



Sense and Respond Logistics (S&RL)

Maintenance for the Future

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Booz | Allen | Hamilton



Sense and Respond – a DoD View...

- ▶ Defined by DoD: **“Sense and Respond”** is a logistics system interwoven with network-centric operations and based upon highly adaptive, self-synchronizing, dynamically reconfigurable demand and supply networks that anticipate and stimulate actions to enhance capability or mitigate support shortfalls. It promotes the integration of Logistics, Operations, and Intelligence functions.
- ▶ What it means: Weapon systems platforms equipped with embedded prognostic and diagnostics monitoring systems providing the ability to predict, anticipate (sense) and coordinate the required logistics response (respond).
- ▶ Vision: An end-to-end supply chain network that integrates all services and elements within the DoD logistics system, thus ensuring maximum equipment availability and readiness.





Sense and Respond Logistics – Translated to a Tactical, Operational, and Strategic View...

- ▶ At the weapon systems platform level, Sense and Respond Logistics (S&RL) will provide:
 - System health monitoring through embedded sensors that provide prognostic and diagnostic information
 - Real time information relating to critical and predicted failures
 - Configuration tracking through Unique Item Identification
 - Enabling of Interactive Electronic Technical Manuals (IETMs)

- ▶ S&RL capabilities will include the ability to:
 - Provide near real-time information to Commanders on weapon systems readiness
 - Integrate readiness and logistics into tactical Command and Control scenarios
 - Enable true life cycle management of weapon systems and equipment
 - Improve overall readiness rates and reduce Operations and Support (O&S) costs
 - Automate maintenance and supply processes





Evolution of Sense and Respond Logistics in Meeting DoD Goals...

- ▶ Current Preventive Maintenance Checks and Services (PMCS) are time consuming, not cost effective and frequently result in unnecessary or redundant maintenance actions
 - Equipment remains in or “awaiting” maintenance denying use to end user and reducing unit readiness rates
 - Maintainers often times break items while conducting PMCS driving up costs and further reducing equipment availability
 - Additional maintenance requirements increases burden on supply chain
- ▶ Future initiatives are moving DoD toward Conditioned Based Maintenance (CBM) instead of time or fixed period maintenance
 - Performing maintenance checks and services only when conditions warrant
 - Establishing a better baseline for failure data





Where are the Services Now?

- ▶ Current initiatives largely focusing on weapon systems platforms and data offload
- ▶ Additionally, efforts to develop standardized data repositories which uniformly aggregate disparate maintenance data sets are underway
- ▶ Areas that require additional focus – examples:
 - Data analysis to meet needs of multiple stakeholders:
 - ▶ Engineering community – reliability and performance improvements
 - ▶ Financial community - Total Cost of Ownership
 - ▶ Combatant Commanders, weapon systems managers, OEMs – weapon system readiness and improved product design
 - Business Intelligence – reporting information to stakeholders in multiple and diverse arrays. This includes aggregated information as well as on an exception basis

