



3DEXPERIENCE® CONFERENCE

SEPTEMBER 14-15
DARMSTADT | GERMANY

BREAK OUT SESSION 3DEXPERIENCE OPENNESS & INTEGRATION

Dr. Tom-David GRAUPNER,
ENOVIA Senior Sales Director
Dassault Systemes



3DEXPERIENCE OPENNESS & INTEGRATION

• September 14th 2022

- **Platform Openness – Importance, technologies and partner solutions at a glance**
Dr. Tom-David Graupner, Dassault Systemes
- **3DEXPERIENCE Integration to SAP ECC and SAP S/4HANA**
Horst Heckhorn, CENIT AG
- **3DEXPERIENCE Enterprise Integrations powered by TECHNIA's Integration Framework (TIF)**
Martin Nölle & Marcus Larsson, TECHNIA GmbH

• September 15th 2022

- **Cloud-Cloud-Coupling by using SCHWINDT's vierS Cloud**
Dr.-Ing. Ralf Seidler, SCHWINDT DIGITAL GmbH
 - **Migration from ENOVIA Smar-Team to 3DEXPERIENCE under the usage of the xPDM adapters at Preh GmbH**
Sebastien Chaumiole, Valexcon GmbH
 - **PROSTEP's cloud and on-prem 3DEXPERIENCE solutions for data exchange, integration and collaboration**
Daniel Wiegand & Dr. Mirko Theiß, PROSTEP AG
- A customer project showcase: Breaking the silos with 3DEXPERIENCE Openness technology**
Patrick Aretz & Svilen Georgiev, T-Systems International GmbH



3DEXPERIENCE®

PLATFORM OPENNESS

IMPORTANCE, TECHNOLOGIES AND PARTNER SOLUTIONS AT A GLANCE

Dr. Tom-David Graupner
ENOVIA Senior Sales Director

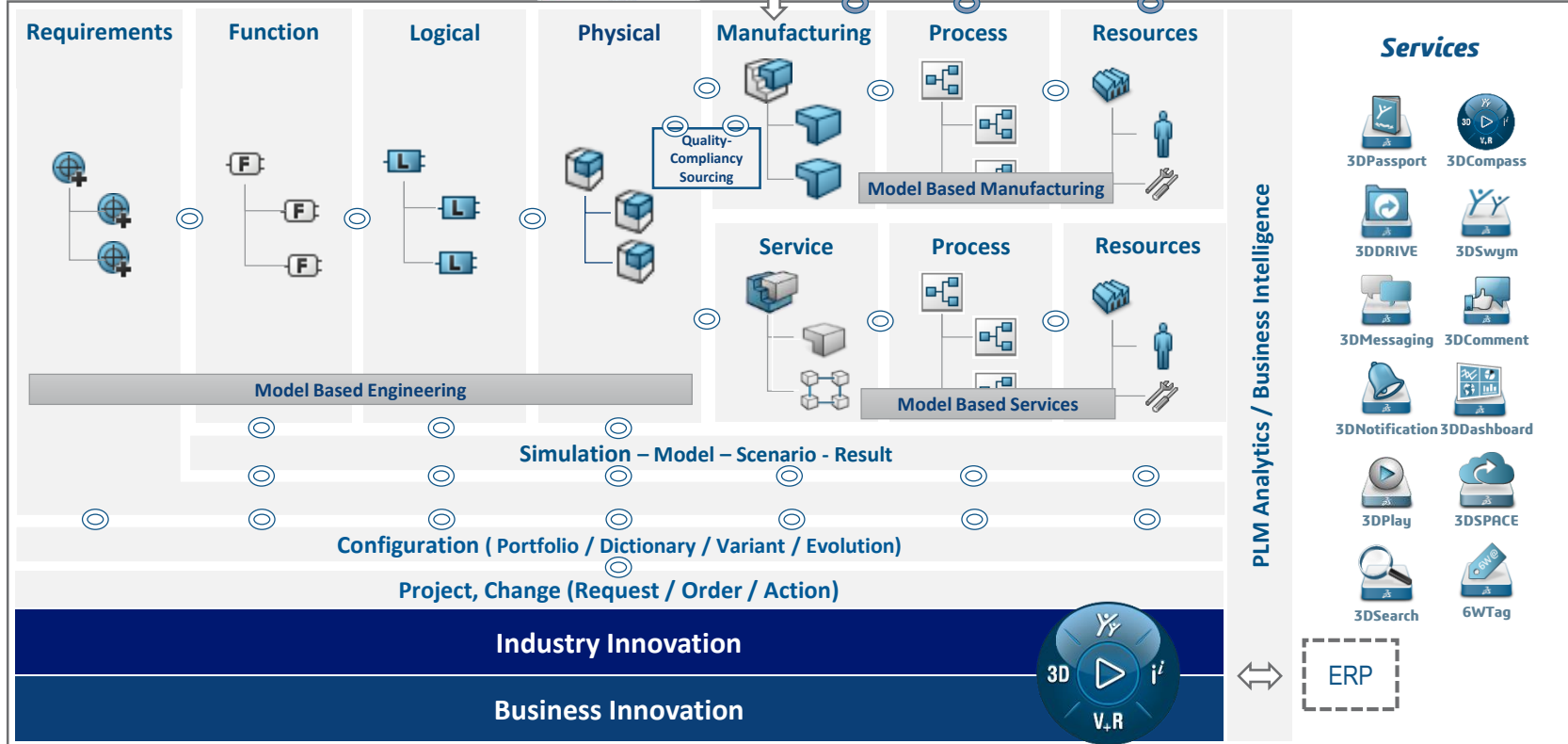
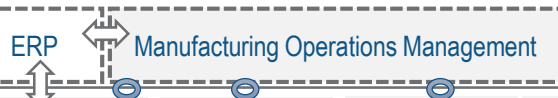
 **DASSAULT
SYSTEMES** | The 3DEXPERIENCE® Company



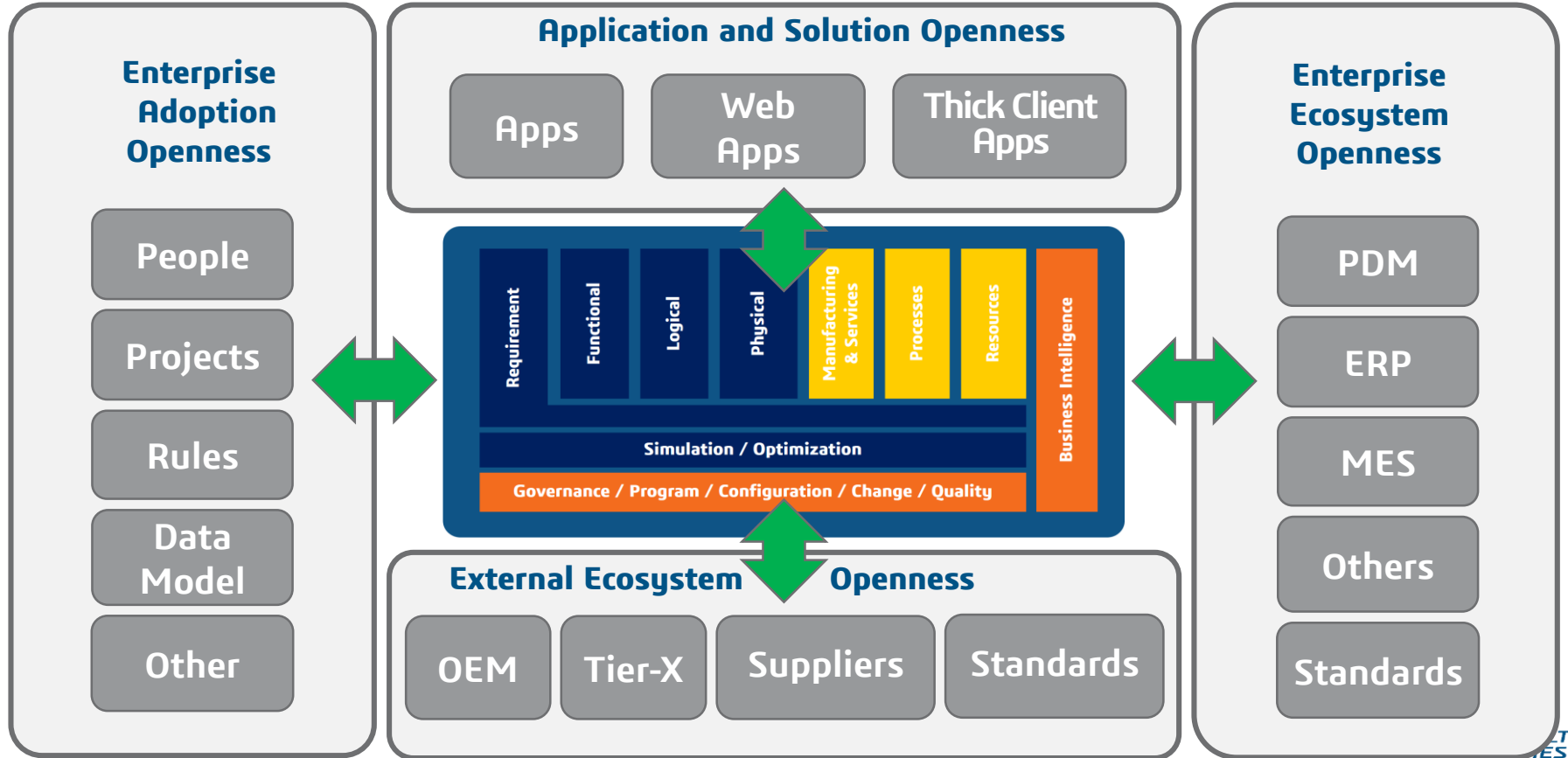
PLATFORM OPENNESS OVERVIEW

3DX CONCEPTUAL

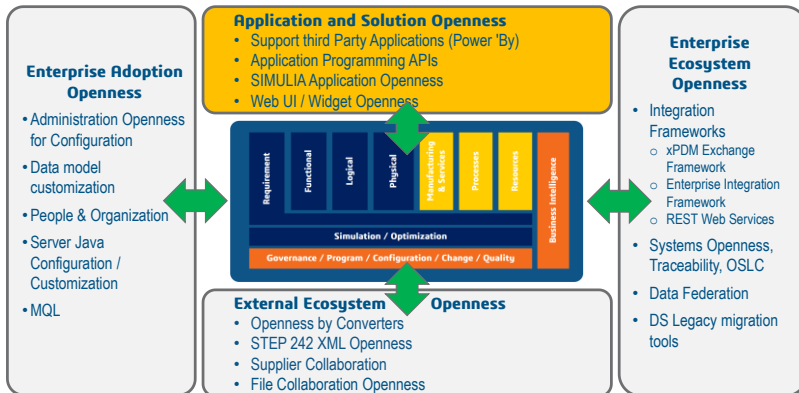
DATA MODEL



3DEXPERIENCE COLLABORATIVE SOLUTIONS OPENNESS



APPLICATION AND SOLUTION OPENNESS



APPLICATION AND SOLUTION OPENNESS

Power'By Collaboration

Application Programming APIs

Web UI / Widget Openness

Process Connectors for 3rd Party CAE Tools

POWER' BY OPENNESS | FROM DEC TO UPS

Designer Central (DEC)-Integration

Data Model Coexistence

- xCAD Foundation to manage external CAD with CAD connectors
- Partially Model-based
- Change Management
- No Multi CAD-DMU
- Available on Prem

