Real-World Tools for Enabling Performance-Based Logistics Success

Jon Newsome
SAP Public Services
Director/DoD Business Development
<table>
<thead>
<tr>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Why Performance-Based Logistics (PBL)</strong></td>
</tr>
<tr>
<td>SAP’s Approach to a Comprehensive Solution</td>
</tr>
<tr>
<td>Our Partners, Our Customers</td>
</tr>
<tr>
<td>What We Have Learned</td>
</tr>
<tr>
<td>The Path Ahead</td>
</tr>
</tbody>
</table>
There Is a Need for a Holistic PBL Solution

- Current PBL market for US DoD is $5B
- By 2011 it is estimated to reach $50B
- Cumulative/global PBL market could reach $1Trillion by 2050

Out of 215 DoD ACAT (Acquisition Category) I and II programs (major weapon systems), there are 154, or 72%, that are currently (or within the next 12 months will be) using performance-based support.

To date, the highest number of customer inquires that AMR Research team has fielded has been related to performance-based logistics. The second highest was ERP infrastructure, which included integration tools, master data management (MDM), and business intelligence.

DoD Policy Is Also Driving Rapid Adoption

- QDR (2001): “DoD will implement Performance-Based Logistics…”
- DoD 5000.1; DoDI 5000.2 (12 May 2003): “PBL is the preferred support strategy within the DoD…”
- Wynn Memo, Jan 04: Provided BCA guidance for PBL programs
- Wolfowitz Memo, Feb 04: Directed USD(AT&L) to issue clear guidance on purchasing using performance criteria and directed Services to provide plan to aggressively implement PBL
- MID 917: Identifies JSF as a potential PBL pilot program
Recognized/Standard Levels of PBL

Pay for Level of Performance Rather Than Repairs

<table>
<thead>
<tr>
<th>Component</th>
<th>Distribution Performance PBL Level I</th>
<th>Sub-System Performance PBL Level II</th>
<th>Weapons System Performance PBL Level III</th>
<th>Mission Performance PBL Level IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Objective</td>
<td>Delivery Speed</td>
<td>Availability</td>
<td>Operational Availability</td>
<td>Mission Reliability</td>
</tr>
<tr>
<td>Weapons System Scope</td>
<td>Parts Components</td>
<td>Components Assemblies</td>
<td>Systems Platforms</td>
<td>Platform Performance</td>
</tr>
<tr>
<td>Examples</td>
<td>PVP Contracts</td>
<td>F/A-18</td>
<td>JSF</td>
<td>None Currently Exist</td>
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</tbody>
</table>

Support Moves Closer to the Warfighter
Agenda

Why Performance-Based Logistics (PBL)

SAP’s Approach to a Comprehensive Solution

Our Partners, Our Customers

What We Have Learned

The Path Ahead
The Performance Based Logistics Solution – A Co-Innovation Project with Multiple Partners and Multiple Customers

The Mission:
- To build a performance-based logistics solution on the SAP NetWeaver platform using SAP and partner applications, providing value to our customers by delivering proven best practices, implementation accelerators, and a platform that enables future innovation across the ecosystem.

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**Packaged Performance Based Logistics Solution**

- Program & Contract Management
- Asset Lifecycle Engineering
- Supply Chain Planning
- Supply Chain Execution & Control
- Maintenance Planning

- Best Practices
- Implementation Accelerators

**SAP Business Process Platform**

<table>
<thead>
<tr>
<th>SAP Applications</th>
<th>ISV/SI Solutions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy Mgmt</td>
<td>SIO by</td>
</tr>
<tr>
<td>ERP</td>
<td>P&amp;C Mgmt by</td>
</tr>
<tr>
<td>SCM</td>
<td>BAMS by</td>
</tr>
<tr>
<td>PLM</td>
<td>MRO pre-config. by</td>
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* Disclaimer: The named partners does not represent a complete or final list of participating partners
Current In-Process Project Deliverables

- Industry Thought Leadership Presentations
- Solution Map
- PBL Whitepapers
- Solution Architecture
- Scenario Descriptions and Value Propositions
- Detailed Process Descriptions and Scenarios
- Strategy Management Demonstration of Capability
## Agenda

- Why Performance-Based Logistics (PBL)
- SAP’s Approach to a Comprehensive Solution
- Our Partners, Our Customers
- What We Have Learned
- The Path Ahead
Axon Is the Largest Global Service Provider Dedicated Solely to SAP

