ptc

DIGITAL TRANSFORMS PHYSICAL

ARBORTEXT TOOLKIT OVERVIEW

Make it Simple, Make it Smart

ptc® arbortext®

PTC TRANSFORMS TECHNICAL INFORMATION

A “Digital Thread” of dynamic data ensures end-to-end consistency.

BOM CAD

Create reusable content components maintained in a database.

Automatically publish up-to-date content across multiple audiences and formats.

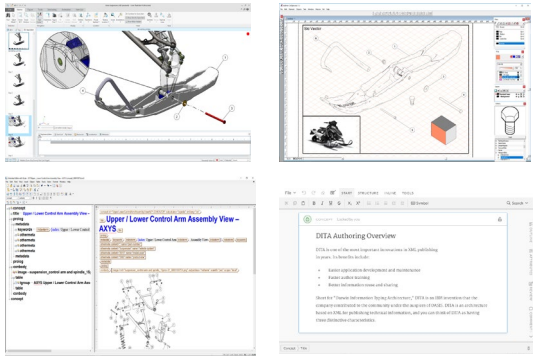
CREATE

Author XML

Develop Stylesheets

Streamline SME Contribution and Review

Create 2D & 3D Illustrations



MANAGE

Content Management

Make/ Model/ SN Range

Product-based Organization

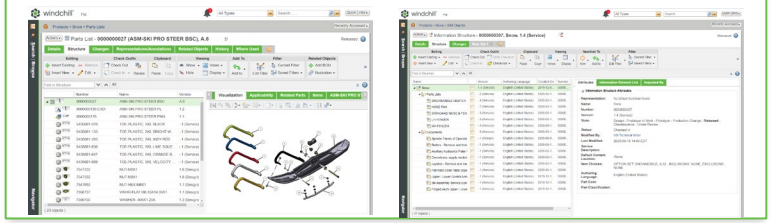
Options and Variants

Workflow & Review

Translation Management

BOM Transformation

Service Parts Catalog



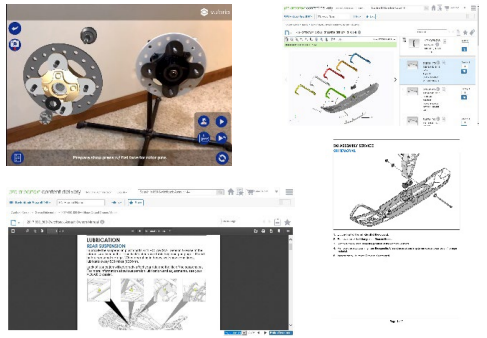
DELIVER/EXPERIENCE

Publish Documents

Electronic Content Delivery Portal

Augmented & Virtual Reality

Advanced Layout Development



PTC TRANSFORMS TECHNICAL INFORMATION

A “Digital Thread” of dynamic data ensures end-to-end consistency.

CREATE

ptc® arbortext® editor
Structured XML Authoring

ptc® arbortext® styler
Stylesheet Creation

ptc® arbortext®
Web editor & reviewer
Content Contributors

ptc® arbortext® IsoDraw
2D & Vector Drawing Tool

creo® illustrate
3D Illustration Tool

MANAGE

windchill® Base
Document Management

windchill®
Windchill Advanced
Service Parts Information & Instruction
Context Based Content Management

windchill®
Windchill Premium
Service Parts Information & Instruction
Service Parts Catalog

DELIVER/EXPERIENCE

ptc® arbortext® publishing engine
Published Documents

ptc® arbortext® content delivery
Electronic Delivery Portal

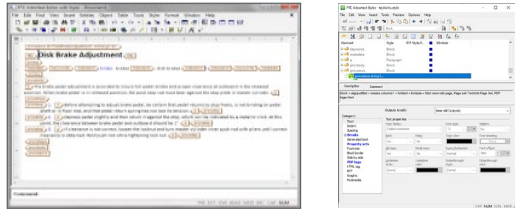
ptc® arbortext® layout developer
Advanced Layout Configuration

vuforia® studio™ vuforia® view™
Augmented & Virtual Reality Delivery

PTC TECHNICAL AUTHORING & DELIVERY

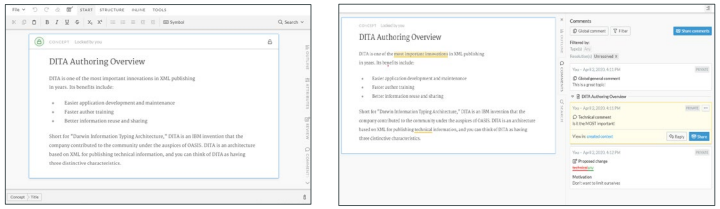
CREATE

ptc® arbortext® Editor & Styler



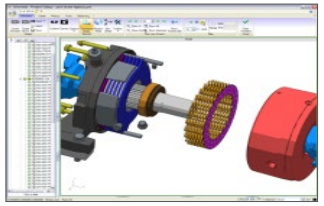
XML Authoring / Stylesheets

ptc® arbortext® Web Editor & Reviewer



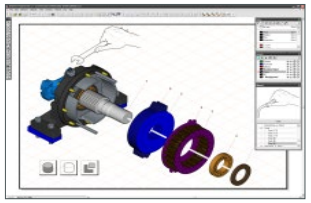
Subject Matter Expert Collaboration

creo® illustrate

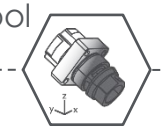


3D Illustration Tool

ptc® arbortext® IsoDraw



Vector Drawing Tool



MANAGE

windchill®

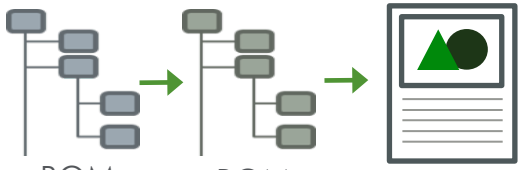
Service Parts Information & Instructions

- **Lifecycle/Workflow/Change Mgmt**
- **Make/Model/SN Range**
- **Product Based Organization**
- **Options and Variants**
- **Document Structures**
- **Translation Management**