E. g.: X-CAD Designer for NX (DEN)

3DEXPERIENCE Power'By

Unified Product Structure (UPS) on VPLM Data Model

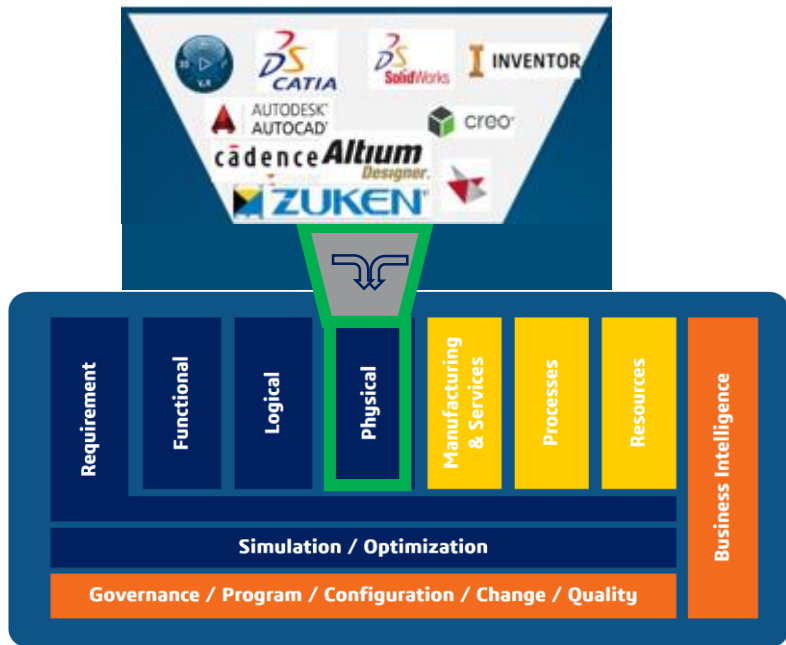
- Multi-CAD Structures
- ECAD integration
- Fully model-based
- Native usage of all supplemental 3DEXPERIENCE APPs on xCAD data without Synchronization
- Configured Hybrid Design
- Available on Cloud & on Prem

E.g. Collaborative Designer for NX (UDN-OC + UDN)

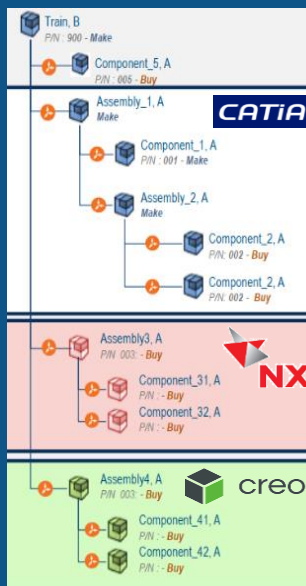


3DEXPERIENCE POWER' BY

Connecting Data, Disciplines & Processes with full supplemental Design for Model-based Design



POWER'BY OOTB CONNECTORS



COLLABORATIVE DESIGN REVIEWS

- Conceptual / Trade Studies
- Detailed
- Issue Management
- Weight Management

COLLABORATIVE ENGINEERING

- EBOM
- MBOM
- SBOM

COLLABORATIVE SOURCING

- Part Rationalization
- Design Reuse
- Cost Management

COLLABORATIVE QUALITY MGT

- Materials Compliance

PLM COLLABORATION DESIGNER FOR NX



The CA is then activated via the WorkUnder function and opened into an NX session from the dashboard.

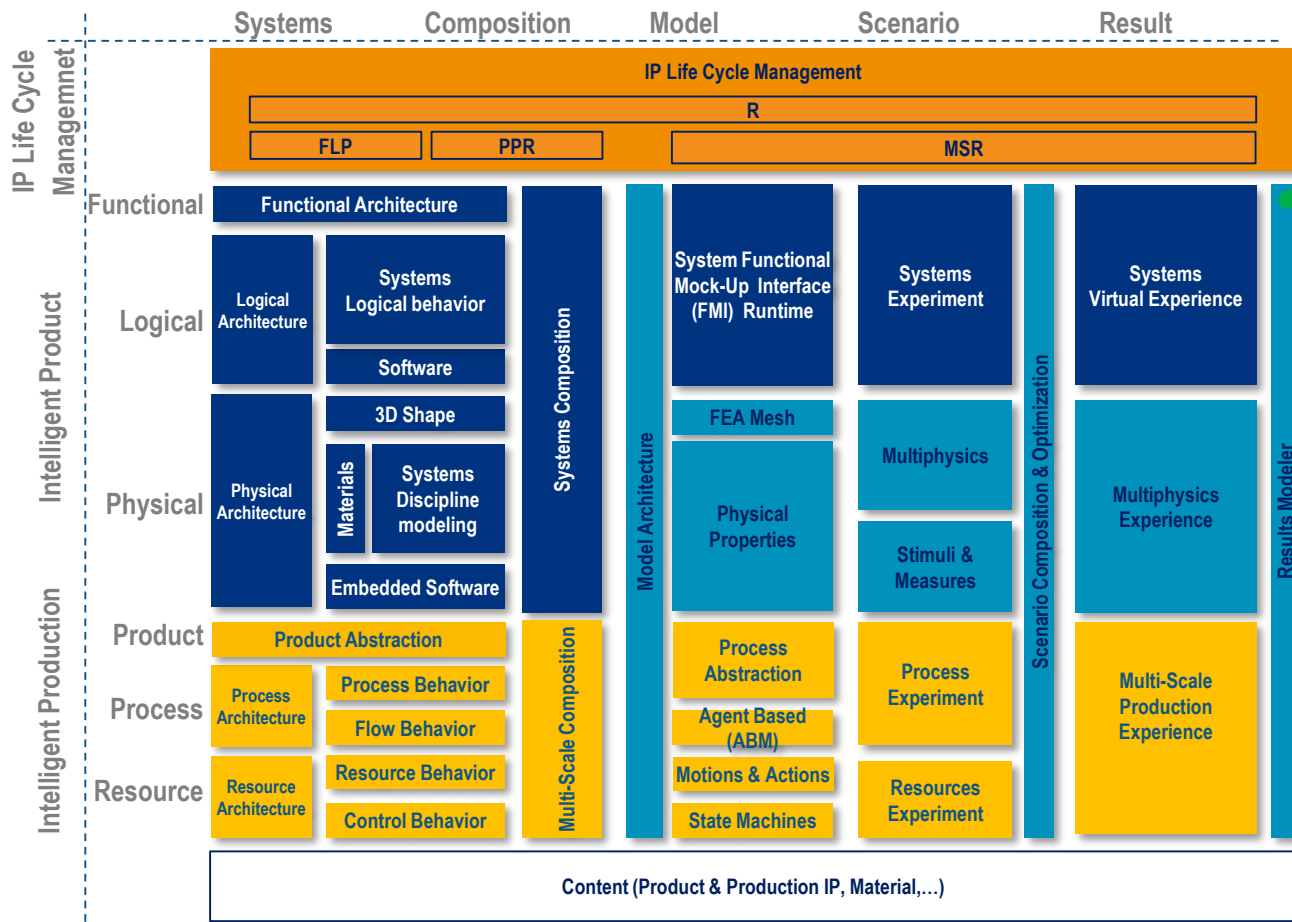
About 3DEXPERIENCE platform

MODEL CONNECTORS ON PREM & ON PUBLIC CLOUD

For Bidirectional CAD-Data Exchange

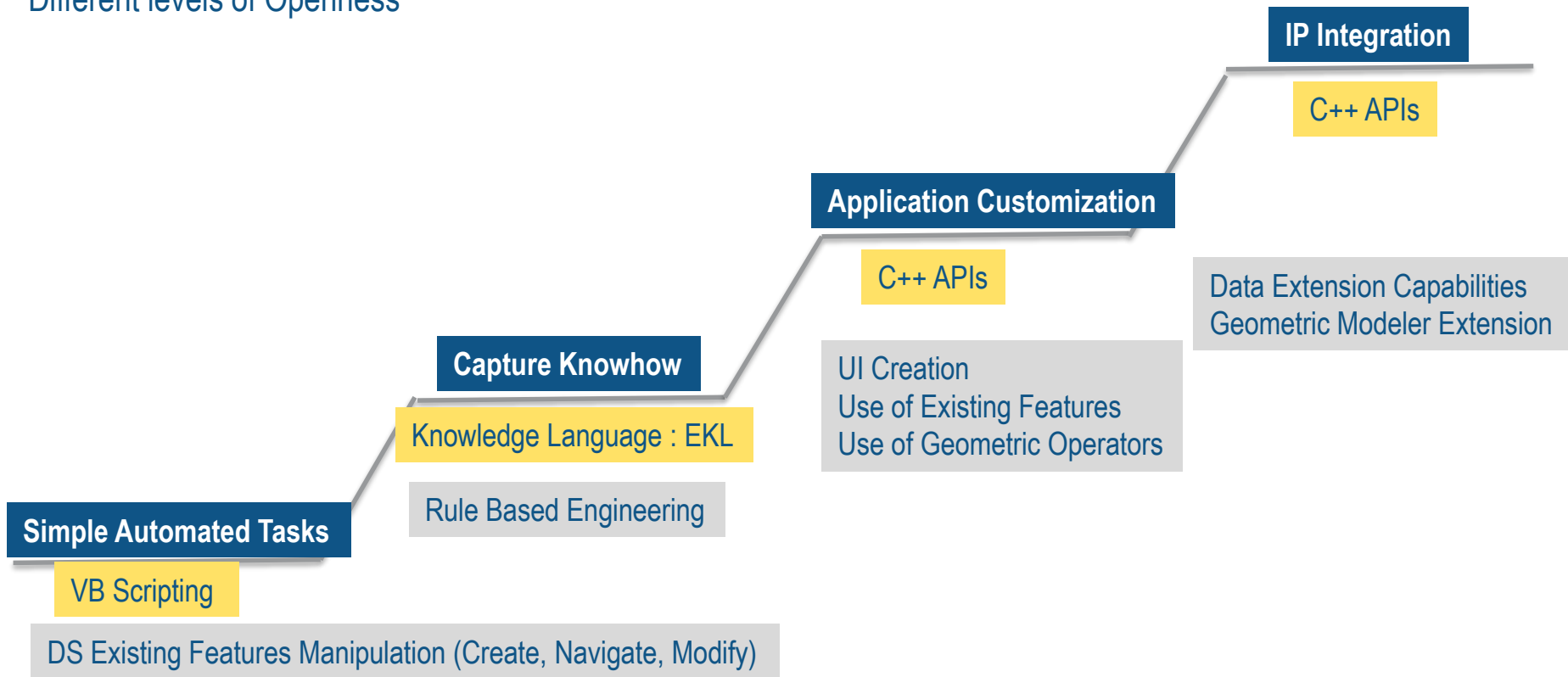
UDA-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for AutoCAD	3DEXPERIENCE R2022x	GA
UDI-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for Inventor	3DEXPERIENCE R2022x	GA
UDN-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for NX	3DEXPERIENCE R2022x	GA
UDO-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for Creo Parametric	3DEXPERIENCE R2022x	GA
UDR-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for DraftSight (OC only)	3DEXPERIENCE R2022x	GA
UDT-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for Altium Designer	3DEXPERIENCE R2022x	GA
UE5-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for CATIA V5	3DEXPERIENCE R2022x	GA
UEC-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for Cadence Allegro	3DEXPERIENCE R2022x	GA
UEG-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for Solid Edge	3DEXPERIENCE R2022x	GA
UES-OC	Public Cloud 3DEXPERIENCE Open	Collaborative Designer for SOLIDWORKS	3DEXPERIENCE R2022x	GA
-	Developed by Zuken	Zuken Integration	3DEXPERIENCE R2022x	
-	Developed by EPLAN/CIDEON	EPLAN Integration	3DEXPERIENCE R2022x	
-	Developed by DS	MENTOR Integration	3DEXPERIENCE R2022x	In prep.

