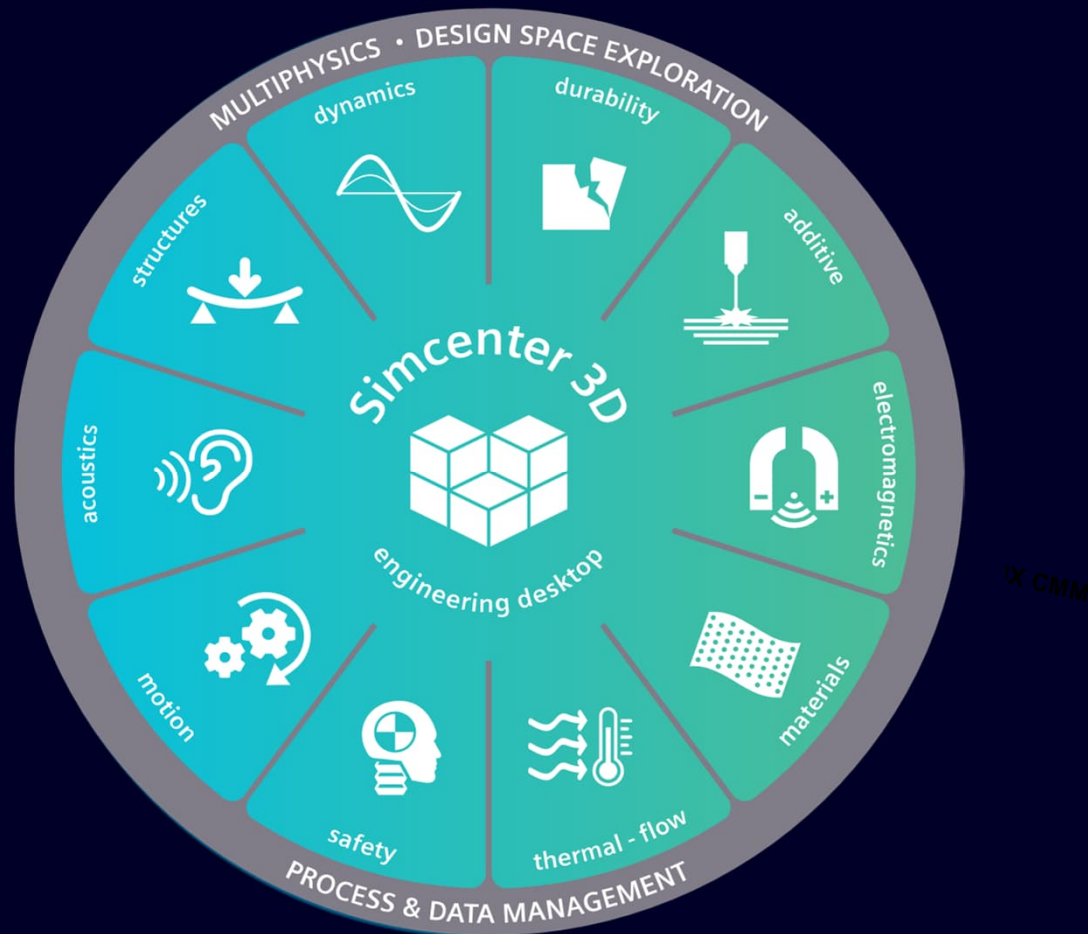




NX for Design

October 2024

NX is an integral part of Siemens Xcelerator



Siemens Xcelerator & NX

- An open digital business platform
- Modular portfolio of integrated software, IOT enabled hardware & range of services that support the digital twin
- NX is a complete solution using a single data model from concept through design, validation, manufacturing & quality
- Seamlessly integrating across disciplines including electrical and electronic systems



NX today

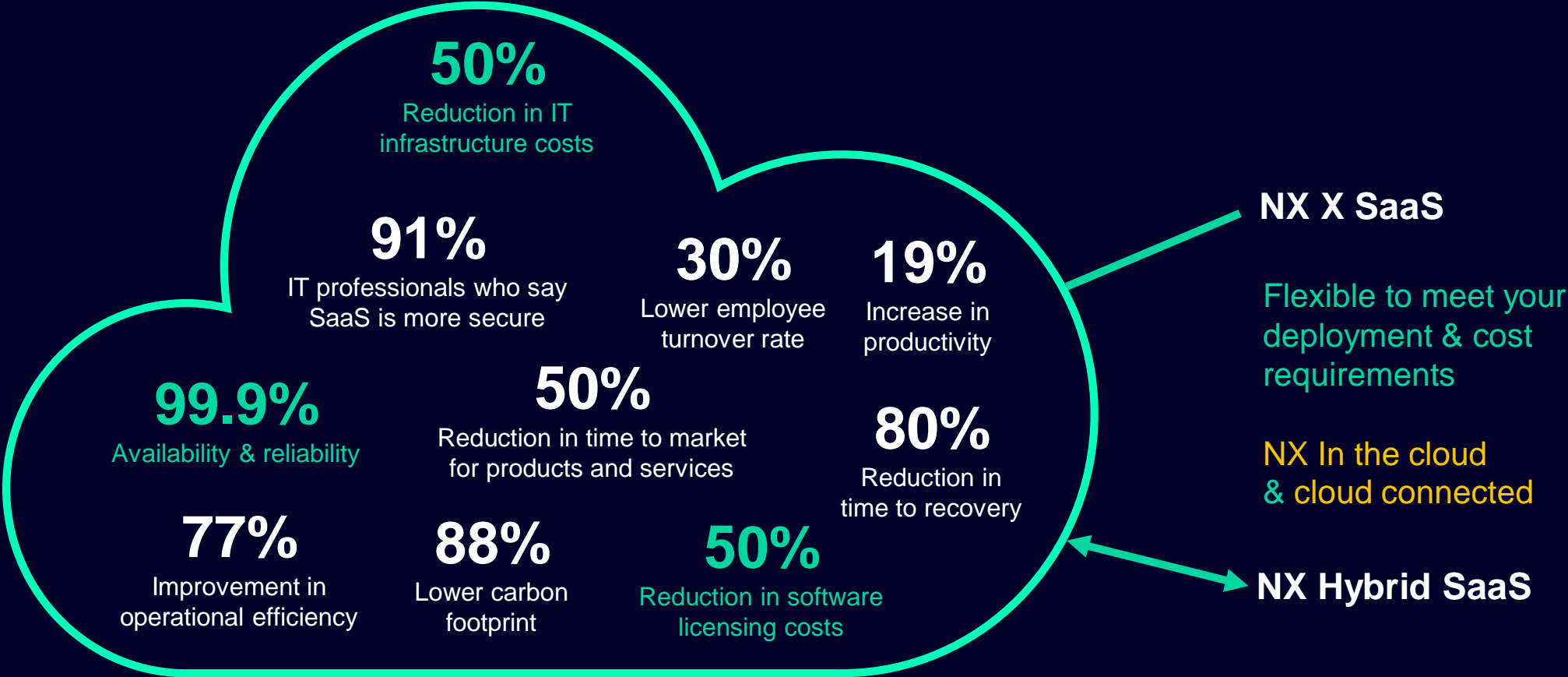
Powerful, integrated suite of computer-aided design features and functionality

- For all experience levels
- Most productive modeling environment
- Create illustrations and 3D models
- Analyze product design feasibility
- Seamlessly share data
- Scale based on your needs

NX focus

- On the cloud & cloud enabled
- Supporting digital threads
- Value based licensing
- Immersive engineering
- AI & ML enabled
- Part of the Industrial Metaverse

Why are customers moving to SaaS & utilizing Cloud?