North America
- $130 million*
- 500 Consultants

Europe
- $180 million
- 700 Consultants

Asia Pacific
- $35 million
- 600** Consultants

* 2007 budget, ** including JPSC acquisition

12th largest SAP services partner globally; more experienced consultants relative to our competitors according to Gartner quote

$275 million revenue  1,800+ staff  14 offices
MCA & SAP’s Integrated Solution for A&D PBL

- **MCA’s Service Inventory Optimization (SIO) (who)**
  - SAP-Endorsed Business Solution
  - Part of A&D Industry Value Network
  - Leader in Advanced Service Parts Planning
  - Tightly Integrated with SAP SPP & ERP

- **MCA Customers Are Leaders in PBL (experience)**

- **SIO Complements SAP with Advanced Planning Capability (what)**
  - Composite forecasting for intermittent & causal-driven demand
  - Multi-Indenture Multi-Echelon (MIME) availability-based planning
  - What-if scenario analysis for contract pricing & reliability / cost tradeoff
  - Support quantitative analysis of asset ownership, supply chain restructuring, and vendor relationship strategy options
Company Overview:
- Global SAP Partner for Program and Contract Management Solutions
- Complete Applications, Maintenance/Support and Services Provider

Experience:
- Multiple Aerospace and Defense Implementations
- Strong Business/Industry Content Coupled with SAP Functional & Technical Skills
- 20+ Years avg. per Employee of Aerospace and Defense, SAP Business Experience

PBL Content/Focus:
- Applications & Business/Solutions Knowledge:
  - Project Planning/Project Change Mgmt./Earned Value/Scheduling
    - Microsoft Project <-> SAP ERP Integration
    - Quantity & KPI based Planning
    - EVMS & Technical Performance Measurement
  - Contracts and Billing
    - Government Invoicing
    - Multiple Contract Types
      - Including Power-By-The-Hour Solutions
BearingPoint developed BAMS as a composite application on the SAP platform to help A&D companies to integrate and standardize the capture and proposal development process.
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A PBL Solution Must Consider Different Business Drivers

Cascading KPIs – **MOST IMPORTANT** – Fundamental change in how vendors get paid and remain profitable. Effectiveness KPIs get them paid (e.g., system availability). Efficiency KPIs help improve their margin (e.g., cost per flight hour).

Program & Contract Management – Program/project management requires sophisticated risk/reward analysis capabilities to develop platform support plans and pricing models. Contracts must be tightly aligned with execution activities/KPIs. Shifting of ownership of assets and planning responsibilities drive different decisions and behaviors throughout the lifecycle.

Product Lifecycle Management – Increased emphasis on reliability and the requirement to conduct extensive risk/reward analysis for engineering change activities. Tight integration to MRO activities.

Supply Chain Management – There is a greater emphasis on aftermarket service parts planning/execution as well as complex multi-indenture/echelon planning requirements.

MRO – Focused on streamlined maintenance activities to reduce costs per flight hour. Emphasis on prognostics and health management to reduce scheduled and unscheduled equipment downtime.

New Composite Applications – Example, SAP xFSEM (Field Service Experience Management) This new composite supports classic after market sales & service execution processes. It enables the creation, monitoring, and evaluation of feedback loops from field service to product development.
- **Manage Contract** – Establish pricing based on agreed upon business goals, monitor and proactively manage the progress of performance
- **Manage Product** – Design for reliability and service over feature/function
- **Manage Supply Chain** – Sense and respond logistics to ensure that the correct parts are procured and distributed in an optimized fashion
- **Manage Service** – Minimize downtime by ensuring the right equipment, information and field support are available to perform repair and preventive maintenance
PBL Scenario Group - Program and Contract Management

**Key Characteristics**

- Achieve total program visibility (real time cost, schedule, and risk data)
- Program analytics to support contract performance tracking *(balanced scorecard to evaluate cascading KPI’s)*
- Ability to support complete contract life cycle with execution aligned to contract terms
- Flexible billing capabilities to support government contract requirements *(i.e., usage based, resource related, fixed, inception to date, etc.)*
- Complete audit trails and revision tracking for contract modifications
Key Characteristics