APPLICATION PROGRAMMING APIS COVERAGE BY BRANDS



APPLICATION PROGRAMMING LANGUAGES

Different levels of Openness



DEVELOPER ASSISTANCE

APIs, REST-Services, WebServices

The screenshot shows a web browser window with the URL <https://media.3ds.com/support/documentation/developer/R2022x/en/DSDoc.htm?show=CAAWebAppsJSWidget/CAAWebAppsTaWidgetLoading.htm>. The page title is "Developer Assistance" and it features a search bar with the text "Ready to search". The main content area is titled "Widget and Resources Loading Principles" and is categorized as a "Technical Article".

Abstract
This article explains how your widget page, hosted on any server, is transformed before being loaded in a dashboard. You will learn what does it implies for the loading of its resources (js,image,json,...). But firstly some generalities are recalled to put in place the main issues.

- About Web Application
 - Web Page and Resource Files
 - Access Issues
 - Widget Page Loading
 - New 3DDashboard Web Page
 - Secured 3DDashboard Domain
 - Widget Compilation
 - Widget Resource Loading
 - In Short
 - References
 - History

About Web Application
Let's start by some generalities about the web application.

Web Page and Resource Files
A web application is an HTML file (named web page) loaded in a browser. Usually the web page is not self content. It means it requires other resource files as JavaScript, image, JSON, plain text and so one. These resources can be located on the server hosting the web application as on another ones.

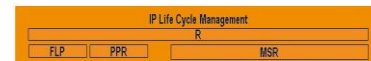
Fig.1 Web Page and Resources Location

```
graph TD
    Browser[SURLServerX/mywebapp] -- 1 --> WebApp[Web App (running)]
    WebApp -- 2 --> ServerY[Server Y]
    subgraph "Write absolute URL"
        WebApp
        ServerY
    end
```

CAA2 Partners

Partners	SW Vendor	Product	VS Partnership
	TransCAT	CAVA	SW Partner
	ForceFive	FCM	Adapter
	Human Solutions	Ramsis	Adapter
	TransCAT	Qchecker	SW Partner
	DCS	JDCS Analyst	GOLD
	MSC	Sim Designer	GOLD
	LMS	Virtual Lab	GOLD
	ALTAIR	Hypershape CATIA	Adapter
	Geometric		SW Partner
	CENIT	FastTrim V5	GOLD
	Theorem Solutions	MultiCar JT 3dmi Plug-in	SW Partner

Open for Partner



+16,000 published C++ Services

+37,000 published Java APIs

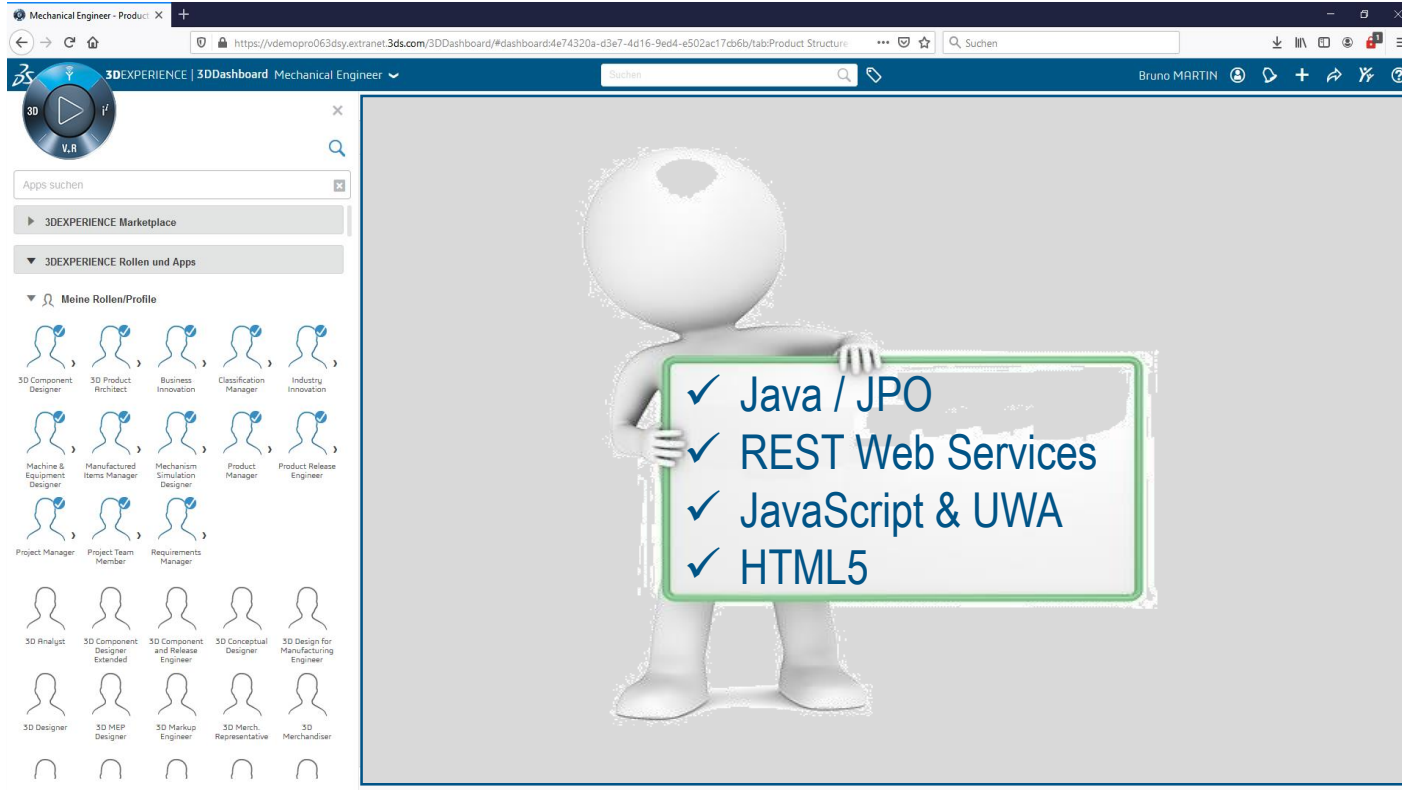
3DEXPERIENCE Platform Web Services

REST

Apache TomEE

DEVELOP YOUR OWN WIDGETS

Based entirely on open Internet Standards



DS WIDGETS: 3DEXPERIENCE DEMO CENTER (DS-INTERNAL)

Dassault Systèmes has developed hundreds of widgets for its own purposes

The screenshot displays the 3DEXPERIENCE SWYmrs home page. The interface is divided into several sections:

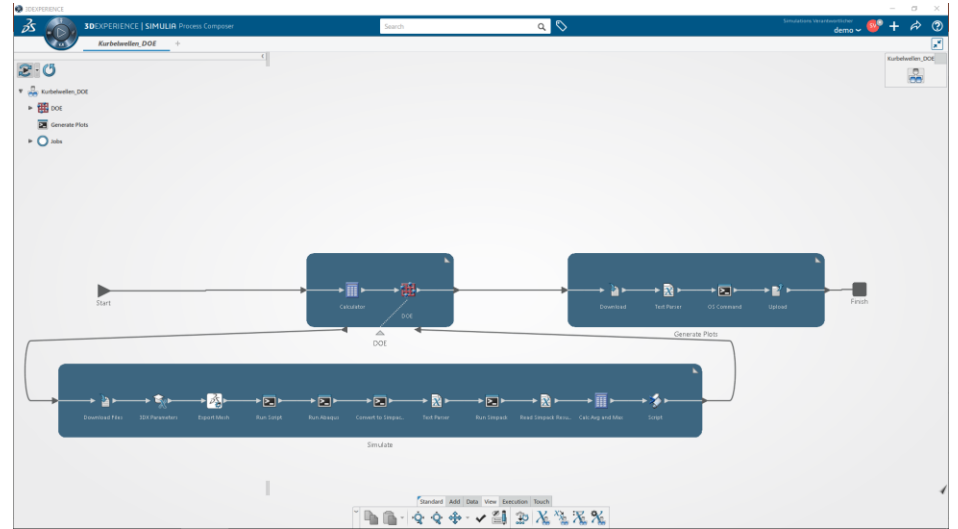
- Navigation:** Includes 'ME', 'COMPANY', and 'WORLD' tabs, along with search and settings icons.
- Meine Rollen:** A section for user roles, currently showing 'Als Betriebsunterstützungssystem' and 'Als Geschäftsmodell'.
- Meine Favoriten-Apps:** A grid of application icons including My Compass, 3DDrive, 3DEXPERIENCE University, Collaborative Tasks, Sales Compensation, My Cockpit, Expense Report, Collaboration & Approvals, My Journey, Project Planning, My Client Engagement, 3DSuym, Scope of Work, Forwards, EXPERIENCE Center, People 360, and People Support.
- Meine Apps:** A grid of application icons including 3D Markup, 3DDashboard, 3DDrive, 3DEXPERIENCE University, 3DLean, 3DPlay, 3DPlay, 3DPlay, 3DSearch, and 3DSketch.
- EXPERIENCE Center:** A central section with 'Home' and 'Catalog' tabs. It features a search bar and a prompt: 'Use the 6WTags and the Platform Search engine to find the environment you need.'
- 29 Matching Environments (29 Demo):** A table listing various environments with columns for Focus, Targeted Industries & Featured Brands, Environment Name, and Release. Each row includes a 'Request' button and a 'Wiki' link.