NX delivery: Available for your desktop and from the cloud



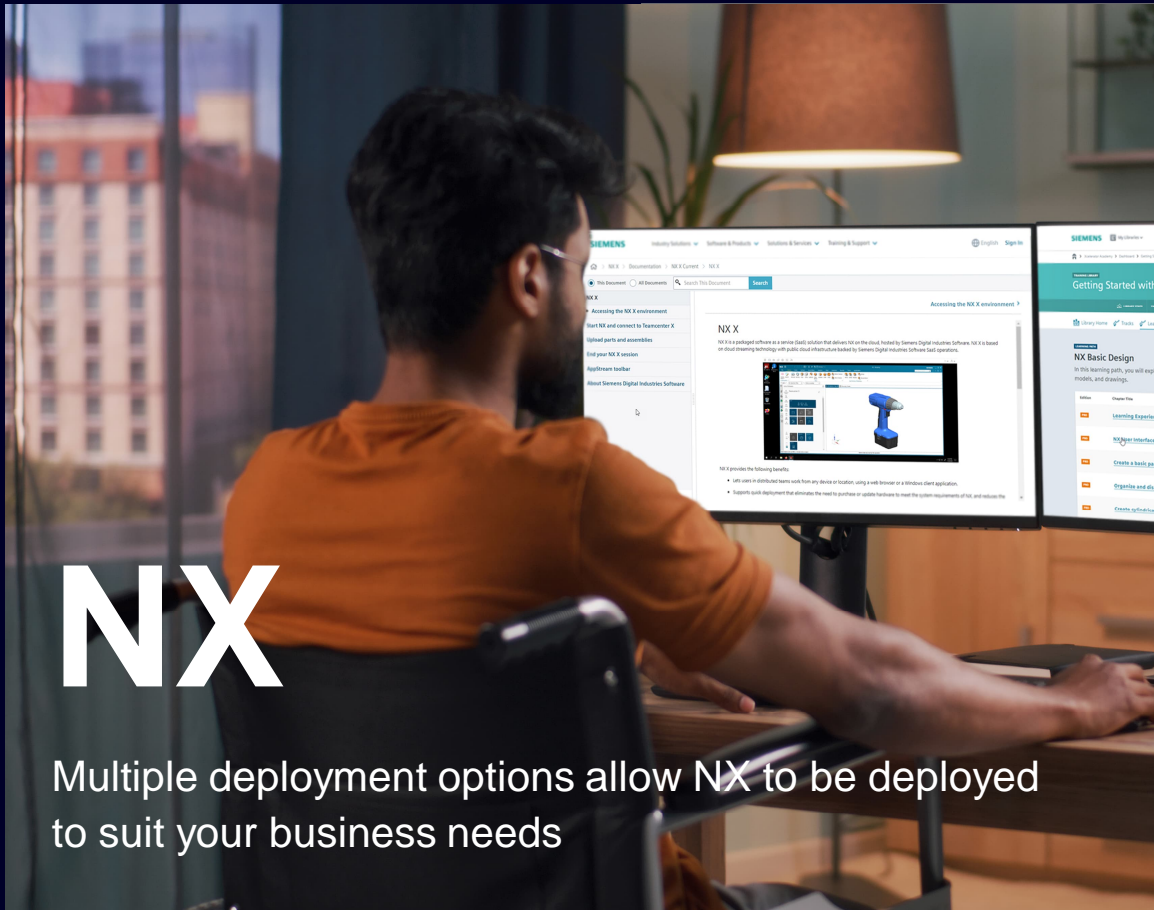
NX

Multiple deployment options allow NX to be deployed to suit your business needs

NX on-premises Hybrid SaaS

NX X for SaaS/Cloud

NX delivery: Available for your desktop and from the cloud



NX

Multiple deployment options allow NX to be deployed to suit your business needs

NX on-premises Hybrid SaaS

Same NX product, same user experience, same NX .prt data file

Software, license management and configuration all on your site

Updates and set-up all managed by you

Expand capabilities with floating **NX Value Based Licensing** optional add-on

Collaborate using included **Teamcenter share**

NX delivery: Available for your desktop and from the cloud



NX X

Multiple deployment options allow NX to be deployed to suit your business needs

NX X for SaaS/Cloud

Same NX product, same user experience, same NX prt data file

License management, configuration and updates managed by Siemens

Each core seat includes **built-in data management capabilities**

Expand capabilities with floating **NX X Value Based Licensing** optional add-on

Cloud streaming is an optional add-on with **NX X Remote Extension**



NX X & NX Design Standard

Create and edit designs of typical 3D parts
and assemblies

Design Modeling:

- Feature Based Solid Modeling
- Synchronous Technology
- Core Convergent Modeling
- Drafting
- Assemblies
- Base Freeform Modeling

Process-Specific Modeling Tools:

- Sheet Metal Design

Product Validation:

- HD3D Visual Reporting OOTB Reports



NX X & NX Design Advanced

Tools for enhanced mechanical components
and assemblies

All features from NX X Design Standard

+

NX X Design Standard features

NX Check mate

Routing base

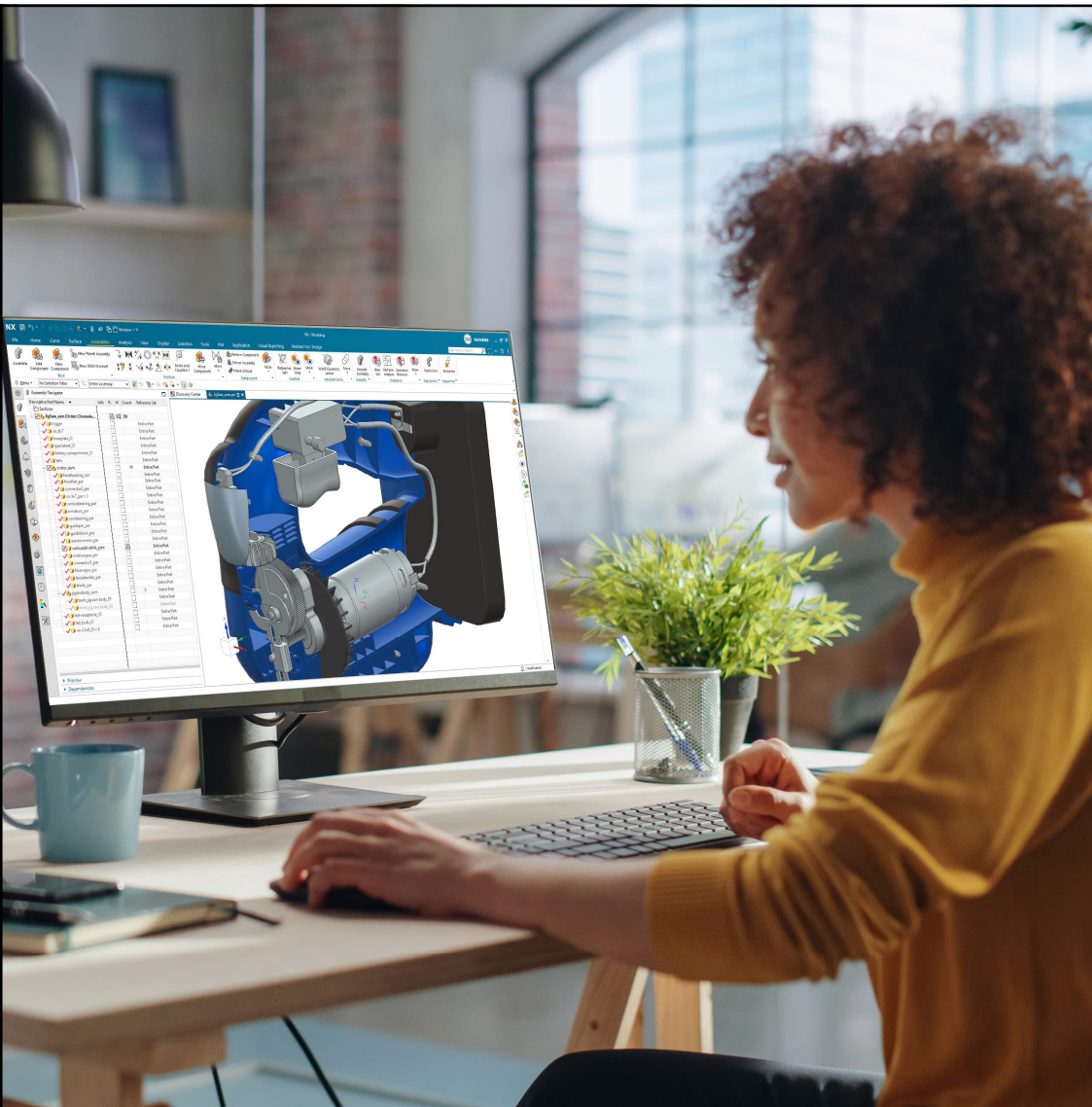
Photorealistic rendering

Visualize Shape

PMI

User defined features

SIEMENS



NX X & NX Design Premium

A comprehensive, balanced, set of advanced design functionality

All features from NX X Design Advanced

+

NX X Design Advanced features

Advanced assemblies

Advanced surface analysis

Advanced freeform modeling

Freeform shape

AI selection prediction

AI select similar components



NX

Value based licensing

A flexible & cost-effective way to access NX add-on applications

Available for both NX X & NX Hybrid SaaS

Access a huge pool of functions on-demand, that traditionally would have required a specific add-on license

Tokens are only used during function use, drop back into the token pool upon function exit

Available in packs of 50 & 100 tokens

Value based licensing – Access more applications

Molded part designer	Weld	PMI	Piping & tubing	Advanced convergent modeling	Revit translator	DMU	Corrosion	Fabric flattener	AEC/BIM		
Mold Wizard	MBD	Draw shape	Routing HVAC	DFAM & Lattice design	Catia translator	Sustainability	NX Viewer	Mastertrim	Composites		
Electrode design	Coatings	NX Join	Diagramming	Topology optimization	IFC Translator	Performance predictor	Check-mate author & consumer	Ship drafting	Fibersim	AI Select similar	
Die design	Structure designer	Advanced sheet metal	Routing base	Realize shape	STEP 242 translator	Motion simulation	Space explorer	Ship Structure & detailing	China toolkit	Extended reality	ML Command predict
Progressive die wizard	Advanced assemblies	WAVE control	Routing cabling & router	Appearance manager	ACIS translator	Animation designer	Design simulation	Ship arrangement GA	Vehicle packaging	Multi-user notification	AI Smart select
Conformal cooling	Algorithmic modeling	Implicit modeler	Routing Harness	Human modeling	Geolus integration	Visual reporting	Path Planning	Ship manufacturing	Mechatronic Concept design	Voice assist	Product template studio author
Tooling locators	Staged models	HQ Rendering	Flexible PCB	Human posture prediction	Pro/E translator	Formability analysis	VDA Checker	Aerospace design		Immersive explorer	Product template studio Consumer
Tooling	Mechanical				Connectivity	Validation		Industry		Process & Automation	