Context-Based Content Management

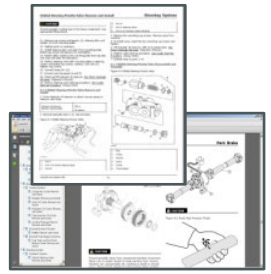
windchill®

SPI&I + XBOM Management



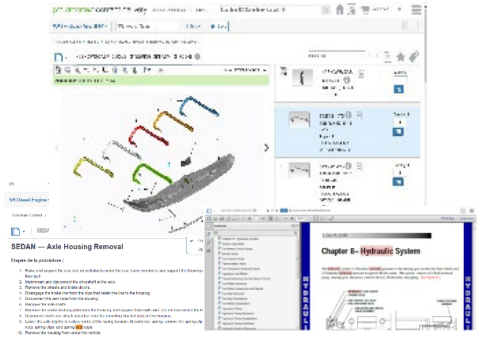
DELIVER

ptc® arbortext® publishing engine



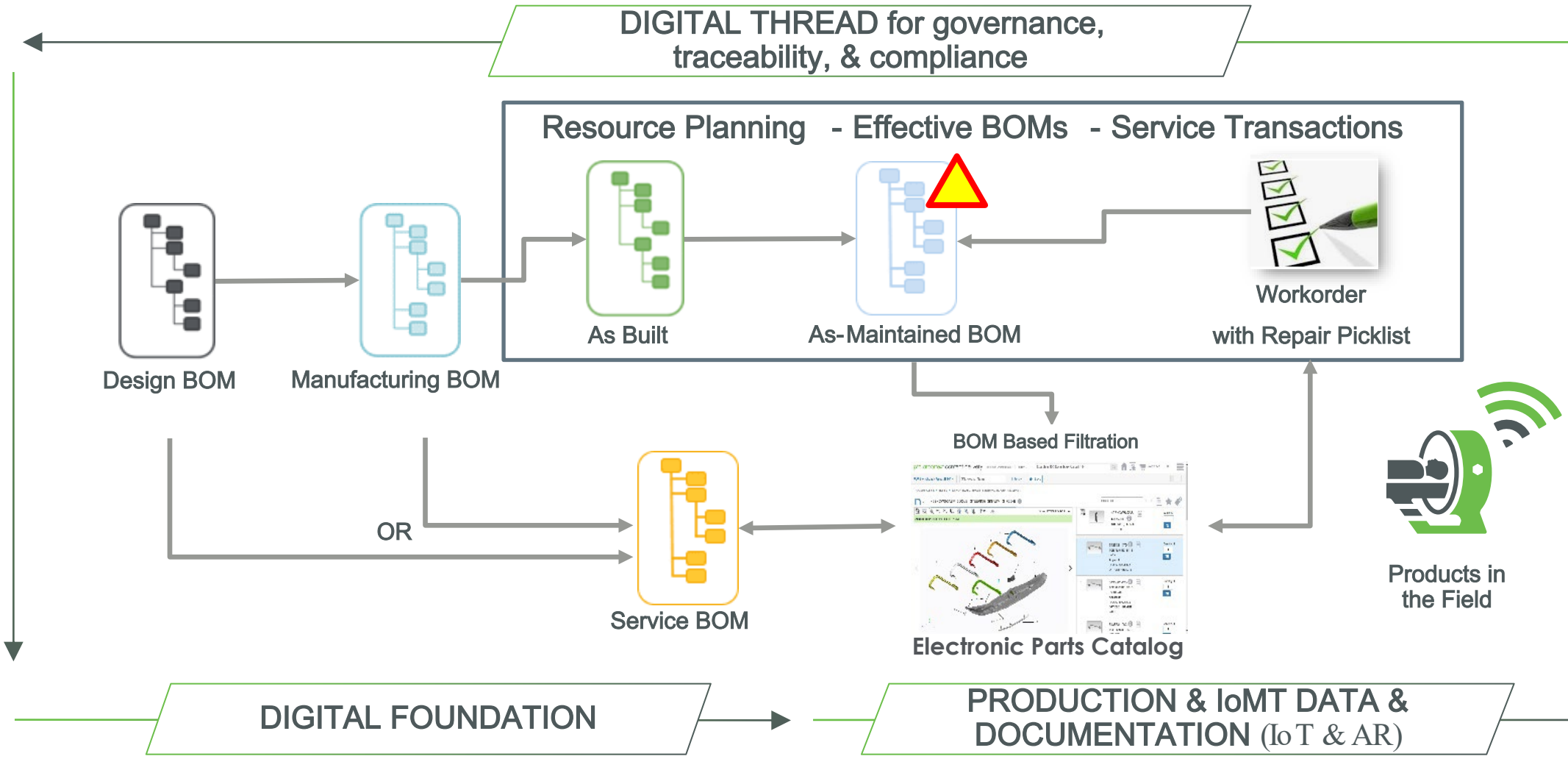
Published Documents

ptc® arbortext® content delivery

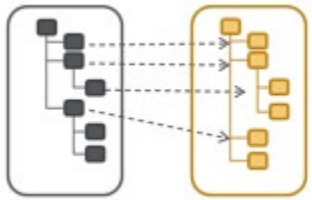


Electronic Content Delivery

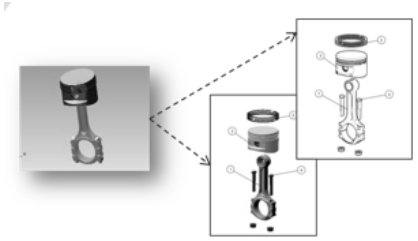
TRANSFORM ENGINEERING DATA INTO SERVICE CONTENT



WINDCHILL UNIFIED CONTENT MANAGEMENT SYSTEM



XML CONTENT CREATION



Windchill CMS

DITA

MILSPEC

S1000D

LSAR/3rd party/OEM Data/ Work Packages

CAD/Engineering

PDF or Print Output

S1000D Content

IETM Support

Structure

d Content

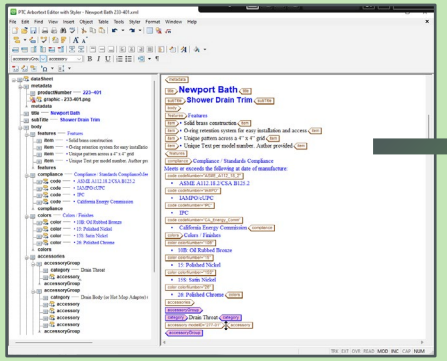
ARBORTEXT AUTHORING PROCESS FLOW

Document Definition (.XSD)

