

Are You Tired of Being A PowerPoint Engineer?

Maria D'Agostino
Priscilla Carreon

GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2023



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Presenter's Bio

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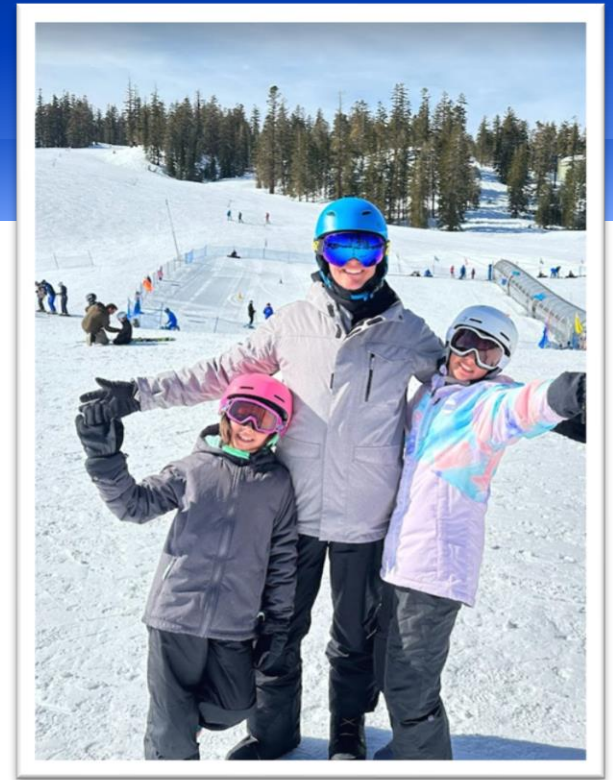
- Maria D'Agostino is a Sr Staff Engineer Systems – NGC
- Current Position: Digital Transformation / MBSE Lead Strategic Space Division
- Experience: Aerospace, medical, commercial, and DOD/NATO experience in systems modeling / specification of fly-by-wire systems for commercial and business jets, air/ground radar systems, and aircraft fuel-management systems using MBE
- Education: BE, MS Computer Science, MS Electrical Engineering
- Hobbies: Hiking, yoga, spinning, cross-training



Presenter's Bio

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- Priscilla Carreon is a Staff Engineer Systems – NGC
- Chief Architect of MBSE in a Box in Digital Transformation / Strategic Space Division
- Aerospace/space experience includes manufacturing, EVMS, international cooperations, Cyber Security, and MBSE
- Education: BS Chemical Engineering



- Certifications: OMG-Certified SysML Professional (OCSMP) Level 2
- Hobbies: Snowboarding, Art, Working Out

Agenda

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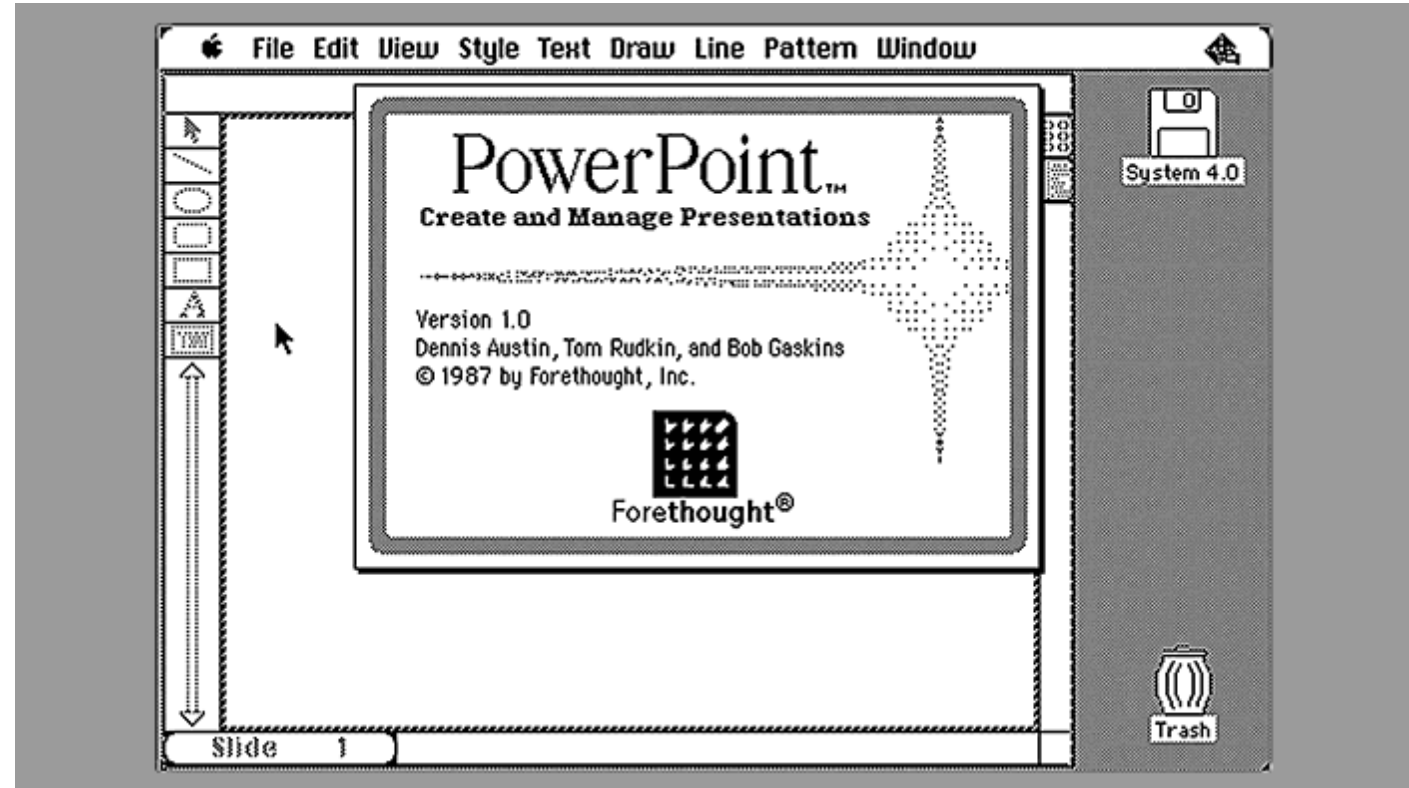
- **The Rise of PowerPoint**
- **The Downfalls of PowerPoint**
- **Tools Used For Digital Design Reviews**
 - Cameo
 - Teamwork Cloud
 - Cameo Collaborator
- **Examples**
 - Technical Peer Review
 - Customer/Leadership Review
 - Model Centric Navigation – Using Dashboards in Cameo
 - Metrics Visualization

The Beginning

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April 20, 1987, Silicon Valley, Forethought, Inc.