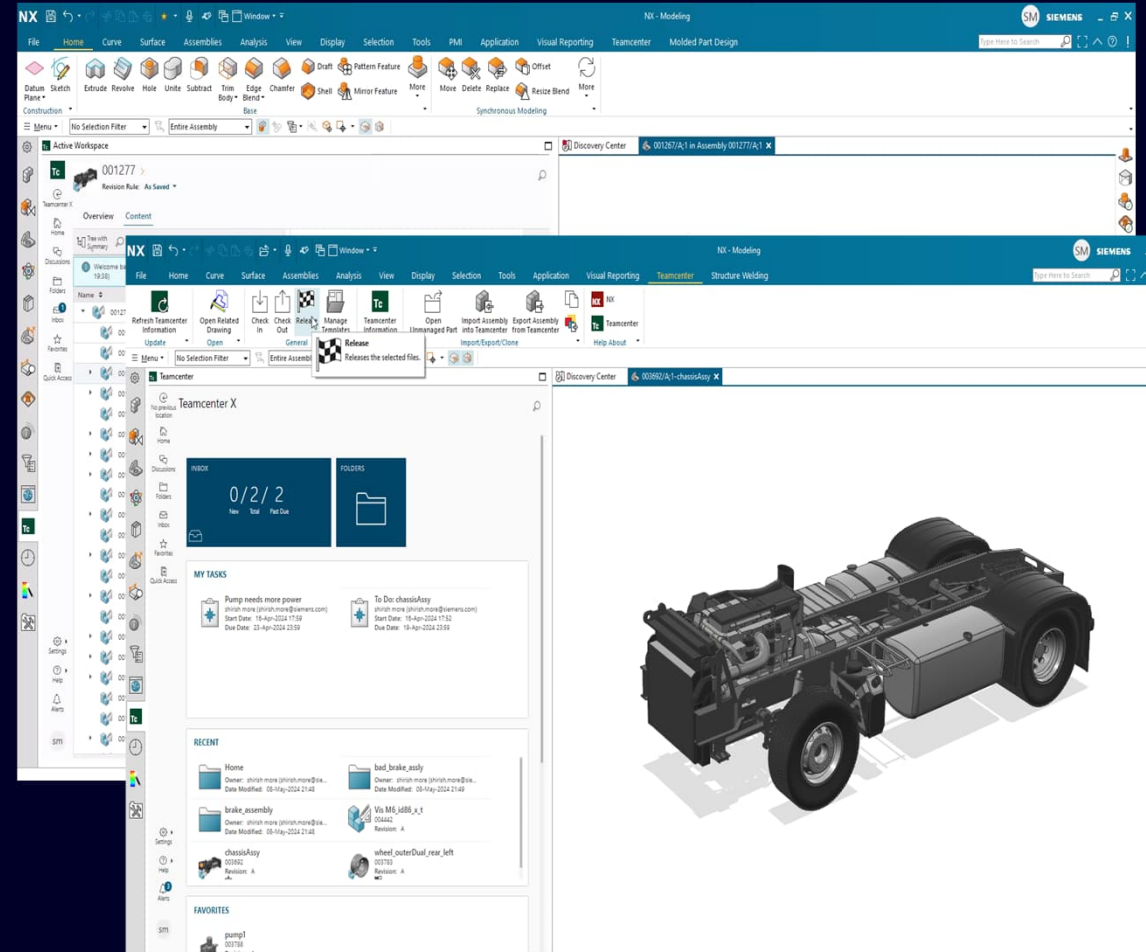
NX X Secure and trusted data management

Based on Teamcenter X

- Best in class data & program management
- Real time collaboration
- Create and manage revisions
- Freeze and release designs
- Assign and complete tasks

NX X includes built-in data management by default

- No custom installs or configurations
- Configured templates
- Manage templates or edit OOTB templates
- Comprehensive, fast search & find
- View check in / check out state of parts
- Maintains an entire conversation thread attached to target part
- Track tasks & close when completed
- Create revisions for design milestones
- View availability of new revisions
- Assign status to a part (one click release)
- Extend to your wider team
- Reviewers take part in tasks & discussions



Seamlessly scale with NX X built-in data management

Cloud collaboration to connect everyone in your business

	NX X built-in data management	Teamcenter X Premium
MCAD data management	✓	✓
Document management	✓	✓
Check in and check out	✓	✓
Standard visualization w/ 3D markup	✓	✓
Revisions & release workflow	✓	✓
Revision configuration	✓	✓
Where used	✓	✓
Discussions & tasks	✓	✓
Configurable workflows	-	✓
Multi-domain BOM management	-	✓
Personalization	-	✓
Digital mock-up	-	+
ERP integration	-	+
Change management	-	+
Classification	-	+
PLM Industry solutions	-	+
Entire PLM portfolio	-	+

Teamcenter share

Cloud based collaboration for all NX HSaaS
users and other SISW products

Teamcenter Share helps solve the following challenges

Making digital transformation more accessible, flexible and scalable

Teams are no longer co-located.

Ecosystem players need access to project data.

There is confusion on which dataset is the latest.

Regional and domain expertise are not efficiently connected.

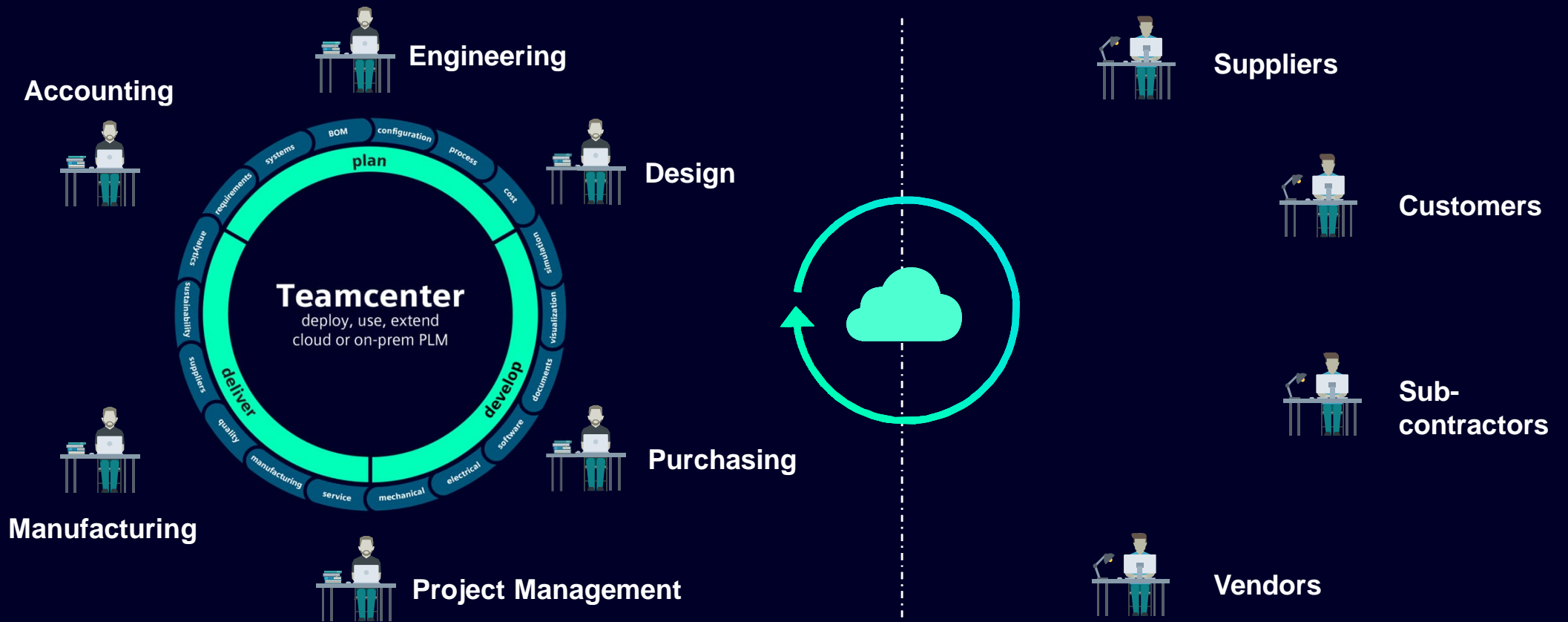
Productivity is limited by device-specific dependency.

Security has become a major issue.

Teamcenter Share enables customers to securely share CAD and other files with external collaborators

Use Teamcenter to plan, design, and share product information and processes **within your company**.

Use Teamcenter Share to securely share CAD and other files with collaborators **outside your company**.



