

Getting on the Same Page – Engineering tools integrating with AX or D365

This session will explain the tools that Engineering departments use (such as CAD), and how these tools can be integrated with Dynamics AX or D365 for Finance and Operations.

We'll discuss tips for getting this information into a single system of record.



Thought for the day

The more you focus on the results, the slower the process.

The more you focus on the process, the faster the results.

<https://www.alexanderdenheijer.com/quotes>



Definitions

- **ERP** – Enterprise Resource Planning
 - Accounting oriented, relational database based, multi-module but integrated, software system for identifying and planning the resource needs of an enterprise. ERP provides one user-interface for the entire organization to manage product planning, materials and parts purchasing, inventory control, distribution and logistics, production scheduling, capacity utilization, order tracking, as well as planning for finance and human resources. It is an extension of the manufacturing resource planning (MRP-II).
- **CAD** – Computer Aided Design
 - Use of computers in designing, drafting, and/or modeling parts, products, or structures.
- **PDM** – Product Data Management
 - The use of software or other tools to track and control data related to a particular product. The data tracked usually involves the technical specifications of the product, specifications for manufacture and development, and the types of materials that will be required to produce the good. The use of product data management allows a company to track the various costs associated with the creation and launch of a product. Product data management is part of product life cycle management, and is primarily used by engineers.
- **PLM** – Product Lifecycle Management
 - Tracking a specific product or service through the successive stages of its life cycle. The stages in the average product life cycle include development, introduction, growth, maturity and decline. PLM adds the capabilities to support the management and publication of product data.

*Source – [Business Dictionary](#)



PDM – Product Data Management

- Also known as CAD Vaults
- A PDM system is a secure vault for storing CAD models, drawings, BOM, and other metadata of the product.
 - Serves as a product and process knowledge repository which promotes secure data exchange and integration among all the stake holders of the value chain
- CAD stores models in hierarchical (real or virtual) folders.
- Mechanical 3D CAD models require specialized file managers — a product data management (PDM) tool — to create, edit and move file relationships.
- Item re-use often requires copying the physical file from one model to another, or coordinating several models. Most CAD vendors provide their own PDM tool for these purposes. Ability to store and find information within CAD
- PDM is the business function that is responsible for the management and publication of product data



PLM Product Lifecycle Management

- PLM is a business strategy which deals with managing the entire lifecycle of a product by integrating multiple software tools, database, and management techniques.
- A cross-organizational tool for collecting, controlling and publishing approved product configurations.
- In a PLM system, a CAD file (or set of files) is simply one of many attributes that describe the part. Non-CAD files can also be attached.
- A PLM many-to-many product structure simplifies object re-use by adding links between objects, rather than by physically copying them.
- PLM is responsible for the management and publication of product data (revision/version control).
- Product lifecycle management (PLM) is often defined as an evolutionary improvement of product data management (PDM).



PDM or PLM

- There can be overlap between PDM and PLM roles.
- In many companies, PLM and PDM tools are used side-by-side.
- A PDM system has deep knowledge about the CAD file model;
- A PLM system has broad knowledge about the product definition and relationships.



Design disciplines that go into a new product

- Design disciplines include

- industrial, mechanical, electronic and software design
- documentation and graphics for installation and use
- requirements, specifications and procedures

- Tools being utilizing

- CAD
- PDM
- PLM
- Office
- Graphics
- And production code files

Engineers Day

- Meeting(s) on product design and changes
- Creation of new product design and start the engineering work
- Create Packages for review cycles on design
- Answer questions to company colleagues, vendor and customers.



Engineering issues with tools they have today

- Hard to find components that we have used in the past
 - Those that have already been used, have in stock, have been approved, etc.
 - Do not have the capability to set classifications to parts
 - Where is that part used we used in the R&D project the other day
- Data that is in CAD has to be re-entered into the ERP system
 - We spend a lot of time doing data entry
 - Errors in data entry forces us to create ECOs to fix the error (and the circle never ends)
- Would like to see all of the information we have linked to the Items
 - CAD Models, Drawings, Design Details, Production instructions, etc.
- We have workflow in our PDM system but only Engineering is connected
 - Who made the last change to the Item and what is the current revision that production is using
 - We have to create a package and put it all together and pass to everyone via email for approvals
- Production does not see our drawing to help them produce the product
- We have a drawing number and production has an item number how do they link together?