- **Bob Gaskins and Dennis Austin released PowerPoint for the Macintosh computer.**
- **This revolutionized and democratized the art of presentations.**
- **Presentations were no longer confined to corporate executives.**
- **Anyone with a computer that ran PowerPoint could create a presentation.**

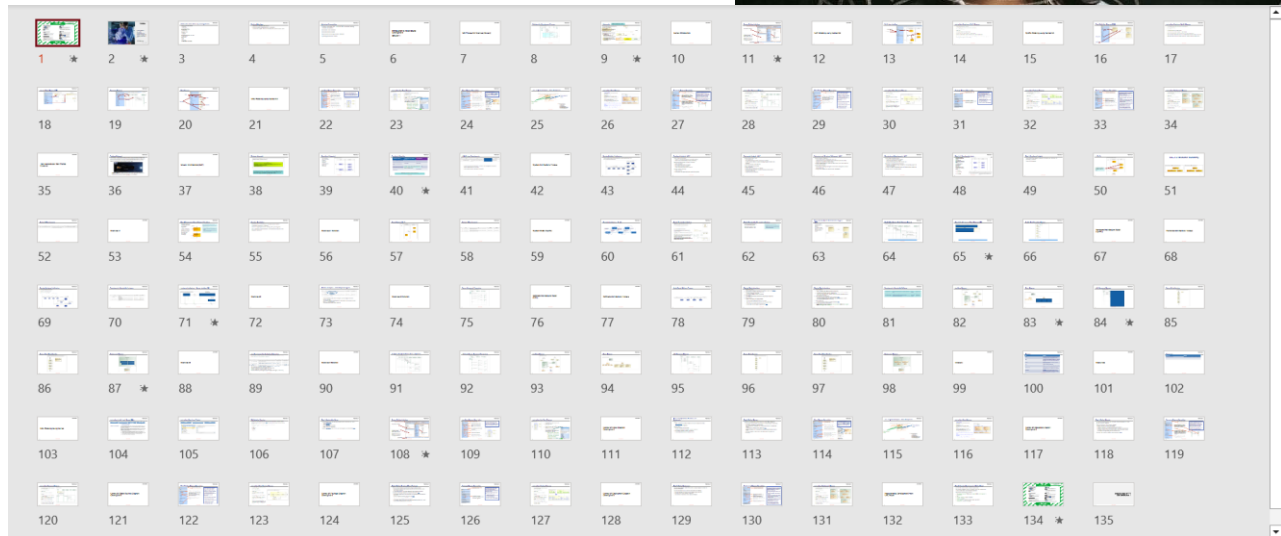


People were empowered to create presentations at will!

The Problem – What's Wrong With PowerPoint Presentations?

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The purpose of presentations has changed from presenting ideas and analysis to presenting slides.



The MEANS has become the PURPOSE

Some PowerPoint Facts

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- PowerPoint is used by over **500 million** people.
- About **300 million** PowerPoint presentations are made every day.
- The average PowerPoint slide has **40 words** – too many to follow. Visual data is processed 60,000 times faster in your brain than text. Use more images than words.
- Microsoft estimates that over **\$250 million** is wasted per day due to poor PowerPoint presentations.
- This included the personnel wages, time spent in ineffective meetings and the time to prepare the presentation itself.
- **HOW MUCH TIME PER DAY DO YOU SPEND CREATING/PRESENTING/WATCHING POWERPOINTS?**

This presentation doesn't count because it's THAT valuable

Why Does That Matter?

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- **Slides distract the audience from focusing on the presenter's content.**
 - Audience becomes disengaged, disinterested.
 - Audience may focus on the slides or the presenter but not both.
- Example:
- Engineering brief given during the **NASA Challenger Space Shuttle** program.
- Jan 16th, 2003 - launch proceeded normally.
- Routine review of camera footage revealed an issue with the tile on the left wing possibly causing a catastrophic issue upon re-entry.



NASA requested an engineering analysis and assessment of the damage



Review of Test Data Indicates Conservatism for Tile Penetration

- The existing SOFI on tile test data used to create Crater was reviewed along with STS-87 Southwest Research data
 - Crater overpredicted penetration of tile coating significantly
 - Initial penetration to be described by normal velocity
 - Varies with volume/mass of projectile (e.g. 200ft/sec for 3cu. Ln)
 - Significant energy is required for the softer SOFI particle to penetrate the relatively hard tile coating
 - Test results do show that it is possible at sufficient mass and velocity
 - Conversely, once tile is penetrated SOFI can cause significant damage
 - Minor variations in total energy (above penetration level) can cause significant tile damage
 - Flight condition is significantly outside of test database
 - Volume of ramp is 1920cu in vs 3 cu in for test

“The Board views the endemic use of PowerPoint briefing slides instead of technical papers as an illustration of the problematic methods of technical communication at NASA.”

What About That Time Wasted?