Focus	Targeted Industries & Featured Brands	Environment Name	Release
Industrial Equipment	ENOVA	Industrial Equipment Playgrounds On Cloud	3DEXPERIENCE R2022x
Industrial Equipment	ENOVA, SMS	Digital Equipment Continuity with SOLIDWORKS	3DEXPERIENCE R2022x
Industrial Equipment	ENOVA, DELMIA	Ready To Make: End to End Manufacturing Story	3DEXPERIENCE R2022x
Industrial Equipment	+3	Concurrent Equipment Engineering: Bottle Blowing Machine Optimization	3DEXPERIENCE R2021x
Industrial Equipment	GRIP, ENOVA, SIMILAR	SMARTYRE, drop 2	3DEXPERIENCE R2021x
Industrial Equipment	ENOVA, SOLKITE, NETVIBES	Instant Equipment Showcase	3DEXPERIENCE R2021x
Industrial Equipment	GRIP, ENOVA, SIMILAR	Integrated Heavy Machinery	3DEXPERIENCE R2021x
Industrial Equipment	GRIP, ENOVA, DELMIA, NETVIBES	Keep Them Running: Building Equipment, drop 2	3DEXPERIENCE R2021x

PROCESS CONNECTORS FOR 3RD PARTY CAE TOOLS

SIMULIA Process Composer Capabilities

- Graphical Process Builder
- Exchange data and execute
 - DS applications, and
 - External Applications
- All processes types
 - “Man-in-the-loop”, or
 - automated



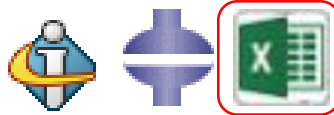
PROCESS CONNECTORS FOR 3RD PARTY CAE TOOLS

An example: Automated multiple execution of MS Excel macros for DoE studies

Tools & Utilities



External Apps



3DX Platform Apps



Design Drivers



Excel® Editor

Excel

Select Excel file

Content: Doc-000069

File name: Demo.xlsx

Mappings: Macros Advanced

Display cell formatting Review mapped cells in Excel

Demo.xlsx

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	Length	100													
3	Width	500													
4	Area	17000													
5															
6															
7															
8															
9															
10															

Map parameter

From Simulation Activity to Excel From Excel to Simulation Activity

Range: Click a non-empty cell or type a range Parameter: Type or click toggle button to create or select

Parameter	Action	Sheet	Range	Range name	Dim.Order
Width	Map from Excel	Table1	C3		Automatic
Area	Map from Excel	Table1	C4		Automatic

OK Apply Cancel

PROCESS CONNECTORS FOR 3RD PARTY CAE TOOLS

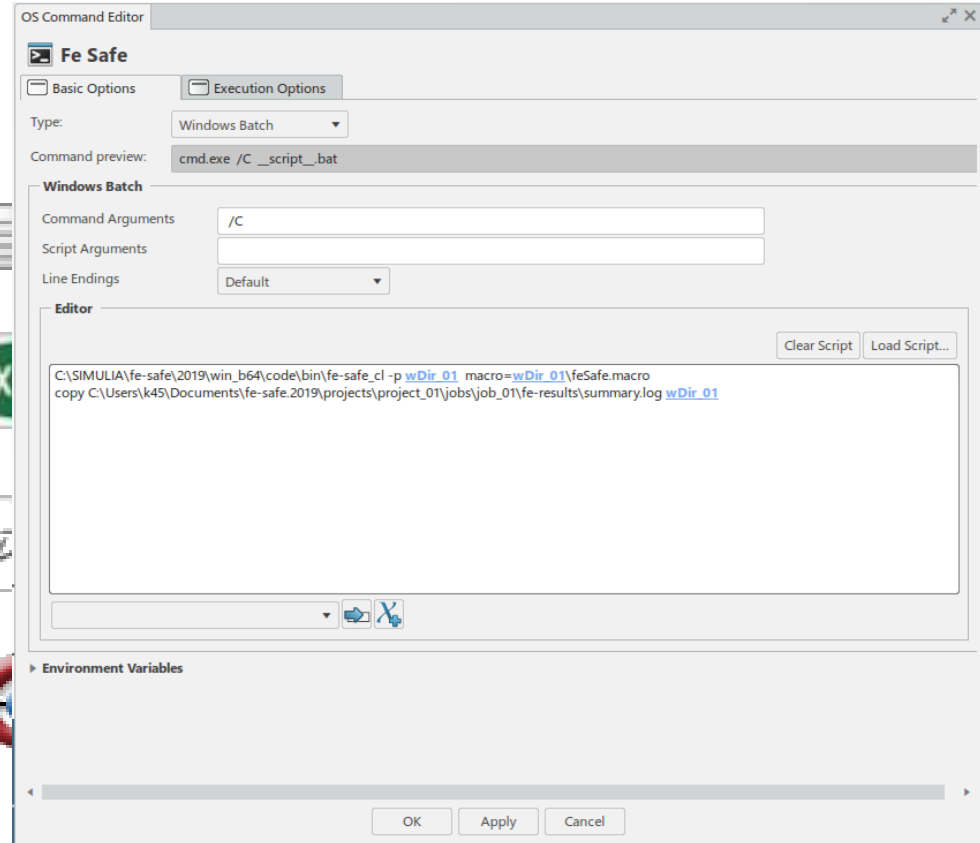
An example: Automated multiple execution of programs which can be launched via command line

Tools & Utilities

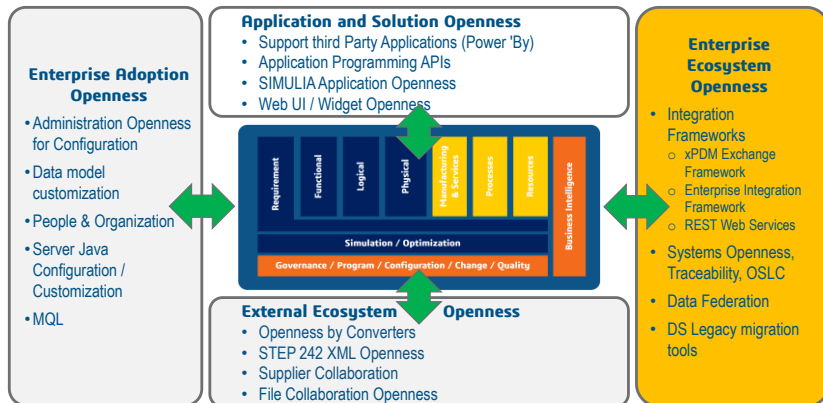
External Apps

3DX Platform Apps

Design Drivers



ENTERPRISE ECOSYSTEM OPENNESS



ENTERPRISE ECOSYSTEM OPENNESS

Integration Frameworks

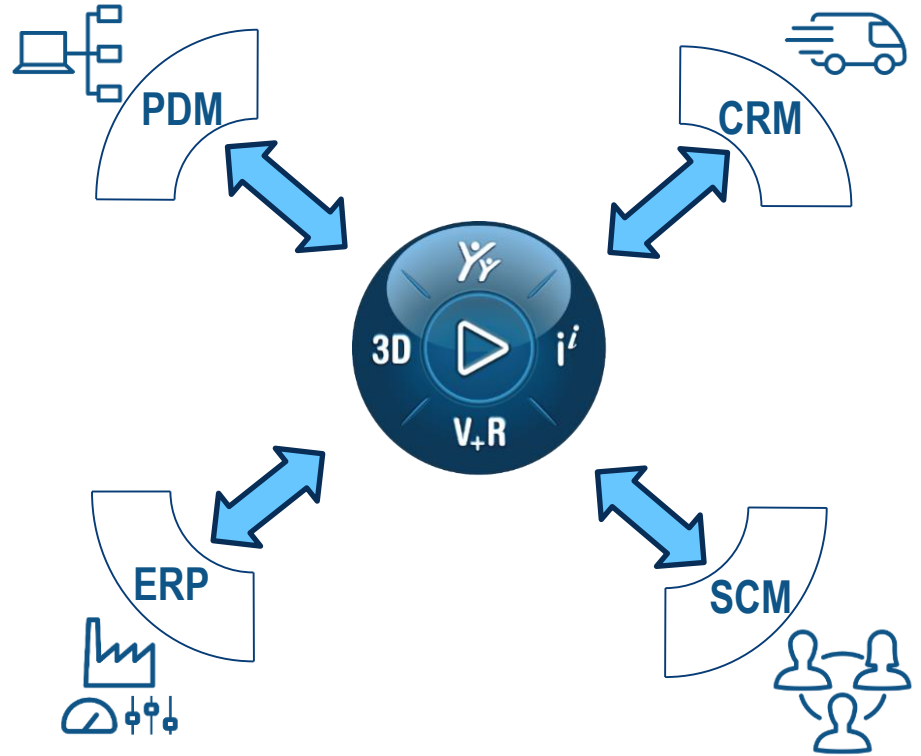
Data Federation and Consolidation

Systems Traceability

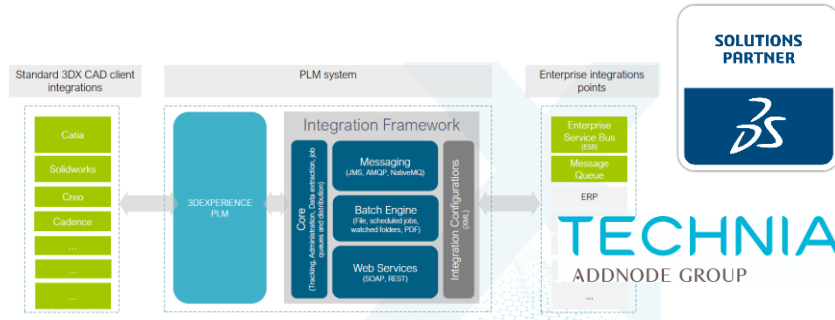
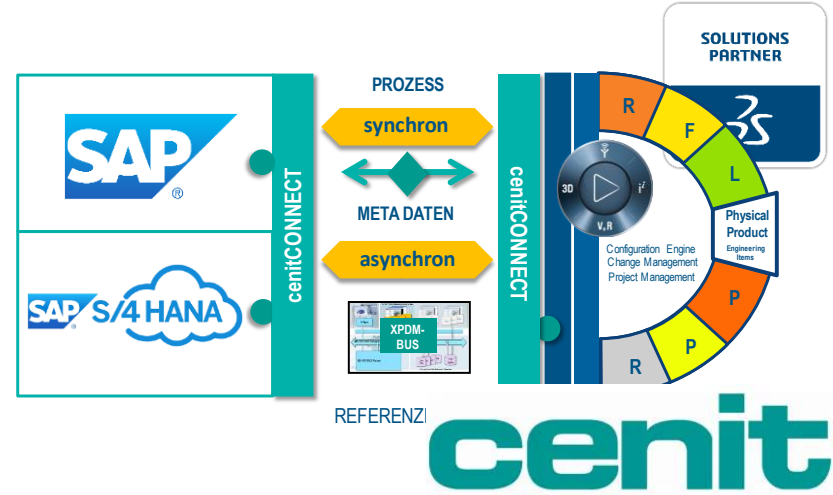
INTEGRATION FRAMEWORK OPENNESS

Integration Frameworks enables **Collaborative Exchanges** of PDM, ERP, CRM, SCM data etc.

- Required at various stages of the product development cycle (design, release process, manufacturing, etc.) between the **3DEXPERIENCE** Platform and other non-DS systems
- This data being authored either in **3DEXPERIENCE** Platform or by the non-DS systems.
- Exchanges can be done synchronous as punctual or asynchronous as bulk exchange on complete structures with or without geometry



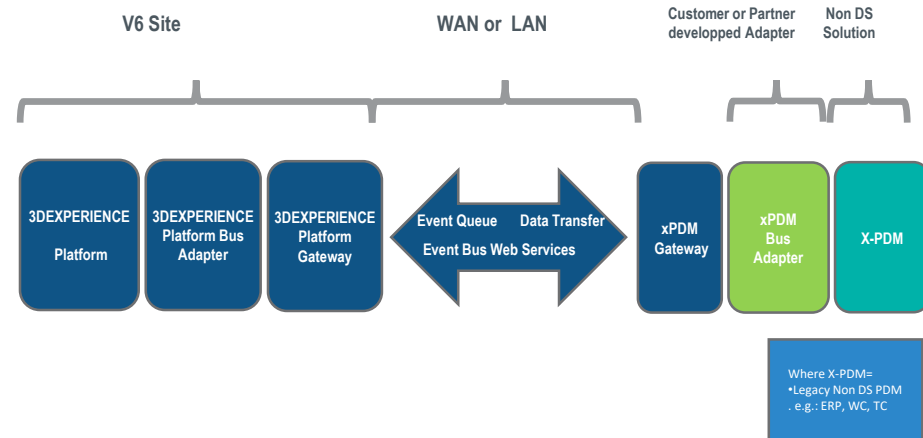
EXCERPT OF INTEGRATION FRAMEWORK PROVIDERS





XPDM EXCHANGE FRAMEWORK – ON PREMISES

- Exchanges are based on an “event bus” architecture delivered by 3DEXPERIENCE Platform
 - Asynchronous exchanges with an event-based framework by using the MUX-license
 - Requires custom 3rd Party or customer-built xPDM bus adapter for other Enterprise systems (e.g. TeamCenter, Windchill, SAP, etc.)
 - xPDM bus adapters can be developed by customers or partners or service providers by using the 3DEXPERIENCE Platform event bus web services
 - xPDM exchanges are based on:
 - XPDMXML⁽¹⁾ schema for PLM metadata
 - documents and geometry files associated to XPDMXML
- ⁽¹⁾ XPDMXML is a 3DEXPERIENCE Platform xml schema dedicated to xPDM exchanges



Enterprise Integration Framework (EIF) – On Cloud

- EIF is a new Event based Cloud Integration Architecture
- EIF can be utilized to perform end-to-end integrations with external enterprise systems
- EIF is using open standard protocols and functionality
 - JMS to communicate on events which happen inside the 3DEXPERIENCE Platform
 - Punctual REST API to perform punctual operation on 3DEXPERIENCE Platform data
 - Asynchronous export/import functionality utilizing STEP AP242 XML PDM format

Services provided by Dassault Systemes
 External Services.

