

PTC® Live Global

CUST 238 - GE Aviation Systems PLM Journey to Effective Global Concurrent Engineering

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Agenda

PTC® Live
Global

- The GE Aviation Business
- The Legacy Situation
- The Big Decision/ Focus/Execution/Scorecard
- Bringing Everything Together
- What about Component Engineering?
- What about Supplier Lifecycle Management?
- Looking into the Future





GE Aviation is a world-leading provider of jet and turboprop engines, components and integrated systems for commercial, military, business and general aviation aircraft, and ship propulsion applications.

GE Aviation comprises the **Engines** and **Systems** businesses, both with operations worldwide.*

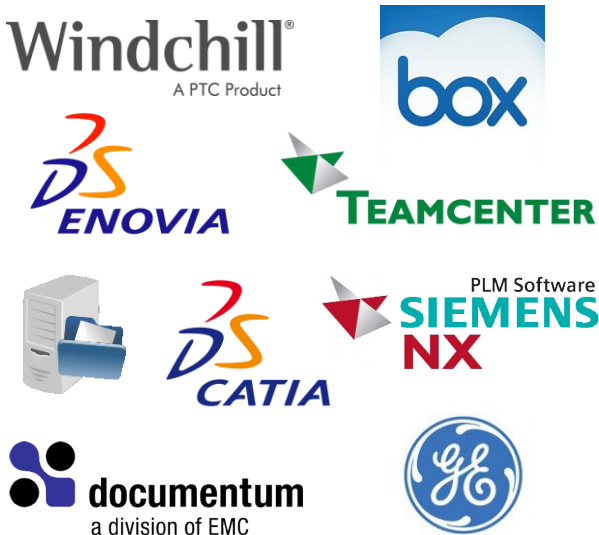
* For details, please visit [GE Aviation Website](#).

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GE Aviation Systems comprises numerous sites worldwide offering a diverse range of Civil and Military solutions.

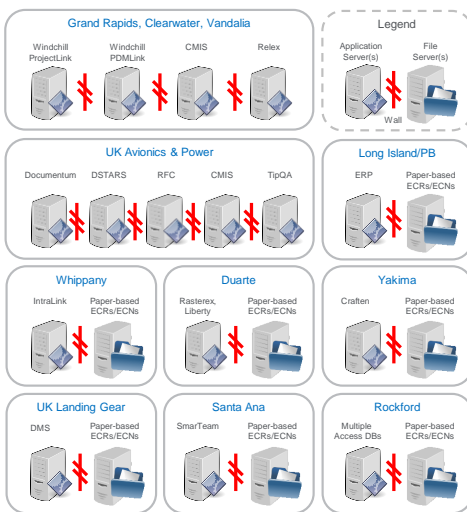
- **Avionics**
 - Advanced Computing,
 - Navigation & Guidance
 - Displays
 - Vehicle Health & Data Management
 - Controls & Interface
- **Digital Systems**
 - Navigation Services
 - Flight Risk Management,
 - Fuel Management
- **Electric Power**
 - Power Generation
 - Power Distribution
 - Power Conversion & Control
 - Air starters.
- **Structures**
 - Wing Leading Edge and Trailing Edge
 - Engine Nacelles
 - Landing Gear
 - Fairings & Strakes
- **Dowty Propellers**
 - Integrated Propeller Systems
- **Unison**
 - Supplier to nearly every engine and airframe program, providing the most advanced performance solutions for general and commercial aviation as well as components and systems for land-based turbines, reciprocating engines, boiler & flare stacks, and related applications in the industrial, energy, and oil & gas markets.

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- GE Aviation supports more than 1,800 tools and applications as of 2015