Teamcenter Share has a rich set of collaboration features



Secure cloud storage (500Gb standard**)



Augmented Reality (AR)



Desktop file syncing



Messaging and notifications



Permission-based project sharing



Any-device, instant-on access



Task management



Multi-user overwrite protection*



Engineering-centric view & markup



Connection to Teamcenter

*selected products

** each additional user +5gb (Increased storage packages up to 100TB)

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Xcelerator Share

Xcelerator Share helps you collaborate on design and engineering projects in the cloud. Products across the Siemens Xcelerator portfolio are connected to Xcelerator Share so you can start collaborating today. [Learn more about the Xcelerator portfolio.](#)

[Sign In](#)



Store files on the cloud with desktop syncing



Share projects securely



View and markup your design files



Access your file from any device

SIEMENS

[Siemens Digital Industries Software](#)

[#TodayMeetsTomorrow](#)



Portfolio

[Cloud](#)

[Mendix](#)

[Electronic Design Automation](#)

[MindSphere](#)

[Design, Manufacturing and PLM Software](#)

[View all portfolio](#)

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[Support Center](#)

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AI Driven NX

Productivity tools via Artificial Intelligence & Machine Learning

NX features leveraging design data and best practices to enable personalized experience and smart human interaction

Command Prediction detects the command repetition and predicts best or set of command choices

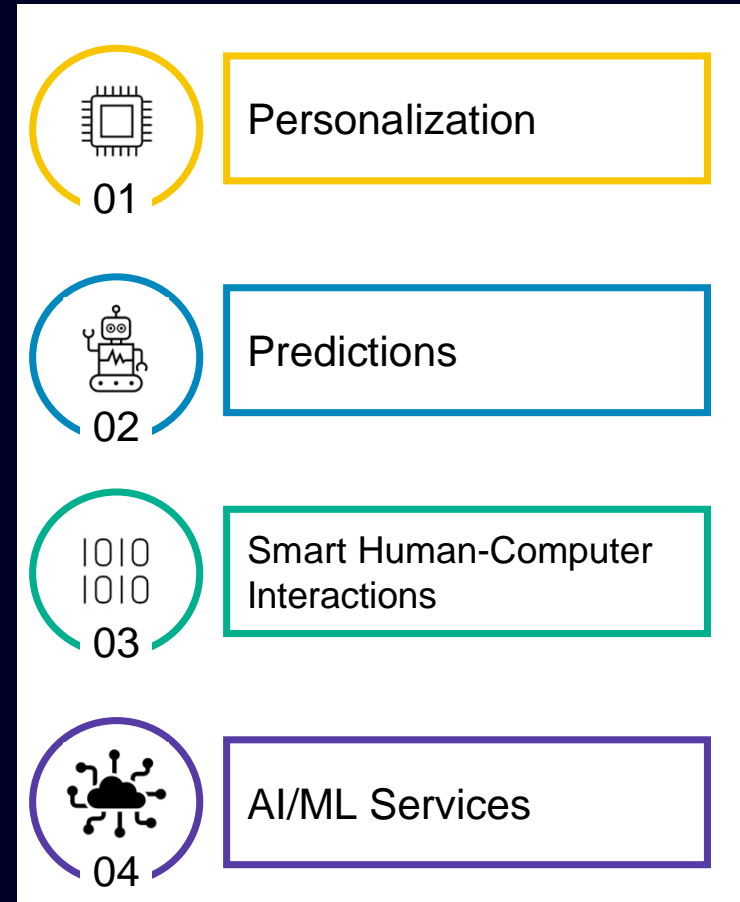
Selection Prediction supports real time multi select workflow with the ability to add and remove predicted entities

Declutter assembly and perform operation on geometrically similar components with **Select Similar Components**

With **Voice Command Assistant** realize productivity gains with natural human-like conversations

Perform operation and validation on geometrically similar regions with the new and enhanced **Select Similar Faces**

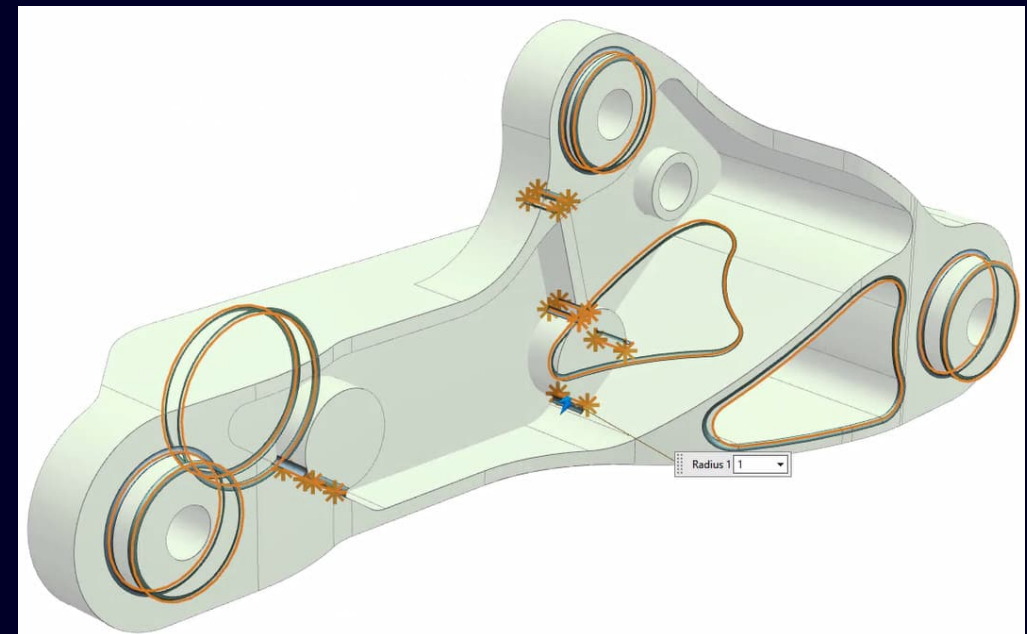
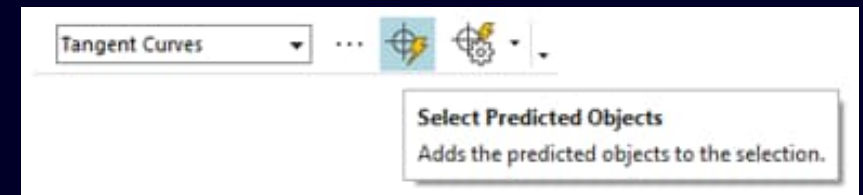
Efficient custom machine learning model generation by leveraging customers existing infrastructure and NX machine learning cloud service



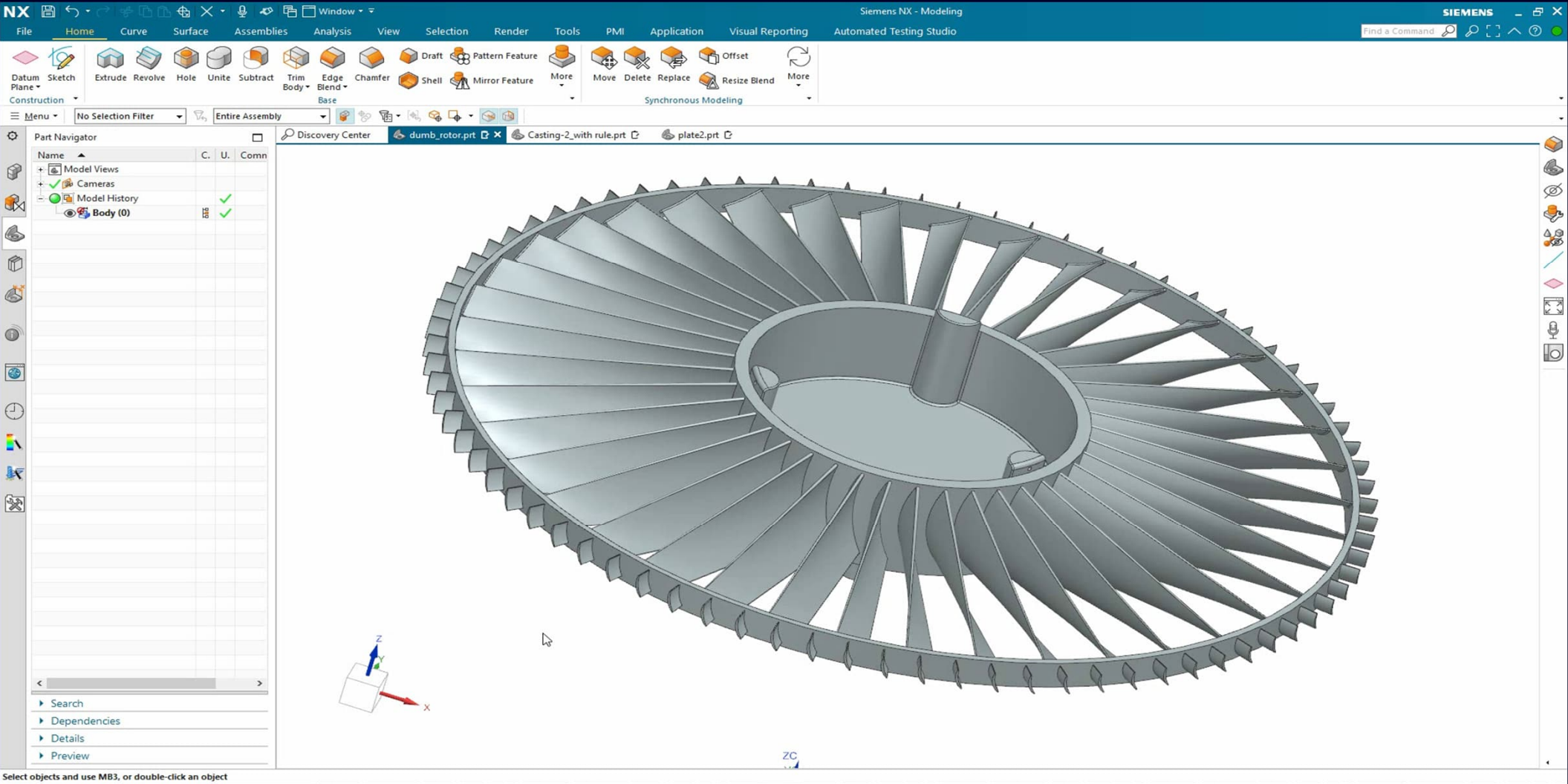
Productivity gain for multi select workflows with Machine Learning enabled Selection Prediction

