PL11589 – A PLM Case Study – Fanning the Flames of Innovation

Brian Schanen | Laurent Rains
PLM Product Manager | Product and Production Manager
@schanenb
Class summary

Join us for an in-depth case study of Autodesk PLM 360’s use with the development of Ember - Autodesk’s Spark Powered, ultra high resolution 3D printer. [https://ember.autodesk.com/](https://ember.autodesk.com/)
At the end of this class, you will be able to:

- See how Autodesk PLM 360 was quickly implemented and adopted for the Ember product
- Learn about Bill of Materials and Change Management during the Ember development process
- See how PLM 360 is used for Supply Chain, Quality, and Compliance tracking with the Ember
- Learn how Autodesk PLM 360 is well suited for next-generation customers
PLM Explained: The Problem

 “What needs to be finished before we can move to mass production?”
 “Who knows where I can find that document?”
 “Do you know if this is the latest BOM?”
 “Why does our ECO process take so long?”
 “How much is this change going to cost?”
 “Does this failure happen often?”
 “Who has to approve this ECO?”
 “Have we ever audited that supplier?”
 “Who supplies this part to us and where is the spec?”
 “Can somebody update ERP with the latest? I need to issue a PO!”
 “How do I get people to follow the process that we’ve agreed to?”
 “Does anyone know if this spreadsheet from Engineering is current?”
PLM Explained: The Solution

- Find information easily and know that it is the right version
- Run reports and find trends in data to enable better decisions
- Drive visibility and accountability through ownership
- Collect and relate information without status meetings
- Automate review processes and approvals with workflow
- Automate part information into ERP
- Give engineering visibility into ERP data
- React to your customers’ needs by integrating with CRM
- Easily find and re-use components/designs
- Collaborate easily across the entire organization
# Autodesk PLM 360 Core Capabilities

## BOM
- Document Control
- Part Classification
- Effectivity
- BOM Compare
- Octopart Integration

## Change
- Change Orders
- Change Requests
- Deviations and Waivers
- Problem Reports

## Supplier
- AVL / AML
- Supplier Auditing
- Supplier Part Costing

## Product
- Phase-Gate NPI
- Deliverables Tracking
- Status Dashboards

## Quality
- Customer Returns
- Field Failure Reports
- Non-Conformance Reports
- Corrective/Preventative Actions

## Documents
- Browser Access
- Check-in / Check-out
- Revision Controlled
- Document History
Ember Defined

- SLA DLP Projector based 3D printer
- Showcases Autodesk Spark initiative
- Resin based, open source project
  - Cures in layers 10 to 200 microns depending on materials
Why Hardware?

- To learn the connecting points from Design and Engineering…
- …to a finished Consumer product
Why PLM 360?

- 576 Components
- 55 Assemblies
- 8 Versions (so far)
- 31 Engineering Change Orders
- 100+ Suppliers
- Team of 10+ Engineers
- Multiple locations
Life Before PLM 360

- Spreadsheets
- Google Docs
- Email
- Tribal knowledge
- And confusion
Item and Bill of Materials - Importing

- Good news! The Import tool to the rescue
  - Core part of PLM 360
  - Reads .xls(x) directly
  - Note: some formatting was needed – your mileage will vary
Item and Bill of Materials – Part Numbering

- Manual part numbering is error prone
- Watch out for ‘smart numbering’
- PLM 360 can take on automatic numbering
Item and Bill of Materials – Configuring Fields

- Field, property, metadata flexibility
- Out of the box, user defined, system fields
- Hint: examine the column names in sample xls files for influence to tailor PLM 360
Revision and Lifecycle management is core to PLM 360

Revision history, Release process, BoM compare, all necessary during and after product development
Before PLM 360

- Change was manually tracked
- Spreadsheet based, emailed
Managing Engineering Change – Forms & Workflow

- Change Order Workspace only slightly modified
  - Affected Items tab
  - Change Reason Code
- Existing ECO Workflow map retained
Managing Engineering Change – Print Views

- Each Workspace has ability for ‘print friendly views’
- Compiles, formats for printing & sending
- Ideal for those not in PLM yet
Managing Engineering Change – Compare, Redline

- Compare proposed changes from production to working version
- Comparisons by date
- Compare Items to themselves or other BoMs

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Supplier Management

- Tracking Suppliers with PLM 360
  - Record which are used as suppliers
  - Approved Manufacturers List (AML)
  - Historic record or who NOT to use, and why
Compliance Tracking

- PLM used for tracking component compliance
  - RoHS
  - REACH
  - Conflict Minerals
Quality Management

- Integrate Quality link to Change Management
  - Returned Merchandise
  - Non conformance Reports