- Document Structure Definition
- Attribute Availability

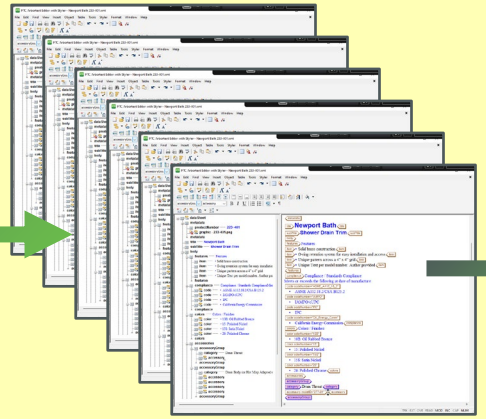
Document (.XML)

- Arbortext Editor
- Unique Text
- Referenced Graphics
- Create from template



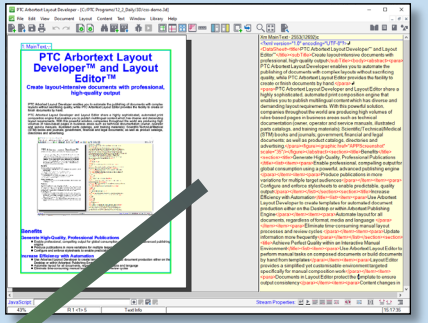
Content Management

- Windchill
- Versioning
- Access Control
- Workflow
- Submit Publishing Request



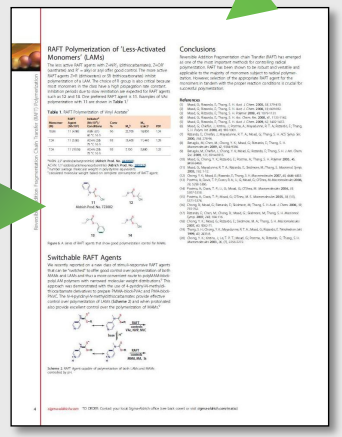
Styling

- Arbortext Layout Developer
- Arbortext Styler
- Complete control of presentation output
- Create formatting used by Publishing Engine

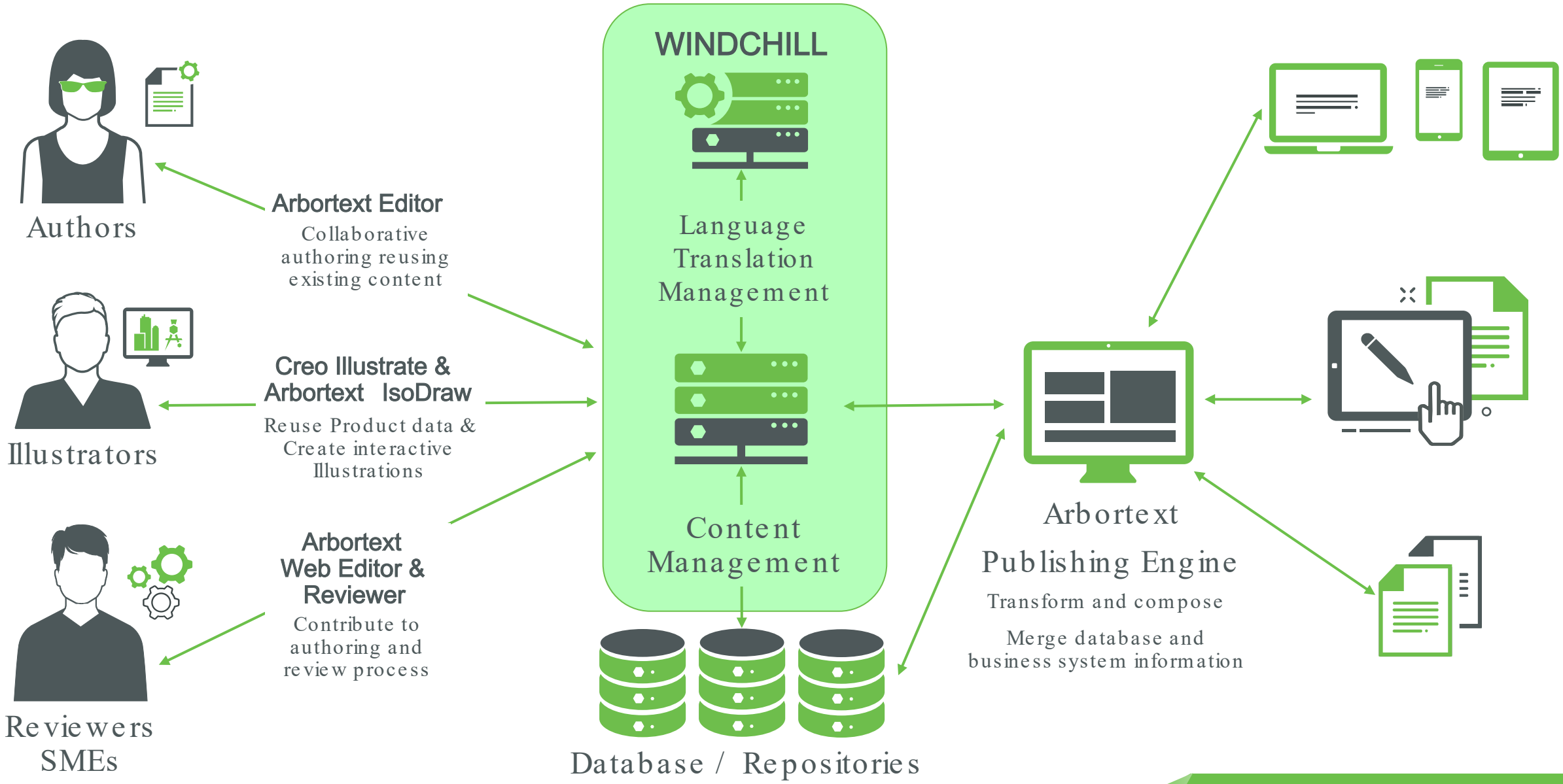


Publishing

- Arbortext Publishing Engine
- Application of Layout Template
- Generate Output (PDF / HTML)



