Bell’s Evolution to V6R2013X

Business Systems Modernization

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2014 3DEXPERIENCE Forum – Las Vegas, Nevada
Depth & Breadth of DS at Bell Helicopter

- **ENOVIA A&D Accelerator R2013X** (6500 users)
  - All BOM information for ALL existing aircraft
  - All documents (Reports, Specifications, etc.)
  - All change objects (EC, ECR, ECO, PUEECO, PCO)
  - Full Digital Product Definition (DPD) for:
    - 525 Relentless
    - 505 Jet Ranger X
    - V-280 Valor

- **CATIA V6 R2013X** (760 users)
  - All New aircraft programs since 2011

- **CATIA V4 / VPM V4** (100 users)
  - All Legacy aircraft programs prior to 2011
# What’s happened up to now?

<table>
<thead>
<tr>
<th>2008</th>
<th>2011</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Started Business Systems</td>
<td>Go-Live ENOVIA V6 (PLM) and CATIA V6</td>
<td>Go-Live ERP (SAP) with ENOVIA integration</td>
<td>ENOVIA Upgrade R2013X</td>
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<tr>
<td>Modernization (BSM)</td>
<td>with SAP-CAMS</td>
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**Diagram:**

- **ENOVIA V6 PLM**
  - CATIA V6
  - Data Warehouse (SAP Business Objects)
  - Change Mgmt, Parts
- **ERP SAP (ECC)**
  - Primavera
  - Program Info
  - Contract, Project Info
- **MES CAMS / Visiprise**
  - MBOM
  - PLBOM, Parts
  - Planning, Order Info
  - Info
**ENOVIA/CATIA V6 Bell Helicopter Content** (Depth)

- Number of ECO’s released ~421k
- Number of PCO’s released ~137k
- Number of requirements ~189k
- CATIA V6 models released ~125k
- ENOVIA and CATIA objects ~23M
- File share size 14.4Tb

**Active Commercial Products**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>206-L4</td>
<td>Single Engine Light</td>
</tr>
<tr>
<td>407</td>
<td>Single Engine Light</td>
</tr>
<tr>
<td>429</td>
<td>Intermediate Twin Engine</td>
</tr>
<tr>
<td>412</td>
<td>Medium Twin Engine</td>
</tr>
</tbody>
</table>

**Active Military Products**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<tbody>
<tr>
<td>AH-1Z</td>
<td>Attack Helicopter</td>
</tr>
<tr>
<td>UH-1Y</td>
<td>Utility Helicopter</td>
</tr>
<tr>
<td>V22</td>
<td>Tiltrotor - Marines</td>
</tr>
<tr>
<td>CV22</td>
<td>Tiltrotor - Air Force Special Ops</td>
</tr>
<tr>
<td>OH-58D</td>
<td>Armed Scout Helicopter</td>
</tr>
</tbody>
</table>
2013X Business Objectives

- Reduce Waste
  - Recurring and Non-Recurring Labor
    o Simplify changes to “un-configured” part structures
    o Automate documentation/tracking
  - Improve product definition stability
    o Eliminate downstream ripples
2013X Benefits

• Product Change Management Enhancements
  – Revision Float of children to their parent
    o Traceability where needed
    o CATIA V6 now matches ENOVIA behavior

• Improved CATIA to ENOVIA Integration (DPD)
  – Synchronization to ENOVIA
  – 3DLive Examine for viewing CV6 models
  – 3D Indexer for navigation & clash prevention

• CATIA Enhancements
  – Composites
  – Sheet Metal
  – Numerical Control (NC)
Hybrid Project Approach (Waterfall/Agile)

- **Courage**: Initial regressions necessitated we abandon “Date” driven schedule
- **Prioritized**: Identified Critical Functions must pass to progress to the next phase
- **Collaborated**: Engage Agile “event” driven schedule and re-start with critical functions
- **Communicated**: Out to the business once objective in site

Challenges

- CAD integration with ENOVIA
- Existing data
- Training & testing
- Complex migration
- Performance issues
- Upgrade time
- Early failures
Communications

- **Up, Down and Sideways**
- **Internal (Team)**
  - Daily/Weekly Cadence
  - Clear & Open
- **External (Business)**
  - Develop a “Communications Roadmap”
    - Explain the new system updates, highlighting business impacts and performance improvements
    - Provide answers to frequently asked questions, clearly stating changes to the system and trainings available
    - Inform leadership of changes occurring and ensure users are prepared and aware of deployment

**DON’T FORGET “SITE” SPECIFIC NEEDS!**
User Adoption with Advanced Applications

- **Business Process maturity** - large organizations don't change the way they do things
  - **Process Definition**
    - Redefined “HOW” people do their daily work
  - **Problem Solving**
    - Developed “better” ways of getting work done

- **Advanced Applications**
  - They still work with the “old” way
  - The updated tools can make your life easier
  - They would work better if users learned the “new” way
Post Go-Live Support

• Significant problems did not show up until 6-8 weeks later
• Additional “Use Cases” popped up
  – Regressions in “un-tested” areas
  – No matter how many times we ask folks for test cases they said, “We’re all good”

• Training
  – Many folks, elected to “skip” training, AKA continue using the Chainsaw manually
Success Requires COMMITMENT

ENOVIA

Interactive Work Instruction

EBOM/PLBOM

CATIA

S1000 Tech pubs

CATIA

Functional Tolerance & Annotations

CAMS: Process Planning

3DLive & 3DVia: Data Viewer

MIGRATION TO CV6R3012X IS POSSIBLE!