PDM Workbench for Aras Innovator

T-Systems PLM Applications

T Systems Let's power higher performance

What is PDM Workbench?
Definition

· The PDM Workbench software connects a CAD system one-to-one with a PLM/PDM system, whereby different variants are offered for different PLM and CAD manufacturers.

· The PDM Workbench comes with an extension/plug-in to the CAD system. The CAD system acts as a client of the PLM software and functionality of the PLM system is made available in the CAD software.

· The PLM system can therefore be accessed from any client computer on which the CAD software with the PDM Workbench is installed without need of an additional PLM client UI.

· The integration provides easy operability with control by the PLM system without having to leave the familiar software environment of the CAD software. When editing CAD models, PDM information and functionality can be accessed directly.

T-Systems PLM Solutions
Our Partners

Aras Corp.

- Aras Business Partner
- Aras Solution Partner
- Reseller Agreement

Dassault Systèmes

- CAA V5 Gold Partner
- DS V6 apps Community Partner
- Service and Integration Agreement

Siemens PLM Software

- Development Partnership
- Reseller Agreement for CMI
- Service Agreement
- JT Open Partner

PDM Workbench for Aras Innovator Support (I/II)

Direct support by T-Systems by 2nd level hotline:

· Analyze use cases of customers

· Best practice and use cases from aerospace and automotive industry

· Customization support

· Fix pack releases

· Single point of contact for customer requirements

Continuously developed product:

· Support of the three latest CAD system releases
  older CAD system releases are available on request

· Support of the latest Aras Innovator releases including the latest three Service Packs,
  older Aras Innovator releases and Service Packs are supported for subscribers

· Two PDM Workbench releases are issued per year

PDM Workbench for Aras Innovator Support (II/II)

3-days Installation Support Package is available:

- Installation and configuration of an Aras Innovator environment.

- Import and validation of the Aras Innovator CAD data model.

- Basic configuration of T-Systems' PDM Workbench.

- Initial test of the environment.

- Introduction into the environment and the methodology of Aras Innovator and the PDM Workbench.

PDM Workbench for Aras Innovator
License Model and Commercial Aspects

T-Systems offers a flexible license model

- Concurrent Licenses can freely float in the network allowing flexible usage of the licenses.

- License prices are discounted based on the total installation number.

- Subscription model offers maximum flexibility: number of licenses can be annually adapted to the actual demand.

- Subscriptions can be purchased to discounted prices by combining purchase packages.

T-Systems offers Integrations for NX and CATIA V5
Benefits of T-Systems as CAD Integration Vendor

|	
Unified data model for both integrations	✓ robust and easy to maintain
Single server module with same business logic	✓ one server-side implementation for both CAD systems
Similar User Interface in NX and CATIA	✓ same user experience, reduced training costs
Similar PDM integration functionality in NX and CATIA	✓ same methodology / same approach
One single support channel for both integrations	✓ single point of contact
Project team has **direct access to CAD integration team**	✓ project requirements can directly be addressed