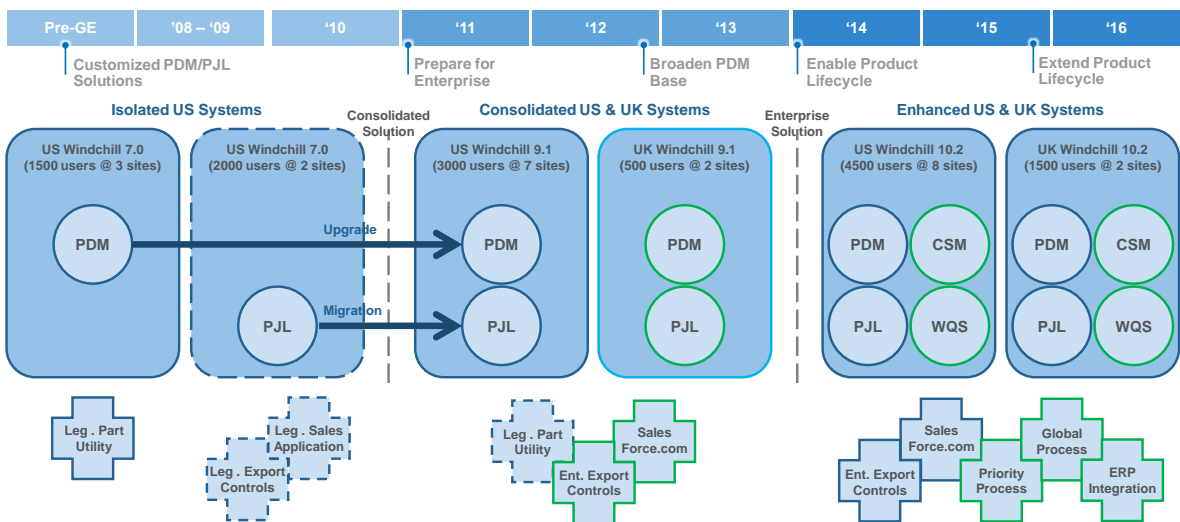
– Baseline Business Applications:	863
– Enabling Tools:	617
– Engineering Software:	336
– Total:	1816



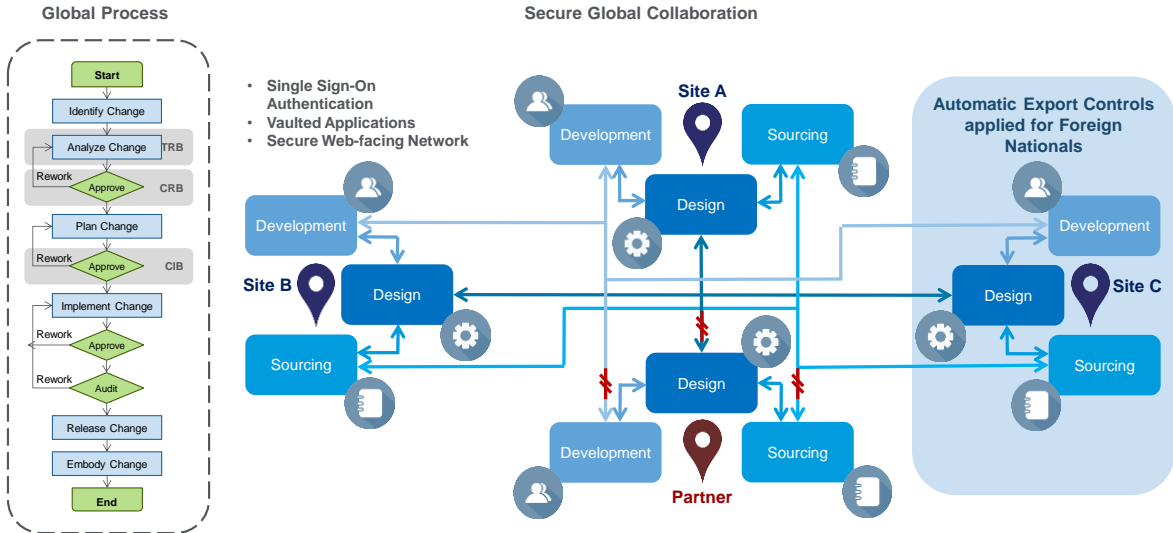
- Imagine a more than dozen sites worldwide with thousands of Engineers working on numerous New Product Introduction (NPI) projects working with:
 - Paper-based change & configuration processes
 - Design data located on each designer's hard drive or on shared network drives
 - Site-specific processes and applications
- Now also imagine relying on end-of-life applications & hardware with poor availability and unreliable disaster recovery.
- To further compound matters, imagine manual transfer of critical data between applications and sites due to limited or insecure global collaboration capability.

- Deploy the foundation**
 - Deploy Global Configuration/Change Management Process
 - Upgrade to PTC Windchill 10.2
- Integrate pillar applications**
 - Global Trade Control Tool (TCT)
 - Oracle Enterprise Resource Planning (ERP)
 - Rational Team Concert (RTC)
 - PTC Windchill Quality Solutions (WQS)
- Expand adoption of functionality**
 - ProjectLink (Project Collaboration)
 - Desktop Integration (Microsoft Office/Outlook)
- Expand functionality**
 - Robust PLM enhancement prioritization process
 - Components Management solution (PartsLink)
 - Supplier Management solution (SUMA)
 - mCAD Management (Workgroup Manager)
 - eCAD Management solution (Workgroup Manager)
 - Integrated Reporting solution (InfoEngine)
- Deliver best-class infrastructure**
 - Centralized, scalable infrastructure

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Score Card: No Instant Gratification

Acquiring a standard set of suitable tools is simply one step in the right direction.