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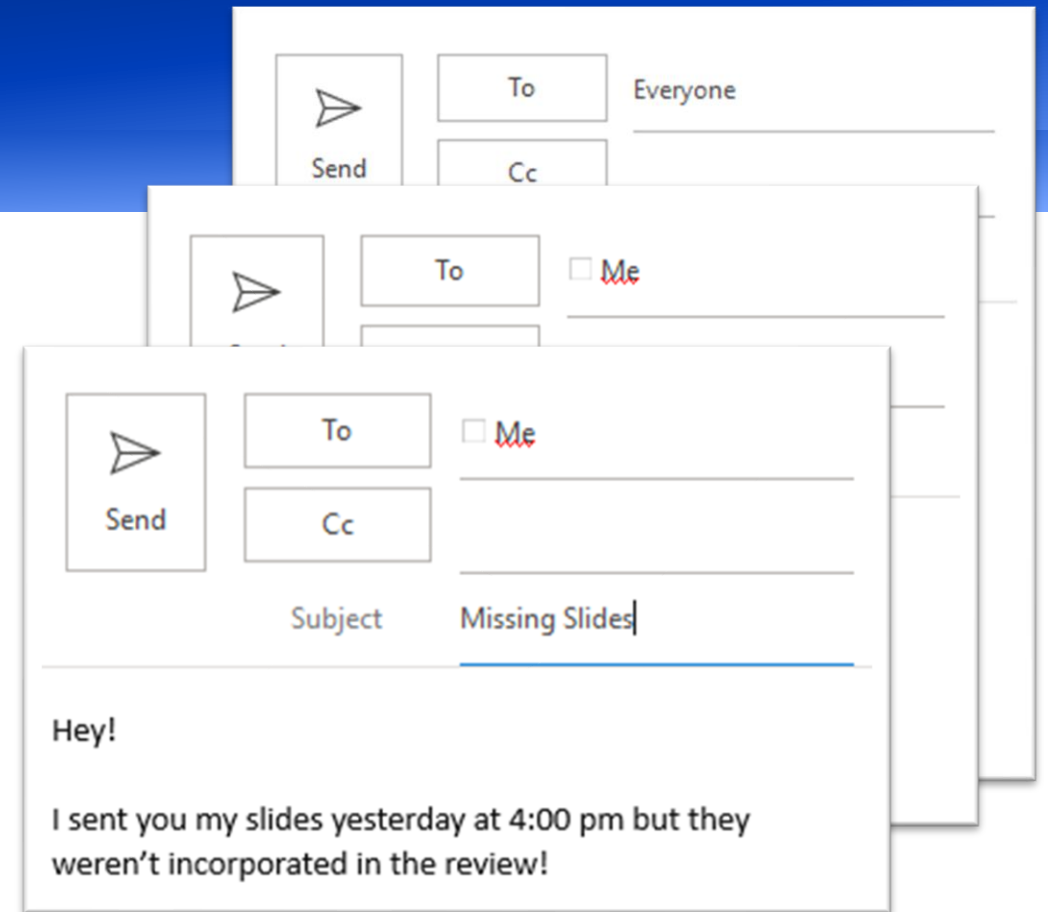
Does this sound familiar?

5:00 pm – 80% of the slides are in, but half of them used the wrong format – now you have to format all those slides – **SLIGHTLY ANNOYED!**

8:00 am – morning of the meeting - you're still incorporating the rest of the slides – **FEELING PANICKED!**

9:55 am – minutes before the meeting – **READY TO THROW OUT COMPUTER!**

11:00 am – after the meeting is over – **READY TO THROW OUT YOUR TEAM!**



Why is PowerPoint Inadequate for Technical Presentations?

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- **Not interactive**
- **Decks take too long to make**
- **Too long to read**
- **Decks are out of date**
- **Split the audience's attention**
- **Confines presentations**
- **Enables the bad habit of reading the slides**

There must be a better way!

So What's The Solution??

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- **Technical peer reviews**
- **Customer briefings**
- **Keep engineering team up to date**
- **Keep product stakeholders up to date**
- **Customer submittals - Contract Data Requirements List (CDRL)**
- **Interactive environment**
- **Always up to date**

**Inform Technical
& Non-Technical
Stakeholders**

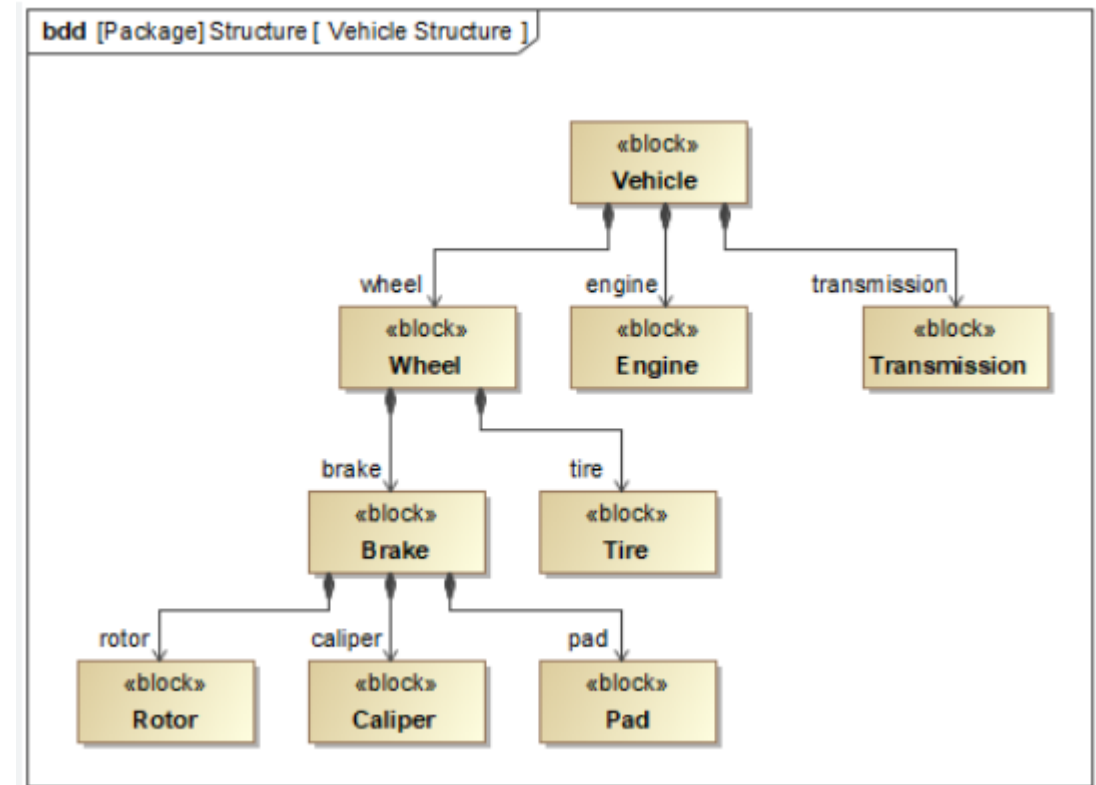
Collaborative tools that are synchronized with the Authoritative Source of Truth (ASOT), can provide metrics, simulations