- Integrated, standardized, and collaborative capture and proposal development process
- Visibility and tracking of executive decisions in proposal process
- Optimized staffing of capture efforts (experience, skills, capacity)
- The ability to reduce risk associated with bidding and managing long term PBL contracts
- Determine performance based service levels achievable through inventory optimization (based on product reliability, lead times, etc)
Key Characteristics

- The ability to address complex contracting requirements… these require more custom terms, conditions, clauses, and more sophisticated processes (multiple workflows, reviews, forms, etc)

- The ability to negotiate PBL contracts in a highly regulated federal environment (FAR, DFAR)

- The ability to store and manage regulatory clauses

- Support for multiple regulation sets (government and commercial)

- The ability to “roll-down” clauses to PBL subcontracts

- Template and logic-based document generation capability
**Key Characteristics**

- Objective supplier evaluation, selection and monitoring based on cost, quality, and schedule KPIs (important for PBL risk sharing)
- Reduced inventory costs through the use of supplier managed inventories
- Dynamic replenishment to avoid costly delayed shipments and over production situations
- Real-time sense and alert monitoring for quick response to unplanned supply network deviations
- Automated procurement approval processes for increased supply chain productivity
Key Characteristics

- Right Parts – Right Place – Right Time
- Multi-echelon/multi-indenture optimization capability
- Availability based service level optimization within budget constraints
- Out-of-the-box analytics to track PBL contract compliance/performance
- Highly efficient warehouse distribution and storage practices for improved logistics response time
- Kitting and packaging capability
- Support for reverse logistics (NRFI return credits)
- Mobile supply processes (flight line, warehouse, etc)
### Key Characteristics

- Planning, staffing, and support capabilities for expeditionary type operations
- Flexible, time-based organizational structures and relationships
- Support for defense specific logistics processes (automatic NRFI returns, condition codes, status codes, advice codes, equipment loans, MPOs, EPAs, etc)
- Flexible accounting structures to track costs by operation/mission
- Integration to geographical information systems
- Support for requisition, organizational and requirement priorities
- Integrated flight and equipment status boards to support operations and maintenance
PBL Scenario Group - Maintenance Operations

**Key Characteristics**

- The ability to develop effective maintenance strategies based on proven RCM & FMECA methodologies
- Prognostics and health management (PHM) capabilities to reduced scheduled and unscheduled maintenance
- Integrated operations and maintenance processes/systems to minimized equipment downtime (aircraft & flight status boards)
- Integrated supply and maintenances processes/systems to minimize repair turn-around-times and spare pools
- Tools to support repair vs. replace decisions (potential SAP composite for tactical repair vs. replace scenarios - xRVR)
Key Characteristics

- The ability to conduct risk reward analysis for engineering change activities which emphasize reliability improvements.
- The ability to manage/process engineering change requests from field service technicians, through product management teams, to product engineering teams.
- The ability to model equipment in several variations to include as-built, as-maintained and as-allowed configurations (configuration checks to ensure compliance).
- The ability to collaborate on supplier initiated engineering changes.
- Ability to integrate PLM processes to SCM and MRO.
Agenda

Why Performance-Based Logistics (PBL)
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The Path Ahead
Current PBL Release Plan (subject to change)

Phase 1 Scope (June 2007)
- Maintenance & Engineering
  - Fleet Configuration Mgt.
  - Maintenance Requirements Planning
  - Work Packaging & Sequencing
  - Line Maintenance
  - Component Maintenance - Axon
- Program & Contract Mgt
  - Contract Setup
  - Program/Project Planning
  - Contract Accounting & Profitability
  - Performance Billing - TBD
- SCM
  - Purchasing & Inventory Management
  - Service Parts Forecasting - MCA
  - Service Inventory Optimization - MCA
  - Service Parts Planning
  - Serial/UID tracking

Phase 2 Scope (December 2007)
- Maintenance & Engineering
  - Integration with Prognostics & Health Management system – TBD
  - Asset Reliability & Performance – TBD
  - Complex Asset Maintenance – Axon
- Program & Contract Mgt
  - Contract Cash/Revenue Planning
  - Program Performance Management – Dassian
  - Contract Modification Mgt.
  - Color of Money – TBD
- SCM
  - Force Structure Modeling
  - Supplier Collaboration
  - Supply Chain Monitoring & Control