PTC TECHNICAL DOCUMENTATION

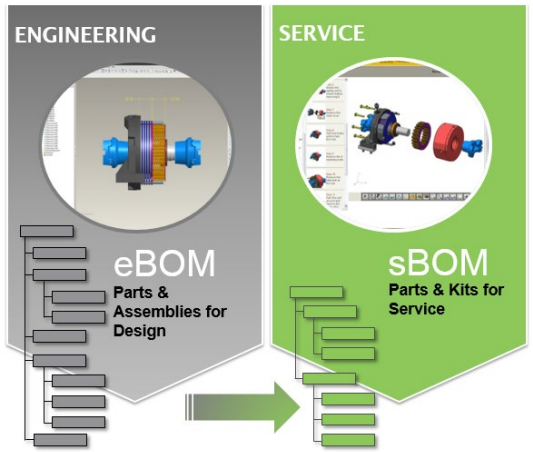


EXTENDING THE DIGITAL THREAD TO SERVICE

ACCURATE:
Single source of information

INTEGRAL:
Manage SBOMs & Illustrations

ACCURATE CONTEXTUAL & VISUAL CONTENT



- SBOM
- ILLUSTRATIONS
- PARTS LIST
- PARTS CATALOGS
- SERVICE CONTENT

Author

Reviewer/ Approver

Publisher

Automated authoring with integral change management

Authors/ Reviewers/ In work content

Call Center

Owners/Customers

Released Content for Consumption

Operators

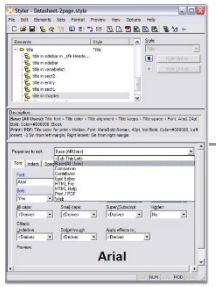
Dealers

Technicians

Maintainers

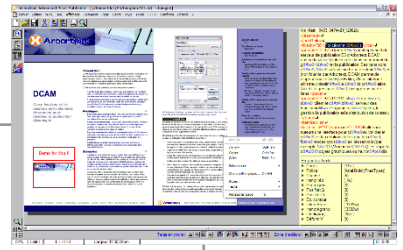
ARBORTEXT PUBLISHING

Arbortext Styler



.style

APP template



Arbortext Layout Developer

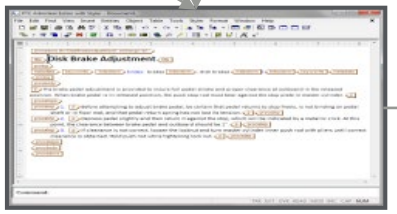
Arbortext Architect

Configuration files

Server

Arbortext Publishing Engine

Arbortext Editor



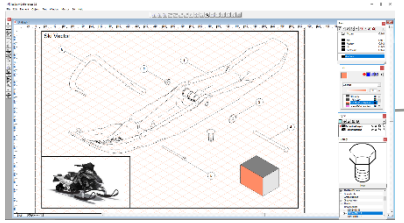
XML

PDF

HTML

RTF

Arbortext IsoDraw

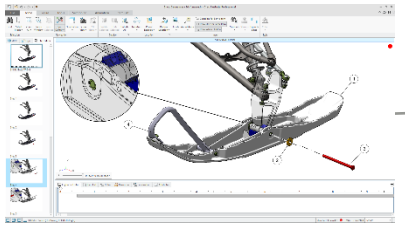


2D

Arbortext Editor + Print Composer

Desktop

Creo Illustrate



2D/ 3D

PUBLISHING ENGINE CAPABILITIES SLIDE PLACEHOLDER

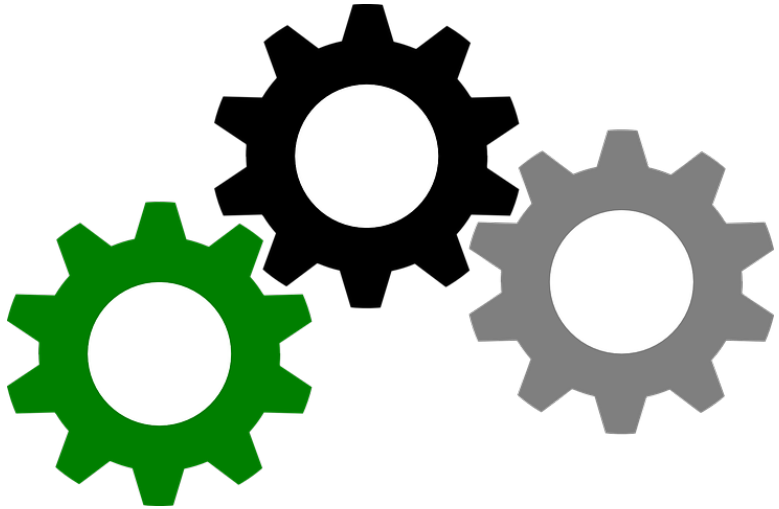
AUTHORING IN XML

XML DEFINITION

XML (Extensible Markup Language) : Language for creating and publishing structured information and facilitating data interchange

Three Components to XML

Content
Narrative and Data



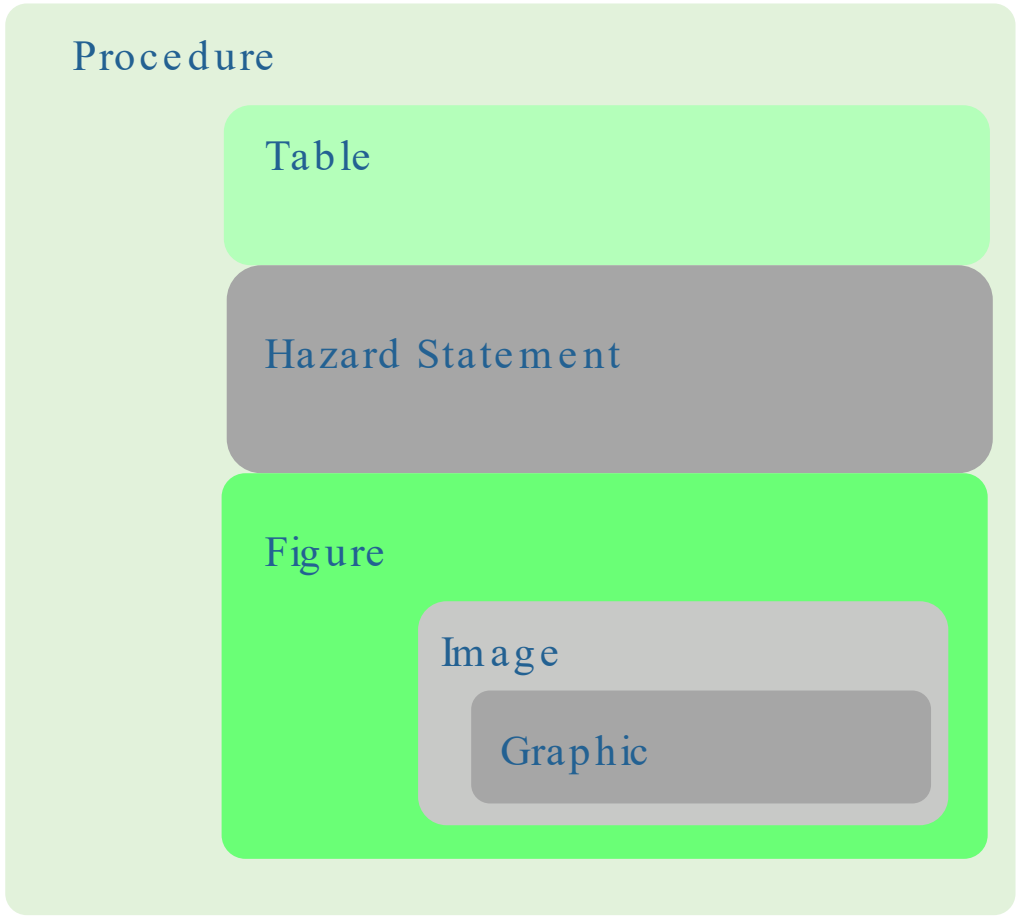
Data Model
Structure and Rules for authoring (DTDs, schemas)

