Work with Legacy Data or Data from other CAD Systems in different Ways

Manuela Zelinka  
Sr. Solution Engineer Autodesk

Rene Bosiacki  
Account Manager ITI
About the speaker

Manuela Zelinka - Autodesk Munich

Manuela Zelinka has a degree in mechanical engineering. She started her career at a SolidWorks reseller in 1997. She joined Autodesk in 2002 as a Technical Specialist in the Technical Sales Team in Munich. She has been in the CAD industry for over 20 years and brings in a lot of experience for her Presales role. Her focus is in Autodesk PD&M Collection.
About the speaker

Rene Bosiacki

Rene has been with ITI for over four years in the role of the Account Manager for European Business activities with key focus on the DACH region. Rene has extensive experience in supporting the sales process, including new business development and managing existing accounts across ITI’s CAD interoperability software solution and services product line.
Work with Legacy Data or Data from other CAD Systems in different Ways

LEARNING OBJECTIVES
• Learn how to work with data from other CAD Systems in Inventor using AnyCAD functionality
• Feature out how BREP data can be used downstream or can be edited.
• Know how to address challenges associated with CAD conversion projects
• Get to know ITI's GoToINVENTOR solution for automated feature-based CAD

AGENDA
• Terms & Definitions
• Holistic view
• CAD Data Migration
• CAD Data Exchange
• CAD Data Conversion
Terms and Definitions
**Terms and Definitions – Conversion / Migration**

**CAD Data CONVERSION - external data -**

- Take over CAD data from one CAD to another CAD system
- Geometry / solid / Breps
- Direct edit
- Feature recognition
- Feature based conversion / history / model tree
- Associative drawings

**CAD Data MIGRATION – legacy Data -**

- CAD Update
  - E.g. Version 2018 to Version 2021
- Kernel changes
- „dot“-releases
- Changing the CAD format
- ZIM (Zero Impact Migration)
Terms and Definitions – Data Referencing - AnyCAD

Siemens NX, SolidWorks, Solid Edge, PTC Creo, PTC Pro Engineer, Dassault Catia are registered trademarks
Holistic view
Reason for handle data

**MIGRATE**
- New tools
- workflows
- Zero impact strategy

**DATA EXCHANGE**
- Legacy data
- cooperation with external partners
- use of supplier data

**OTHER CAD DATA**
- Legacy data
- cooperation with external partners
- use of supplier data

**CONVERT**
- acquisition of other companies
- historically grown landscape

**CAD CONSOLIDATION**
Zero Migration Impact

Working with Inventor ....regardless wether Vault is in place...
MIGRATION IS NOT MANDATORY

- Migration happens in Memory
- open

- clean up if any corruption is found
- clean up

- do necessary changes
- edit

- Full migration starts
- save

PDM working with apprentice in background need Migration
Task Scheduler

- We have to improve
  - Still 32 bit
  - Old technologies

At time evaluation in Productmanagement
Data exchange
Common Approaches

**Direct**
- Import / conversion
- AnyCAD & selective conversion
- Neutral format for 2D

**Indirect**
- Neutral format out of source system
- Conversion to target system
- Pre- & Postprocessing (as service)

**Feature based**
- Feature Reader
- Feature Writer

**PDM/Meta Data/Properties**
- XML
- Database extract
- API

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Common Approaches

• 3D Model: Import / Referencing AnyCAD
• 3D Model: Direct Edit
• 3D Model: Feature Recognition
• Drawing: DWG Underlay (AnyCAD)
• GoToINVENTOR: Feature based conversion
3D Model: Import / Referencing

- Importing source format direct
- Assembly structure remains
- Extracting meta data (source format)
3D Model: Import / Referencing

- AnyCAD – referencing source-CAD-data
- import on demand
- Ideal for small and mid size assemblies

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<th>Format</th>
<th>Version</th>
<th>Selective Import</th>
<th>Associative Update</th>
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In the past...

