



## **AVIATION WEEK EXECUTIVE ROUNDTABLE MILITARY MRO: MEETING THE READINESS CHALLENGES**

Hosted By:

David Pauling, Asst. Deputy Under Secretary of Defense  
Materiel Readiness & Maintenance Policy

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*David Pauling, asst. deputy under secretary of defense for materiel readiness and maintenance policy, challenged participants in the second Aviation Week Executive Roundtable—MRO Fleet Readiness Summit—to provide feedback on changes to readiness policy. The focus was on metrics that would improve fleet availability and warfighter effectiveness—materiel reliability, cycle times/turnaround times and total ownership costs. In the past, the primary metric was repair of a specified number of products per day or month.*

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## ROUNDTABLE FOCUSED ON METRICS, STANDARDIZATION

Military officials invited to the meeting included representatives from the U.S. Air Force, U.S. Army, U.S. Navy and Royal Australian Navy. Industry representatives from AAI Services Corp.; AeroStrategy; AgustaWestlandBell; BAE Systems; Battelle Institute; Bell Helicopter Textron; Blue Water Solutions; Boeing; Eaton Aerospace; GE Aviation; Goodrich; Honeywell Aerospace; IBM; L-3 Communications Integrated Systems; Lockheed Martin; Northrop Grumman; Pratt & Whitney; Rockwell Collins; Rolls-Royce; SenseResponder, LLC; Smiths; Stork; and UGS also attended.

Pauling noted that the current maintenance effort covers 374,000 different weapon systems valued at \$700 billion. The cost of maintaining them has risen from \$59 billion in 2004 to \$72 billion in 2005.

Already, Defense Dept. leaders have looked for centers of excellence in terms of continuous improvement in MRO, applying Lean principles and identifying those things that connect to outcomes-based MRO or sustainment capability. The common themes are continuous improvement, designed-in performance parameters and standardized metrics that flow throughout the military and industrial communities.

According to Pauling, the benchmarking process demonstrated that government-industry partnerships should be able to achieve 2 to 1 improvements in cost savings/avoidance, 6 to 1 improvements in cycle times and 5 to 1 improvements in reliability.

“The bottom line is that this type of continuous process improvement was included as part of the QDR [Quadrennial Defense Review],” Pauling said. “Earlier today, in a meeting with the deputy defense secretary [Gordon England], we agreed on the need to establish Defense Dept.-wide CPIs [continuous performance improvements].”

Pauling called on the Executive Roundtable to respond to three questions:

- ◆ What should be included in the key performance parameters (KPPs)?
- ◆ What are the issues surrounding standardization of metrics?
- ◆ What analysis, modeling and simulation are needed to move to this model?

## EXECUTIVE ROUNDTABLE WORK GROUP REPORTS

### *Key Performance Parameters*

Two work groups addressed KPPs and their implementation, noting the absolute adherence to “designed-in” versus added-on KPPs in addressing life-cycle sustainment on new weapon systems. These KPPs include:

1. Safety.
2. Weapon system/platform readiness for tasking.
3. Reliability (as is vs. should be).
4. Cycle time (as is vs. should be).
5. Infrastructure requirements (footprint desired vs. as is).
6. Cost per unit of platform/system performance (see item #2).

Vice Admiral Charles W. “Willy” Moore, Jr. (ret.), who is vice president of global sustainment for Lockheed Martin Aeronautics, said the work group listed “safety” as the first KPP with purpose. “It is the tip of the iceberg; it’s the alert that other things may be falling out of alignment,” he explained.

USAF Maj. Gen. Arthur Morrill—the director of logistics, headquarters, Air Force Materiel Command—echoed Pauling’s sentiments: “It could vary according to the mix of solutions available. We need to give the military, as operators, alternatives, so that we can trade space in some areas.”

Overall, the Executive Roundtable participants also voiced concern over “readiness at any cost.” Mike Cosentino, president and CEO of AgustaWestlandBell, said, “The budget is the key algorithm in the discussion about readiness.” Pauling agreed, asking for weapon system teams to present readiness versus cost in a way that shows the “knee in the curve” for investment versus benefit, which would support a flexible deci-

sion-making process based on the current operating environment. “Where’s the maximum payoff for the warfighter? That’s the question,” said Pauling.

### *Standardization of Metrics*

Two additional groups addressed standard metrics and their applicability for both domestic and international efforts. They identified four critical barriers that must be considered during an examination of the KPP metrics process and when setting appropriate standards:

1. Metrics may have different impacts, depending on where your organization is in the supply chain. (An example would be a premature engine pull.)
2. The “number” standard for each system/platform depends on operational maturity.
3. Sub-metrics are needed for diagnostic/prognostic capability.
4. “Safety” is defined at the squadron level as “mishaps.” What should be the definition of “safety” on the shop floor, and how do you reconcile the differences in definitions throughout the supply chain?

Gustavo Urzua, Boeing’s vice president of Air Force integrated logistics, said metric standardization makes sense at a top level, such as readiness. “However, at the more minute, specific level, there will be metrics that are valid but not standard,” he noted. “We don’t want to embed so much [standardization] that we lose flexibility.”

In terms of using standard metrics for domestic and international use, the issues broaden to acceptance of the metrics and how they are implemented. Royal Australian Navy (RAN) Commander Mal Gahan pointed out the need for standards, but he noted the difficulty in achieving them across multinational enterprises.

### *Tools/Modeling/Simulation to Enable*

The third work group focused on what systems and tools are needed to move ahead with the new Defense Dept. readiness and maintenance policy KPPs. These they identified as:

1. Contracting standardization in terms of “what” (not “how”) and metrics.

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2. Long-term incentives at contract award for development.
3. Open-book accountability and reporting of metrics by system/platform (necessary for program teams to gain credibility from a congressional and Defense Dept./industry perspective).
4. Shared risk/benefits.
5. Culture of continuous process improvement.
6. Configuration management by item (OEM through Defense Dept.).
7. Common tracking tools across all Defense Dept. programs.
8. The need to leverage netcentric operations efforts to enable progress.

With regard to tools and modeling, the work groups agreed that the principles of Six Sigma and Lean provide the basis for some standardization in language. However, the tracking systems and data maintenance vary by program and customer. The roundtable attendees queried where the RAN-owned and operated system could scale to fit substantially larger Defense Dept. assets. Other issues identified by the work group included:

1. Impact of long-term performance-based or configuration management contracts on small business and the supply chain.
2. Volatile and changing operational environment and how it affects long-term arrangements.
3. Security in an open-book environment.

Pauling appreciated the roundtable's comments and concerns. "The important issue is that this is an enterprise-wide effort of the operators, acquisition teams, developers, suppliers, manufacturers and maintainers," he said.

#### **CALL TO ACTION**

- Industry needs to be able to represent the "knee curve" at which cost vs. benefit intersect on sustainment.
- Industry needs to develop a method to track cost avoidance and savings by program in a credible, consistent manner.

UGS will organize a next-action meeting to focus on these two areas and the key performance parameters. Please contact Tim Nichols (email [timothy.nichols@ugs.com](mailto:timothy.nichols@ugs.com), 513.576.3656) if interested in joining this action team.