1 **REST Web-Services**
for Punctual Operations use cases

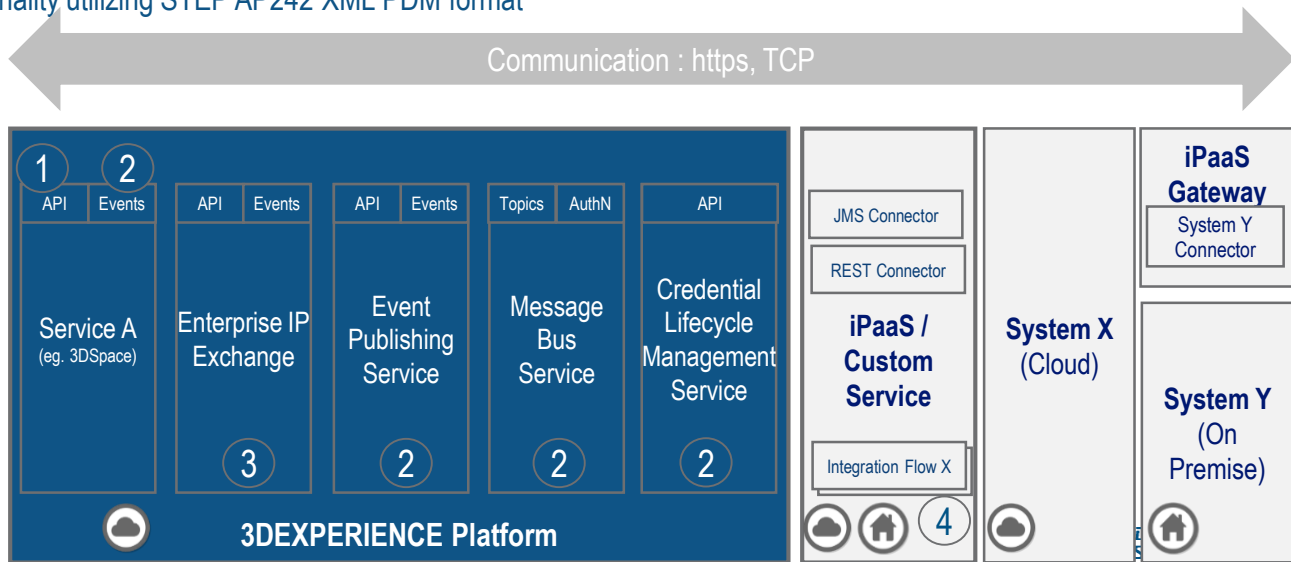
2 **Automation Ready**

- ▶ Events published by respective Services via Event Publishing Service
- ▶ Message Bus Service to manage events
- ▶ Credential Lifecycle Management Service to manage integration agents

3 **Engineering Exchange Service**


- ▶ Asynchronous parallelized Bulk Data Export of configured definitions
- ▶ Exchanged IP described in Standard-compliant format

4 **iPaaS / Custom Service** for Integration to other systems

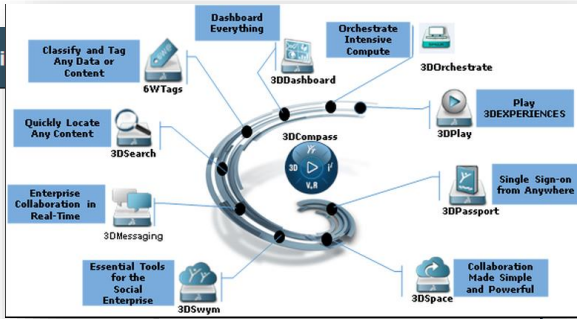


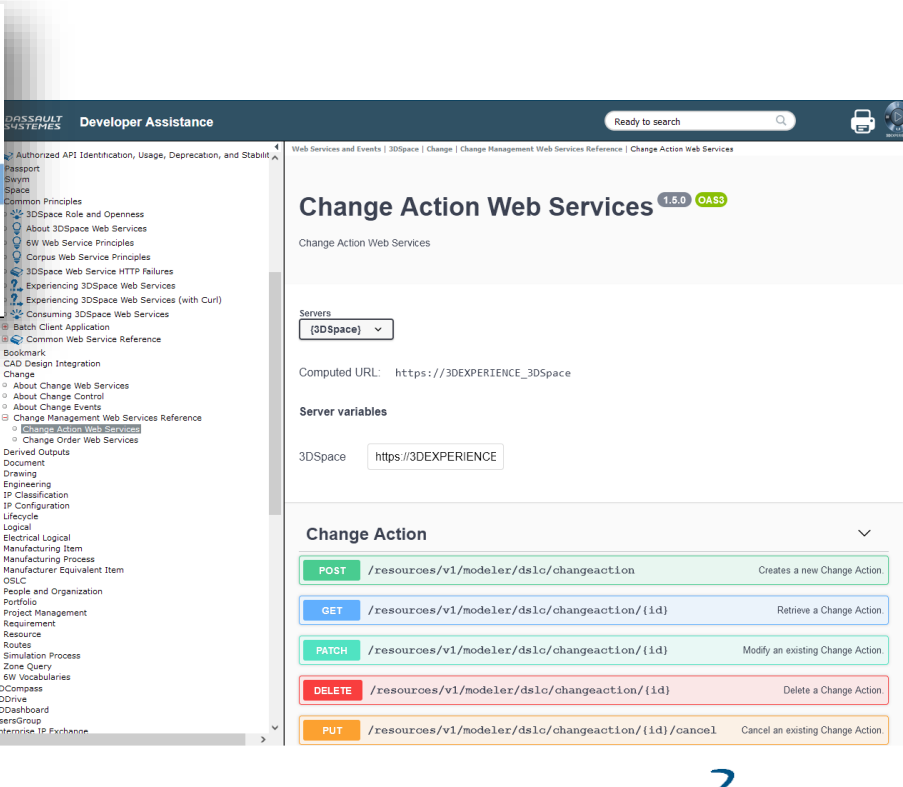
OPENNESS THROUGH REST WEB SERVICES

3DEXPERIENCE REST Developer Assistance



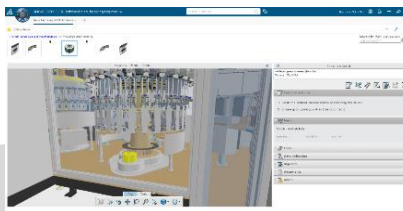
- Native Apps Automation
- Web Services and Events
- What's New?
- Common
 - Openness
 - Authentication
 - Openness Agent
 - Web Services
- Events
 - Experiencing Web Services
 - Glossary
- Authorized API Identification, Usage, Deprecation, and Stability
- 3DPassport
- 3DSwym
- 3DSpace
- 3DCompass
- 3DDrive
- 3DDashboard
- UsersGroup
- Enterprise IP Exchange
- Sourcing
- Production Scheduling
- Distributed File Store
- 3DPortfolio
- 3DGlobe
- 3D Manufacturing Work Order
- 3DSupplyNetwork
- Vertical Integration
- Web Apps Java
 - Common Services
 - REST Web Service Infrastructure
 - About 3DSpace REST Web Service Infrastructure
 - Best Practices for Creating 3DSpace WS
 - About Server Traces
 - Creating a 3DSpace REST Web Service
- 3DSearch and Object Actions





DATA FEDERATION AND CONSOLIDATION BY INDEXATION

3DEXPERIENCE PLM Analytics Architecture



Real Time Dashboarding with 3DEXPERIENCE

Non-intrusive consolidation of external and internal enterprise data & IoT-field data



3DEXPERIENCE
SQL Database



File



SQL-DB



IoT



Atlassian
JIRA



Confluence



salesforce



Indexation Connectors

NETVIBES CONNECTORS FOR INDEX-BASED INTEGRATIONS

Collaboration

Atlassian Confluence
Atlassian Jira
GitLab
IBM Connections
IBM Notes
Jive
LDAP
MediaWiki
Microsoft Exchange
Microsoft SharePoint
Microsoft Yammer
OpenText Documentum eRoom
Slack
SAP NetWeaver Portal
Xerox DocuShare

Document Management

Alfresco One
File System
NetApp ONTAP
OpenText Content Server
OpenText Documentum
SAP PLM DMS
Veritas Enterprise Vault

Content Management

Adobe AEM
e-Spirit FirstSpirit
pirobase CMS
Sitecore

Cloud

Atlassian Confluence Cloud
Atlassian Jira Cloud
Box
Facebook Workplace
Google Drive
IBM Connections Cloud
Microsoft Azure AD
Microsoft Exchange Online
Microsoft OneDrive for Business
Microsoft SharePoint Online
Microsoft Teams
Oracle Knowledge Advanced Cloud
Salesforce
ServiceNow
Slack

... and more

DATA FUSION AND CONSOLIDATION FOR PART SEARCH

One click: Find released parts with similar 3D geometry, from preferred suppliers, in Aluminum, and cost under 10 €

The screenshot displays the Exalead OnePart web application. The browser address bar shows the URL: https://demo.onepart.exalead.com/application?url=%2F%252Fdata%252Fdemo%252Fonepart_demo%252Fcontent%252FEPDM%2FEXASTEEL%2FEXASTEEL_CLAMP_210_RIGHT.stp&source=consolidation-cs_onepart&q=c...

