What’s The Context?

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Agenda

- Overview
- Fundamentals
- Applications
- Business Process Support
- Summary
- Q&A
Help users tame information overload

Processes are contextual, the data needs to reflect this

Repeatable processes are made possible in a complex environment because the right data can be consistently recreated
For full lifecycle integration, we must understand the different types of product data representations and the associations between them. Additionally, we must understand how users and applications need to access and share this product data.

- Users often need information that may come from different representations.
- They use this information to author new information.
Context Management
Business Value

- Enable collaborative processes and concurrent engineering
  - Different representations can evolve in parallel
  - Relevant portions of different representations at different levels of maturity can be brought together for cross-disciplinary collaboration
  - Guarantees that there is a repeatable method for accessing the right data even in rapidly changing environments

- Increase Productivity
  - All the disparate information the user needs for their task is in one place but without the extraneous information they do not need
  - Lowers the barrier-to-entry for non-PDM users to access the right information and add value to the overall process flow

- Grow product complexity without driving up process complexity
  - Context management allows the applications to stay manageable as the amount of product and lifecycle data that is managed grows significantly
  - An individual user is never overwhelmed because they see just what they require
Fundamentals
A **Configuration Context** represents the collection of qualification criteria needed to configure a representation e.g. selected options, effectivity, maturity state, closure etc.

A **Structure Context** is a mechanism to persist structure data and the configuration context by which the data is configured.

A **Collaboration Context** is an information structure that is needed to manage the information boundary between an intended working task and shared data as a whole.

A **Composition** is a mechanism for representing an environment composed of occurrences from different products, for making design decisions that take into account information from different products’ representations.
Compositions for Manufacturing Operation Setup

- Operation Setup is a specialized kind of composition, it deals with:
  - Work area
  - Resources
  - Parts & consumed items
  - Tools and fixtures
  - In process assemblies
  - …
Context Management
Teamcenter Applications

- **DesignContext**
  - Wizard application to establish a context to do design or evaluations

- **Collaboration Context**
  - Provide representations that support information sharing in the context of a defined functional activity
DesignContext Application

Benefits

- Rich Client Application
- Simplifies Product Configuration
- Fast Access to Very Large Assemblies
- Intuitive User Interface

**Engineering Change Order**

**Work Parts**

**Step 1**
Select Context (e.g. for ECO)

**Step 2**
Configure (Revision & Variant Rules)

**Step 3**
Filter (Spatial, Zone, Attribute)

NX

Design
Analyze
Teamcenter Visualization

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Collaboration Context Application
Allows user to:

- Create Structure Context and Collaboration Context objects
- Creating multiple representations by allocating occurrences from one representation to another
- Creating/editing occurrence groups
- Creating Composition by allocating occurrences/occurrence groups from one representation to Compositions
- Reposition occurrence groups in a Composition
- Comparing structures that share occurrences
- Find occurrences by occurrence id
- Partially loading assembly structure
- Capture snapshots from base structures
- Exchange objects from the Collaboration Context with external system
Business Process that Rely on Context Management

Repeatable Digital Validation
Supplier Integration
Repeatable Digital Validation

- A combination of software & process enabling on-demand digital mockups for use throughout the product development lifecycle
- Context management is a key enabler
- Goal is to maximize cost reduction...early in design cycle

Exhibit 7: Embedded Costs per Phase of Product Life Cycle

GM will on average produce a newly designed automobile every 22 days.

Design cycles cut from 44 to 18 months.

Efforts such as continuous review based on RDV will save GM millions of dollars each year.

RDV key to supplier collaboration.
The Repeated Digital Validation (RDV) application supports test, validation and visualization of particular variants.

Key Features:

- **Repeatable digital validation**
  - Simple, automated process to rapidly identify, design and evaluate in the requested context
    - Proximity queries
    - Up-to-date configuration
    - Fast cache
- **Visual Change Management**
  - Graphical history of change / compare

- **Digital prototype processes**
  - Mockup and analyze product visualizations from heterogeneous CAD systems
  - Cross-section, interference/clearance checking, and other engineering functions
Looking forward, Teamcenter will leverage context management to exchange information with suppliers.

One of the key use cases is design-in-context:

- OEM sends supplier reference geometry and related information
- Supplier designs components in the context of this reference geometry
- Supplier sends design back to OEM

Next Slide

Shows a design-in-context use case based on exchanging JT data.
Supplier Integration
Design-in-Context Use Case

Supplier JT Design-in-Context Use Case

1. Select context (with JT reference design)
2. Publish for roundtrip
3. Send to Supplier
4. Review OEM JT reference data (optional)
5a. Open JT Reference Design
5b. Leverage JT reference data in native CAD system
5c. Create Supplier Design
5d. Save Supplier CAD Design and create JT files
6. Return to OEM
7. Preview supplier JT design
8. Import

OEM
Supplier
Teamcenter Visualization
Teamcenter PDM
Package File
Supplier System
CAD
JT Translator
Benefits of Leveraging Contexts in Supplier Integration

- The context ensures that the supplier gets the right information each time.
- The definition of a context is not limited to geometry and can also include a wealth of related documents pertaining to the product or process.
- The data exchange complexity can be managed by few and used by many.
- The context can be defined to optimize the total volume of data exchanged and filter out data or Intellectual Property that should not be shared.
- The value of the context definition increases as it is reused in iterative design cycles.
Context Management

Summary

- Supports collaborative processes and concurrent engineering
- Enables task focused user interaction
  - All the disparate information the user needs is in one place
  - But without the extraneous information they do not need
- Allow the applications to stay manageable as the amount of product and lifecycle data continues to grow
  - An individual user is not overwhelmed because they see only what they need
For More Information

- Previous session:
  - **Supplier Integration**
    - Monday May 8th
    - Keith Walk, Teamcenter Product Management, UGS

- Please attend:
  - **Managing Multiple Lifecycle Representations**
    - Thursday, May 11th
    - Frances Evans, Teamcenter Architect, UGS
  - **Product Configuration and Variant Management**
    - Thursday, May 11th
    - Amy Strucko, Teamcenter Product Management, UGS