Got CAD data by e-mail
Imported data and doubled files
Cleaned up the design
Insert and constrained

Oh no! A new update!
Import data from scratch
Again, cleaning up...
Delete, insert and constrain design again

AnyCAD simplifies this process
3D Model: Direct Edit

- Import Solid/body as BREP (no features, no parameters)
- Direct Edit
  - Resize Geometry
  - Delete Face
  - Move Face
  - Remove Details
3D Model: Feature Recognition

- Autodesk APP Store
- Post-feature-recognition
- Manual or automatic
- Get features / sketches

Not the recommended approach. Feature tree does not reflect the design intent.
2D Data: AnyCAD - DWG Underlay

- Reuse existing 2D for rebuild part
- Full access to all layers
- Easy to align with origin
- Changes can be done in
  - AutoCAD or
  - Inventor
Direct Conversion with ITI GoToINVENTOR
You need reusable CAD data in Inventor…

Common customer project requirements:

- Preservation of intellectual property
- RE-USE of legacy data in Inventor
- Assessment of what legacy CAD objects data need to be converted
- Analyzing the content of a customers legacy design data
- Understanding what CAD conversion options are available
- Identifying the conversion methodologies functionality/technology gaps
- Establishing a project time-line
- Determining the cost of conversion
## CAD Conversion Options

### Common conversion methodologies for a mass migration

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Pros</th>
<th>Cons</th>
</tr>
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</table>
| **BREP Conversation**        | • Economical
• Fast & Effective
• Ease of Use                                                          | • Loss of companies investment in design intellect
• Promotes internal re-mastering of previously created designs
• Provides little to no data reuse in new system                       |
| **Manual Re-Mastering**      | • Preservation Data Intelligence
• Creation of New Design Methodology
• Use of new systems functionality                                      | • Slow Process
• Labor Costs = Expensive
• Model quality control                                                  |
| **Feature Based Conversion** | • Economical vs. Manual
• Shorter migration period
• Preservation of model intelligence                                     | • Non-support of unique methods
• CAD system API incompatibility
• Model structure and function vs. newly created model                  |
Project Conversion Methods

mass CAD migration ….. Combination of methods

SOURCE CAD DATA

Archival Data
Low need for intelligence

Active Data
Must contain intelligence

Special Cases
Data selected for redesign

INVENTOR CAD DATA
GoToINVENTOR Technology

Feature Mapping Technology

A feature map is created from source data

Source CAD

CAD features are extracted from source format

Feature map drives the model creation in new format
GoToINVENTOR Migration Solution

GoToINVENTOR is the only feature-based conversion software that supports Solid Edge as a source format.

GoToINVENTOR supports associative drawing conversion.
Some Technology Challenges

GoToINVENTOR, with some limitations

Sheetmetal

Family Tables

Associative Drawings

There are several options and methods to address these common challenges
Re-Use Functionality

Parts that are used in multiple instances are ONLY converted once!

Example:
- 25 Parts in Assembly
- 10 Part Previously Converted
- 15 Unique Parts

Result:
- 10 Parts Used from library
- 15 Unique Parts Converted
- Assembly created
Advanced Migration Support

- File Naming/Renaming
- Attribute Mapping
- Customer Specific Environment Support
Value Proposition

- Support for CAD system harmonization, consolidation and standardization
- Preservation of intellectual property
- Re-use of legacy designs in Inventor
- *Automation provides up to a 75% cost savings vs. manual remastering*
- Data quality assurance
Business options

Software Licensing

Term Licensing
- GoToINVENTOR is licensed to a customer of a designated period of usage
- Maintenance and support is included in term licensing price
- 12-month term (plus installation & training)

Perpetual Licensing
- Pricing consists of an initial licensing fee plus annual maintenance
- Annual maintenance and support (MES) is 20% of the software licensing fee

ITI Conversion Services
- Cost effective option for on-demand or low-mid range volume projects
- For the client that seeks to outsource the conversion
- Multiple conversion options available (Bronze – Silver – Gold – Platinum)
- Fast delivery, no software implementation or training required by the customer
Wrap Up

• **MIGRATION** when doing a release update - Zero migration impact!

• Inventor **AnyCAD** for associative Workflows- 3D and 2D

• Inventor **DIRECT EDIT** allows you to edit non parameteric parts

• **ITI GoToINVENTOR** supports an automated feature-based conversion and preserves your intellectual property