Style Sheets
Determine output and presentation of content

XML is a means of adding structure and intelligence to typically unstructured information

XML EXAMPLES

XML Structure
(Determined by Data Model)



Content in XML tags
(Application of Authored Text)

PROCEDURE

TITLE Sample Title Text TITLE

SECTION

PARAGRAPH Sample Paragraph Text Sample Paragraph Text Sample Paragraph Text Sample Paragraph Text PARAGRAPH

NOTE Sample Note Text NOTE

SECTION

PROCEDURE

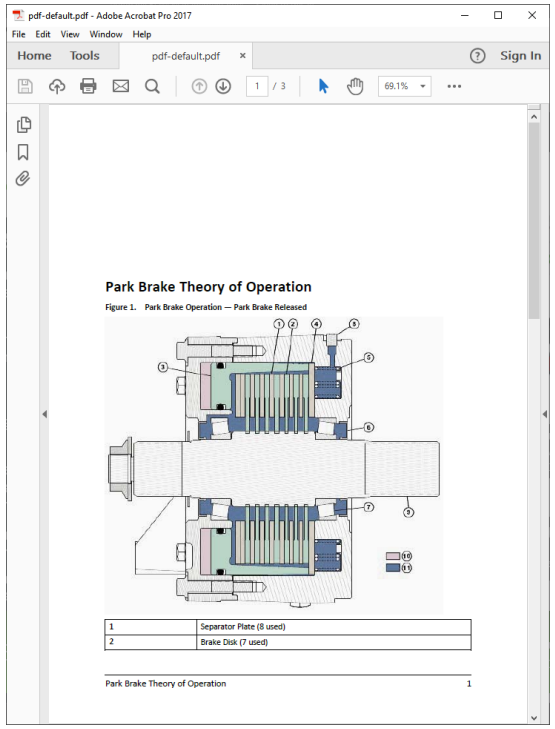
STYLESHEET OVERVIEW

Stylesheets

- take XML content and format it with regard to a visual style.
- apply to published outputs
- produce multiple output filetypes