The interface is divided into several sections:

- Navigation:** Includes 'Nach Tags filtern', 'Erstellt am', 'Geändert am', and 'Zuletzt gespeichert von'.
- Search Results:** A list of 210 elements, each with a thumbnail and metadata. The selected item is 'EXASTEEL_CLAMP_210_RIGHT.stp'.
- Item Details:** A detailed view of the selected CAD file, including:
 - Komponenteneigenschaften:** Teilenummer: EXASTEEL_CLAMP_210_RIGHT, Revision: ANY, Definition: EXASTEEL_CLAMP_210_RIGHT.
 - Berechnete Eigenschaften:** Hauptfarbe: Grau, Rahmen: 38.00 mm x 85.00 mm x 17.00 mm, Anzahl OnePart: 2, Merkmale: Mittlere Dicke: 3.44 mm, Maximale Dicke: 3.84 mm, Beschreibung: 1 Kreisförmige Bohrung(en) - OnePart Merkmale: type: Simple - Boden - Through - Ø: 4.00 mm - Tiefe: 17.00 mm, 1 Kreisförmige Bohrung(en) - type: Simple - Boden - Through - Ø: 4.40 mm - Tiefe: 11.00 mm.
 - Containereigenschaften:** Quellentyp: Dateien, Quelle: LocalFolders, Titel: EXASTEEL_CLAMP_210_RIGHT.stp, Ordner: /data/demo/onepart_demo/content/EPDM/EXASTEEL/, Dateigröße: 76.92 kB, Familie: STEP, Typ: Komponente, Geändert am: 21 Jan. 2014, 10:22.
- Similarity Search:** A section for 'Ähnlichkeiten' and 'Ähnliche Bohrungsanordnung (Beta) (10)' with a 'Durchsuchen' button.

CAD
Geometry/
Metadata

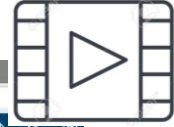
Calculated
Data

PDM Item
Data, Material

ERP Mara-Nr. /
€



DATA FEDERATION AND CONSOLIDATION IN ACTION

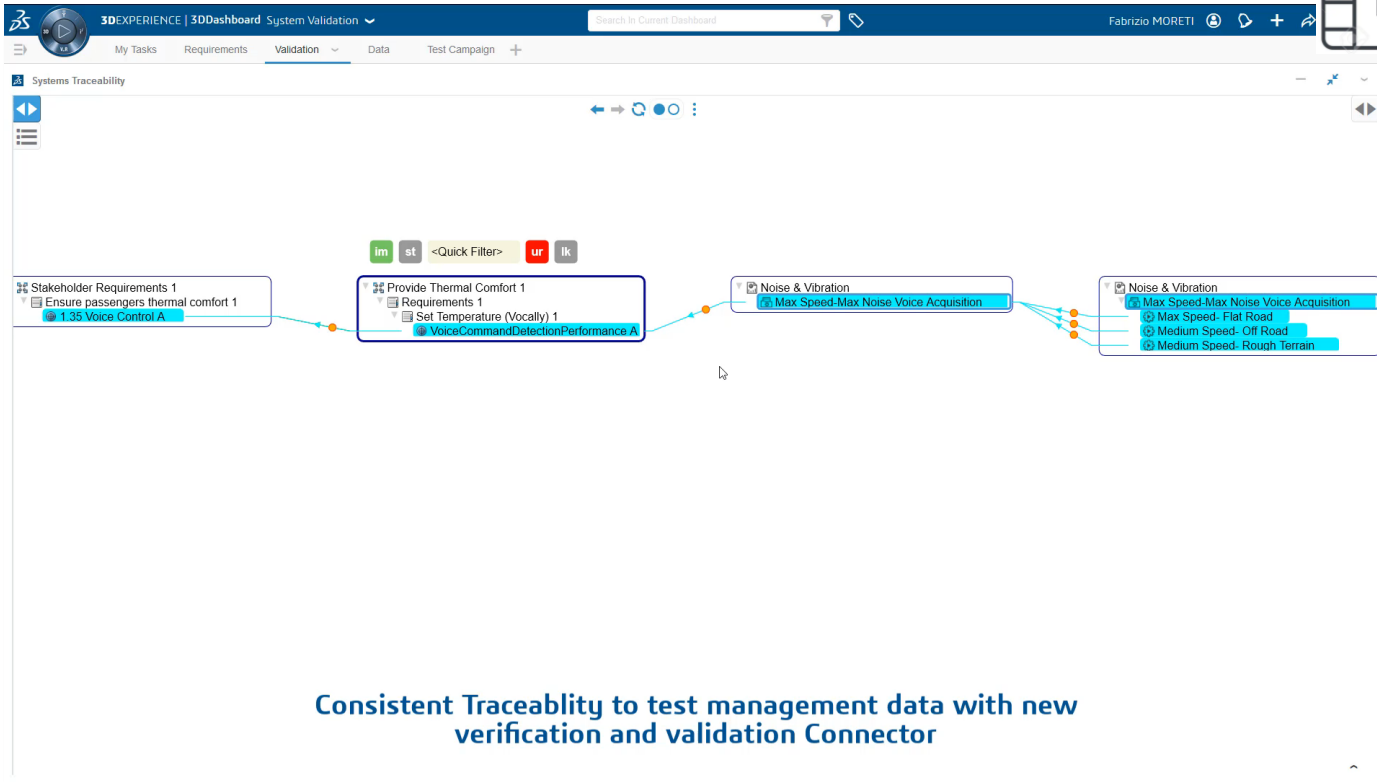
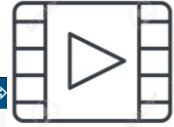


The screenshot displays the 3DEXPERIENCE web interface. The top navigation bar includes the 3D logo, user information, and search bar. The main content area is titled "Asset Aggregator - DS Exalead | Asset Aggregator - Assets". It shows a search for "Pump_007" with results for "P-4540_B" and "P-4531_B". The selected asset "P-4540_B" is a "HIGH PRESSURE MUD PUMP MODEL". The interface includes sections for "General Information", "Manufacturer", "Classification", and "Location". Below the main view, there are two side panels: "ENOVIA - Product Structure Explore - EAS_Engineering..." showing a hierarchical tree of assets, and "ENOVIA - 3D Navigate - EAS_Engineering_BOM" showing a 3D CAD model of the pump assembly.

Title	Instance N
EAS_Engineering_BOM	
EAS_DISTILLATION_UNIT_01	
EAS_STRUCTURE	STR
EAS_CIVIL	CIV
EAS_EQUIPMENTS	EQT
EAS_EQT_454X	EAS_EQT
Pump_007	P-4540_B
Pump_007	P-4540_A

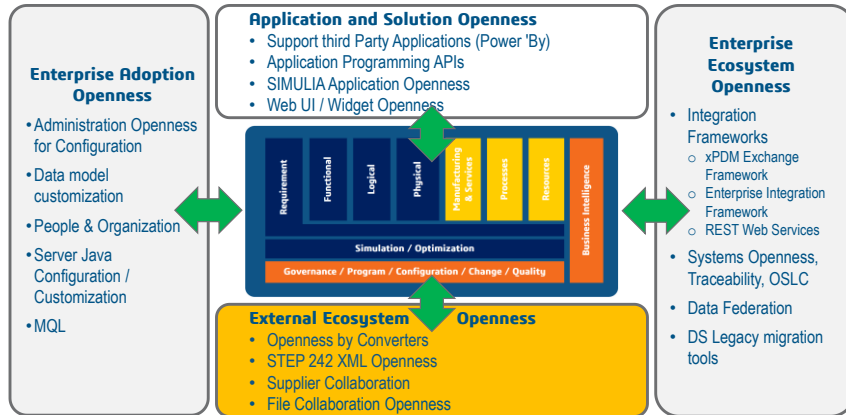
SYSTEMS TRACEABILITY

Linking artifacts stored inside or outside the platform using data federation mechanism



Consistent Traceability to test management data with new verification and validation Connector

EXTERNAL ECOSYSTEM OPENNESS



EXTERNAL ECOSYSTEM OPENNESS

Data Converters

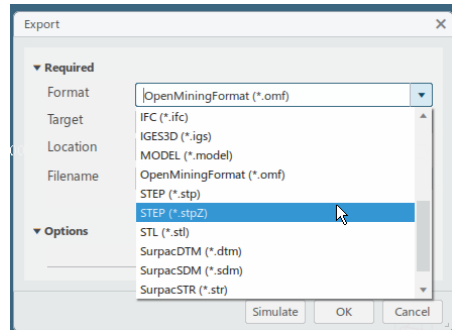
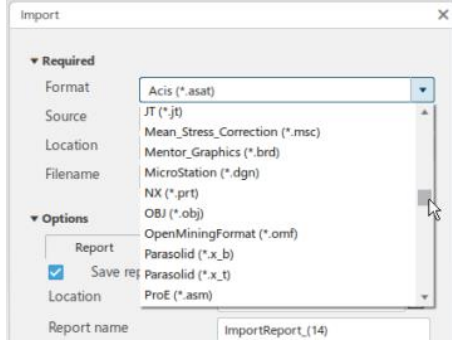
STEP 242 XML Openness

Supplier Collaboration – Online & Offline

Committees and Standardization initiatives

DATA CONVERTERS

Import and Export a large number of third party formats



Format Converters	
3DPDF	←
3DXML Briefcase	←↑
3MF	←
Abaqus_Material	↑
ACIS	↑
Allegro	↑
AMF	←
Autocad 2D	←↑
Autocad 3D	↑
CATIA Composer	←
CATIA V4	←↑
CATIA V5	←↑
CGM	←
CityGML	↑
COLLADA	↑
CREO / ProE	↑
Deltagen	←↑
DXF 2D	←↑
DXF 3D	↑
EMN	↑
FBX	↑

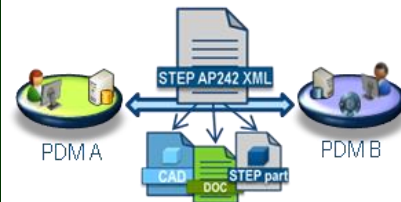
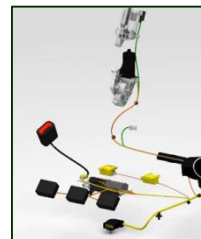
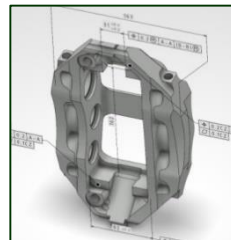
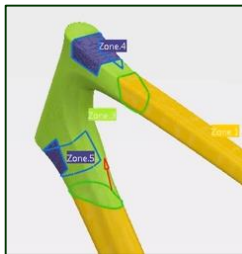
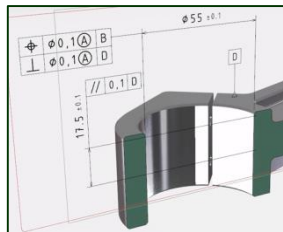
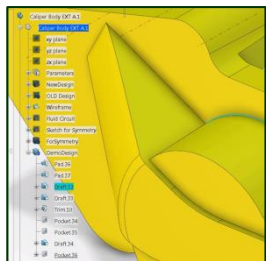
Format Converters	
GL2	←
ICEM Surf	←↑
IDF	↑
IFC	←↑
IGES	←↑
INVENTOR	↑
JPG	←
JT	↑
Mean_stress_Correction	↑
Mentor_Graphics	↑
MICROSTATION	↑
NX	↑
OBJ	↑
Open Mining Format	←↑
PARASOLID	↑
PDF	←
PS	←
REVIT	↑
RHINO	↑
Signal_Data	↑
SOLID EDGE	↑

Format Converters	
Solidworks	↑
STEP Multidiscipline	←↑
STL	←↑
Stress_Spectrum	↑
SurPac	←↑
SVG	←
TIF	←
VRML	←↑
XCDM	←↑
XMpLant	↑

Bi-directional	←↑
Import only	↑
Export Only	←

3DEXPERIENCE STEP AP242 OPENNESS

Support customer interoperability & archiving requirements



Advanced PDM, ...