Cameo Enterprise Architecture

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- Standards-compliant integrated business modeling, architecture, and model-based systems engineering (MBSE) tool-chain
- Provides visualization and analysis of the system
- Back end is a database like Microsoft Access
- Front end is visual like Visio or PowerPoint

CAMEO
ENTERPRISE ARCHITECTURE™
UPDM / DoDAF / MODAF / SysML / BPMN / SoAML



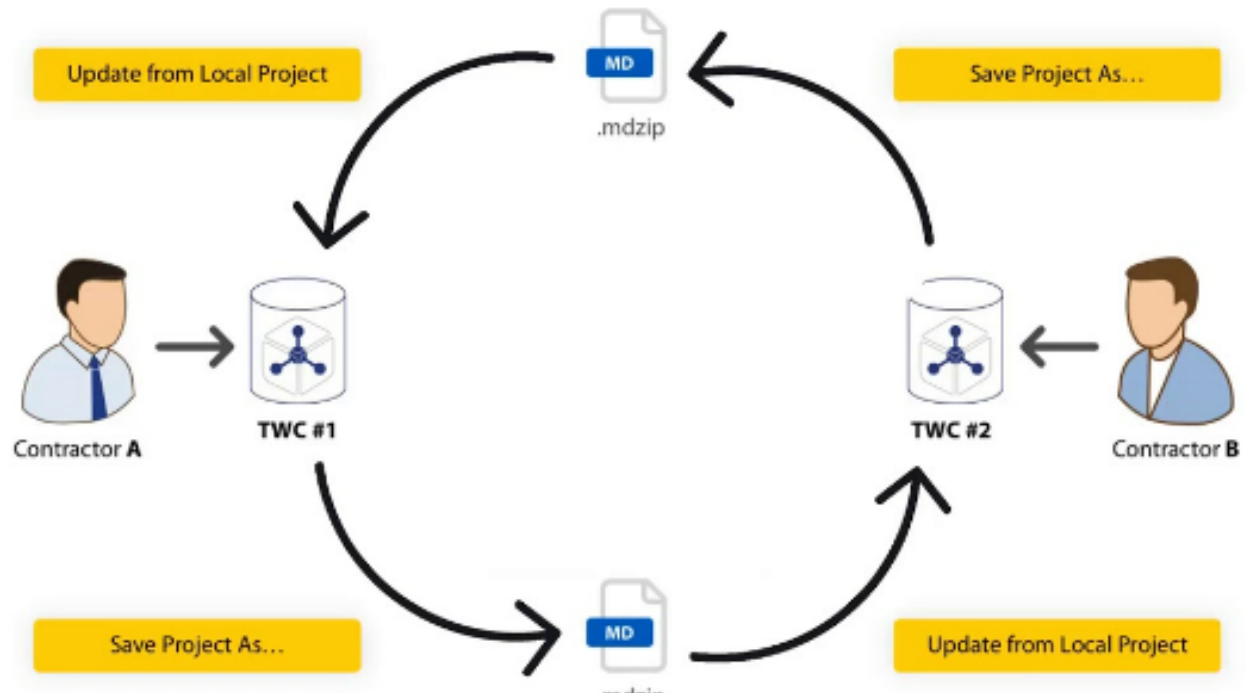
Teamwork Cloud

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- No Magic's model repository, providing a collaborative environment for system engineers practicing MBSE
- Supports model versioning, configuration management, model analysis, and access control
- Provides a central repository for storing any type of Cameo and MagicDraw models so that team members can read and modify at the same time



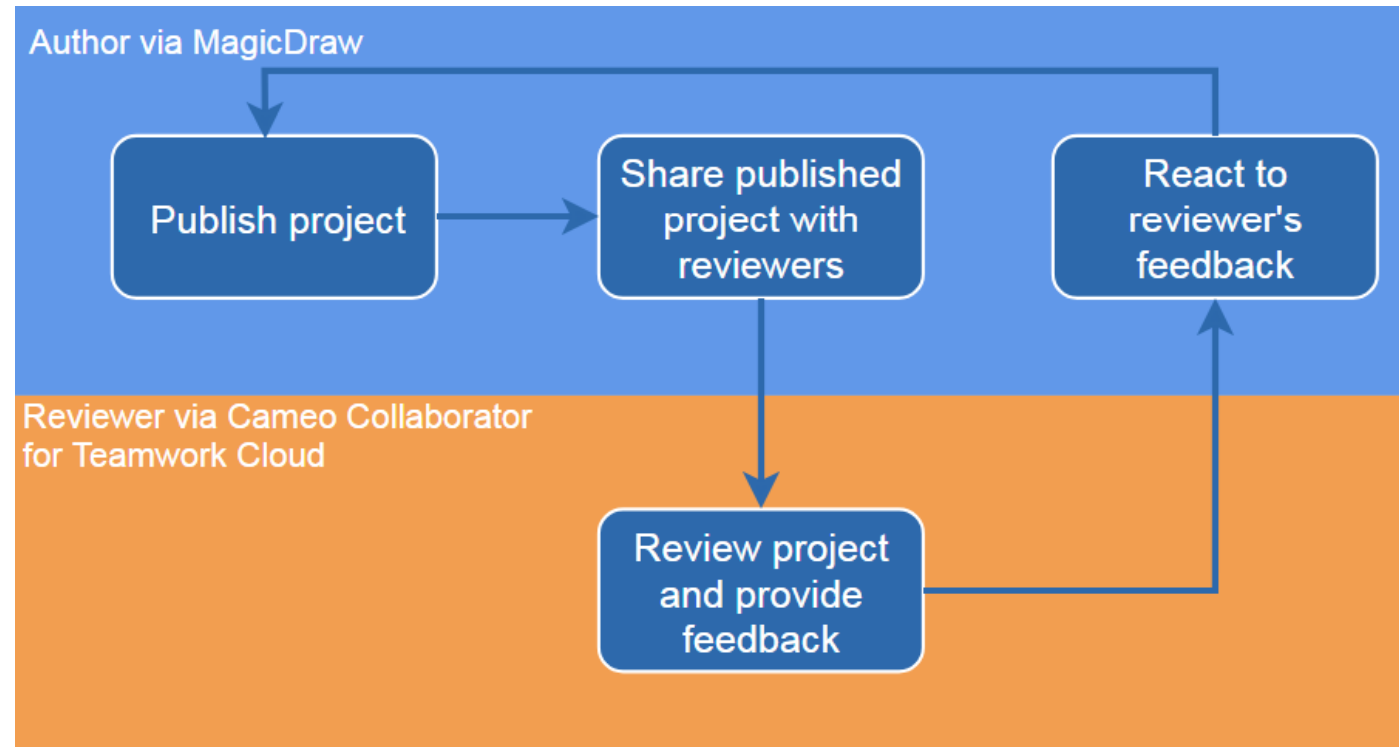
Source: [Teamwork Cloud - CATIA - Dassault Systèmes® \(3ds.com\)](https://www.3ds.com)