• PTC PLM Scorecard

	Aviation Systems	Aircraft Engines	Healthcare	Oil & Gas	Energy Mgmt	Power & Water	Appliance	Lighting	Transportation
CAD	PTC'		PTC'	PTC'	PTC'	PTC'	PTC'		
CDM	PTC'		PTC'	PTC'	PTC'	PTC'	PTC'		
PLM	PTC'				PTC'		PTC'	PTC'	
SLM	PTC'	PTC'	PTC'	PTC'		PTC'	PTC'		
SCM	PTC'				PTC'		PTC'	PTC'	
QLM	PTC'				PTC'		PTC'		

• GE Aviation Systems PLM Scorecard

- **Collaboration** – US/UK Export Controls, Salesforce Integration, Desktop Integration, Technical Data Packages
- **Product Configuration** – US/UK Avionics, Power & Mechanical
- **Change Management** – US/UK Avionics, Power & Mechanical
- **Design** – US Mechanical: CAD Integration
- **Production** – US/UK Item Masters, Work Instructions & Sourcing Suppliers
- **Reliability** – US/UK Avionics & Power: Windchill Quality Solutions
- **Services** – Service Publications

What about Component Engineering?

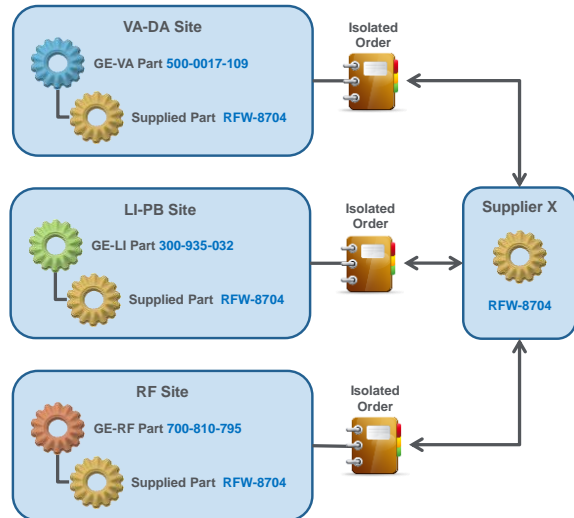
Project underway to deploy PTC Windchill Component and Supplier Management (CSM)

- **Business Issues**

- Existence of Duplicate Parts across US and UK
- Non optimal use of Preferred Parts
- No access for Global Engineering Support
- Divergent US/UK Classification Schema

- **IT Issues**

- Existing tool unsupported and unstable. Requires frequent reboot.
- Divergent UK and US environment



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What about Component Engineering?

Project underway to deploy PTC Windchill Component and Supplier Management (CSM)

- **Modules deployed to US and UK instance**

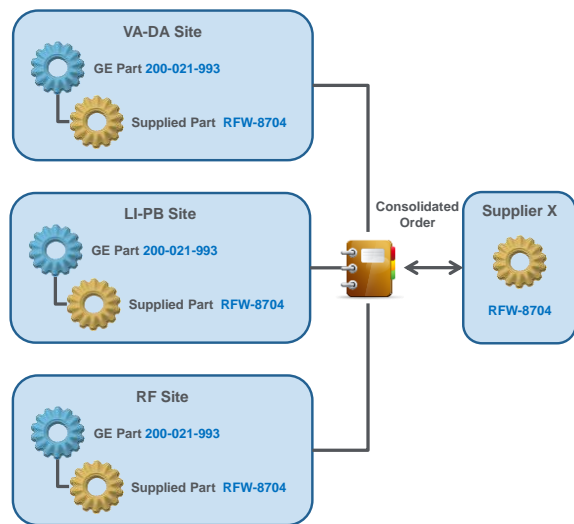
- PTC Windchill PartsLink
- PTC Windchill Supplier Management (SUMA)
- PTC Windchill Business Reporting (Cognos)

- **Benefits**

- Supported Enterprise PLM Solution
- Access for Global Engineering support
- Solves tool obsolescence issue
- Simplify IT infrastructure and support
- Minimize Duplicate Parts

- **Next Phase**

- Part sharing/synchronization across US/UK
- Harmonized US/UK Part Request Workflow
- WPA - Reach/ROHS/Obsolescence Analysis



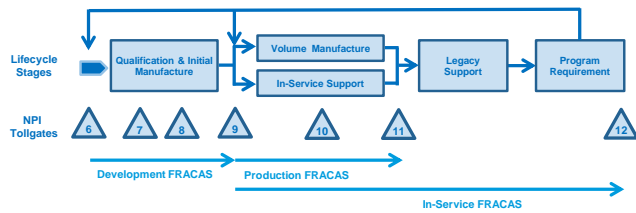
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What about Supplier Lifecycle Management (SLM)?