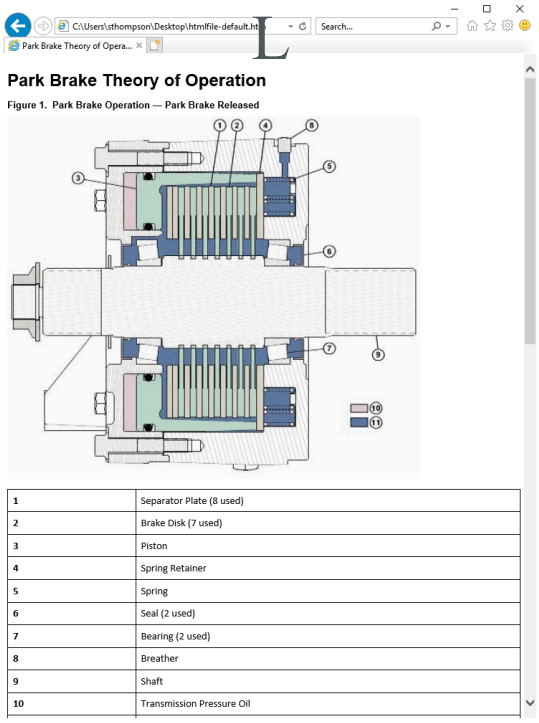
XML → STYLESHEET →

PDF

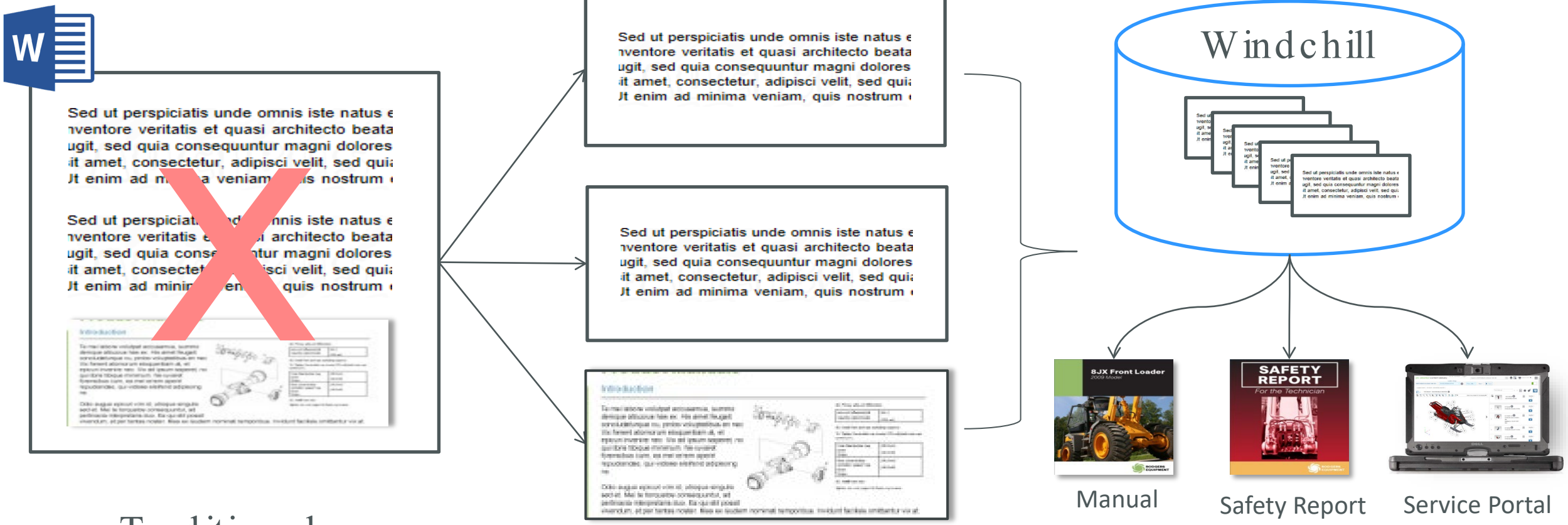


&

HTM

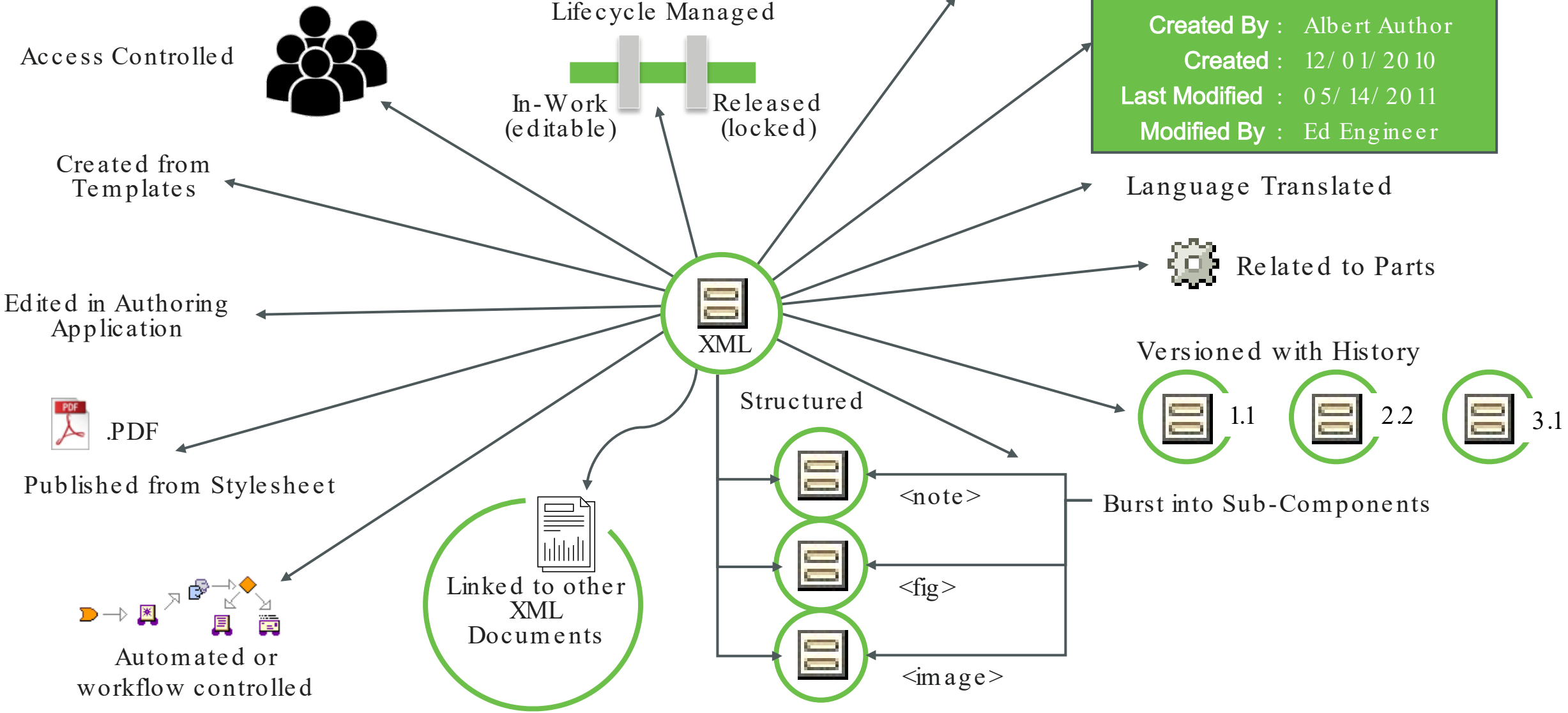


COMPONENT BASED AUTHORING



WINDCHILL FUNCTIONS

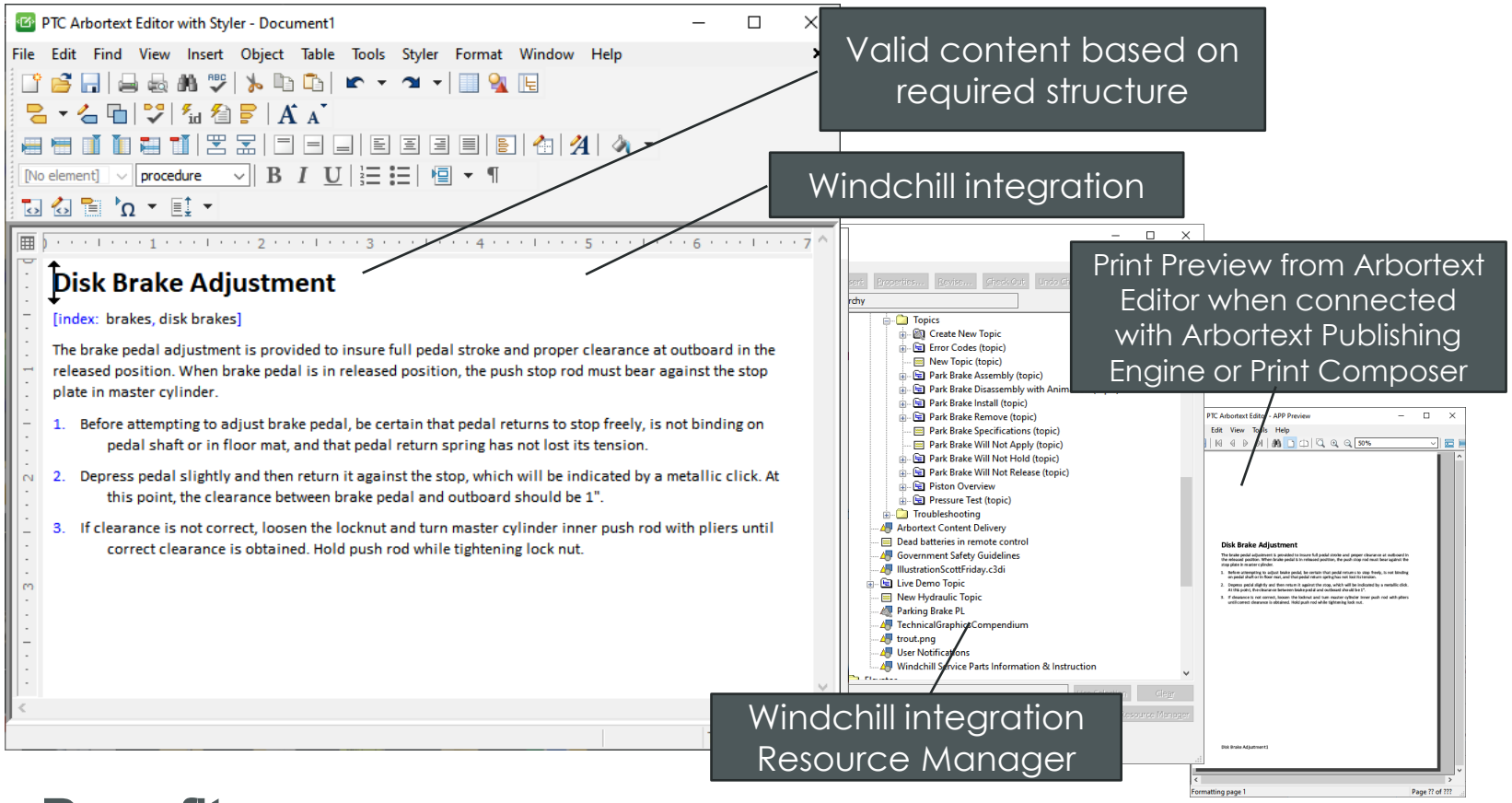
In Windchill, an XML Document can be:



PTC ARBORTEXT EDITOR

Capabilities

- Create structured textual information
- Customize and configure based on business requirements
- Integrated with PTC Windchill for seamless content management capabilities
- Familiar word processing features