Cameo Collaborator

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- **Web-based product designed to present models in a simplified form for stakeholders, sponsors, customers, and engineering teams**
- **Allows editing and reviewing models without using a modeling tool**



[Source: Cameo Collaborator for Teamwork Cloud - CATIA - Dassault Systèmes® \(3ds.com\)](#)

Technical Peer Review – The Painful Way

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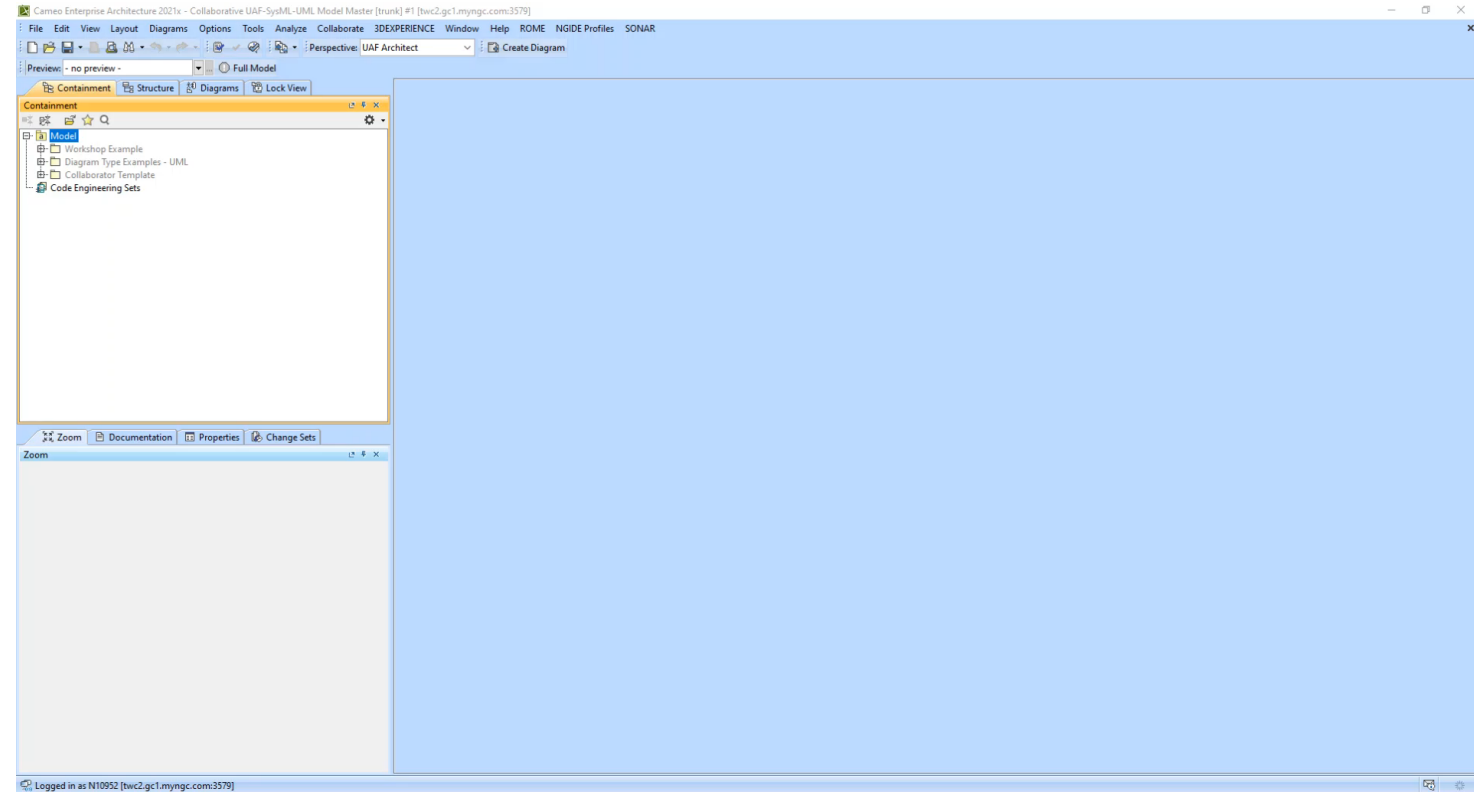
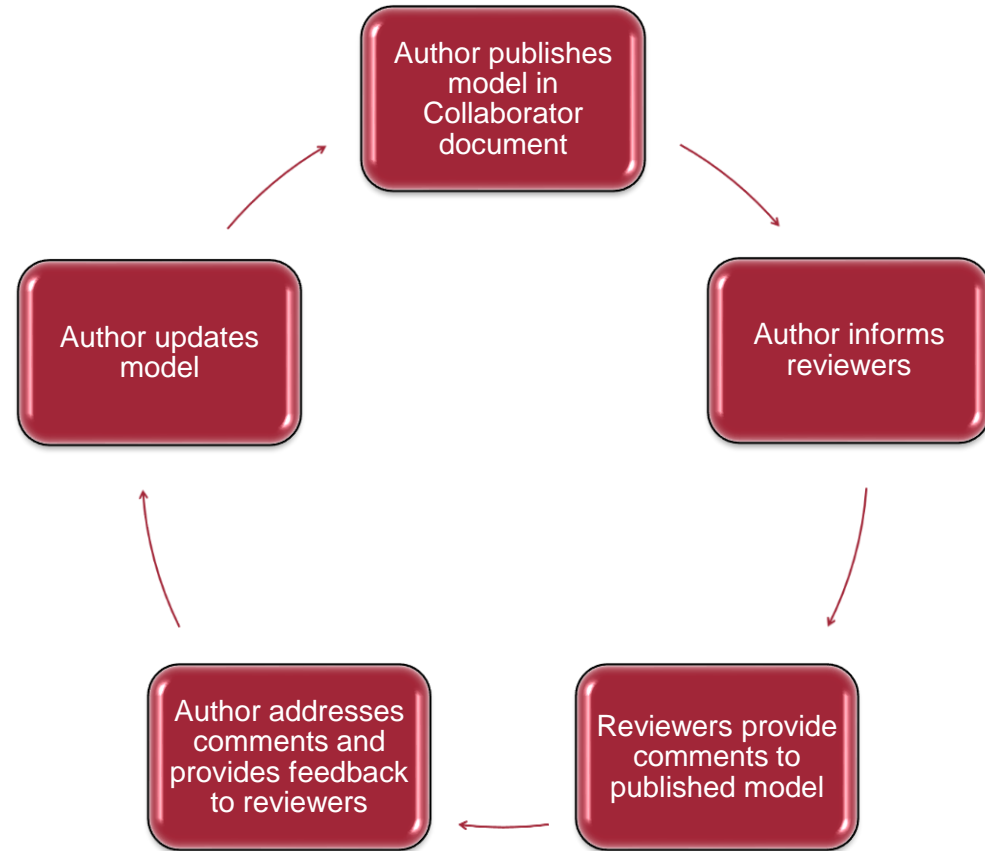
- How do you currently review technical artifacts?
- How do you collect, adjudicate, and implement comments?