Integration Concept

PDM Workbench for Aras Innovator
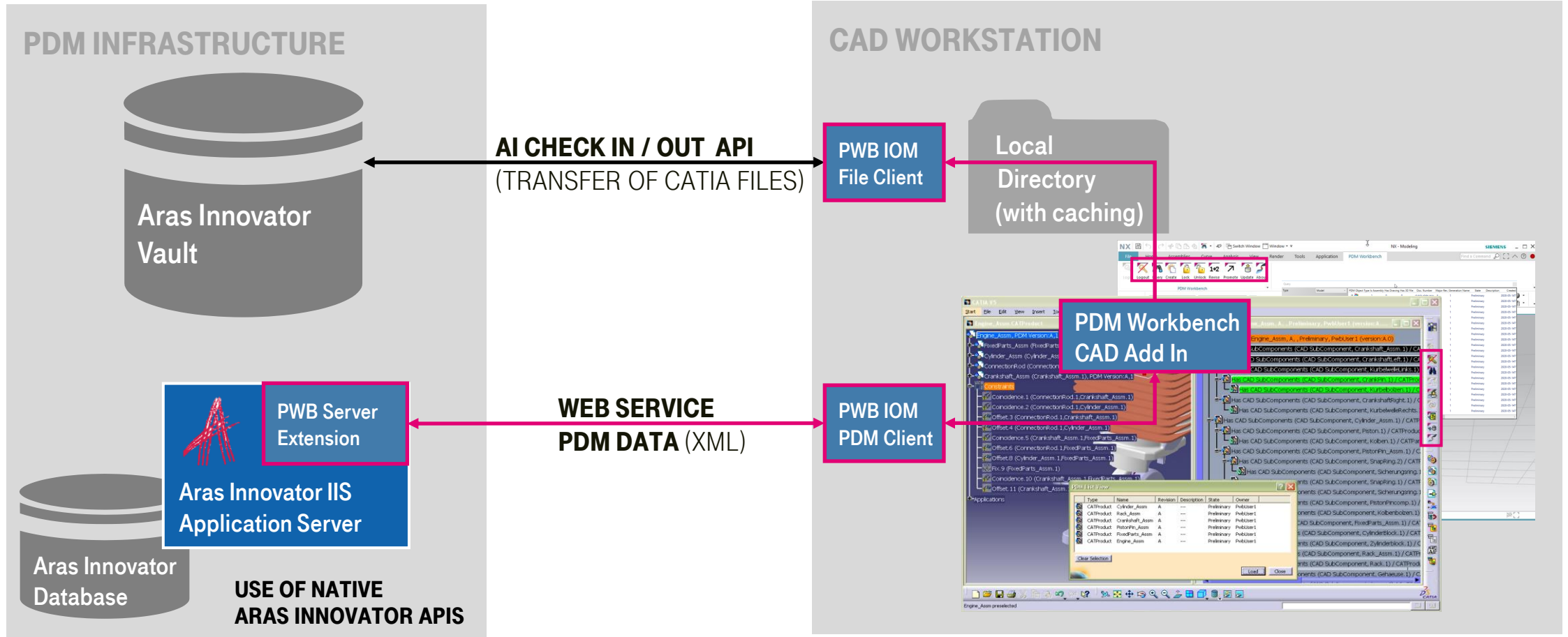# The immersive PDM Integration for CATIA V5 and NX
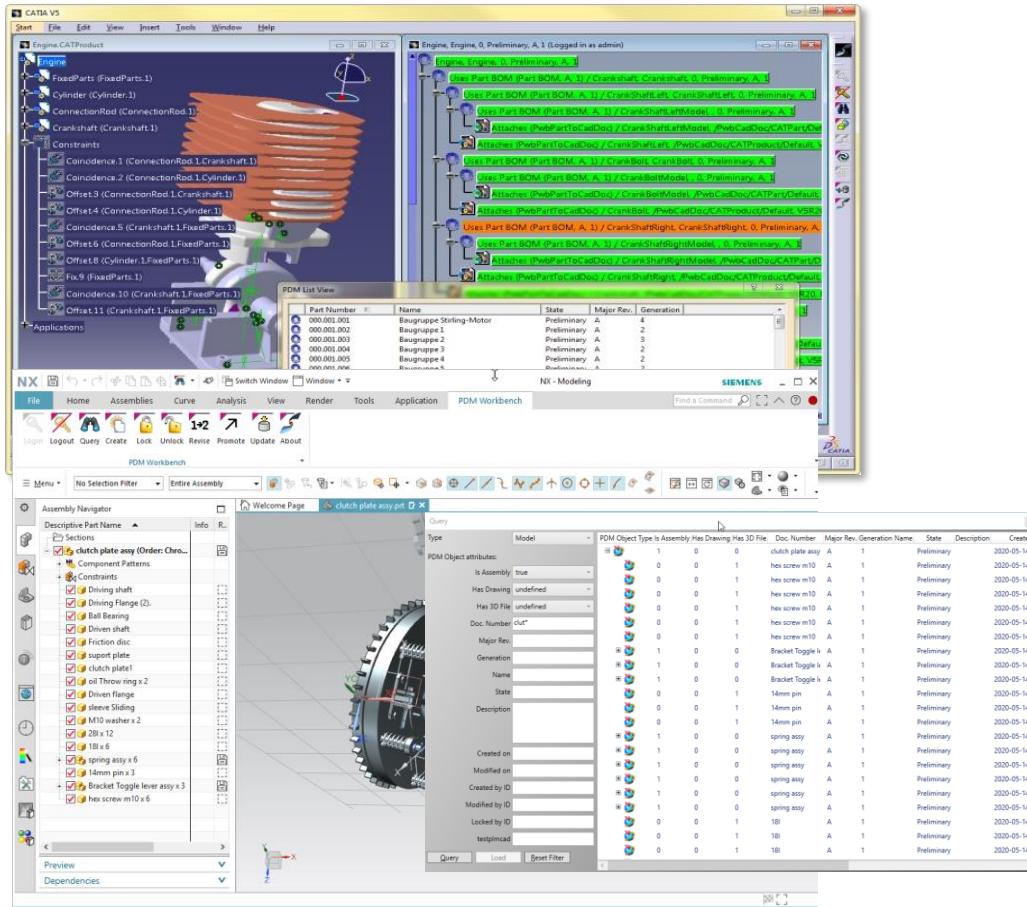
The PDM Workbench is a comprehensive integration of CATIA V5 and NX into Aras Innovator.

