





# Topics



- ▶ Drafting & 3D Annotation Vision
- ▶ Drafting Review and Direction
  - ▶ NX 4 Progress & Highlights
  - ▶ Drafting Demonstration
- ▶ PMI Review and Direction
  - ▶ NX 4 Progress & Highlights
  - ▶ PMI Best Practices
- ▶ NX 5 Sneak Peeks
- ▶ Wrap-up
  - ▶ Questions/Comments/Beefs, etc.





# Drafting & 3D Annotation Vision



## One cohesive, integrated solution for documenting 3D models

Drafting & 3D Annotation Vision

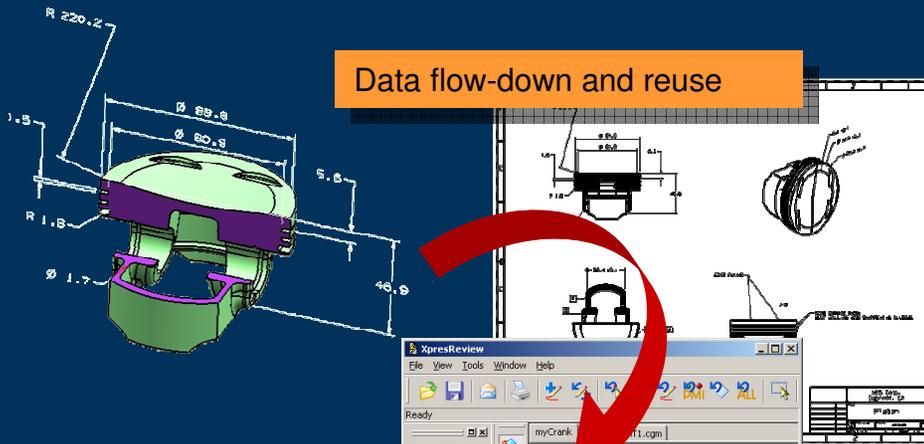
Drafting Review and Direction

PMI Review and Direction

NX5 Sneak Peeks

Wrap-up

Data flow-down and reuse



Configurable Standards compliance

Automated drafting tools

## Directions

- ▶ Capture and communicate design intent in the context of a single 3D “master” definition
- ▶ Facilitate downstream reuse of design information
- ▶ Automated documentation tools
- ▶ Automatic Standards conformance for all annotation
- ▶ Reduce or eliminate redundant, tedious effort required for 2D drawing creation





# Drafting Vision



Manual Drawings

Semi-automated Drawings

Automated

Operator Efficiency

Automatic drawing generation with little to no operator interaction

Combination of automated and interactive tools to produce and maintain standards-compliant engineering drawings

