NX Vision & Direction
Delivering Industry-focused Solutions
On a decision-making platform underpinned by our HD-PLM strategy

HD-PLM Immersive Decision-Making Environment

Industry Solutions
- Aerospace
- Automotive
- Consumer
- Electronics
- Energy
- Machinery
- Marine
- Medical

Products
- NX
- Tecnomatix
- Teamcenter
- Fibersim Syncrofit
- LMS
- Solid Edge

Services
- High-Definition User Experience
- Intelligently Integrated Information
- Future-proof Architecture
NX for Product and Manufacturing Engineering

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Delivering new product development solutions that meet our customers industry challenges
NX for Product and Manufacturing Engineering
NX Roadmap

Current Version – NX 9.0.2

NX 9 introduced some exciting new technologies
• NX Realize Shape
• Synchronous Technology 2D
• Embedded Active Workspace

And maintained our focus on “version-up” and protecting your investment
**NX Planning Process**
Investing in Industries

**Delivering a Balanced Industry Driven Solution**

Our goal is to deliver best in class solutions for ALL of our customers

Planning Process allows projects to be tracked in multiple ways

- By initial driving industry and cross industry

Projects weighted from 0-100% for relevance to customers across industries

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Todays Topics…

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Services

Styling & Visualization
Synchronous Technology
Design for Manufacturing
User Experience

High-Definition User Experience
Intelligently Integrated Information
Future-proof Architecture
We asked you...
What challenges do you experience when you create freeform shapes?

You Replied…

- “We need to be faster and more flexible when developing our initial concepts”

- “We need ways to try alternative shapes and styles to give our designers the chance to innovate on our products”

- “We need better integrated visualization”
Our Solution…
Realize Shape delivers subdivision surfacing to enable new levels of advanced surface creation, integration and speed!

Fully associative and reusable NURBS output

Core workflow operations with manipulation & editing

Real Time Ray Trace Rendering

Multi-core CPU & GPU accelerated real-time display of inter-object reflections, refractions
NX 10 – Teaser
Realize Shape

New geometry construction techniques to simplify creation of complex freeform models

Takes sub-division modeling to a new level of creativity and power in design

New functions include:
- Extra primitive shapes
- Sweep/Loft & Tube

Sub-Division Tube & Transform
We asked you…
What challenges do you see in your model creation and editing workflows?

You Replied…

• “Working with 2D profiles is still important to us”

• “Even with auto-constraints sketches need more work than we like to get meaningful updates”

• “We need better methods to work with large sketches with lots of curves”

• “Imported 2D geometry is very difficult to change which makes it difficult to reuse in our design process”
Our Solution…

Geometric relations are recognized and maintained during change.
NX 9 Delivers…
Synchronous Technology 2D

Applies concepts of Synchronous Technology to 2D Geometry to reduce the time taken to make edits to 2D profiles

Relational editing regardless of constraints … fully constrained, partially constrained, or no constraints at all
Local changes to geometry means Synchronous 2D can be used on very large layouts with large number of curves, and without performance impact
Many product layouts are performed in 2D

- This is a common practice in the conceptual phase of product development
- Previous 2D layouts and sections from 3D models are commonly used as bases for a new layout
- Design issues whose key characteristics are represented in 2D are generally better and faster addressed in 2D

NX 10 will provide an integrated layout environment

- Support for neutral-format files such as DXF and IGES to leverage legacy data

New 2D Components capabilities will greatly assist with a layout by leveraging 2D Components as reusable, associative objects
Increased power to edit non-NX generated data

- Optimize 2D Curve enables you to clean up and simplify imported 2D curve geometry and points before or after you import it into a sketch.

More flexible geometry editing

- Allowing you to make more changes faster without manual geometry trimming.
We asked you…
What can we do to make it easier for you to validate your designs?

You Replied…

- “We need easier ways to understand how a model has been created”
- “We need to be able to clearly see the current status of our assemblies and components”
- “We need tools to validate designs against our manufacturing processes”
NX HD3D Visual Reporting
Visual clarity making decisions in 3D

• Uses PLM meta data to provide visual analytics in the 3D design context

• Create Visual Reports based on data from NX and or Teamcenter
  • CAD specific data
  • PLM data

HD3D display and interaction techniques aid the user in interpreting and navigating results

Creation, interaction and display of results within NX (CAD authoring tool)

All the parts that are overweight and from a particular supplier?

The release status of all the parts from a particular supplier?
Challenges in Industry
Late engineering changes

- 70% of the Product cost is committed at Design stage

- Cost of engineering change is high and it grows exponentially as we get closer to the product launch

ECOs represent 20 to 50% of tool costs (around 100M USD in large projects)

- Lincke, W. Simultaneous Engineering

ECOs consume one third to one half of engineering capacity

- Soderberg, L.G., Facing up to the engineering Gap. McKinsey Quarterly
Our Solution…

[Image of a computer interface with a 3D model and software tools for quality control and inspection.]
DFMPro for NX

- Uses existing, familiar and proven Check-Mate framework
- Checks are provided out-of-the-box for machining, sheet metal, injection molding, assembly and casting manufacturing processes
- HD3D interface for problem navigation and tagging
- Utilizes HD3D for improved visual feedback of display results
- Utilizes Check-Mate results tools and Teamcenter integration
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Platform
- Quality
- Performance
Continuous improvements in testing to insure quality

A mix of more than 20,000 internal and customer provided parts checked every night to ensure version compatibility.

More than 200,000 parts checked at key milestones during each major release to protect investment.

Global Beta test program
- Offsite testing + Onsite at 14 Siemens PLM locations
- 320 Customers attending onsite beta
- Over 7000 hours of onsite customer testing
NX 9 delivers an order of magnitude faster feature editing and drawing creation on large parts

- Greater user control over updates with powerful but simple part level feature organization tools, based on Part Modules, limit features that need to update
- Pervasive interrupt to eliminate time waiting
- Faster model display by employing up to 4 CPUs to update model display introduce smart processing allowing display in parallel with geometry regeneration
- **Improved performance** for drawing creation and update
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Streamlined Workflows
Teamcenter Integration
User Experience
We asked you…
What areas could we streamline user interaction to help you?

You Replied…

• “We want the 2D documentation process to be faster and want easier methods of annotating our models”

• “Give us more on-screen interaction tools”

• “We want our users to get maximum benefit from using NX and Teamcenter together, making it easier to work with Teamcenter and use latest technologies from both products”
NX 9 Delivers…
Streamlined Documentation Processes

Improved productivity by simplifying the task of adding and editing dimensions
Reduced dimension command set, 22 different dimensions reduced to 9 with dynamic adaptation of dimension type based on geometry being detailed

Enhanced user experience through dynamic interaction
Object handles that provide improved interaction model and easy access to common settings
NX 9.0.3 Delivers…
Embedded Active Workspace Client

Access to Active Workspace functionality and all Teamcenter data from inside NX

Higher productivity with engineers being able to easily access Active Workspace from within NX

‘Send to NX’ and ‘Send to TC’ capabilities for seamless operation between NX and TC

Search and other powerful capabilities
High Definition User Experience
Leveraging advances in Hardware

**Touch**
First delivery of multi touch capabilities allows new approaches to using NX across the enterprise

**Stereo**
Enhanced stereo display allows high quality product reviews
Summary

NX Investments Deliver

Fast efficient design solutions enable our customers to quickly develop products that **meet market demands**

Integrated solutions **improve quality and productivity** by validating designs against common manufacturing processes

Tight integration with Teamcenter to deliver the information needed to make **Smarter Decisions** and deliver **Better Products**
Thank You