Selection prediction framework predicts input selection entities

- Preview predicted objects (uses pre-defined attention color)
- Selection of predicted objects using current selection intent rule
- Real time prediction with ability to add and remove predicted entities from the selection list



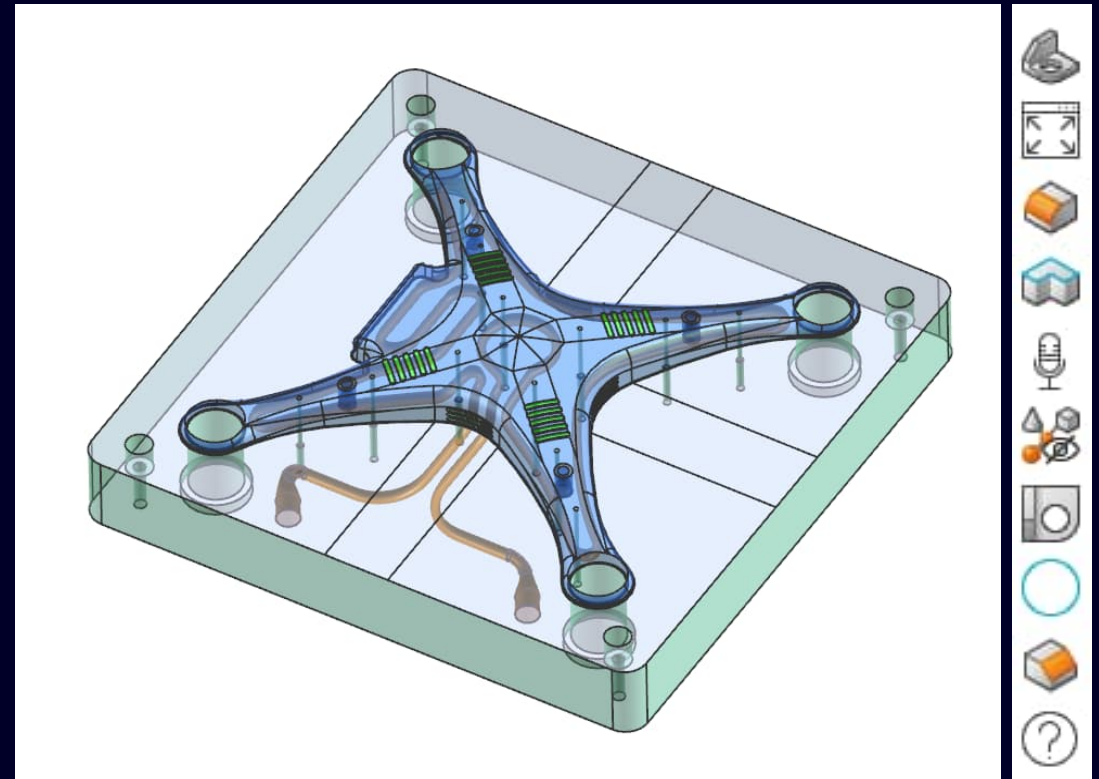
NX Selection Prediction Video



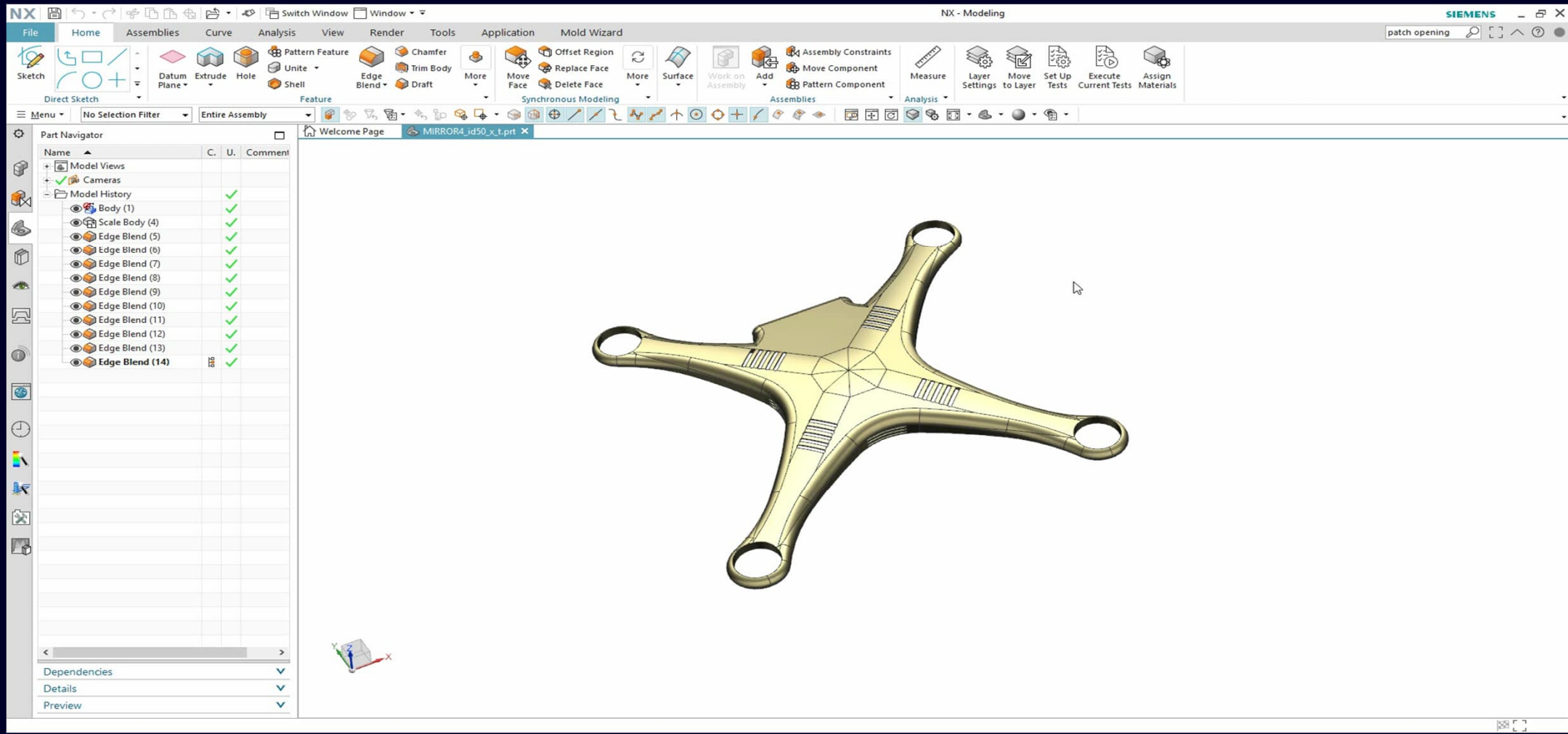
Command prediction: Perfectly tailor and serve up commands to suit all individuals regardless of their expertise

Modern architecture that considers the user interactions and can detect the command repetition

- Collect data while the user interacts with the system and use this data as a steady source of training data
- Provide best choice or set of choices, as based upon what the user has done in the past
- Serves one or more choices in correct order that will be more suited for the current task as determined by their success in the past



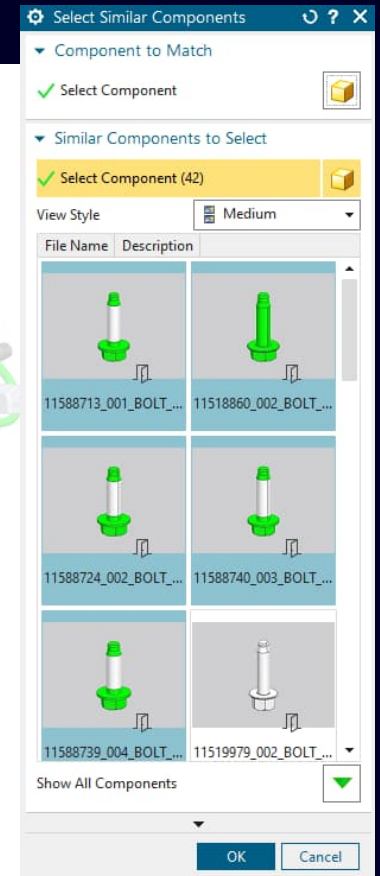
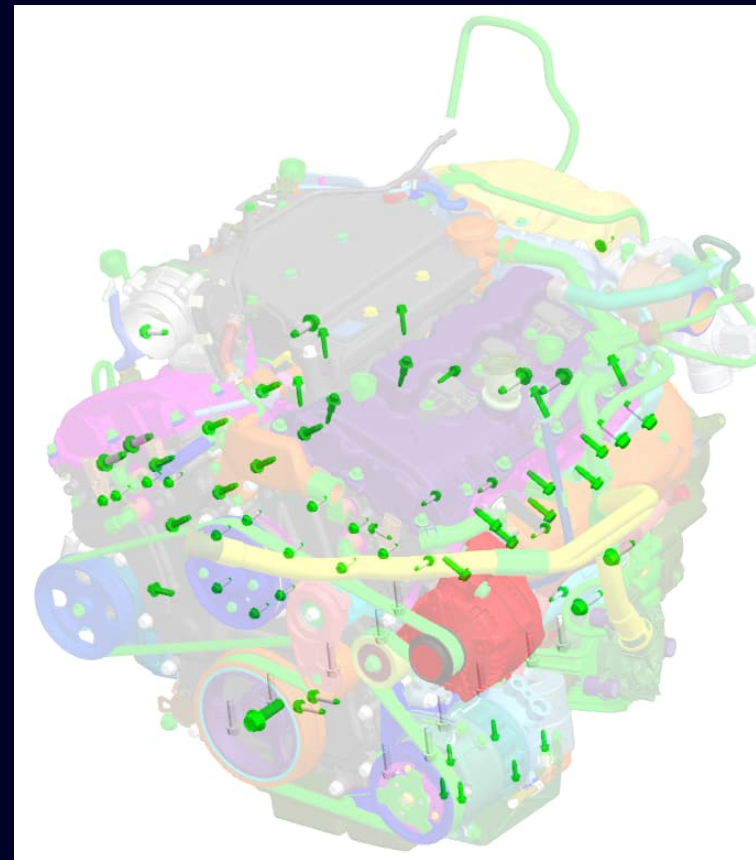
Artificial Intelligence Driven Features Command Prediction – Demo