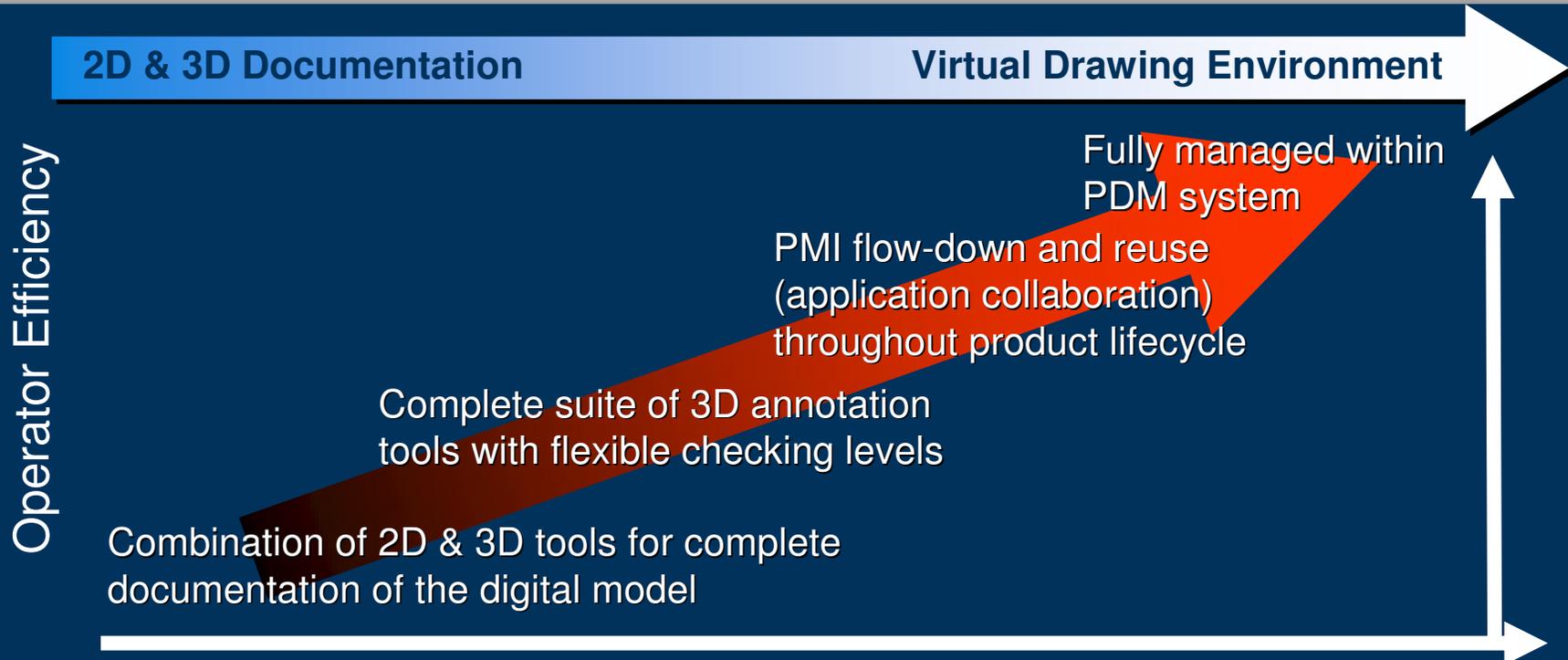
Today

Future

- ✓ Remove drawing creation from critical design path
- ✓ Reduce rework and errors
- ✓ Improve productivity and time to market



# PMI Vision



Today

**PMI:**

Future

- ✓ **Reduces costs**
  - ✓ 50% reduction in workflow processes
  - ✓ 30-50% reduction in manufacturing errors
- ✓ **Improves Quality**
  - ✓ 100% data consistency across applications
  - ✓ Standards-compliant digital definition



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# Significant NX 4 Enhancements

## Drafting



Drafting & 3D  
Annotation  
Vision

Drafting Review  
and Direction

PMI Review and  
Direction

NX5 Sneak  
Peeks

Wrap-up

- ▶ Improved Ordinate Dimension Capability
- ▶ New GD&T Builder/Editor
- ▶ Tracelines in Exploded Views

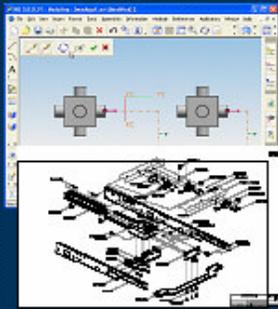
### Assembly Tracelines on Drawings

**Direction / Strategy**

- ▶ Provide new way to create exploded view tracelines
- ▶ Today user has to manually create and manage curves to achieve this
- ▶ In NX4 the user will be able to create and edit trace lines using a rule based tool
- ▶ The solution provided by the rule based tool will be editable
- ▶ Create a 3D seed to the drawing

**Why is this important?**

- ▶ Easily document assembly requirements



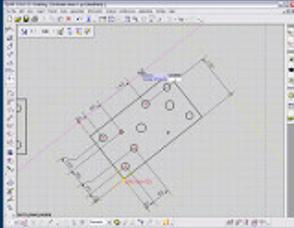
### Drafting NX 4 - Ordinate Dimensions

**Direction / Strategy**

- ▶ Rewrite user interface to make consistent with other dimension interfaces
- ▶ Include enhancements for margins
  - ▶ Inferred margins
  - ▶ Explicit margins
- ▶ Include enhancements for doglegs
  - ▶ Robust create and edit capabilities

**Why is this important?**

- ▶ Ordinate Dimensions with multiple margins, doglegs, and direct editing



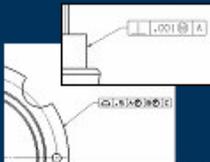
### NX 4 Control Frame Builder

**Direction / Strategy**

- ▶ Rewrite user interface to make consistent with other dimension interfaces
- ▶ Include enhancements for margins
- ▶ Include enhancements for doglegs
- ▶ Robust create and edit capabilities

**Why is this important?**

- ▶ Easy to learn and to learn from
- ▶ User interface is similar to a PCF layout
- ▶ Easy for any user
- ▶ No special characters to memorize
- ▶ Very easy to edit




# NX 4 Progress & Highlights

## New Dimensioning Capabilities



Drafting & 3D  
Annotation  
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PMI Review and  
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NX5 Sneak  
Peeks