Comments Resolution Matrix IS-GPS-200						
No.	Reviewer Name/ Orgn/Office Symbol/ Phone	Page No.	Para #	IMPORTANCE (C/S/A)	COMMENT/SUGGESTED CHANGE/ RATIONALE	PO RESOLUTION / REVIEWERS CONCURRENCE
1	M.A. Jeffris /MITRE/EN/781-271- 7202		IS-GPS-200 3.3.1.1	C	<p>Comment: Clarify wording and change numerical value in first paragraph.</p> <p>Suggested Change: Make changes as indicated: “For Block IIR, IIR-M, and IIF satellites, the signals shall be contained within two 20.46-MHz bands centered about the L1 and L2 nominal frequencies. For Block III and subsequent satellites, the requirements specified in this IS shall pertain to the signal contained within a 30.69MHz band centered about the L1 and L2 nominal frequencies.</p> <p>Rationale: Extends bandwidth for better potential performance and to enable spectrum protection over a wider set of frequencies.</p>	<p>Project Officer Resolution: Defer. The original wording is vague, and the intent is unclear; the original wording needs to be corrected prior to adding the bandwidth change. For example, “the signals shall be contained within” does not specify the percentage of power that needs to be contained within the bandwidth for individual signals and the aggregate of all signals...</p> <p>Concurrence:</p>

Source: [Comments Resolution Matrix IS-GPS-200 - Los Angeles Air Force ... \(yumpu.com\)](#)

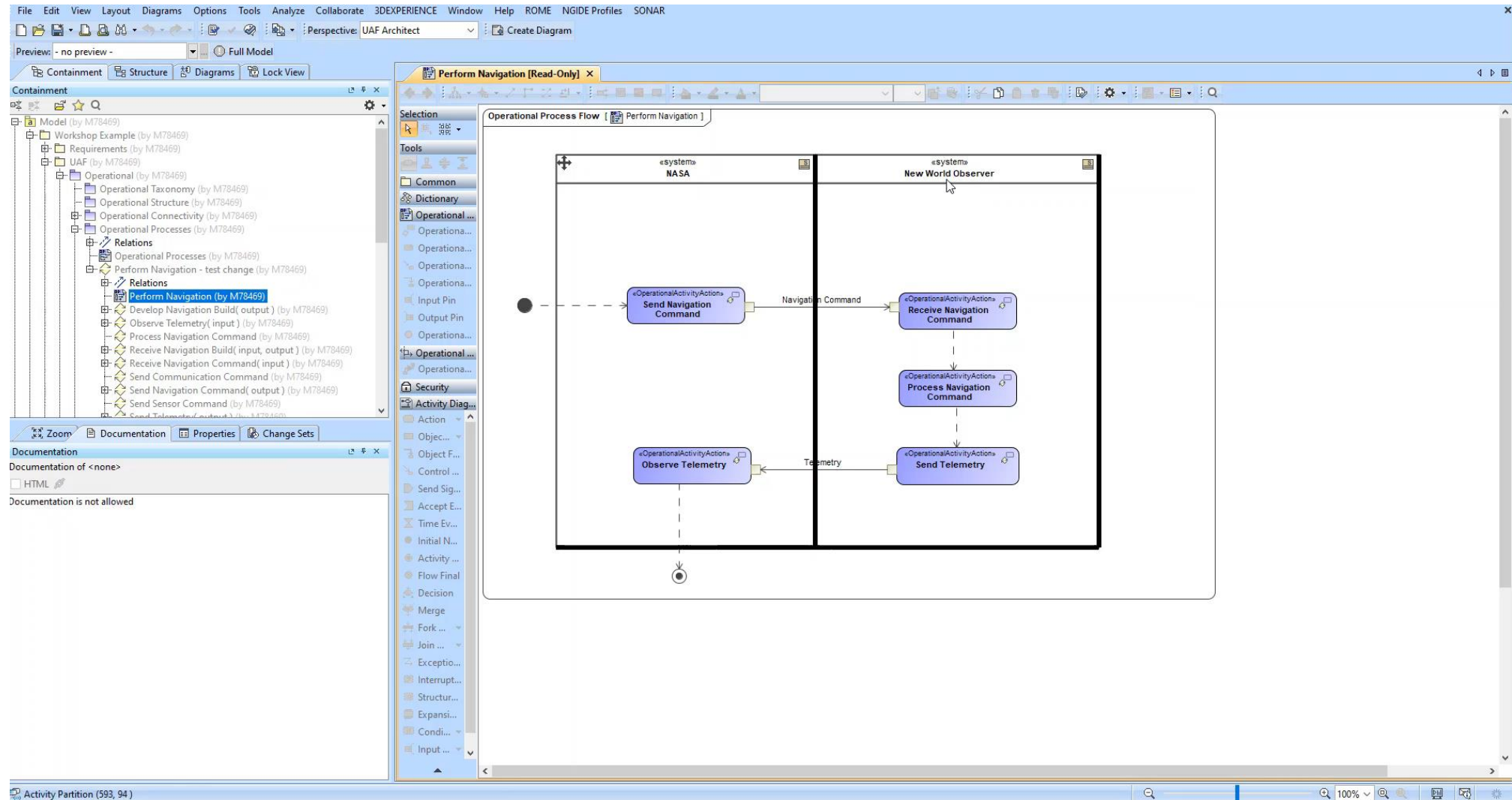
Technical Peer Review – Creating a Collaborator Document from Default Template