Electrical Harness, Kinematics

Semantic PMI, PDM

Composite, Tessellation

Graphic PMI, Validation Properties

Exact Geometry, Product Structure



STEP AP242 Ed2

3DEXPERIENCE R2018x



V5R07

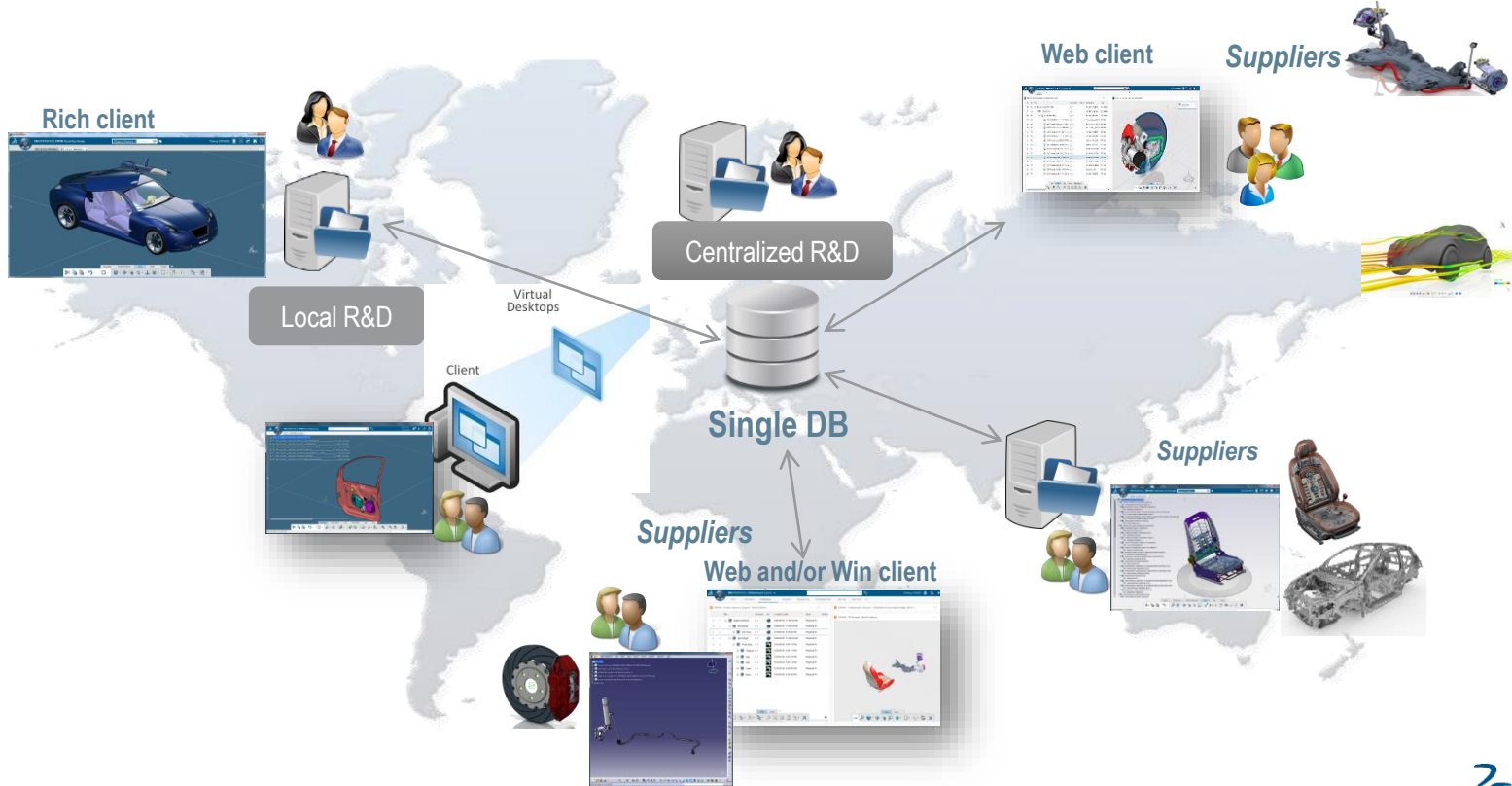
V5R20

V5-6R2013

Supported Functionalities
Work In Progress

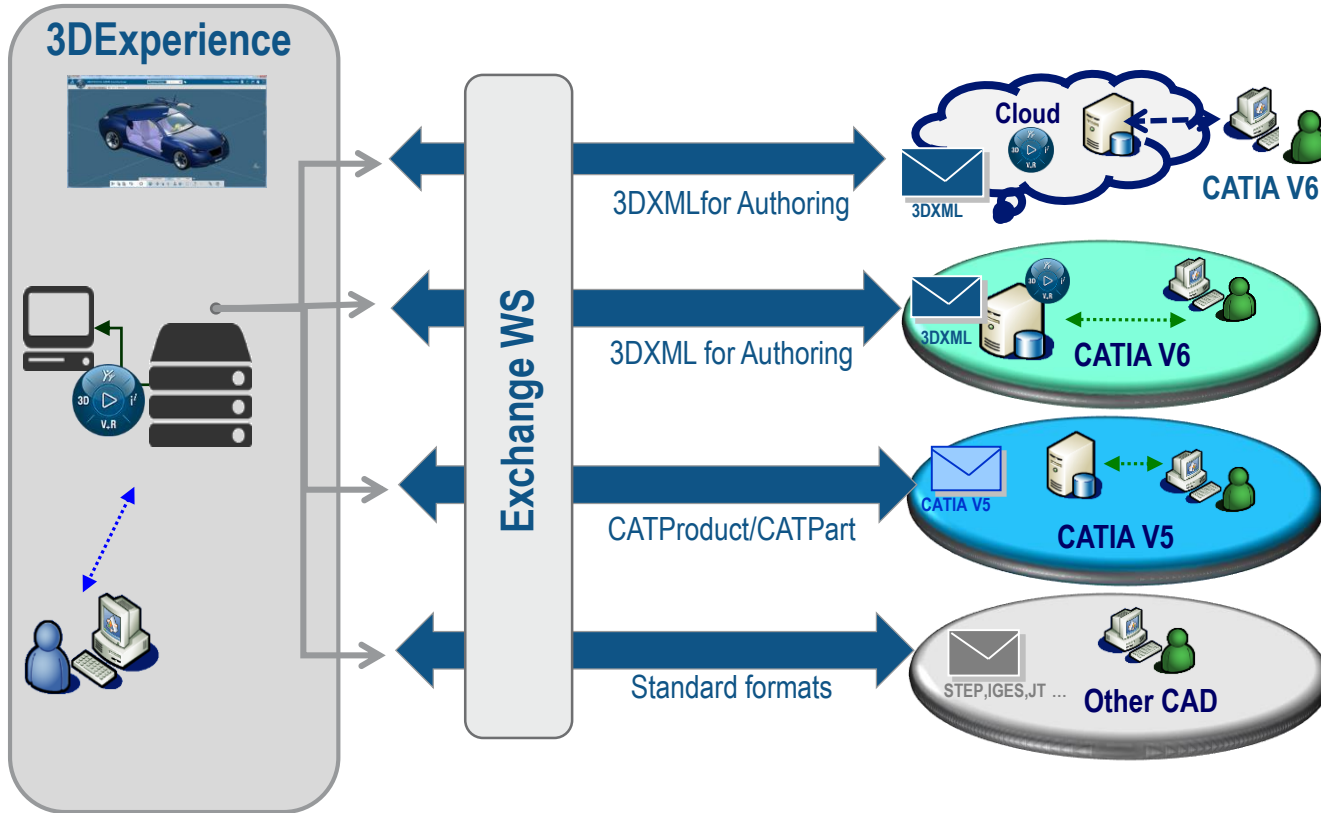
SUPPLIER COLLABORATION – ONLINE

Extended Enterprise & Supplier Collaboration



SUPPLIER COLLABORATION – OFFLINE

Extended Enterprise & Supplier Collaboration



DS @ COMMITTEES AND STANDARDIZATION INITIATIVES

- Dassault Systemes is a member of the following committees and organizations:

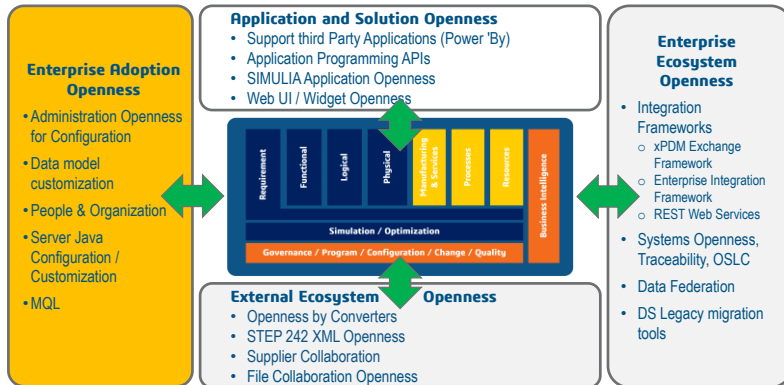
- **WIGEP**: Wissenschaftliche Gesellschaft für Produktentwicklung
 - <http://www.wigep.de>
- **Acatech**: Deutsche Akademie der Technikwissenschaften
 - <https://www.acatech.de>
- **Zukunftsallianz Maschinenbau**
 - <http://www.zukunftsallianz-maschinenbau.de>
- **ZAL**: Zentrum für Angewandte Luftfahrtforschung
 - <https://zal.aero>
- **Deutsche Messe Technologie-Akademie**
 - <https://www.technology-academy.group>
- **Bitkom**
- **ProStep**
- **Plattform Industrie 4.0**
- **Modelica Association**



DEUTSCHE AKADEMIE DER
TECHNIKWISSENSCHAFTEN



ENTERPRISE ADOPTION OPENNESS



ENTERPRISE ADOPTION OPENNESS

Platform Configuration

Data Model Customization

People & Organization

Server Side Java Configuration & Customization

Matrix Query Language (MQL)

PLATFORM CONFIGURATION

Flexible configuration of PLM behaviors

Collaborative Spaces Control

Single Widget

- Attributes Management**
Enrich your Data Model
- Content Naming Rules**
Allows to define naming rules for each co...
- Revision Naming Rules**
Allows to define how object revisions will ...
- Access Rules**
Allows to define the rules on who can ac...
- Maturity Graph**
Customize Maturity Graphs
- Engineering Part Automation**
Defines promotion rules for Engineering ...
- Retention policy for iterations**
Allows to define the retention rules for th...

Identification configuration

Content Naming Rules

Allows to define naming rules for each content type

Preview: Part identifier to be defined 10281402--counter--01 ✓

Formula: {PartId}[interfa]-{counter}--{SuftId}

Content Type: Part ✓

Profile: Part ✓

Suffix: 01 ✓

Interfa (same for all types): interfa to be defined 10281402 ✓

Separator (same for all types): ✓

Access Rules

Access Rules

Allows to define the rules on who can access what content

Allow read access to engineering products in a selected collaborative space ✓

Allow read access to any product content ✓

Allow write access to any content in any other collaborative space ✓

Allow write access only to the selected site in response to the content ✓

Allow write access only to the Collaborative site in response to the content ✓

Promotion Rules

Engineering Part Promotion

Define promotion rules for Engineering Parts

Source Part 0281402-0000 ✓

Destination space ✓

Retention period (days) ✓

Retention period (hours) ✓

Retention period (minutes) ✓

Retention Rules for iterations

Retention policy for iterations

Allows to define the retention rules for the Parts Geometry

Number of iterations kept per day: 3 (0) ✓

Duration of keeping period: 7 (0) (days) ✓

Duration of keeping period of the last iteration: 14 (0) (days) ✓

Extending types with attributes

Physical Product

Type	Name	Default Value	Mandatory	Read Only	Indexed	Autocomplete Values	Min. Precision	Actions	Display Status
String	partnumber								
String	name	10							
Boolean	is3d	TRUE							
String	description								
String	definition_url	URL							

3D2D Conversion

Target site: All ✓

Definition: ✓

Filtering: ✓

Filter: ✓

Display status: ✓

Source type: Design/Model ✓

Import / Export Configuration

Configuration Deployment - OnPremise

Export Configuration (xml) [Export]

Import Configuration (xml) [Browse] [Import]

Lifecycle Graph

Global Design Definition

Global Design Definition

States: Design, Analysis, Production, etc.