Wrap-up

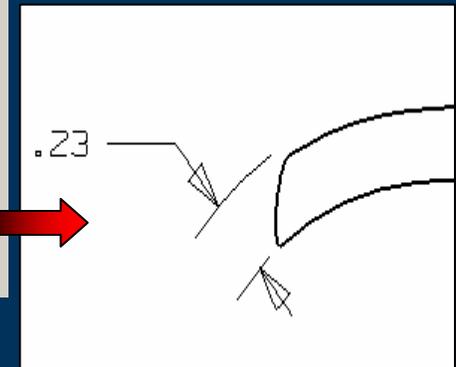
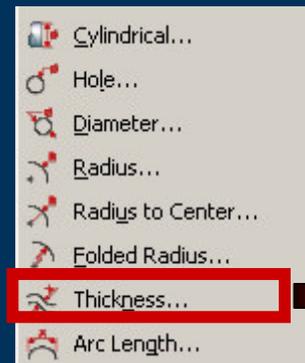
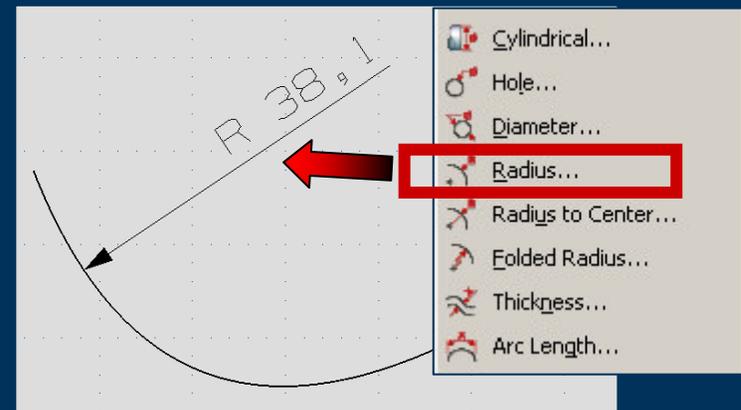
### Description

- ▶ Dimension the radius of curvature at a specific point on a spline or conic/arc
- ▶ Specify a thickness or gap dimension between two non-linear curves (i.e. splines)

### Value

- ▶ Provides additional dimensioning capabilities
- ▶ Facilitates drafting workflows

### New Dimensioning Capabilities





# NX 4 Progress & Highlights

## View Creation Enhancements



Drafting & 3D  
Annotation  
Vision

Drafting Review  
and Direction

PMI Review and  
Direction

NX5 Sneak  
Peeks

Wrap-up

### Description

- ▶ Ability to create non-associated extracted drawing views
- ▶ Ability to create empty drawing views

### Value

- ▶ Allows for more flexible view creation techniques
- ▶ Allows users to create and manage their own view-dependent geometry

### New View Creation Capabilities

The screenshot shows the 'View Style' dialog box with the 'Non-associative' checkbox selected. Below the dialog is a drawing view of a part with dimensions: R 146,2, 37,8, and R 410,5. A red arrow points from the 'Drawing View...' option in the drawing view menu to the drawing view.





# NX 4 Progress & Highlights

## 2D Geometry Support



Drafting & 3D  
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NX5 Sneak  
Peeks

Wrap-up

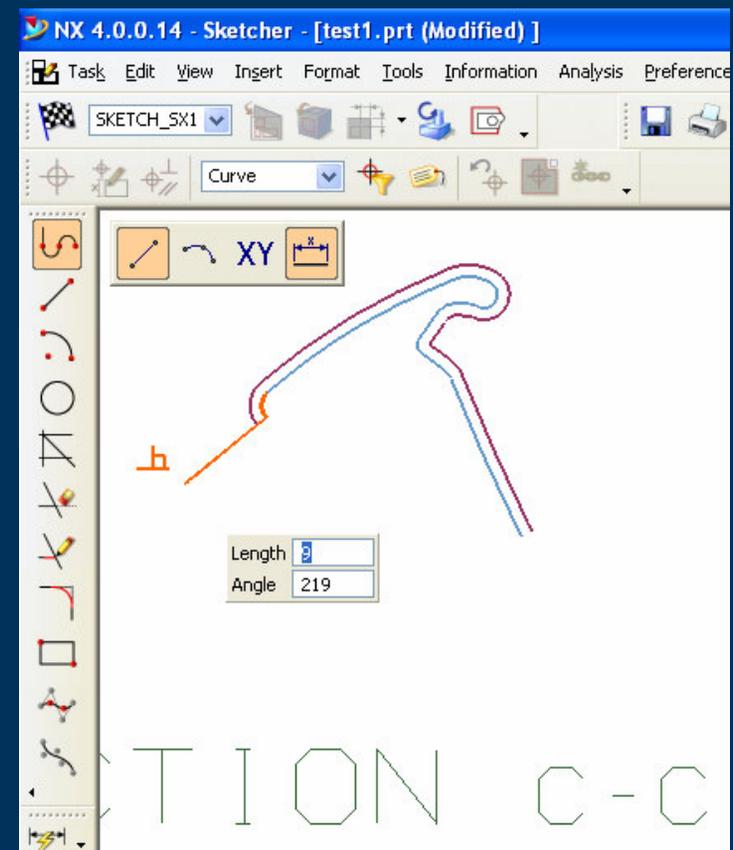
### Description

- ▶ Ability to use the sketcher to create curves that are associated directly to a view or to the drawing