Phase 3 Scope (March 2008)
- Maintenance & Engineering
  - Asset Phase-in & Phase-out
  - Maintenance Program Management
  - Call Center (CRM)
- Program & Contract Mgt
  - Maintenance & service planning (advanced strategic & tactical)
  - Engine Maintenance control - TBD
  - Mobile Maintenance & Materials Mgt.
- Program & Contract Mgt
  - Strategic Portfolio Management
  - PBL Estimating & Pricing – TBD
  - Program / Contract Analytics (BW)
- SCM
  - RFID/UID
  - Supply Chain Simulation – MCA

SAP development pipeline
- Partner products exist
- Partner product needed
Alignment Across The Value Chain . . . Strategy, Objectives, KPIs

Integrated and measurable processes are key to PBL success

- Contracting turn-around time
- Invoicing Hours Reduced
- Billable Hours Reduced
- Quality/Reliability
- Cost Reduction
- # Vendors
- Component Costs
- # Backorders Reduced
- Transportation Turn-Around Time
- Logistics Response Time
- WIP
- Average Repair Time
- Reliability
- Reduced Demand
SAP Strategy Management Aligns PBL with Execution

Views

Features

Strategic Alignment
- Goals and Objectives
- Metrics and Scorecard
- Initiatives/Projects
- Assessments and Comments
- Detail Analysis and Drilldown

Flexible Integration
- Setup Not IT Intensive
- Connect to any Data Source
- Maintain through Configuration
- User Configurable
- Role-Based Security

Functional Capabilities
- Strong Analytic Capabilities
- Flexible Scorecard Development
- Initiatives Management
- Threaded Comments
- User-Defined Reports/Dashboards

Value Prop
- Reduces cost dramatically to align initiatives and metrics to strategy
- Minimizes need for administrative support through custom user configuration
- Flexible administration provides capability to change and update all components at low cost
- Provides presentation-ready capture of screens into reports, significantly reducing reporting effort
- Data entry and approval workflow built into system, saving significant integration efforts
- Leverages the architecture stack that SAP provides

THE BEST-RUN BUSINESSES RUN SAP™
Aircraft Availability

Mission: Provide fully mission-capable F-16 Aircraft ready to execute sorties
98% of the time aircraft are requested for mission support

Supply
- Reduce Stockage Levels
- Reduce Supply Chain Costs
- Increase Supply Chain Visibility
- Reduce Customer Wait Time

Maintenance
- Improve Reliability
- Anticipate and Replace/Repair Before Failure Occurs
- Decrease Overall Repair Time
- Reduce Maintenance Costs

Support Equipment
- Improve Readiness/Reliability of Support Equipment
- Reduce Support Equipment Sustainment Costs
- Enable Rapid Deployment without Degrading Support

Training
- Improve Delivery of Training Resources for Operations & Support
- Improve Training Programs
- Reduce Training Costs
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Support Equipment
- Improve Readiness/Reliability of Support Equipment
- Reduce Support Equipment Sustainment Costs
- Enable Rapid Deployment without Degrading Support

Responsible: Dorcy Wilcox

Description:
Provide an enabled team to deliver a high level of service in both the operational areas as well as support services.

Initiatives:
- Increase Reliability of F110-GE-100 Stage 2 Fan Blade
- Improve Inspection Time for Fan Rotor Assembly

KPIs:
- Percent Failures
- Mean Time between Failure
## Goal / KPI

### Maintenance

- **Average Repair Time**: 65.00 out of 100.00
- **Maintenance Rating**: 5.08 out of 6.00
- **Maximum Repair Time**: 78.00 out of 100.00
- **Mean Time Between Maintenance**: 77.65 out of 100.00
- **Mean Time between Failure**: 68.00 out of 100.00
- **Percent Failures**: 3.16 out of 2.43
- **Reliability Index**: 72.00 out of 100.00
- **Repair Cost**: 52.00 out of 100.00

### Supply

- **Average Stock Age**: 52.00 out of 100.00
- **Customer Satisfaction**: 93.00 out of 100.00
- **Customer Wait Time**: 92.00 out of 100.00
- **Delivery Cost**: 85.00 out of 100.00
- **Inventory Cost**: 92.00 out of 100.00
- **Stock Levels**: 79.00 out of 100.00
- **Supply Chain Disruptions**: 63.00 out of 100.00
- **Warehouse Cost**: 82.00 out of 100.00

### Support Equipment