It enables access to and full control of CAD data through the Aras Innovator PLM system.

- Enables Aras Innovator as collaborative platform for designers

- Access to design is controlled by Aras Innovator

- The PDM workbench in CATIA/NX offers advanced PDM capabilities

- CAD files are managed in the context of PDM product structures (BOM and CAD)

- The integration can be tailored by configuration and customization

- Supports customized data models.

PDM Workbench for Aras Innovator
Architecture Overview

PDM INFRASTRUCTURE

CAD WORKSTATION

Aras Innovator Vault

AI CHECK IN / OUT API
(TRANSFER OF CATIA FILES)

PWB IOM File Client

Local Directory (with caching)

PDM Workbench CAD Add In

PWB Server Extension

Aras Innovator IIS Application Server

WEB SERVICE
PDM DATA (XML)

PWB IOM PDM Client

Aras Innovator Database

USE OF NATIVE
ARAS INNOVATOR APIS

PDM Workbench for Aras Innovator
PWB Client and Server Configuration

The CATIA Integration UI can be configured in a wide range via XLM Schema file:

- Dialogs

- Displayed attributes

- List view

- Context menus

- Available functionality

- Data model to be supported (Part or Document data model)

  StandardPartAdmin = Standard Part Administrator

  TemplateFileAdmin = Template File Administrator
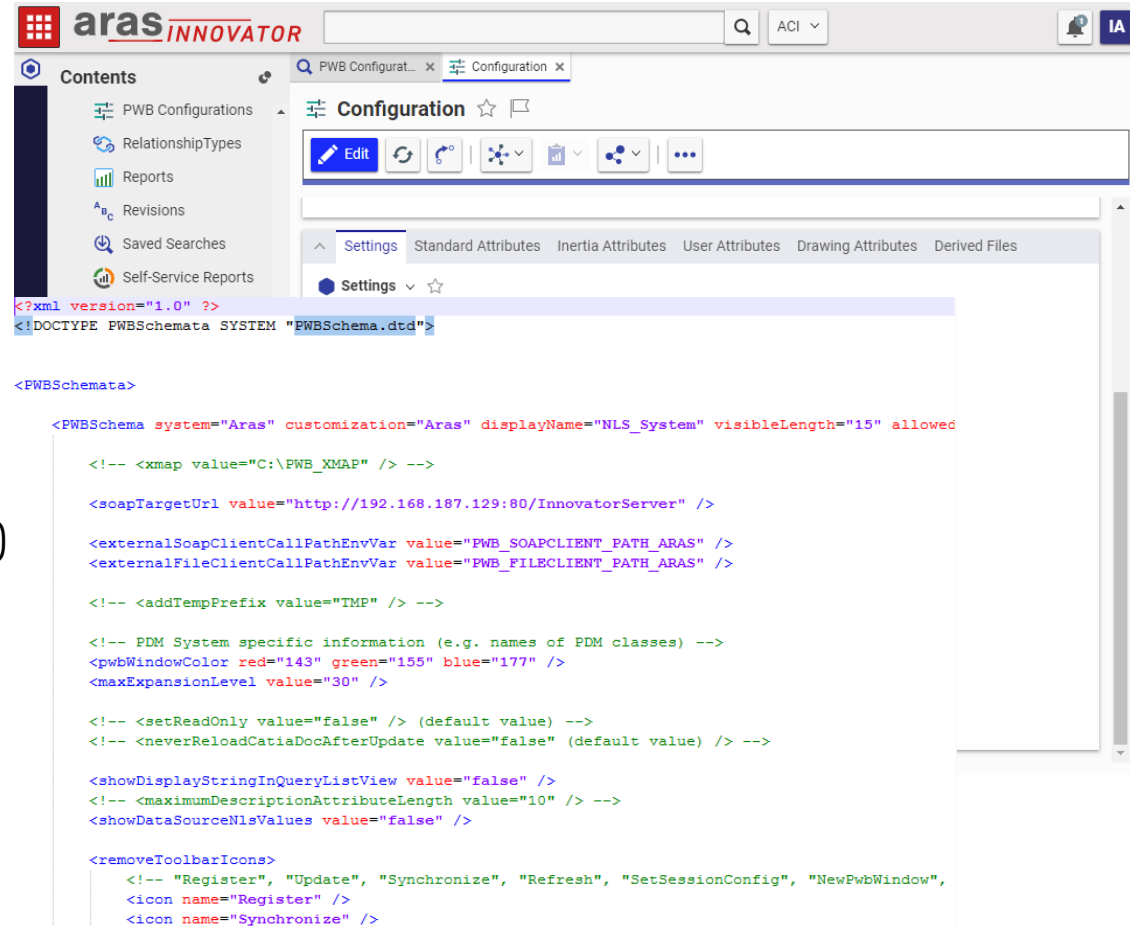
  ShowCreateDialogsDuringUpdate = false