### Value

- ▶ Provides a more flexible and consistent environment for the creation of 2D geometry

### 2D Geometry Support





# NX 4 Progress & Highlights

## Usability Enhancements



Drafting & 3D  
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NX5 Sneak  
Peeks

Wrap-up

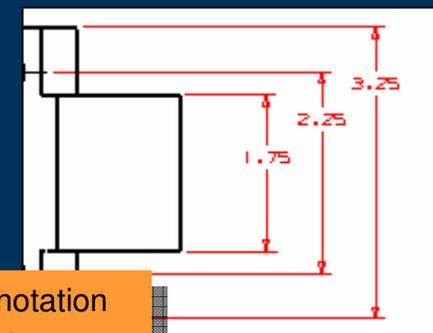
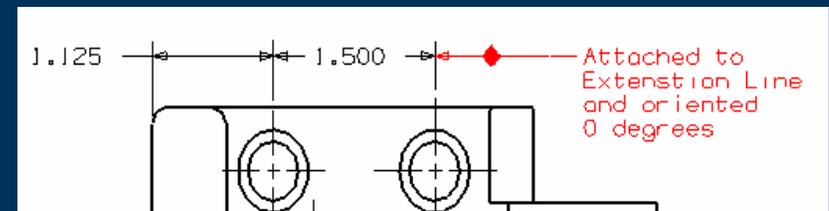
### Description

- ▶ Ability to create annotations associated to extension lines of dimensions
- ▶ Multiple annotation repositioning
- ▶ Multiple copy of standalone objects using <Ctrl> & drag
- ▶ Leader snapping to 0 or 90 degrees

### Value

- ▶ Enhances drafting productivity with more flexible creation and edit methods for dimensions and annotations

### Dimensioning Enhancements





# NX 4 Progress & Highlights

## Usability Enhancements



Drafting & 3D  
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Wrap-up

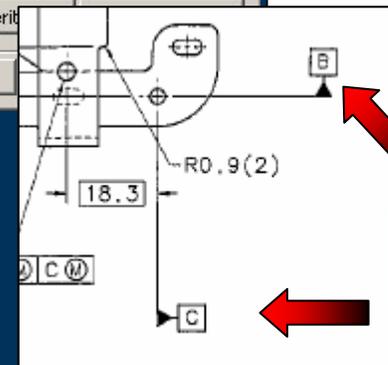
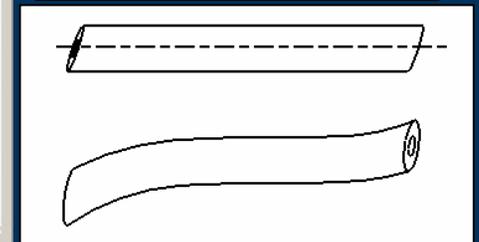
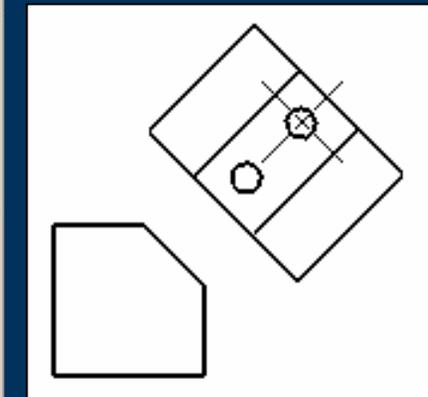
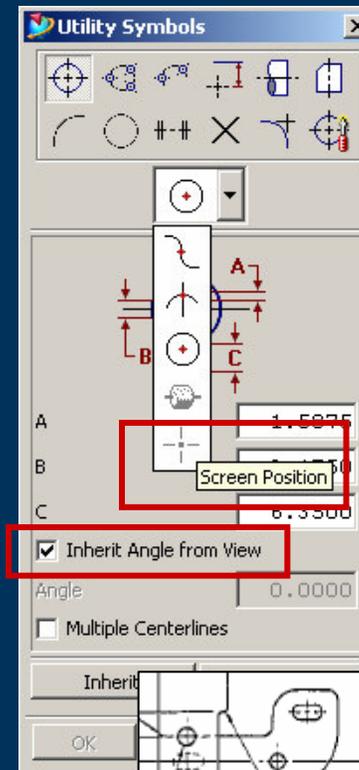
### Description

- ▶ Ability to set the centerline angle equal to hinge line angle used by the auxiliary view
- ▶ Ability to specify screen position picks to create centerlines
- ▶ Ability to specify datums on centerlines

### Value

- ▶ Enhances drafting productivity with more flexible creation and edit methods for symbols

### New Centerline Capabilities



Datums on  
centerlines





# NX 4 Progress & Highlights

## Enhanced Label Capabilities



Drafting & 3D  
Annotation  
Vision

Drafting Review  
and Direction

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Direction

NX5 Sneak  
Peeks

Wrap-up

### Description

- ▶ Ability to control the gap between the top of a leader stub and the bottom of the annotation
- ▶ New view label preference for labeling a parent view with a leader line.