Engineering issues with tools they have today

- Engineering and Operations work in different data systems.
 - The data exchange is slow, full of errors and redundant data.
- The process flow from Sales to manufacturing is missing
 - Who does what, when and how with what?
- Lack of traceability:
 - Who did what, when and how?
- No access to CAD drawings for all other than engineering department.
- Manually managing product variants, that needs to be approved by engineering again and again. [CFG in PLM]
- Engineering Change management within the ERP system is not an option. [PLM]
- How to manage all the product related data with one solution?
 - Item numbering, description, categorizing, etc.



What are the problems to solve?

- The need for a PLM solution is big – but for an embedded solution is huge.
- Need to have the organization involved in ECM
- Missing the tracking and overview of the change processes
- Working in different systems causes Errors, Delays, Lacking collaboration
- Manual distribution of approval documentation causes tremendous delays in the review process
- Changes that requires approval by various stakeholders/team members.



Definitions – A closer look

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*Source – [Business Dictionary](#)



- **Bluestar PLM Product Lifecycle Management**

- Product Data Management, Vaults,
- Item, BOM, 3D CAD, Routes, Workflow
- Documents – CAD, Office, Files
- Release management
- Search and Retrieval
- 3D visualization (Win, Web, VR)

- **CFG Engineering Product configuration**

- Rules based selections
- Creation of Item, BOM, 3D models, Routes
- SmartDocs

- **Business Process Management**

- Workflow
- SmartDocs
 - Smart Export packages

- **ECM Engineering and Manufacturing**

- Product Change Management, Workflow, Approvals, Revision control


- **CAD/ERP link**

- Transfer of Item, BOM, Drawings between CAD and ERP

- **QMS Quality**

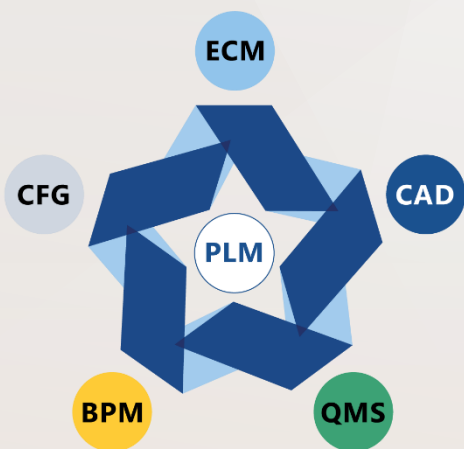
- Non-conformance, Corrective/Preventive actions,
- Supplier claims, Warranty, Returns



 Microsoft Dynamics® AX

 Microsoft Dynamics 365


AX 7
AX 2012
AX 2009
AX 4
Axapta 3



 AUTODESK

 AUTODESK
INVENTOR

 AUTODESK
AUTOCAD

 AUTOCAD MECHANICAL

 AUTODESK®
FUSION 360™

 AUTODESK®
AUTOCAD® P&ID
2017

 AUTOCAD ELECTRICAL

InventorCAM

 DASSAULT
SYSTEMES

 SOLIDWORKS

 CATIA

 DraftSight™

 SolidCAM
iMachining – The Revolution in CAM!

SIEMENS

 SOLID EDGE

 NX

Altium

 ePLAN®
electric8


 SILICONEXPERT

OrCAD
CADENCE PCB SOLUTIONS

 Mentor
Graphics **pads**
personal automated design system

 PTC®

creo™ parametric
creo™ elements/pro™

 AUTODESK®
VAULT

 SOLIDWORKS
Enterprise PDM

 ENOVIA

 TEAMCENTER

 windchill®

 ORACLE®
AGILE

Other CAD systems supported via Bluestar Multi Check-in

Bio

- Dan Fite the Director of Business Development for PDM Technology North America developer of the Bluestar PLM products. Dan's primary responsibility is product evangelist for Bluestar PLM the leading CAD/PDM/PLM connecting companies engineering and manufacturing teams via the Microsoft Dynamics AX native solution.

Dan's ERP experience spans more than 30 years with business systems including the last 20 years focusing on ERP and complementary applications. During his tenure with Dynamics AX Dan has focused on the Application Lifecycle Management with customers including acquisition, implementation, operation and optimization phases. Fite holds a Bachelor of Science Degree in Marketing and Information Systems from Middle Tennessee University.

- Register for a webinar on Bluestar PLM they are monthly. [Registration Link](#)

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