  UpdateDerivedPdfFile = false

  UpdateDerived3DxmlFile = false

  CheckAttributeValueLength = true

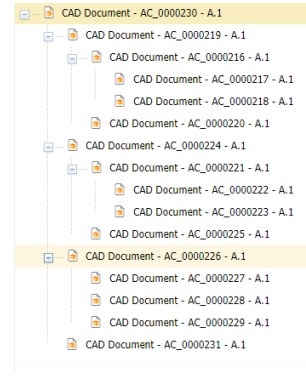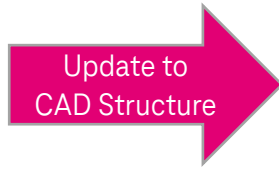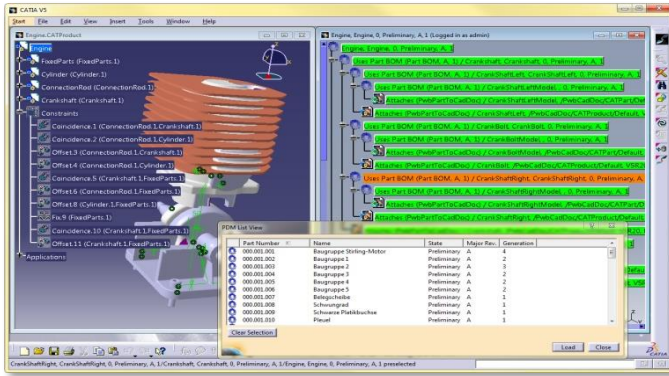 CheckForDuplicateInstanceNames = false
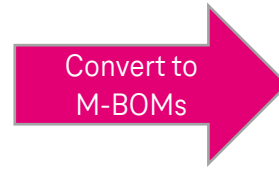
  UseDesignTables = false

  UseArchives = false

CAD Structure / Engineering Super-BOM

Sync CAD Content to EBOM

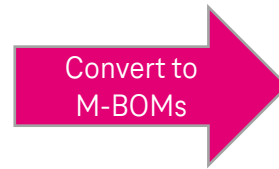Update to CAD Structure → Synchronize to E-BOM → Convert to M-BOMs

Create CAD Content in the Context of EBOM

Update to E-BOM Structure → Convert to M-BOMs

T-Systems Business Area PLM / PDM Workbench for Aras Innovator

CAD Document Structure Mode Relationships

Instances of the CAD product structure are mapped to *CAD Structure* relationships and *CAD Instances*

· *CAD Structure* is a singe relationship between a specific CAD Document (Assembly) and a specific child CAD Document

· *CAD Structure* manages all instances of this specific child part by *CAD Instances*

	Seque...	Document Nu... ↑	Revi...	Name	Type	Dependency	External Owner	State
⚑	512	AC_0000187	A	Case	Mechanical/Part	Structure	T-Systems.Mechanical.CATIA	Preliminary
⚑	384	AC_0000188	B	Screw	Mechanical/Part	Structure	T-Systems.Mechanical.CATIA	Preliminary

· A *CAD Instance* holds all information about a specific CATIA Instance, like instance name and position matrix

