:

- Obtain “public release” versions of the presentations and post to the JTEG website. These meeting minutes, the Q&A, and those briefing slides approved for public release, will be posted on the JTEG website at <http://jteg.ncms.org/> . (All presenters, LMI, NCMS)

Next JTEG Meeting: There will be no JTEG Technology forum in March due to the Annual CTMA Partners Meeting being conducted on 3-5 April. The next JTEG virtual forum is 25 April, 1:00 – 3:00 pm EST. The topic is “Automation and Robotics in Maintenance”.

POC this action is Ray Langlais, rlanglais@lmi.org , (571) 633-8019

Forum Q&A

CFAMS – Mark Stanton (I.D. Systems)

Q1. Is asset visibility provided by CFAMS being used to “right size” the fleets of MHE?

A1. In short, it is not for that.

Q2. Does CFAMS have the ability to provide visibility into what the MHE is moving? Is there an IUID/RFID connection between the material being moved and CFAMS?

A2. Yes, it does. No connection at this point, but I believe it can be done.

Q3. Is this app being used by large transportation couriers like FedEx and UPS?

A3. No, but it is being used by the USPS who is one of our largest customers and has been for

9-10 years.

Q4. Comment on FedEx capability to track their assets – The US Navy can do it, too, with less resource expense if the US Navy will utilize the data that is stored in their system that processed their shipment via the FedEx automation system. The warehouse and enterprise staff just need to be educated on what data they have that can be mined.

A4. N/A

NSY Geolocation efforts – Steve McKee (NAVSEA)

Q1. Is the naval shipyard rollout across all shipyards or targeted to one or a few?

A1. Be advised we have representatives from each of the Naval Shipyards as part of the team pulling together the solution set. The goal is to ensure that the rollout is being performed at all the shipyards.

NAVAIR CBM+ Analytics – Steve Roesch (SAS), Ted Kahn (Wyle)

No Questions

Automated Armory – Mike Ryan (HQMC) and Matt Edwards (Troika)

Q1. Is the automated armory the standard process/tool in the USMC currently? What is the plan to expand the capability across the Corps?

A1. No. The current standard is a manual system. We will be briefing HQMC I&L several courses of action for implementation that include 1) expand across the entire USMC, 2) implement in some select units, 3) expand it to USMC Reserve units.

Q2. What is the ROI for automating an Armory? How much less does it cost to operate an automated armory vs a traditional armory?

A2. The ROI is dependent on the number of people operating the armory and the activity level. It costs less than \$4K to install and reduces manhours up to 800%.

Q3. Is the USMC challenging the physical inventory (eyes on) process for automated armories?

A3. No, physical inventories are still required due to security concerns.

Q4. How do I get access to Asset Information Management Solution? I am hoping I would be able to use this to track Navy Ground Support Equipment assets.

A4. It is loaded on the laptop when issued to you.

Item Unique Identification Cost Benefit Study for Legacy Gas Turbine Engine Fleet Maintenance – Matthew Juarez (StandardAero)

Q1. What do you believe is the greatest challenge to applying the IUID to legacy hardware while it is in the depot for MRO?

A1. Integrity of the technology is certainly the biggest, while not having requirements is also a challenge.

Q2. Is I-Guides a commercial-off-the-self (COTS) or government proprietary?

A2. COTS

Q3. How critical is individual parts tracking over life to execute an effective RCM program and ensuing workscope optimization?

A3. Extremely important. We must have it.

Q4. Has StandardAero been able to monetize the benefit of Workscope Cost Optimization (WCOT) for T56 and other engines?

A4. Yes. We actually have a chart that displays the amounts. Contact me and I can share the information.