- Easily reuse content



Benefits

Increase authoring productivity

Concentrate on content accuracy

Eliminate duplicate efforts through content reuse

PTC ARBORTEXT STYLER

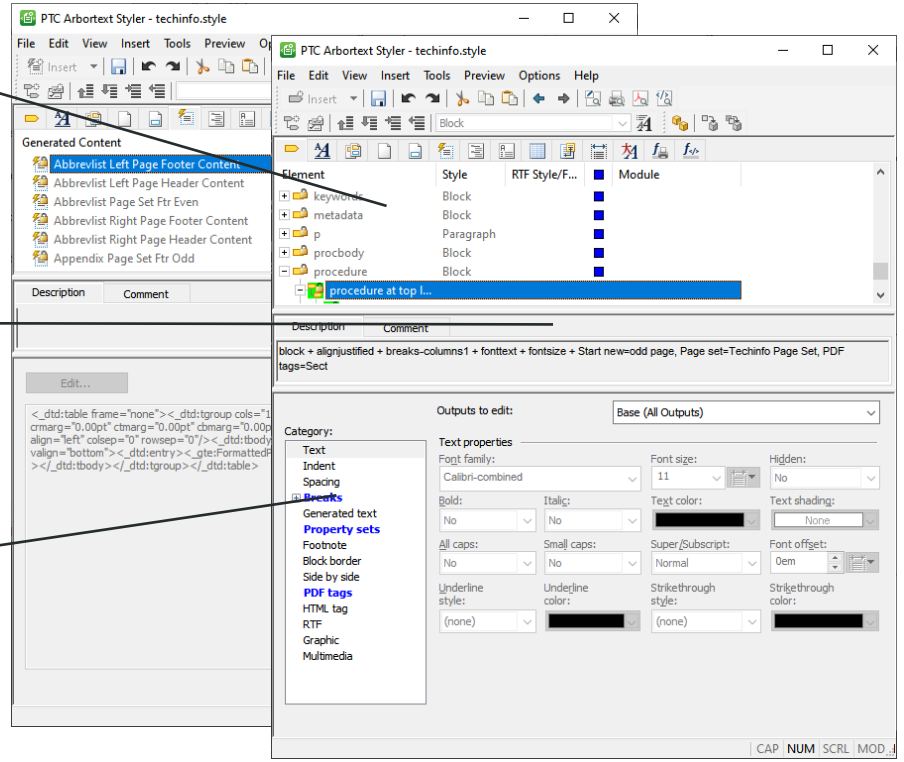
Capabilities

- Create and maintain XML based stylesheets
- Associate styling and layouts with content and content hierarchy
- Create text styling and page layouts
- Modularize stylesheets for easy reuse

Style an element based on location

Edit multiple output filetypes

Access all styling and formatting options.