### Value

- ▶ Enhances drafting productivity with more flexible creation and edit methods for annotations

### Enhanced Label Capabilities

The image illustrates the 'View Label Preferences' dialog box in NX software. The 'Label on Parent' option is highlighted with a red circle. The dialog shows settings for 'View Name' (DETAIL), 'View Letter' (A), 'Letter Format' (A), 'Letter Size Factor' (5000), 'Text to Gap Factor' (1.0000), 'Parent Label Prefix', 'View Scale' (checked), 'Position' (Below), 'Prefix Text Factor' (0.5000), 'Prefix' (SCALE), 'Value Format' (SCALE), 'Value Text Factor' (1.0000), and 'Letter' (A). The 'Other' tab is selected. The background shows a CAD drawing with a leader line pointing to a detail view. The text 'SAF COMP NO.1 NEAR SIDE INK INJECTION CHASSIS' is shown in two positions: one above the detail view and one below it, with a red arrow indicating the change in vertical alignment.





Drafting & 3D  
Annotation  
Vision

Drafting Review  
and Direction

PMI Review and  
Direction

NX5 Sneak  
Peeks

Wrap-up

# NX 4 Drafting Demonstration





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- ▶ NX 5 Sneak Peeks
- ▶ Wrap-up
  - ▶ Questions/Comments/Beefs, etc.





# Significant NX 4 Enhancements

## Drafting



Drafting & 3D Annotation Vision

Drafting Review and Direction

PMI Review and Direction

NX5 Sneak Peeks

Wrap-up

- ▶ New PMI Application and User Interface
- ▶ PMI Associations and Attachments
- ▶ PMI in Part Navigator
- ▶ PMI Search & Report
- ▶ PMI Inherit to Drawings



**New PMI Application**  
Product and Manufacturing Information

3D ANNOTATION

A single collection of products ready capabilities to document solid models in 3D

Section Views

PMI Tools to Create, Edit, Associate to Geometry, Organize into Views

PMI Report and Search

PMI in Navigator

Part PMI in Assembly context

All PMI to Drafting

All PMI to JTAVE

Export all through PDM API

Display and Annotation planes

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**New PMI Application**

3D ANNOTATION

Direction / Strategy

- ▶ A single collection of tools for adding PMI
- ▶ Consolidate and add

**PMI Associations and Attachments**

3D ANNOTATION

Why is it important?

Direction / Strategy

- ▶ Attached to geometry

**PMI in Part Navigator**

3D ANNOTATION

Direction / Strategy

- ▶ Provide a new way to interact with and manage PMI
- ▶ Complements the typical graphics for PMI
- ▶ Faster modification as a queries
- ▶ Brings PMI to a top level in the tree; can be a link accessible
- ▶ More levels of organization beyond Model Views

**PMI Search and Report**

3D ANNOTATION

Direction / Strategy

- ▶ Ability to Search for specific PMI by their characteristics
- ▶ Provide a Formatted and

Spreadsheet generated from PMI information

**Inherit PMI to Drafting**

3D ANNOTATION

Direction / Strategy

- ▶ Allow any PMI to be used in drawing creation
- ▶ Controlled by the user
- ▶ Model view based
- ▶ All PMI - new PMI, old smart model product data files
- ▶ Checked GD&T controlled separately, for now
- ▶ Associate
  - ▶ Drawings kept up-to-date with PMI on the model

Model view and PMI

Inherited model view and PMI on the drawing

Why is it important?

- ▶ Need to reuse the PMI
- ▶ Drawings will still need to be created to formally release

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# NX 4 Progress & Highlights

## Sectioned Model Views



Drafting & 3D  
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Drafting Review  
and Direction