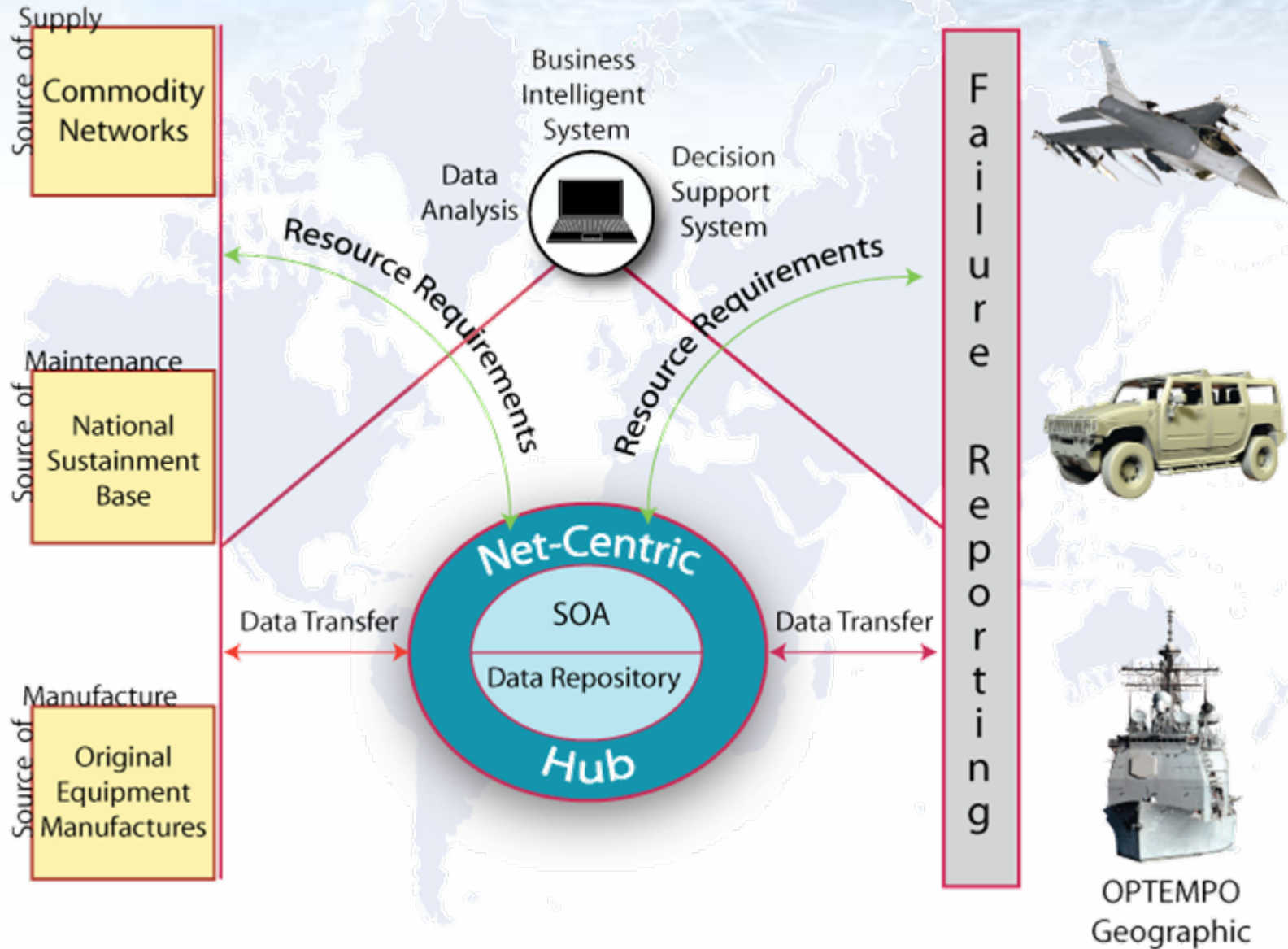


Sense and Respond Logistical Architecture

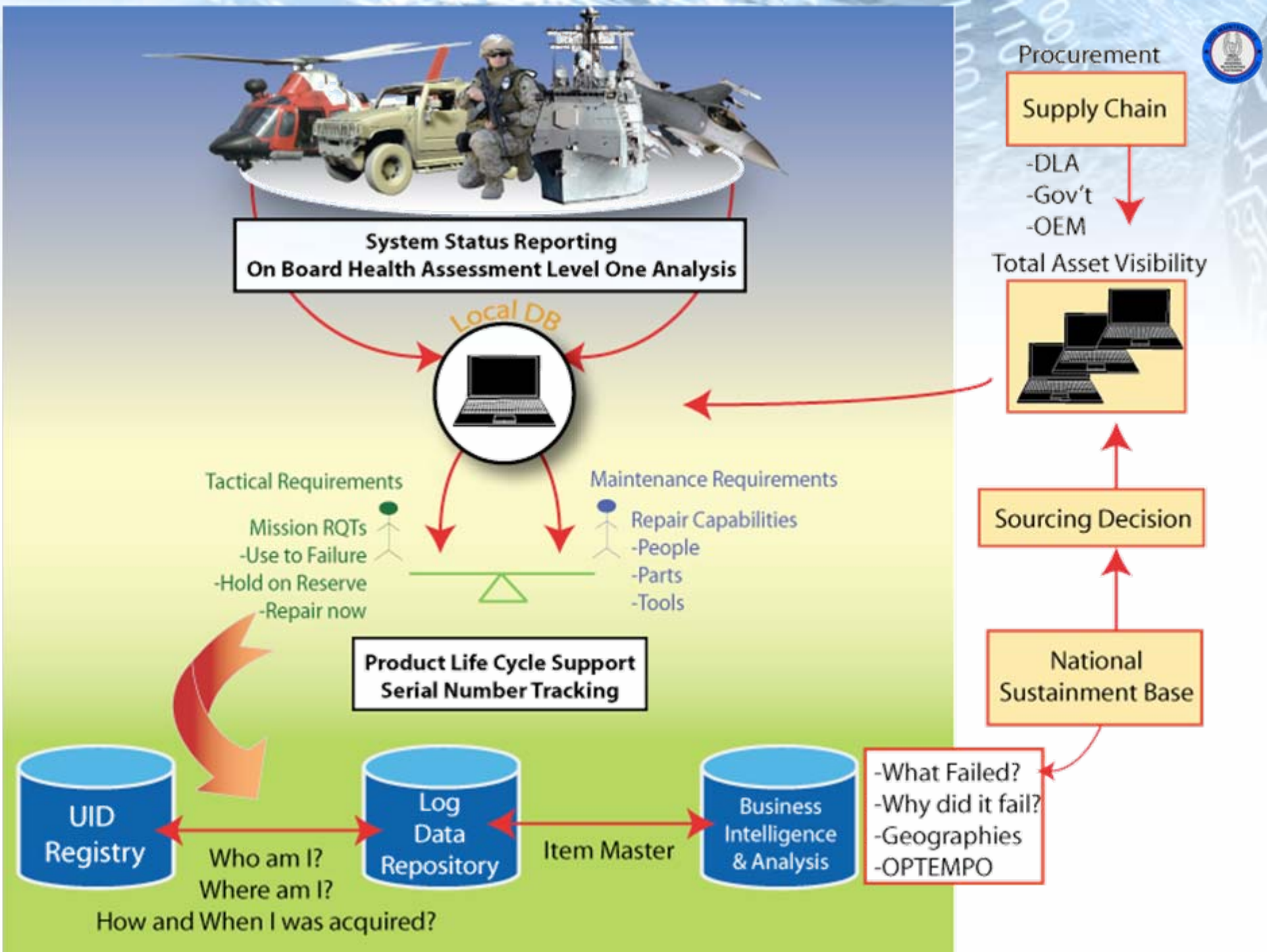


Supporting Networks

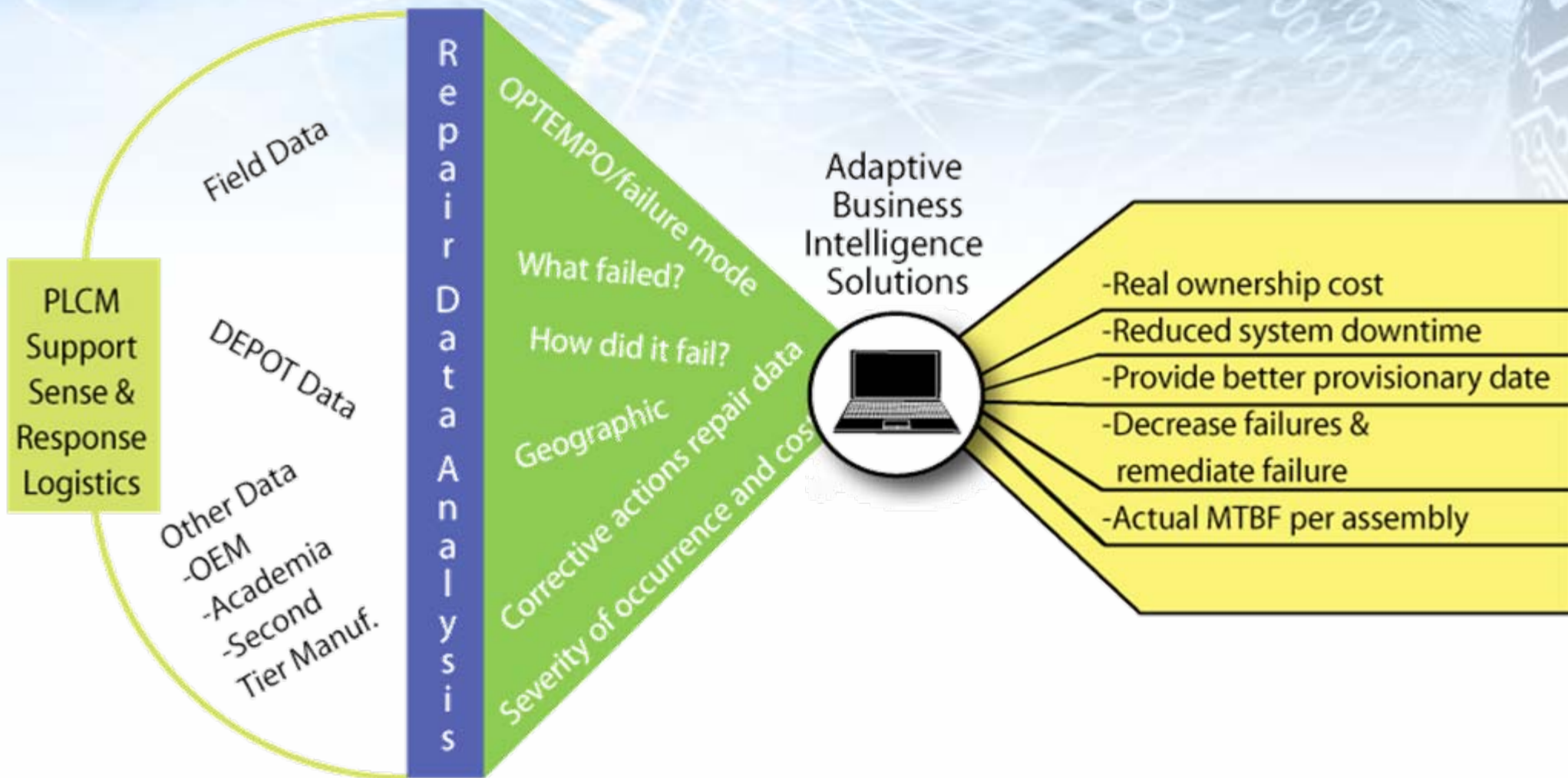
Operational Forces



Product Life Cycle Management Road to the Future



Maintenance and Data Analysis Environment



End-to-End Technical Information Analysis

Life Cycle Serial Number Tracking



Next steps.....

- ▶ To optimize Sense and Respond Logistics, the following is needed:
 - Development of a common operational architecture
 - Implementation of a common set of data standards
 - Leveraging UID to increase parts tracking and resultant usage data
 - Increased use of RFID to speed supply chain actions and to enable embedded maintenance records
 - A broader sharing of collected data across all stakeholders
- ▶ Focus on critical combat systems to optimize investment returns
- ▶ Full access (Government and OEM) to technical data packages for weapon systems and equipment
- ▶ Increase emphasis on Condition Based Maintenance with goal of planning, sequencing, and performing supply and maintenance actions in non-intrusive manner





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