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Technical Peer Review – Commenting in & Updating Model From Collaborator Document

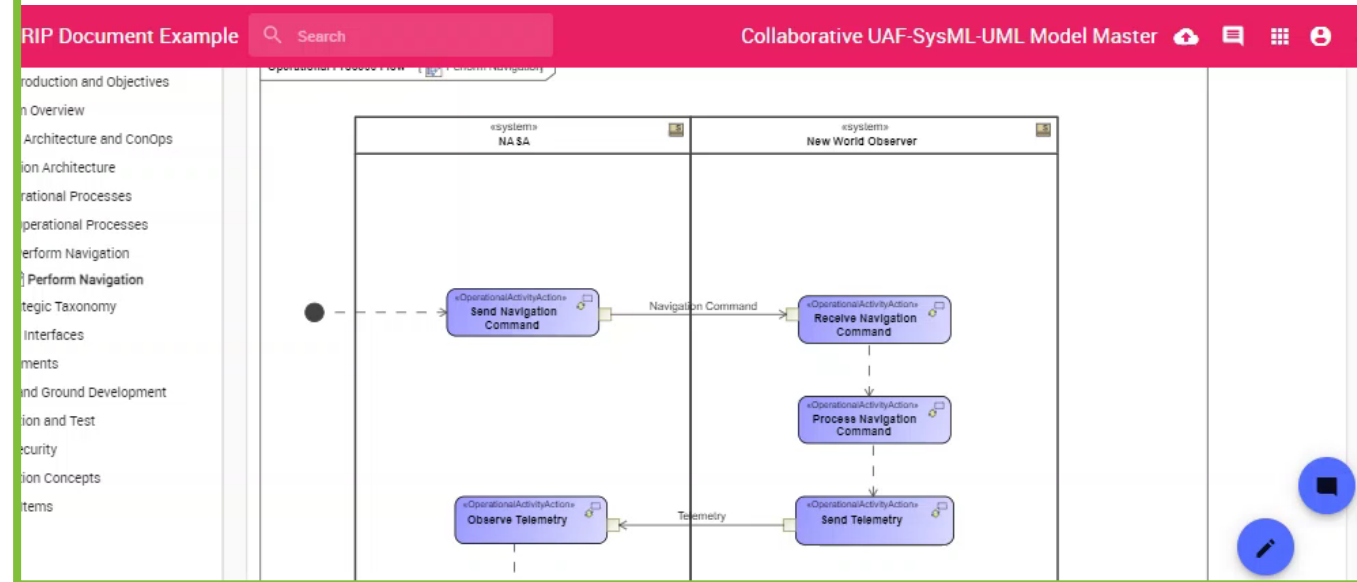
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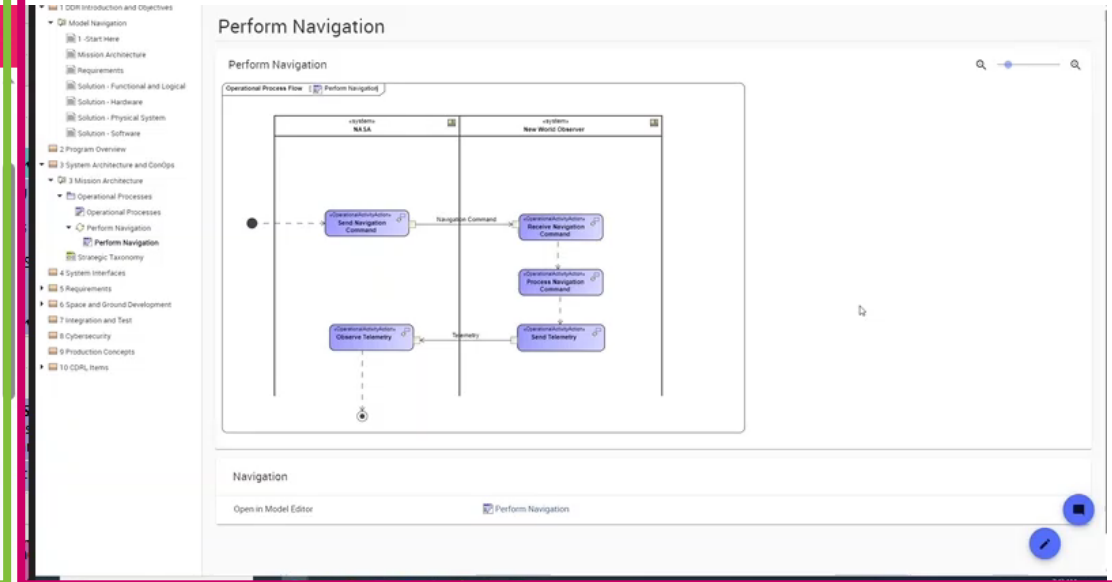
Technical Peer Review – Real Time Updates

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My Computer



Sandy's Computer



Customer/Leadership Reviews

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I have to complete the PowerPoint package for the customer review!