Declutter assembly and perform operation on geometrically similar components with reduced number of clicks

Identify geometrically similar components with machine learning enabled shape recognition

- In session shape (geometrically similar) recognition with no additional infrastructure requirements
- Perform operations on selected components
- Enhanced “Similarity Engine on Part Load” customer default for better balance between load performance and usability
(Gateway > General > Selection)



NX Select Similar Components Video

The screenshot displays the Siemens NX software interface. The top ribbon includes tabs for File, Home, Curve, Surface, Assemblies, Analysis, View, Selection, Render, Tools, PMI, Application, Visual Reporting, and Automated Testing Studio. The main workspace shows a 3D assembly model of a powertrain with various components highlighted in different colors (yellow, orange, blue, green, red, purple). The Assembly Navigator table on the left lists the following data:

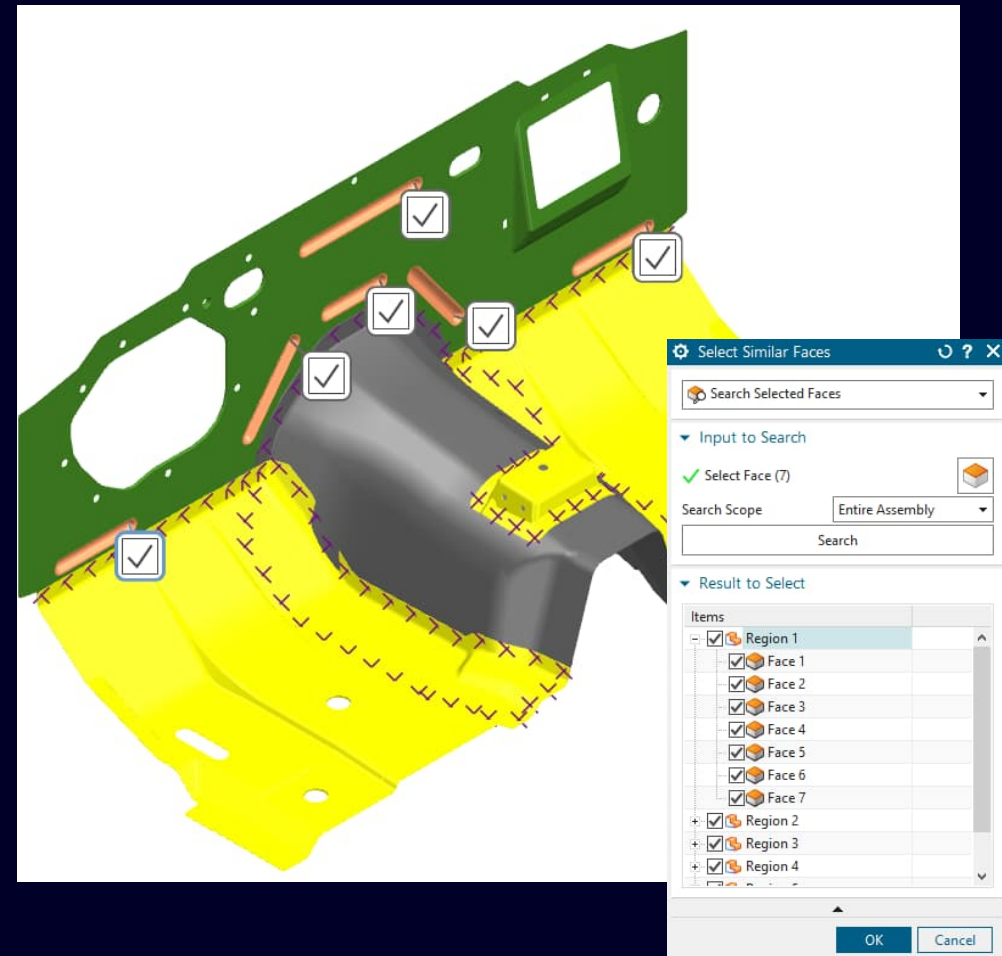
Descriptive Part Name	Units	Read...	Count
Sections			
OPD73693_001_VPPS_10_POWERTRAIN_...	mm		2707
OPD73694_045_VPPS_10_1_POWER_GEN...	mm		1747
OPD73695_041_VPPS_10_2_POWER_TRA...	mm		953
OPD73696_015_VPPS_10_3_PT_CONTROL...	mm		6

At the bottom of the interface, there is a notification icon and the text "1 Notification".

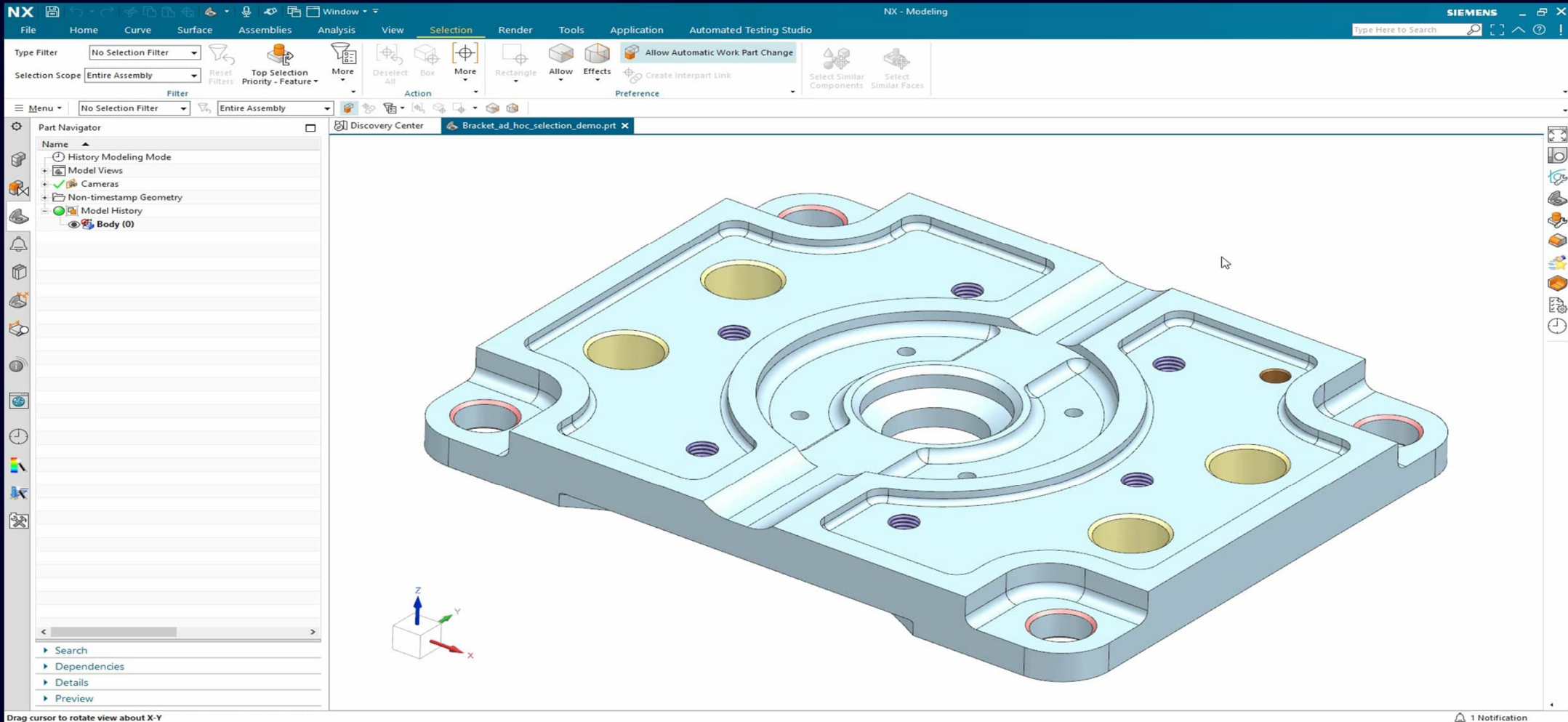
Perform operations on geometrically similar functional regions with reduced number of clicks

Identify geometrically similar regions with machine learning-enabled region recognition