Transitions: Design to Analysis, Analysis to Production, etc.



Collaborative Spaces Control



3DSwym Control Center

Administration of communities (Members, statistics, settings etc.)



Enterprise Control Center

Multi-widget app for organization, vocabularies and site replication management

Vocabulary Management

NAME: 6WTTags

DESCRIPTION: The management of 6WTTags

MANAGED BY: 6WTTags

MANAGED ON: 6WTTags

MANAGED IN: 6WTTags

MANAGED FOR: 6WTTags

MANAGED BY: 6WTTags

MANAGED ON: 6WTTags

MANAGED IN: 6WTTags

MANAGED FOR: 6WTTags

Vocabulary Management for 6WTTags

Site Replication

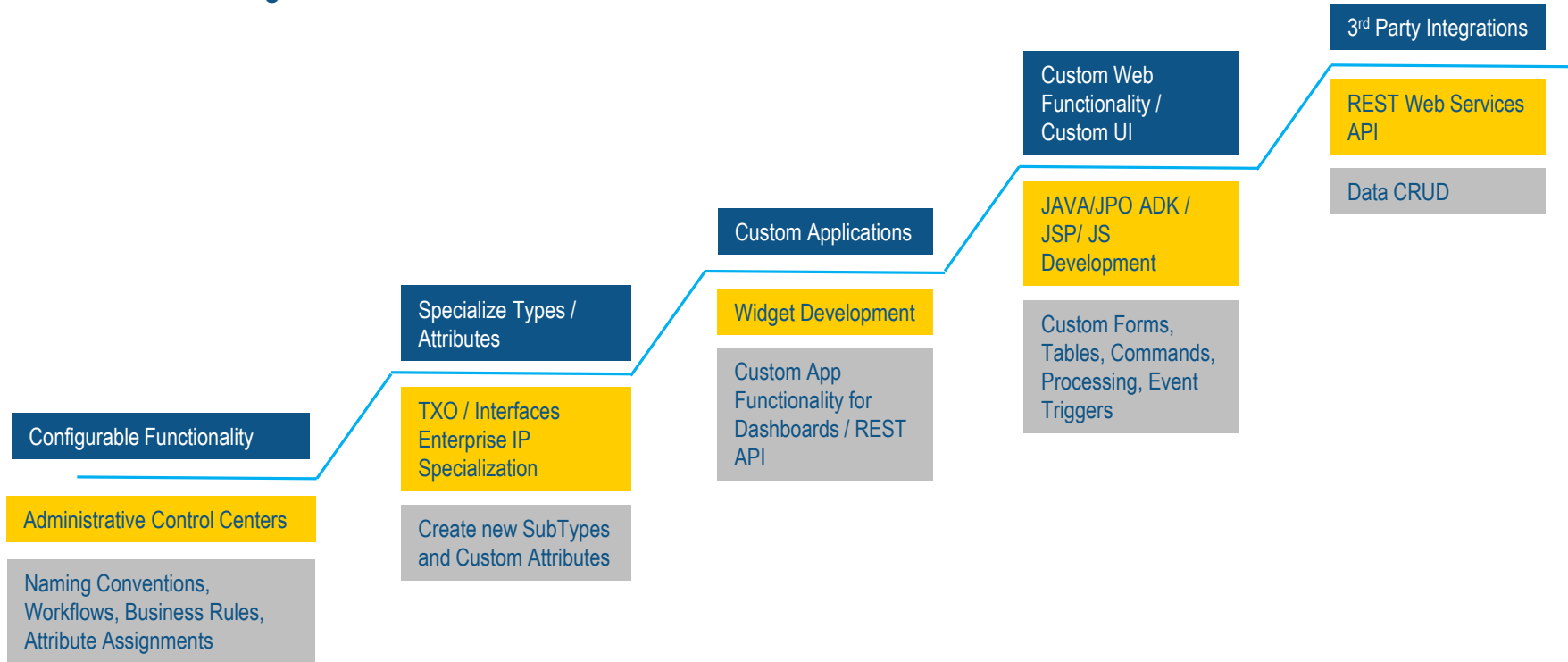
Site	Space	URL	API	URL
6WTTags	6WTTags	6WTTags	6WTTags	6WTTags
6WTTags	6WTTags	6WTTags	6WTTags	6WTTags
6WTTags	6WTTags	6WTTags	6WTTags	6WTTags
6WTTags	6WTTags	6WTTags	6WTTags	6WTTags

Site Replication (On-premise only)



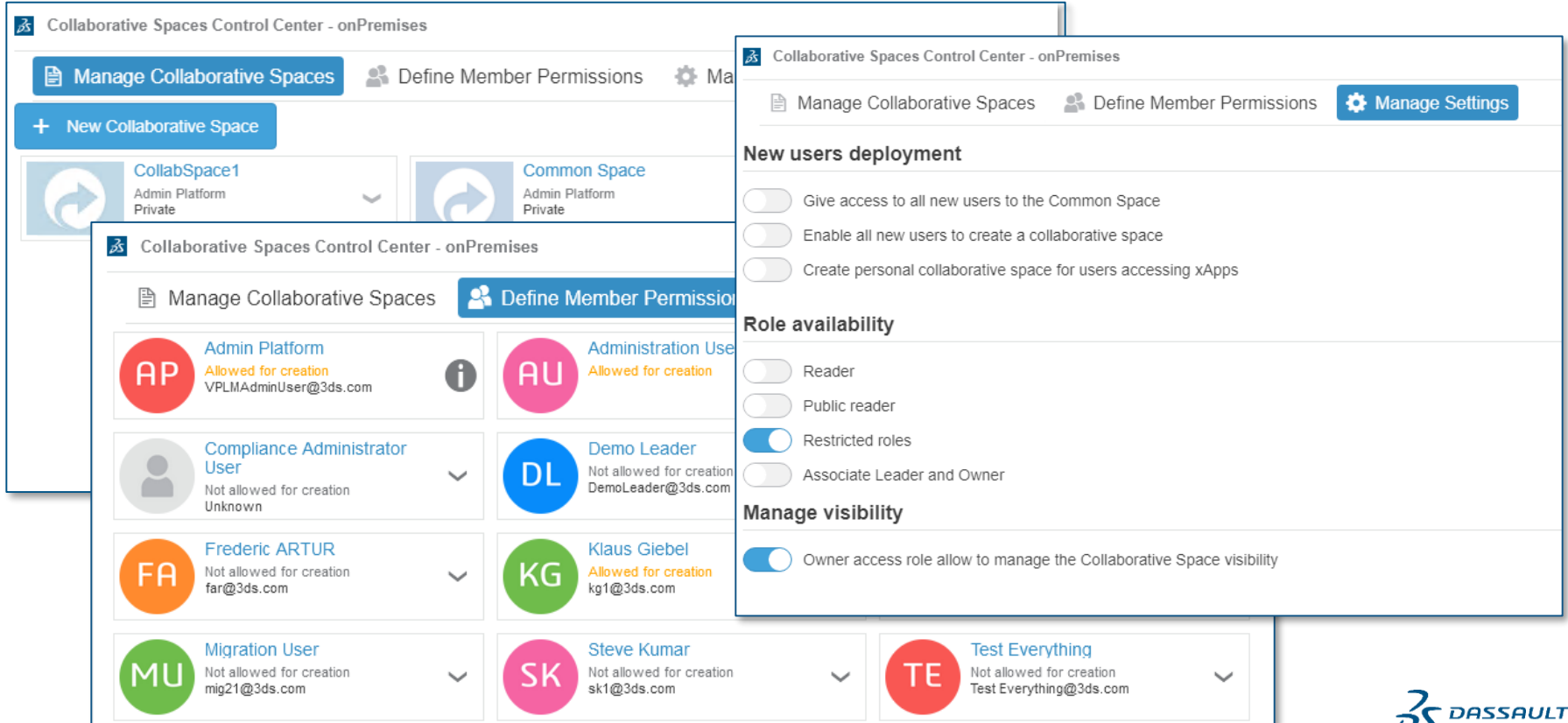
DATA MODEL CUSTOMIZATION

Server Side Configuration and Customization



PEOPLE & ORGANIZATION (P&O)

Management of users and their access rights



The screenshot displays the 'Collaborative Spaces Control Center - onPremises' interface. It features a top navigation bar with 'Manage Collaborative Spaces', 'Define Member Permissions', and 'Manage Settings'. Below this, there are sections for 'New users deployment' and 'Role availability'. The main area shows a list of users with their roles and creation permissions.

Collaborative Spaces Control Center - onPremises

Manage Collaborative Spaces | Define Member Permissions | Manage Settings

New users deployment

- Give access to all new users to the Common Space
- Enable all new users to create a collaborative space
- Create personal collaborative space for users accessing xApps

Role availability

- Reader
- Public reader
- Restricted roles
- Associate Leader and Owner

Manage visibility

- Owner access role allow to manage the Collaborative Space visibility

User List:

User ID	Role	Creation Permission	Email
AP	Admin Platform	Allowed for creation	VPLMAdminUser@3ds.com
AU	Administration User	Allowed for creation	
DL	Demo Leader	Not allowed for creation	DemoLeader@3ds.com
FA	Frederic ARTUR	Not allowed for creation	far@3ds.com
KG	Klaus Giebel	Allowed for creation	kg1@3ds.com
MU	Migration User	Not allowed for creation	mig21@3ds.com
SK	Steve Kumar	Not allowed for creation	sk1@3ds.com
TE	Test Everything	Not allowed for creation	Test Everything@3ds.com

MATRIX QUERY LANGUAGE (MQL)

- The Matrix Query Language is also called MQL
- Similar to SQL, MQL consists of a set of commands that help administrators set up and test a 3DSpace database quickly and efficiently.
- MQL is primarily a tool for building the 3DSpace database. Also, you can use MQL to add information to the existing database, and extract information from the database.
- Mainly MQL is used to perform other functions of 3DSpace that you can **not** do with the GUI applications, including system administration functions.
- MQL commands can be run on a command line as a single command or via a script.

```
[nxuser@vdemopro760dsy scripts]$  
[nxuser@vdemopro760dsy scripts]$ cd /home/data/RTV/DEMO*/server/scripts  
[nxuser@vdemopro760dsy scripts]$ ./mql  
  
Matrix Query Language Interface, Version 3DEXPERIENCE R2021x HotFix 9 (64 bits)  
  
Copyright (c) 1993–2020 Dassault Systemes.  
All rights reserved.  
MQL<1>█
```

KEY TAKEAWAYS



QUESTIONS AND ANSWERS



