Invigorate Your Supplier Base by Enabling a Supplier Portal Using SAP Supply Network Collaboration

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• About UTC Aerospace Systems

• Supplier collaboration (SAP SNC) solution / business process implemented

• The Transformation challenge

• Lessons learned.
Global, 24/7 service
Game-changing technologies
Committed to perfect delivery and quality
Right attitude
UTC AEROSPACE SYSTEMS - FACTS & FIGURES

• 8 strategic business units
• ~41,000 employees
• ~140 locations

July 2012 – United Technologies formed UTC Aerospace Systems
## UTC AEROSPACE SYSTEMS - FACTS & FIGURES

### Actuation & Propeller Systems
**Products:**
- Primary & Secondary flight controls
- Utility / Missile / Nacelle actuation systems
- Trimable horizontal stabilizer actuators
- Cockpit controls and cabin equipment
- Propellers
- Utility systems
- Thermal control systems

### Aerostructures
**Products:**
- Nacelle systems
- Pylons and fairings
- Tailcones
- Naval composites

### Engine & Environmental Control
**Products:**
- Environmental control system
- Cabin pressure & Ventilation systems
- Electronic engine controls & Flight control computers
- Fuel pumps and metering units
- Accessory gearboxes
- Air turbine starter

### Interiors
**Products:**
- Cargo handling systems
- Cabin systems
- Evacuation systems
- Propulsion systems
- Specialty seating
- Lighting systems

### Landing Systems
**Products:**
- **Landing gear structure and systems:**
  - Large commercial / Military / Regional / Business jets / Helicopters
- **Wheels & Brakes:**
  - Brake control systems
  - High temp composites

### Electric Systems
**Products:**
- Integrated drive generator
- Variable frequency generator
- Power control / conversion
- Power distribution / management
- Emergency power

### ISR & Space Systems
**Products:**
- Reconnaissance & Laser warning systems
- Environmental control and life support systems
- Power generation, management and distribution
- Fuel cell power and Thermal control
- Atmosphere monitoring
- Sensing and detection
- Thrust vector control

### Sensors & Integrated Systems (SIS)
**Products:**
- Engine sensors and sensing suites
- Guidance, navigation and control systems
- Fire detection and protection
- Fuel level and management
- Health and usage management
- Ice detection and protection
- Rescue hoist and cargo winches
- SmartProbe® Air Data Systems
- SmartDisplay® EFB Systems

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One Supplier Portal across diverse Business Units and products

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## SUPPLIER COLLABORATION – THE CHALLENGE

- **Supplier base**
  - 3000+ Vendor codes
  - 2000 Business partners
  - Includes large corporations to small Mom-pop shops
  - Product, Non Product and Repair Suppliers
  - 8,000+ users

- **UTC Aerospace Systems Receiving location**
  - 90+ Plant locations
  - 20+ customer Location (OEM)

- **Products**
  - 100K procured materials

- **Move from multiple legacy portal to one Company supplier portal.**
  - Driving more adoption.
  - Process standardization across supplier base.
SUPPLIER PORTAL LANDSCAPE

SAP Landscape
- ECC – ERP Central Components
- PI – Process Integration
- GTS – Global Trade Services
- QIM – Quality Information Mgmt

Legacy Applications
- SRI – Supplier Request for Info.
- PIG – Part Identification Generator
- Delegated Quality Inspector Exam

Engineering Drawing Apps
- Via Search

Reporting
- Supplier Scorecard
- Supplier Reports

New UTC Aerospace Systems Supplier Portal

Portal registration and single sign on
SUPPLIER COLLABORATION BUSINESS PROCESSES

- 10 - Master Data integration
- 20 - Portal Registration Process
- 30 - Forecast Collaboration
- 40 - SA Collaboration and Promise dating
- 50 - PO Collaboration and Promise dating
- 60 - ASN/Product Release
- 70 - Supplier Source Inspection
- 80 - Quality Notification Process
- 90 - Invoice Collaboration
- 100 - Customer Drop Ship
- 110 - Repair Process
- 130 - Subcontractor process
- 140 - Non-Product
10 - GENERAL MASTER DATA