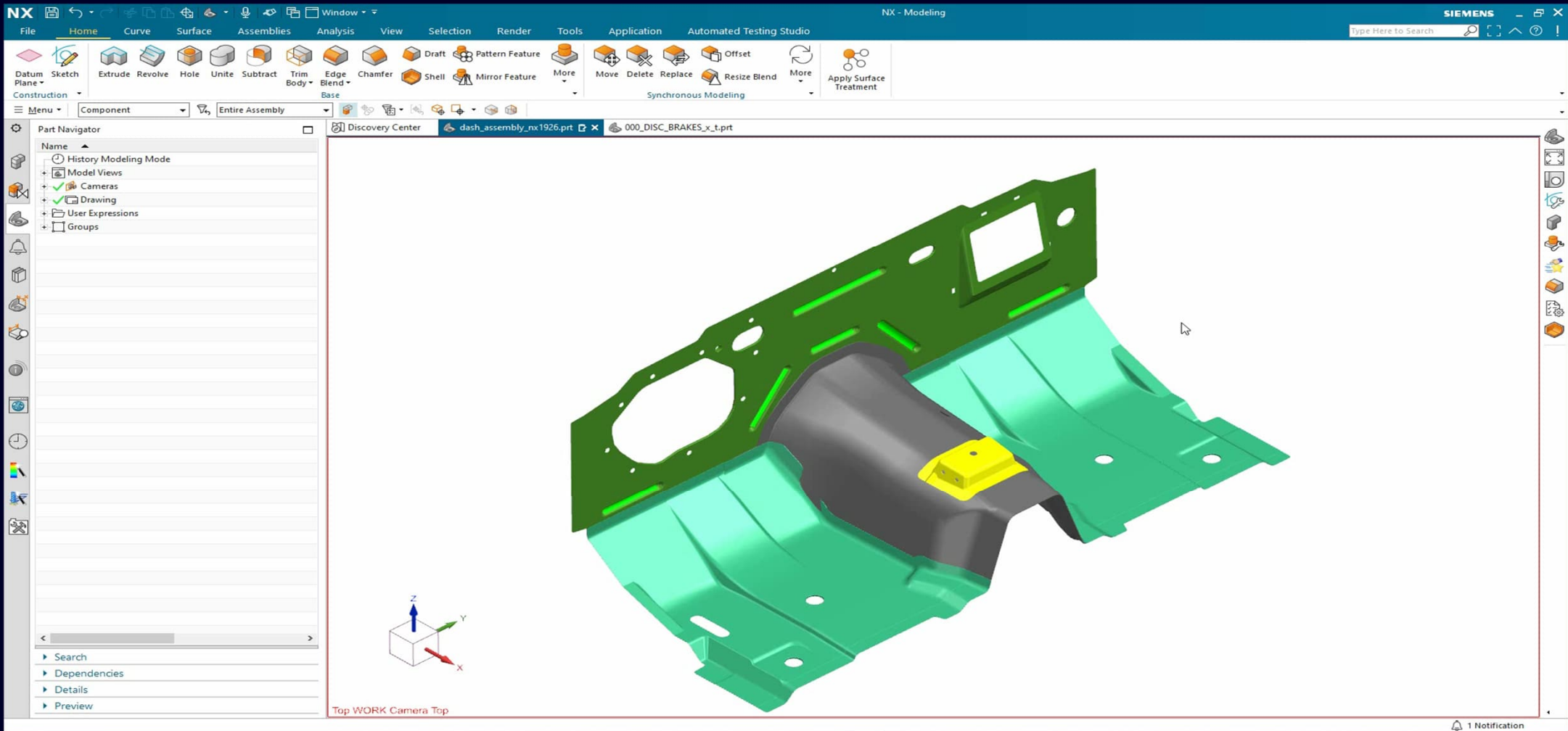
- In session region recognition and ability to perform operations on similar faces
- Usability enhancements
- Ability to find and select similar faces across multiple components
- Develop custom checks to perform validation of similar regions with check-mate integration
- Machine learning models for commonly searched regions



NX Select Similar Faces Demo Video – Search, Selection and Perform Operation



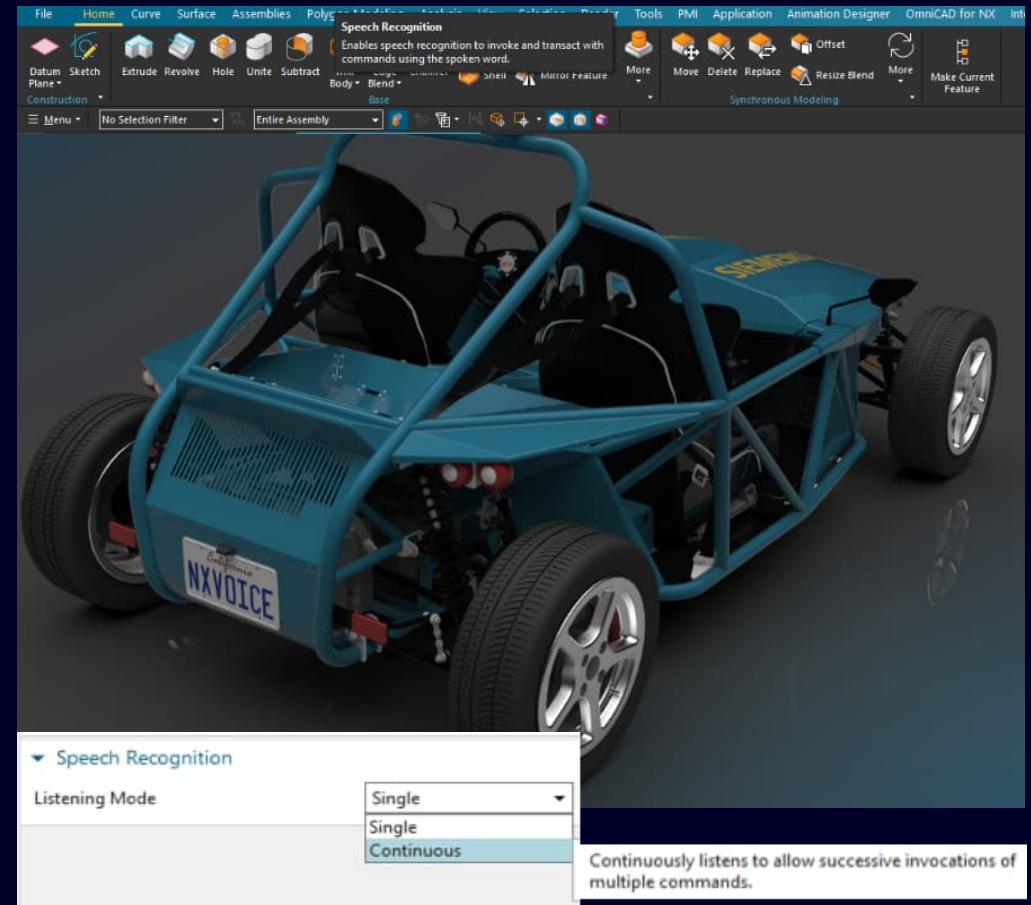
NX Select Similar Faces Demo Video – **Assembly Level Search**, Select and Operation



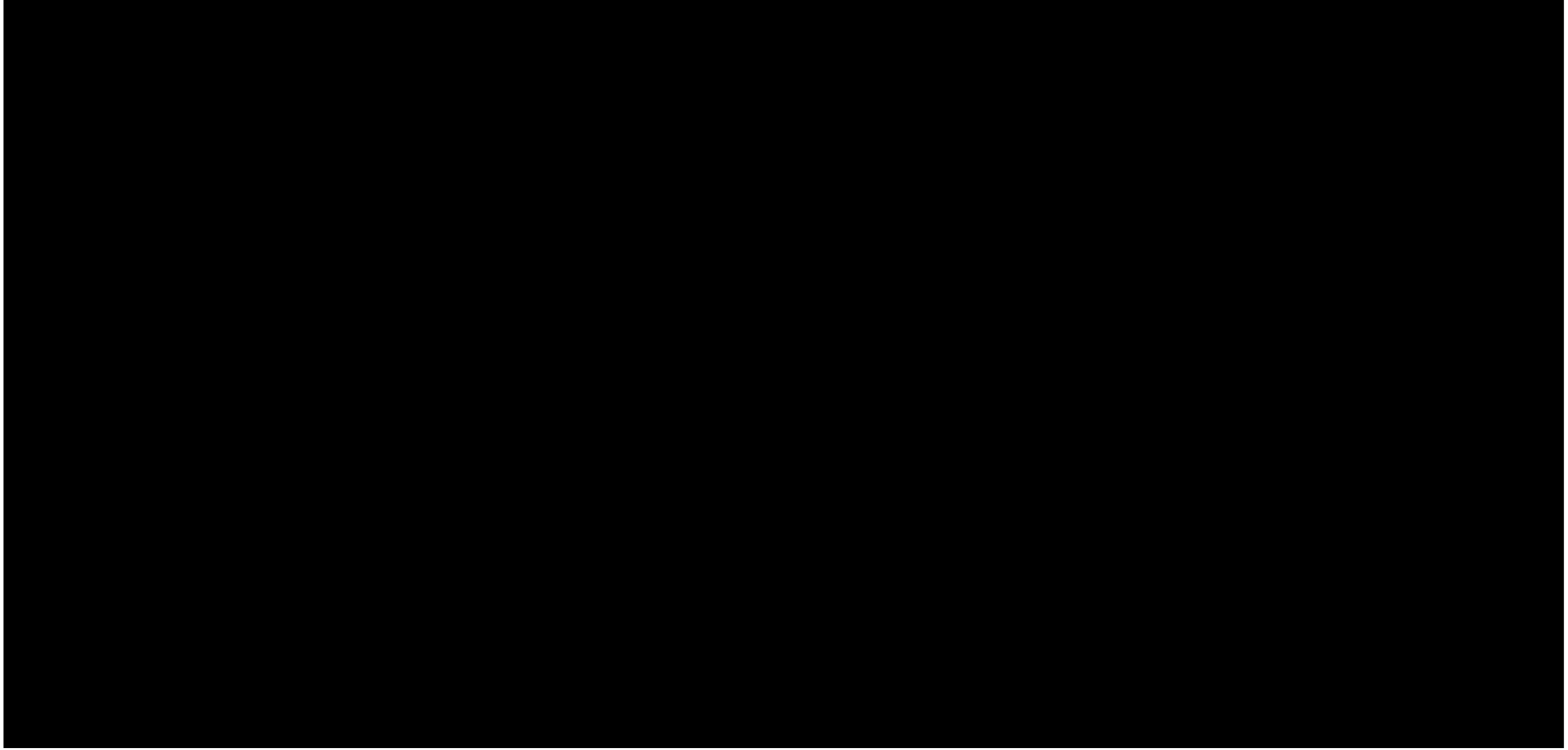
Realize productivity gains with natural human-like conversations and satisfying product development experience