Sequen...	Name	Description ↑	Transformation Matrix
128	Screw.1		1 0 0 0 0 1 0 0 0 0 1 0 -35.00000000000016 -30.18101391196255 50.44062423706055 1
256	Screw.2		1 0 0 0 0 1 0 0 0 0 1 0 35.99999999999984 -30.18101391196255 50.44062423706055 1
384	Screw.3		1 0 0 0 0 1 0 0 0 0 1 0 35.99999999999984 24.81898608803745 50.44062423706055 1
512	Screw.4		1 0 0 0 0 1 0 0 0 0 1 0 -35.00000000000016 24.81898608803745 50.44062423706055 1

References

PDM Workbench for Aras Innovator
References Overview

PDM Workbench for Aras Innovator
Key References (I/II)

F.X. Meiller

Munich, Germany (Headquarter);
CATIA V5-6R2015; Aras Innovator 11 SP8
80 PDM Workbench Licenses

Magna / GETRAG

Cologne, Untergruppenbach, Germany; Goteborg, Sweden; China
CATIA V5; Aras Innovator 11
250 PDM Workbench Licenses

BAE Systems Sweden (before Hägglunds)

Örnsköldsvik, Sweden; CATIA V5
Aras Innovator 11 SP11
185 PDM Workbench Licenses

PDM Workbench for Aras Innovator
Key References (II/II)

Kawasaki Heavy Industries

Gifu, Japan
CATIA V5 R19; Aras Innovator 11 SP8
240 PDM Workbench Licenses

Leonardo Helicopters Division

Cascina Costa, Italy
CATIA V5 R22; Aras Innovator 11
50 PDM Workbench Licenses

Lear Corporation

Dearborn, United States, Spain, Germany
CATIA V5 R22, V5-6R2014, V5-6R2016; Aras Innovator 11 SP11
100 PDM Workbench Licenses

T-Systems PLM Solutions
F.X. Meiller Aras Innovator Migration Project

F.X.Meiller - Business Case

VPM to Aras Innovator migration project:

· Development of specific customer requirements

· Improved usability and performance

· Reduced maintenance costs for the PDM system

· Phase out of legacy UNIX/VPM server platforms

Locations

· Munich, Germany (Headquarter)

· Products: Dumpers, Elevator Doors

· Markets and customers: automotive and construction industry

Specific Requirements

· Enhanced query UI capabilities

· Promote and revise

· Customer specific:

　· Advanced search capabilities
　· Duplication of Parts and Drawings

Applications

· CATIA V5 R19

· Aras Innovator 11 SP8

· 80 PDM Workbench Licenses

T-Systems PLM Solutions
Customer Reference Project @ MAGNA GETRAG

GETRAG Ford Transmissions - Business Case

- Provision of PDM Workbench standard product
- Teamcenter Engineering to Aras Innovator migration project
- Multi-CAD Environment
- CAD-Data Exchange Solution
- Development of specific customer requirements
  → Functionality becomes part of standard product

Locations	Specific Requirements	Applications
- Cologne, Germany - Goteborg, Sweden - Untergruppenbach, Germany	- CAD Document Structures - Single Sign On - Thumbnails - Steering of Generations	- CATIA V5 - Aras Innovator 9.3 - 250 PDM Workbench Licenses

T-Systems PLM Solutions
BAE Systems Aras Innovator CATIA V5 Integration Project

BAE Systems - Business Case

Replacement of home grown PDM system (PDA):

· Development of specific customer requirements

· CAD BOM alignment UI in CATIA

· Security concepts (ITAR)

· STEP import

Locations

· Örnsköldsvik, Sweden

Specific Requirements

· Q-Checker integration

· Alternative and derived CAD file management

· Customer specific:

  · Document and Part types
  · Type dependent expand

Applications

· CATIA V5 R24

· Aras Innovator 11

· 185 PDM Workbench Licenses

T-Systems PLM Solutions
Customer Reference Project @

Kawasaki
Powering your potential

Kawasaki Heavy Industries - Business Case

Replacement of legacy Dassault Systèmes PDM system VPM:

· Development of specific customer requirements

· Support of migration with specific tools and PDM Workbench functionality

· For large scale airplane programs

· Large-scale assembly DMU

Locations

· Gifu, Japan

Specific Requirements

· Serial number filtering

· Compare Structure Tree

· Representation Type filter

· Support for migrated V4 documents

· Enhanced Query Functionality

Applications

· CATIA V5 R25

· Aras Innovator 11

· 240 PDM Workbench Licenses

T-Systems PLM Solutions
Central eBOM project @ LEONARDO HELICOPTERS

Leonardo Helicopters Division - Business Case

- Setup of a central Aras Innovator instance to manage configured product structures for a multitude of helicopter lines

- Transfer all relevant information for eBOM management from multiple sources into one system

- Potential for central cross-over (multi-line) part management

- Potential for multiple BOM management (pBOM, mBOM etc.)