Are you still using PowerPoint? Geesh – haven't you heard about Digital Design Reviews? I'll show you...



Customer/Leadership Reviews

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The screenshot shows a software interface with a tree view on the left containing folders like 'Requirements', 'Mission Architecture', and 'Solution'. The main area displays a 'Content Diagram' with several entries, each with a small icon and a label like 'Content Diagram [Requirements]'. A tooltip is visible over one of the icons.

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Customer/Leadership Reviews

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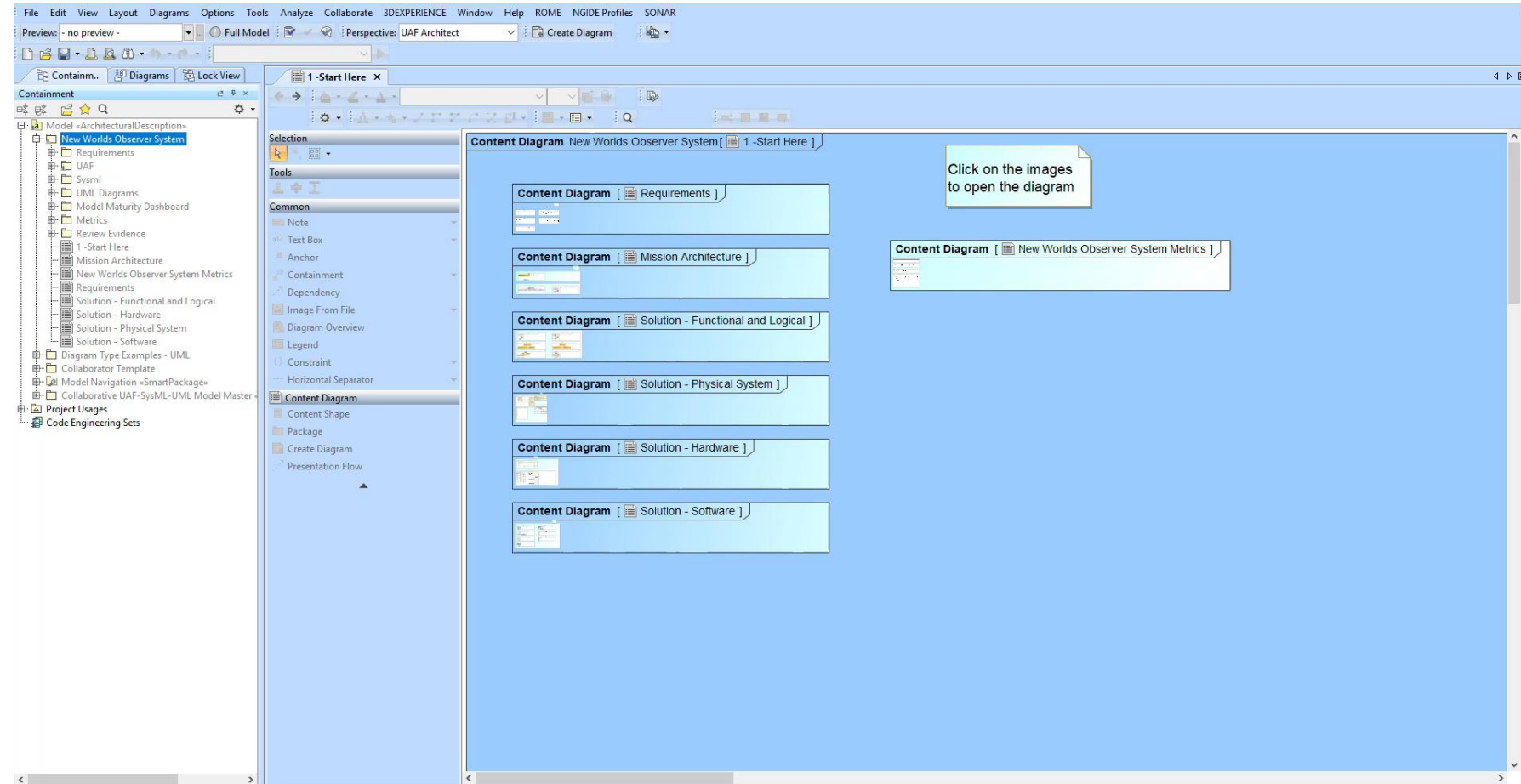
The screenshot shows a software application window with a menu bar (File, Edit, View, Layout, Diagrams, Options, Tools, Analyze, Collaborate, 3DEXPERIENCE, Window, Help, ROME, NGIDE Profiles, SONAR) and a toolbar. The main workspace is divided into three panes:

- Left Pane (Containment):** A tree view showing a project structure for "New Worlds Observer System". It includes folders for "Requirements", "UAF", "Sysml", "UML Diagrams", and "Solution" (subdivided into Functional and Logical, Hardware, Physical System, and Software). A "Diagram Type Examples - UML" folder is highlighted.
- Middle Pane (Tools):** A list of tools for creating diagrams, including Note, Text Box, Anchor, Containment, Dependency, Image From File, Diagram Overview, Legend, Constraint, Horizontal Separator, Content Diagram, Content Shape, Package, Create Diagram, and Presentation Flow. "Content Diagram" is selected.
- Right Pane (Content Diagram):** A large area displaying a grid of six "Content Diagram" thumbnails, each representing a different system component: Requirements, Mission Architecture, Solution - Functional and Logical, Solution - Physical System, Solution - Hardware, and Solution - Software. A callout box with a white background and a drop shadow points to the thumbnails, containing the text: "Click on the images to open the diagram".

Cameo Model Centric Navigation – Using Dashboards in Cameo

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- **Smaller technical teams perform reviews natively**
- **Custom navigation dashboards**
- **Metrics Dashboards**



Resources and References

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- www.3ds.com
- **Columbia Accident Investigation Board, Report Volume1, August 2003, NASA**