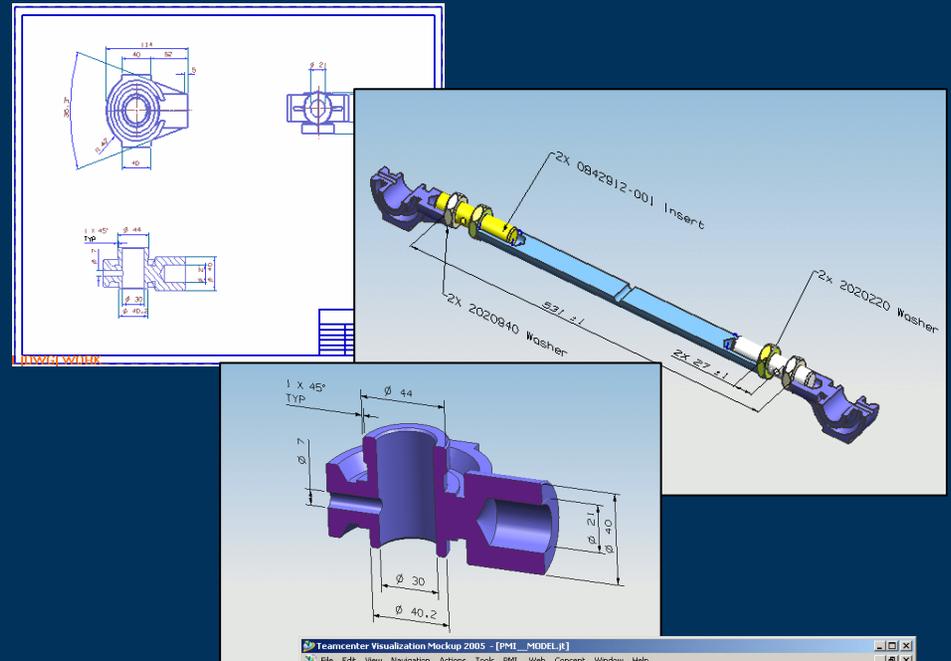
PMI Review and  
Direction

NX5 Sneak  
Peeks

Wrap-up

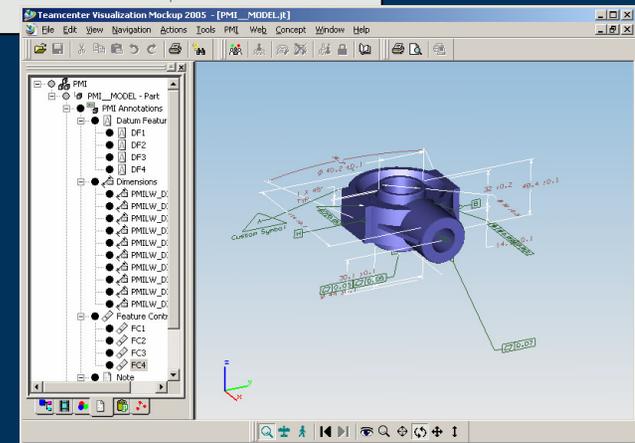
### Description

- ▶ Support planar and stepped section views in modeling
- ▶ Allow PMI annotation to be displayed in Section Views
- ▶ Scheduled for release in 4.0.2
- ▶ Supported in TC Vis Mockup by NX 5



### Value

- ▶ Allows for annotation placement on “inside” of part for clearer interpretation
- ▶ Allows for the replacement of 2D drawing-based processes





# NX 4 Progress & Highlights

## Usability Improvements



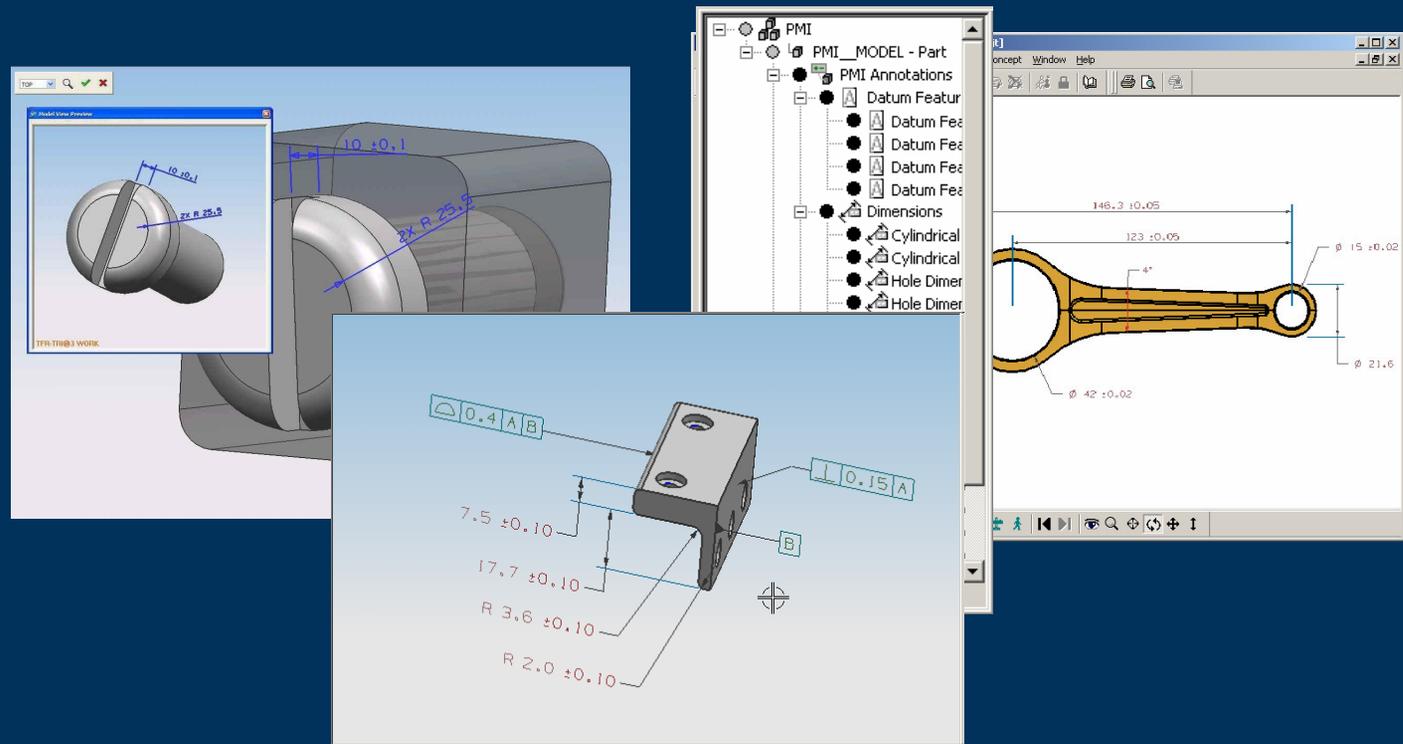
Drafting & 3D  
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Vision