Solution

- Data synchronization with COMPDM from Enovia VPM V4 to Aras Innovator (initial and delta) incl. configuration data, maintaining reference to source system

- Store customer orders persistently in Aras incl. history (interface to SAP)

- Synchronize parts, CAD models (CATIA V4/V5), documents, EO, effectivities and merge into single data model

- Detect MUL* structures and register MUL master in Aras

- Customization of CATIA V5 to Aras Innovator integration

Installation Base

- 6 helicopter programs

- Potential rollout in Leonardo Group

- 50 PDM Workbench Licenses

- COMPDM to serve VPM to Aras data exchange

*MUL = multi-line components and structures

T-Systems PLM Solutions
Customer Reference Project @ CERN

CERN - Challenge

- New central Product Lifecycle Management (PLM) platform supporting the CERN engineering department with the Lifecycle Management of components
- Support of current and future business processes
- Seamless integration of multi-CAD systems
- Extensive data migration from legacy systems
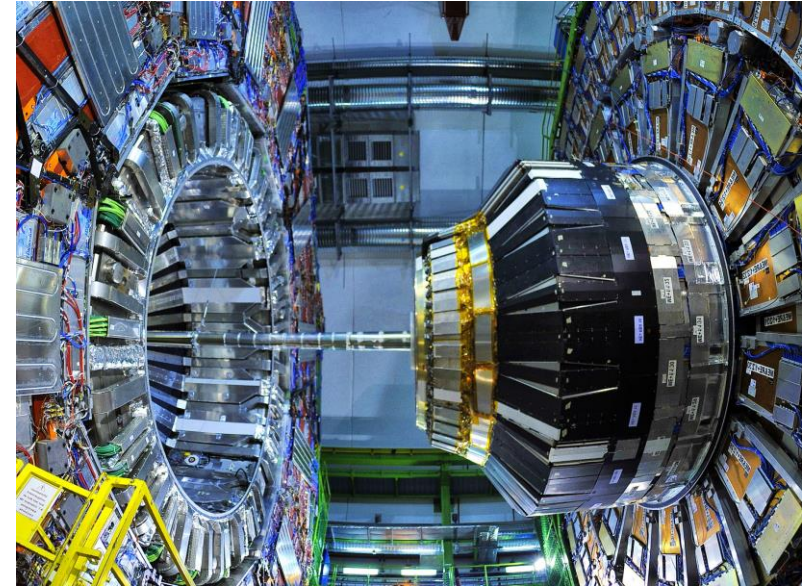
Solution

- New PLM platform based on the web application **Aras Innovator**
- Agile implementation project with GIT hub, Docker and Continuous Integration (CI) environment to support CERN business processes such as Versioning, Workflow and Lifecycle in a generic way
- Seamless integration to the CAD system CATIA V5 with custom icons, tooltips and node text in CATIA Product Structure Nodes
- E2E service (implementation, consulting, migration, training & support service)

Customer Benefits

- Highly flexible PLM platform
- Open for customizations done by CERN
- Unlimited number of Aras PLM users
- „Team mode" collaboration model with continuous knowledge transfer to CERN
- Support and release management secured over 10 years

T-Systems PLM Solutions
Customer Reference Project @ OHB

OHB-System - Business Case

- Aras Innovator as new central PDM solution for design
- Two separate installations for two divisions

Solution

- CAD Document Data Model with customized BOM Synchronization

Installation Base

- Aras Innovator
- 400 PLM users
- 10 CATIA V5 users

T-Systems PLM Solutions
Customer Reference Project @ DENSO

DENSO International America, Inc. (DIAM)

Challenge

- CAD Data Sharing to DENSO NA business and plant users using Aras Innovator
- Teamcenter is the source for all CAD data (2D, 3D, JT, etc.)

Full sized synchronization of Teamcenter and CAD data in Aras Innovator for a significant improvement of the engineering processes.