Master data maintained in ECC - Integrated to SNC using SAP Standard core interface
• Suppliers get access through invitation (Buyer initiated process)

• Main processes
  – Onboarding of New supplier code
  – Supplier Admin. Registration
  – Supplier User Registration

Technical notes: Portal Registration – A .Net application integrated to SNC via Webservice
Suppliers review forecast data on portal

- Forecast data based on purchasing requirements (i.e. Purchase Orders, Schedule Agreements, Purchase reqs)
- Allows supplier to plan their production lines
- Forecast can be downloaded to csv file (custom format) from download center or periodically via email
- User can define time bucket profiles and set up time aggregation for the forecast to suit their business requirements

Download forecast to CSV file (download center)
• Schedule Agreements (SA) are long term agreements
• SA’s used for frequent buy materials
• Releases generated post MRP in ECC - where SA schedules are changed and pushed to SNC
• Alerts triggered to supplier notifying of new release
• Releases acknowledged via web UI
• PDF copy of SA downloaded via Web UI
• Schedule Line confirmations performed using the supplier confirmation function and published to ECC for Buyer and MRP visibility
• Release can be compared with previous release to understand schedule changes
• Purchase Orders (PO) are “spot buys” where material procured for immediate requirement
• When PO’s are saved in ECC by buyer, outputs are generated
  – PDF generated copy of PO including T&C’s viewable via the portal
  – PO idoc sent to SNC for visibility in supplier portal webui. Also triggers follow on functions
• Alerts generated, notifying supplier of new and changed PO’s
  – Acknowledging alerts acknowledges the PO
  – Confirmation of PO performed in SNC by supplier
  – PO rejected by supplier triggers alerts
• Follow on action is based on Alert notification
SUPPLIER CONFIRMATIONS

- Confirmation request records created
  - PO’s - when inbound PO xml is processed
  - SA’s - when schedule lines within the firm or trade off zone.
- When document changes or has new release
  - Confirmation is carried over if no change in Date or Qty
  - Requests created for new schedule lines (or date and Qty change)
- Confirmations performed via web UI or file downloads and uploads
- Validation rules
  - PO’s require reason codes if confirmation date is > 30 days from requirement date
  - SA’s require reason codes if confirmation date is ≠ requirement date
- Confirmations updated via web UI, published to the document (PO/SA) and sent to ECC (two step process)
  - For file upload these steps are automatically done
**ADVANCED SHIPPING NOTIFICATION (ASN)**

- **Delivery due list** shows what is permitted (shipping horizon) and due for shipment
  - Due list downloadable for suppliers
- **Supplier creates an ASN** and prints label with barcode & other details to attach to shipment
  - One label per box (HU)
- **Data validation** on ASN Creation
  - Country of origin
  - Serial #
  - UII#
  - Inspection Lot and batch requirements
- When shipment is received at UTC Aerospace Systems, barcode is scanned to perform Good Receipt process
  - Proof Of Delivery sent to SNC to update the ASN status to goods receipt complete
- **ASN overview** can be used to view ASNs that are shipped but not received.
Supplier Source Inspection (SSI) - where supplier required to inspect materials prior to shipping

- Supplier inspects goods against a defined set of standards and prohibited from shipping goods if they do not meet those standards. Standard requirements are managed by UTC Aerospace Systems.

- Supplier (DQR) creates inspection lots and records results of inspection which get published to ECC

- Certificate of compliance printed on completion of inspection for suppliers records.

- Certification of Supplier Inspectors managed through the portal registration process
Quality Notifications (QNs) created when supplier finds non-conformance with material at their location

- Allows Supplier to alert UTC Aerospace Systems of issues on production line up front
  - Attachments to the QN provide more details of the defect / non-Conformance
- UTC Aerospace Systems reviews issue and provides supplier with corrective action
- UTC Aerospace Systems updates the QN in SAP for the non Conformance detected at manufacturing or customer locations and pushes final disposition information to portal for supplier visibility
**Invoice Collaboration** allows supplier to review/submit invoices to UTC Aerospace Systems