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and Direction

PMI Review and  
Direction

NX5 Sneak  
Peeks

Wrap-up



- ▶ Create/Edit PMI in the context of an Assembly
- ▶ Model View support for PMI in Tc Vis Mockup
- ▶ Readable PMI





Drafting & 3D  
Annotation  
Vision

Drafting Review  
and Direction

**PMI Review and  
Direction**

NX5 Sneak  
Peeks

Wrap-up

# NX 4 PMI Demonstration





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# NX 5 Sneak Peeks

## Drafting



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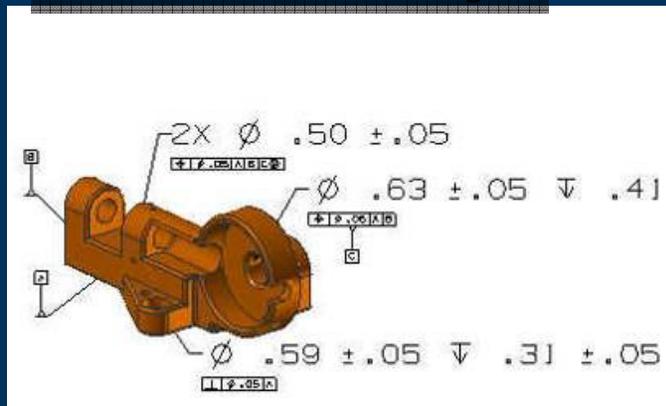
PMI Review and  
Direction