Best Solution

- T-Systems provides services and a toolset to perform the integration incl. a compound documentation of success
- Definition and implementation of dedicated integration processes executed with the T-Systems product PDM WebConnector, incl. process monitoring and reporting
- Implementation of complex uses cases and business rules (e.g.: dependent parts, CGM) in order to ensure the full consistency across the systems
- Visualization of native CAD data (NX, CATIA) using PDM Workbench

Customer Benefits

- Complete toolset for PDM and CAD integration from one hand incl. reconciliation and visualization.
- Deep-dive traceability on process and object level
- Smooth and flexible transition of data and resilient system co-existence
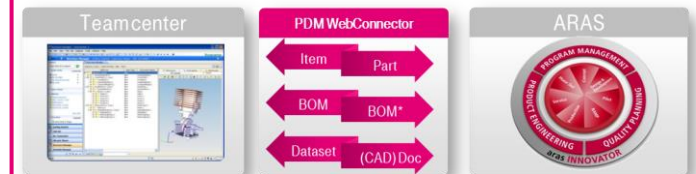
Roadmap

PDM Workbench for CATIA V5 and Aras Innovator Roadmap 2022/2023

Software Version	Delivery Date	Supported Platforms	Base Software	Functionality/Changes
PDM Workbench Release 17.0	May 2023	CATIA / NX client: Windows 10 (64 Bit)[3] Aras Innovator Server: Server OS and database see respective "Aras Innovator Installation Guide" in chapter "Prerequisites"	Supported PDM systems: · Aras Innovator 12 SP09 · Up to latest available SP[2] · Aras Innovator 22 and higher[1] please check on: https://www.aras.com/en/roadmap	· t.b.d. – input from customers is welcome! · CATAnalysis Support · Support of complex workflows in CATIA PDM Client · CAD-centric mode: Load CAD Structures using instance information from CAD Assembly file
PDM Workbench Release 16.0	October 2022		Supported CATIA V5 versions: · V5-6R2022, V5-6R2021, V5-6R2020 V5-6R2019, V5-6R2018, V5-R2017 · other releases on request (oldest version: R19) Supported NX versions/builds: · 1953, 1899, 1872, 12, 10 · other versions on request (oldest version: 10)	· Comprehensive support of all kinds of CATIA links with save and load · Support of additional shape representations at CATProducts and CATParts · Support of Multi-Shape CAD for Part BOM mode · Update with Reconnect for NX · Replace with other version of same file in CATIA session · Custom versioning of a CAD Document per 'Claim' Action

[1] With availability (+6 weeks after issuing)
[2] On demand
[3] Only for CATIA V5 releases which are officially supported by Dassault Systèmes as target platform

PDM Workbench for Aras Innovator
Roadmap 2021/2022

Software Version	Delivery Date	Supported Platforms	Base Software	Functionality/Changes
PDM Workbench Release 15.0.1	March 2022	CATIA / NX client: Windows 10 (64 Bit)[3] Aras Innovator Server: Server OS and database see respective "Aras Innovator Installation Guide" in chapter "Prerequisites"	Supported PDM systems: • Aras Innovator 12 SP09 • Up to latest available SP[2] • Aras Innovator 17 and higher[1] please check on: https://www.aras.com/en/roadmap Supported CATIA V5 versions: • V5-6R2022, V5-6R2021, V5-6R2020 V5-6R2019, V5-6R2018, V5-R2017 • other releases on request (oldest version: R19) Supported NX versions/builds: • 1953, 1899, 1872, 12, 10 • other versions on request (oldest version: 10)	• Automatic Save of PWB Session File • SSO: Use custom Login Token Provider • Custom Row in Update Dialog • Optional Refresh before Update • PDF Creation for 2D in NX • Align CAD Structures with multiple versions of the same CAD
PDM Workbench Release 14.0	May 2021			• PDM status information in the CATIA tree • Selection Dialog with "Open in CATIA" from the Aras Innovator Client • Allow mapping of Part and CAD property to the same CATIA Standard attribute • Duplicate Structure enhancements • Use Tooltip for Attributes in PDM Workbench Dialogs • Support of Aras Innovator in AICD (Cloud) environment • Explicit display and control of 'AsSaved' and 'Current' expand resolutions

(1) With availability (+6 weeks after issuing)
(2) On demand
(3) Only for CATIA V5 releases which are officially
    supported by Dassault Systèmes as target platform

Thank you!

T Systems

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