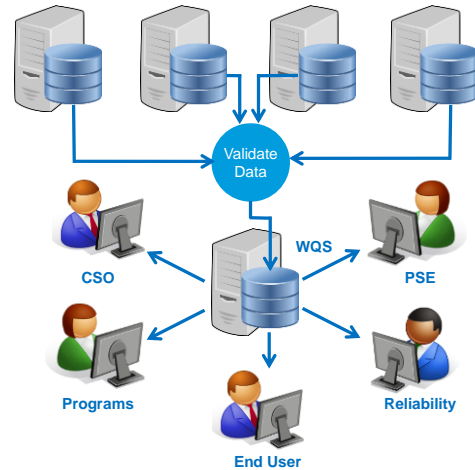
PTC Windchill Quality Solutions (WQS) for Failure Reporting, Analysis and Corrective Action System (FRACAS)

Benefits of FRACAS:

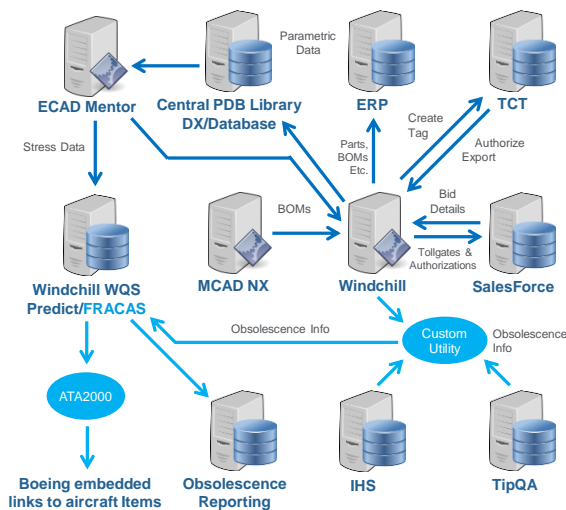
- **Product Improvements.** Identify emerging LRU issues, drive more robust product designs, and
- **Identify Necessary Changes.** Reduce No Fault Found (NFF) other unscheduled removals.
- **Enhance Supplier Ratings.** Monitor Supplier Root Cause and Corrective Action (RCCA) activities to drive product improvements.



Simplified Product Performance Data Management



Bringing Everything Together: Centralization through Integration



Two synchronized global sources for Product Data with integrations to the GE Global Trade Compliance Tool, SalesForce.com, CAD, Oracle ERP, and After-market Services.

- Cradle-to-Grave Product Lifecycle Management
- Global Change Management Process
- Automated Change Management Workflows
- Enterprise (cross-platform) Export Controls
- Secure Global Collaboration with Partners & Suppliers
- Reconciled Company & Manufacturer Part Numbers

Improvement opportunities widely available as Global Concurrent Engineering & WQS take shape.

Digital Design Collaboration		Supply Chain Management	Service Product Lifecycle	
CAD Modeling & Design Tools • PTC Creo/ProE • PTC Mathcad • Isodraw • WGM • Artisan Studio	PLM PTC Windchill PLM • PDMLink • ProjectLink • PartsLink • MPMLink • SUMA • ESI	SCM WMS • Webship/MOVE GEIP & PTC • MES – Brilliant Mfg.	QLM PTC Windchill Quality System • Relex • FRACAS	SLM Tech Pub Author • Arbortext Forecasting • Servigistics (SC) • Servigistics (ML)

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Eliminating unwanted redundancy and leveraging scale yields greater effectiveness & reliability at reduced cost.

- Ramifications for Sourcing, Engineering, and Sales
 - Volume Purchasing
 - Cross-site Engineering
 - Multi-system Sales
- Ramifications for IT Licensing, Support, and Infrastructure
 - Discounted Licensing
 - Consolidated Support
 - Consolidated Infrastructure



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- **The Internet of Things.** Using machine-centric sensors, interconnectivity software, embedded analytics, Big Data analytic software and Visualization & Analysis software to identify opportunities for efficiency gains.*
- **Brilliant Manufacturing.** The Internet of Things and Disruptive Manufacturing applied to the cubicle and the factory floor to eliminate inefficiencies in product design, manufacture, and support.
- **Enterprise Platform as a Service (PaaS).** Applications reimagined as stacks of cloud-based, reusable code easily configured to meet specific needs and easily accessed from mobile devices.
- **Interoperability.** Improve interoperability with other tools for a more seamless progression through the product lifecycle.

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- Your feedback is valuable
- Don't miss out on the chance to provide your feedback
- Gain a chance to win an instant prize!
- Complete your session evaluation now

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