- For products shipped to UTC Aerospace Systems, ERS (Evaluated Receipt Settlement) process creates invoices based on PO and receipt data and publishes on portal
  - Payment Status and details updated on invoice for visibility & tracking by supplier
- For non-product and repair items, invoices created by supplier and submitted online
  - UTC Aerospace Systems review and approve invoice and process payment
  - Payment status are updated after payment processing
100 - CUSTOMER DROP SHIP

- Order placed by customer (generally an OEM) to UTC Aerospace Systems
- Final assembly or finished good is at supplier location (business partner)
- Supplier physically ships the material directly to the customer
- Portal impact on this process:
  - No partial shipment or confirmation
  - Shipment in sequence
  - Additional validations during ASN Process
  - Paperwork for shipment generated by UTC Aerospace Systems backend ERP system
• **Non-product PO** do not have product number. They only have product description
  – Contain dummy part numbers for SNC integration
• Non-product PO do not have an ASN
• PO’s are generated by SRM catalog users
• Approval process follows release strategy as with normal PO’s
• Examples:
  – Office supplies
  – Cleaning products
• Portal Activity:
  – Suppliers view PO
  – Optional confirmations
  – No shipment using Portal
  – Invoice UTC Aerospace Systems after the material is shipped
• Supplier can reject non-product PO
  – Notification triggered to requester and buyer (will not update ECC PO)
SUPPLIER COMMUNICATIONS PLAN

Pilot Group
(Suppliers, buyers)

Supp. Admins
(Cleanup App)

Conference Attendees

All Suppliers

 Buyers
 (Cleanup App)  

Supply Chain

Employees

Interim Landing Page Go-Live

Portal Go-Live

Email
Cleanup App System Email
Supervisor Soundbites
UTC Aerospace Systems Intranet
Landing Page/Portal*
UTC Aerospace Systems Website
All-Hands Meeting

*Landing page messages will be promoted to UTC Aerospace Systems Supply Chain. Critical messages will be pushed to suppliers and employees via email.

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## SUPPLIER PORTAL: TRAINING PLAN

<table>
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<tr>
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<th>1202 Internal Users</th>
<th>3320 External Non-Product Users</th>
<th>4950 External Product Users</th>
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<tr>
<td>Pre Go Live</td>
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<td>Nov 30th – Jan 10th</td>
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<td>Computer Based Training (CBT) hosted by:</td>
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<td>GLP</td>
<td>External Learning Management System (LMS)</td>
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<td>Online Webinars</td>
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<td>Regional Conferences / Webinars</td>
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<td>Post Go Live onwards</td>
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<td>Computer Based Training (CBT)</td>
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<td>Post Go Live Support Team</td>
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For successful launch of portal **approximately 10K users** needed training
Train suppliers in their specific geographical region

97 - San Diego, CA
134 - Rockford, IL
203 - Windsor Locks, CT
67 - Birmingham, UK
36 - Bangalore, IN
35 - Shanghai, CN
42 - Singapore
LESSONS LEARNED

• **Portal usability consideration**
  – SAP SNC is very flexible and adaptable. Due consideration and time needs to be given to customize screens to specific business needs.
  – Feedback from Pilot supplier group is key. Ensure you have a small group of core suppliers who can provide feedback on usability and the end to end process.

• **Hands on training environment**
  – This is key to ensure supplier users have a test environment where they can try things hands on. This was very useful during the supplier conferences and users had access up until Go Live

• **Browser compatibility**
  – Ensure you test the solution and validated it with different browsers and hardware (Mac/Windows etc)

• **Volume testing**
  – Ensure that you size the system for 50% higher volume then steady state. Usage of the system in the initial stages is erratic and could hit the peak or exceed it during early Go Live stages.
  – Validate that all processes scheduled in parallel are tested. Sometimes Parallelization provides a different behavior and response

• **Integration testing and alignment with large suppliers**
  – Ensure you engage large / key suppliers earlier in the process and think of a “conversion” for those suppliers as well. This is fundamental for smooth transition.

• **Training of internal users (Buyer & Expeditors)**
  – This is key to managing and coaching the large supplier base
Thank you for your time

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