NX Voice Command Assistant enables smart human interactions by:

- Transforming multiple level of menus and clicks with easy-to-use single keywords
- Supports single, continuous mode and listening period (Short, Medium & Large)
- Create voice enabled skills to drive NX, grouping sequence of commands and or custom journals into one voice enabled skill



NX Voice Command Assistant Demo





AI Driven NX

- Realize productivity gain by leveraging AI-enabled features
- Enable personalized experience and smart human interactions without having to explicitly program these characteristics
- Leverage existing product data and best practices for guiding users throughout their design process

NX Immersive visualization

Value based licensing enabled visualization



NX Immersive Engineering

Immersive Engineering

3D rendering

Business design, sales and marketing communication



Immersive design review

Validation, virtual commissioning and sign-off



Immersive design

Next generation immersive design workflows



Immersive collaboration

Iterate faster with more designs and more stakeholders



Connect Stakeholders

both internal and external to the live immersive digital twin.

Expand production process chain.

Increase Productivity

up to 30% versus use of 3rd party products. Hit sustainability targets

IT Optimization

through fully integrated OOTB immersive platform and Value Based Licensing

3D rendering

Immersive Engineering 3D rendering



NX Visualization Showcase

Visualize the
digital twin with
NX Render

Engineering Realism

Siemens Visual Materials and scene management

Decals and visual materials in standard display

- Consistency through to immersive and rendering
- 1000 visual materials and 50 scenes out of the box
- UV mapping tools for accurate texturing
- All new UI workflow for easy onboarding
- Utilize Nvidia MDL (import/export)

Appearance Management

- Drive visual design through to engineering and consumer visuals
- Manage complex product variations and associated visual materials in Teamcenter



Engineering Realism

Integrated visualization of a comprehensive digital twin

Render animations using Animation Designer

- Camera and rigid body animations supported

Enhance the digital twin with visual assets

- Avoids rework in external apps
- Prepare once, use in multiple workflows

Downstream Extended Reality workflows

- Export GLTF + USDZ + visual materials
- Animations, MCD, assy explosions/arrangements
- NVIDIA Omniverse export



NX graphics evolution: Drive graphics to the next level

Siemens Visual Materials as standard across NX and Siemens Xcelerator



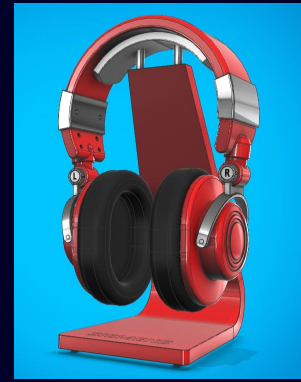
Historical
default shaded



New shaded
global finish



New shaded
visual materials



Studio



Ray traced



Immersive

Immersive explorer

NX Immersive Explorer

Desktop mode or via a headset

Shift left your design to manufacturing to customer processes with Immersive Explorer to gain valuable insights to your design for engineers, managers, stakeholders and end users.

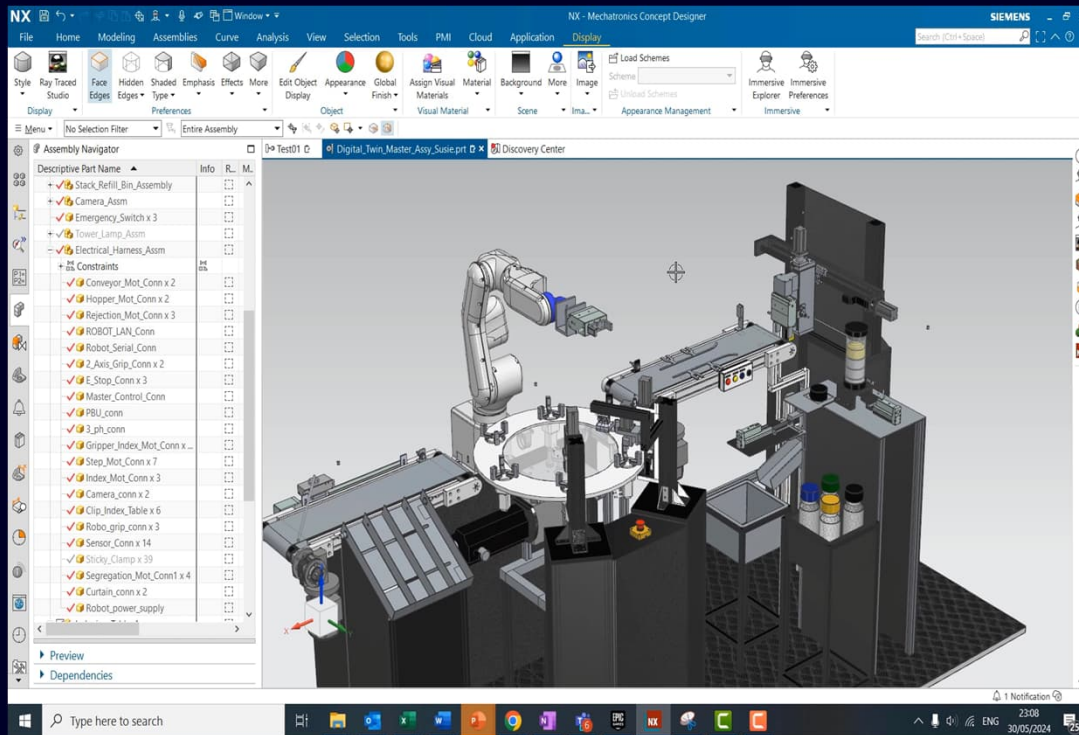
NX Immersive Explorer offers a desktop mode where you can enter the virtual environment **without** a headset and navigate around in full screen immersive to gain additional insights into your designs.

Alternatively use a supported headset



Immersive Explorer

Virtual commissioning with Mechatronics Concept Designer & Animation designer



Connect the real and digital worlds with **NX Immersive Explorer**

Immersive design & collaboration

SIEMENS

Immersive Engineering SONY XR hardware highlights



**4k
Resolution**
per eye



**Precision
controllers**
for engineering



**Comfortably
balanced**
for extended use



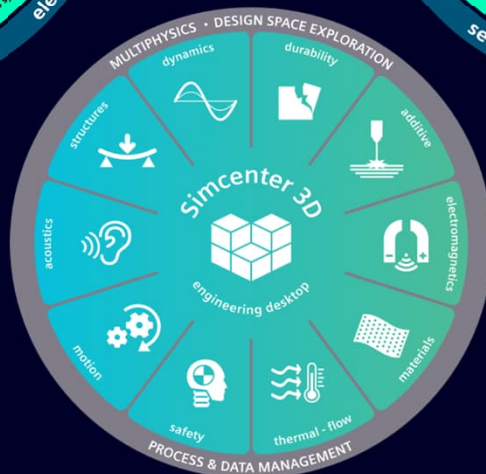
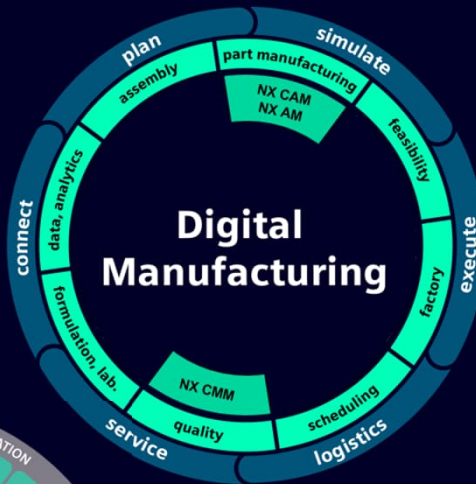
**Flip-up
visor**
for easy switching

Immersive Engineering Immersive design



**Connect the real
and digital worlds
with NX Immersive
Designer**

Summary: Siemens Xcelerator & NX



- A fundamental component of the Siemens Xcelerator portfolio
- A complete solution from concept through design, validation manufacturing & quality
- A single data model supporting digital threads
- Seamlessly integrated data management
- Value based licensing
- Cloud based or cloud connected



#NXMakesItReal