PLM in a Massively Multidisciplinary World

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Chief Architect
Aras
### Massively Multidisciplinary?

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Massively Multidisciplinary

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- OEM
- Tier 1 Supplier
- Tier 2 Supplier
- Factory B
- Factory A
- Tier 1 Supplier
- Tier 2 Supplier

Concept - Design - Development - Launch - Manufacture - Support
Massively Multidisciplinary

OEM

Tier 1 Supplier

Tier 2 Supplier

Factory B

Tier 1 Supplier

Factory A

Tier 2 Supplier

Tier 2 Supplier
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Massively Multidisciplinary

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OEM

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Concept  Design  Development  Launch  Manufacture  Support
Massively Multidisciplinary

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1. OEM
2. Tier 1 Supplier
   - Tier 1 Supplier
   - Tier 2 Supplier
3. Factory B
4. Factory A
5. Tier 1 Supplier
   - Tier 2 Supplier

Concept  Design  Development  Launch  Manufacture  Support
Massively Multidisciplinary

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- OEM
- Tier 1 Supplier
- Tier 2 Supplier
- Factory A
- Factory B
- Aftermarket Service

Concept | Design | Development | Launch | Manufacture | Support
Massively Multidisciplinary

- Products are no longer predominately mechanical
  - Electronics & Electrical
  - Software & Firmware
  - Analysis & Simulation
  - Compliance
  - Technical Documentation
  - Many more ....

- Disciplines are no longer confined to one location
  - Larger and more tightly integrated supply chains
  - More opportunities to engage with third-party experts

- Nothing in the organization or supply chain stays static
  - Turnover and mergers/acquisitions are common in supply chains
  - Disciplines move around throughout the product life cycle
What does this mean for PLM?
Let’s take Impact Analysis as an example..
Impact Analysis Today

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- **Part #** XJ828127-08
  - **Next Higher Assemblies**
    - Part # XJ828127-08
    - Part # XJ828127-08
    - Part # XJ828127-08
  - **Products**
    - Model # W107
    - Model # S270
Impact Analysis - Multidisciplinary

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- **Process Plan Operations**
  - PP-19190 OP-7A
  - PP-12182 OP-11

- **FMEAs**
  - DFMEA 61782
  - PFMEA 08928-00

- **Cost Models**
  - Product Cost C-2200-14

- **Next Higher Assemblies**
  - Part # XJ828127-08
  - Part # XJ828127-08
  - Part # XJ828127-08

- **Compliance Reports**
  - ROHS 1280-94
  - FDA RP19X01-1

- **Products**
  - Model # W107
  - Model # S270

- **Catalogs**
  - Replacement RP-13-10
  - OEM C-14-07

- **Ordered**
  - 861 +

- **In Stock**
  - 173 +

- **In Service**
  - 317 +

- **Change Items**
  - Problem Report PR-29302
  - Problem Report PR-28156
  - Change Request 91888321
Impact Analysis - Multidisciplinary

Change Items
- Problem Report PR-29302
- Problem Report PR-28156
- Change Request 91888321

Tooling Models
- Tool DR-1099
- Tool J-19012

Parts
- Part # XJ828127-08

Service Manuals
- Dealer 28190-10
- Aftermarket Z018788

CNC Models
- Turn 91-19289
- Mill 74-10901

CAD Model 29289382

CAD Assemblies
- Assy Model 292819281
- Assy Model 292182706

Work Instructions
- PP-19190 OP-7A
- PP-12182 OP-11

Marketing Materials
- Brochure LR291-1402
- Animation SA-9102

Simulation Models
- Thermal 1718-109
- Structural 8912-210
- Kinematic 4178-090
- Mass Prop 9201-057
- Acoustic 3718-191
- Dynamic 3718-191
Impact Analysis - Multidisciplinary

- Software Module CD-1929-W
- PCB Design 291980181
- Procedure 81928-1091
- Material Spec PT-109MM19
Configuration Complexity

- Impact Analysis shows some issues with today’s PLM environment
  - Major disciplines are ignored or underserved
  - Little or no integration with the supply chain
  - Processes have trouble adapting to a fluid environment

- The same shortcomings extend to the rest of PLM
  - Change Workflows
  - Requirements Traceability
  - Compliance Reporting
  - Deliverable Tracking
  - Program / Project Scheduling
  - ....

- New strategies are needed to handle the ever-increasing complexity
PLM in the Enterprise

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Diagram showing the relationships between OEMs, Tier 1 and Tier 2 Suppliers, and Factories.
Point-to-Point PLM Integrations

Tier 1 Supplier

Tier 2 Supplier

Factory B

Tier 1 Supplier

Factory A

Tier 2 Supplier

OEM

Tier 1 Supplier

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PLM Backbone Advantages

- Extends existing infrastructure
  - No need to “rip and replace” existing systems or processes
  - Capability can be built up gradually – no “big bang” necessary

- More timely and reliable information
  - Accurate data directly from supply chain partners
  - No waiting for changes to bubble up the chain

- Adapts quickly to changes
  - New disciplines and supply chain partners can be added without rebuilding
  - New reporting requirements can be addressed without a major effort
PLM Backbone with Aras Technology

- Open platform based on established standards
- Wide range of integration / federation capabilities
- Flexible, dynamic schema; easily customizable and upgradeable
- Modern roles-based UIs for ease of use -- Web, Mobile & Custom
- Proven scalability to tens / hundreds of thousands of users
- Deployment options: Data Center, Private/Public Cloud, Hybrid
Questions?

Rob McAveney

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