NX5 Sneak  
Peeks

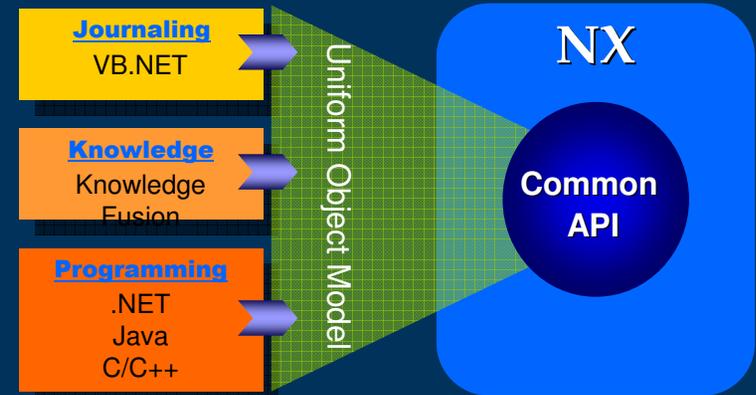
Wrap-up



### Shaded Views on Drawings



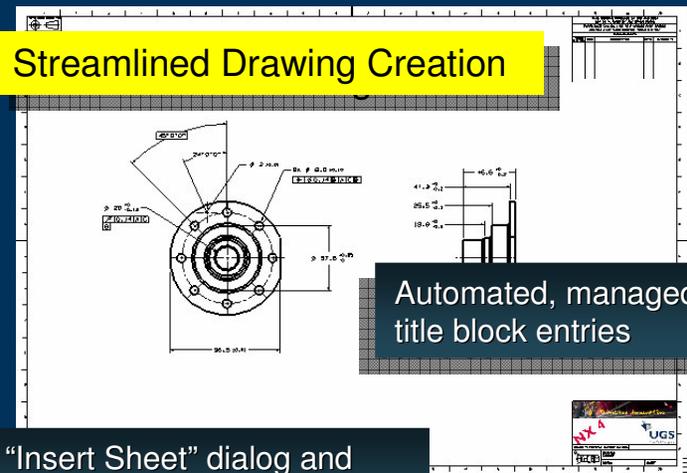
### Improved Automation Coverage



### OOTB Standards Support



### Streamlined Drawing Creation



New "Insert Sheet" dialog and intelligent view creation methods



# NX 5 Sneak Peeks

## PMI



Drafting & 3D  
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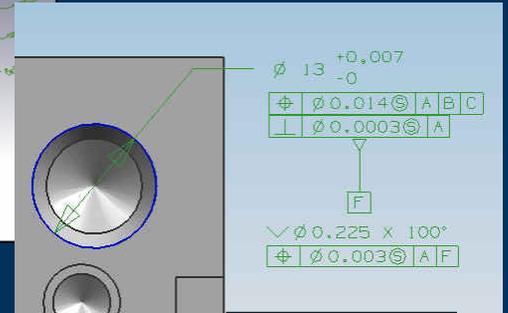
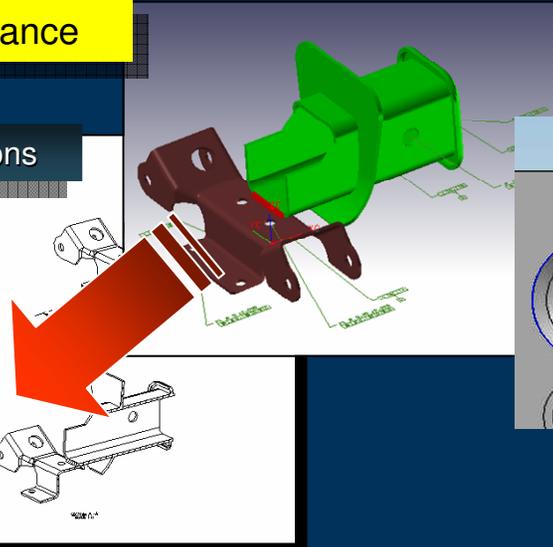
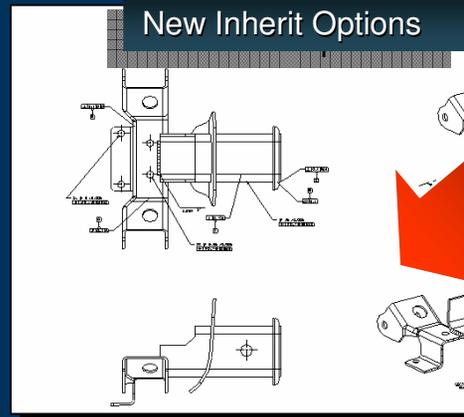
Drafting Review  
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PMI Review and  
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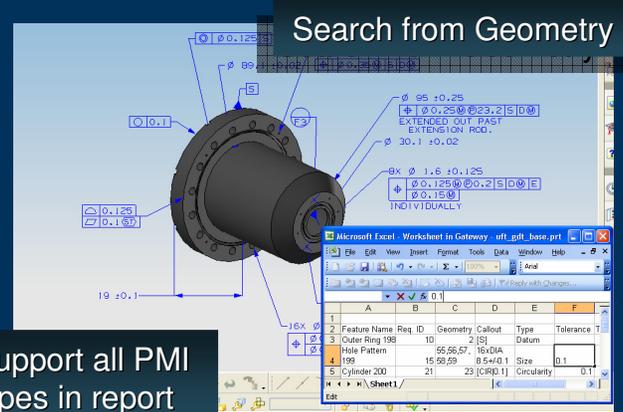
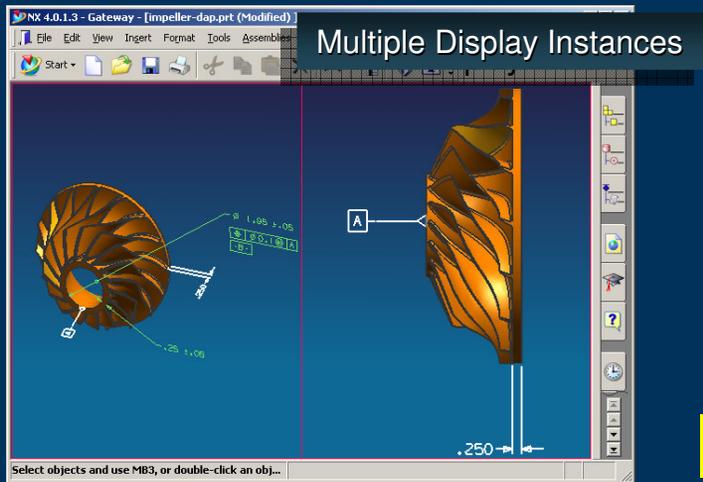
**NX5 Sneak  
Peeks**

Wrap-up

### Flexible Display & Inheritance



Stacked PMI



Support all PMI  
types in report

### Improved Search & Report Capabilities





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# Wrap-up

## NX 5 Beta Testing



Drafting & 3D  
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NX5 Sneak  
Peeks

Wrap-up

## October 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	Beta Testing		13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4





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