Benefits

Graphical User Interface rather than coding

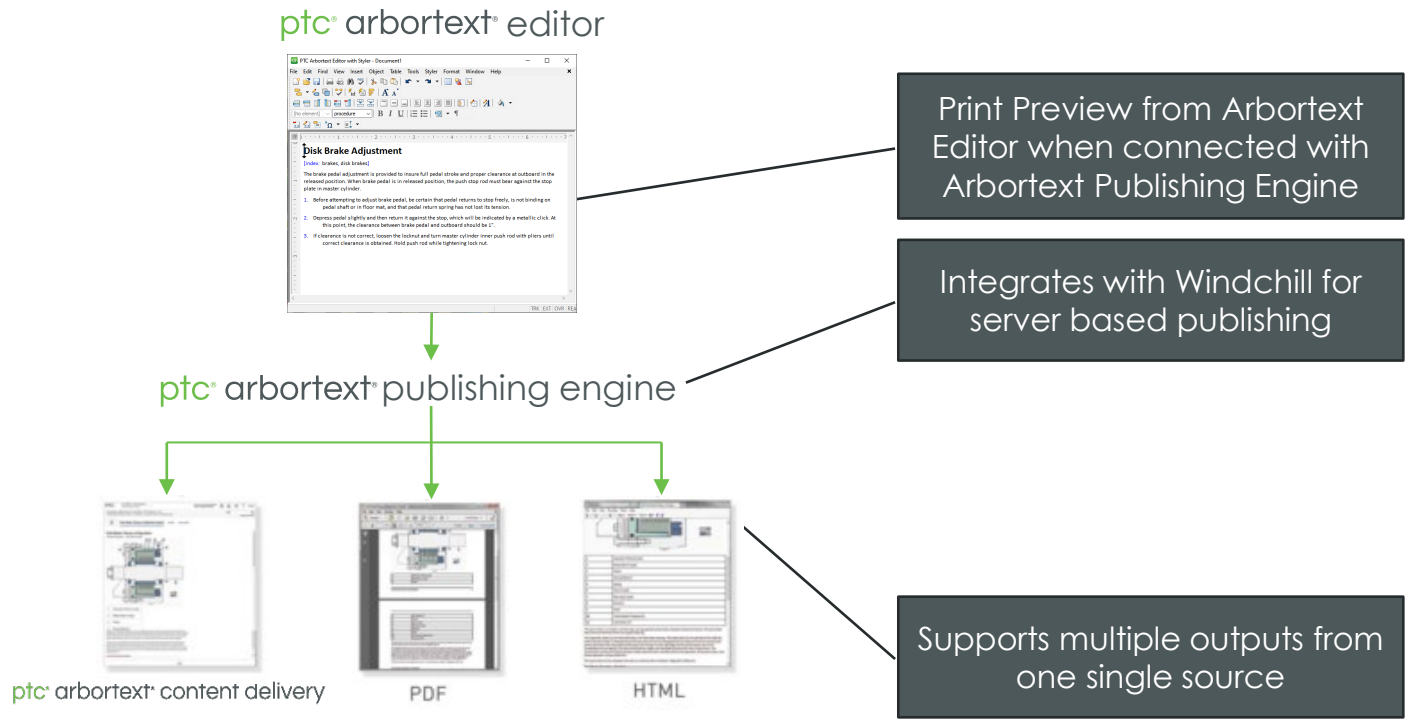
Automate publishing to multiple outputs and languages

Enforces corporate branding and layout standards

PTC ARBORTEXT PUBLISHING ENGINE

Capabilities

- Automatically assemble and publish information
- Automate layout process to create consistent information
- Integrated with Arbortext Editor and Windchill Service Information Manager
- Transform content and structures for delivery
- Server based deployment



Benefits

Provide product specific views of data

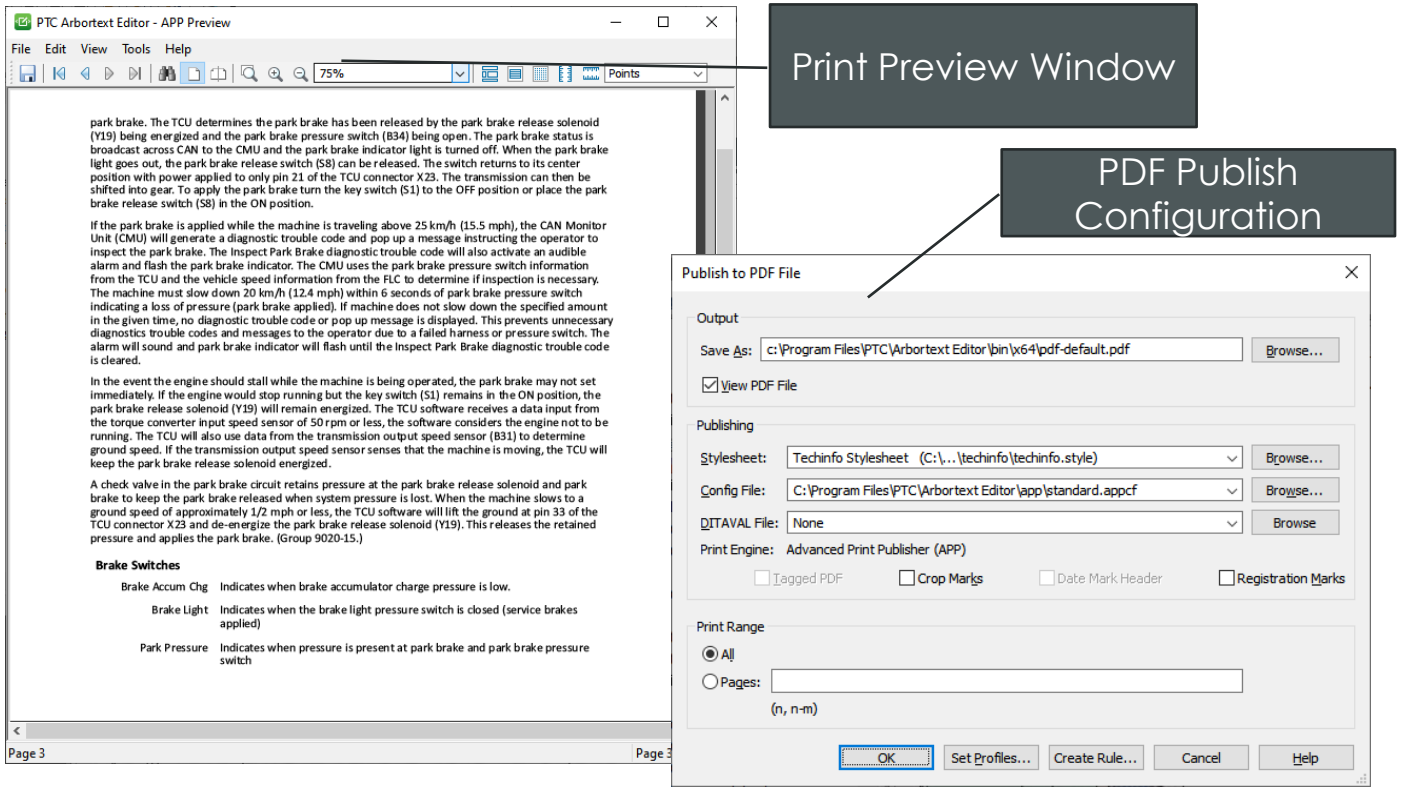
Reduce printing and distribution costs

Reduce publishing cycle times

PTC ARBORTEXTPRINT COMPOSER

Capabilities

- Add on license to Arbortext Editor
- Provides local publishing capabilities
- Integrated with desktop application of Arbortext Editor



Benefits

Local Publish of XML Documents

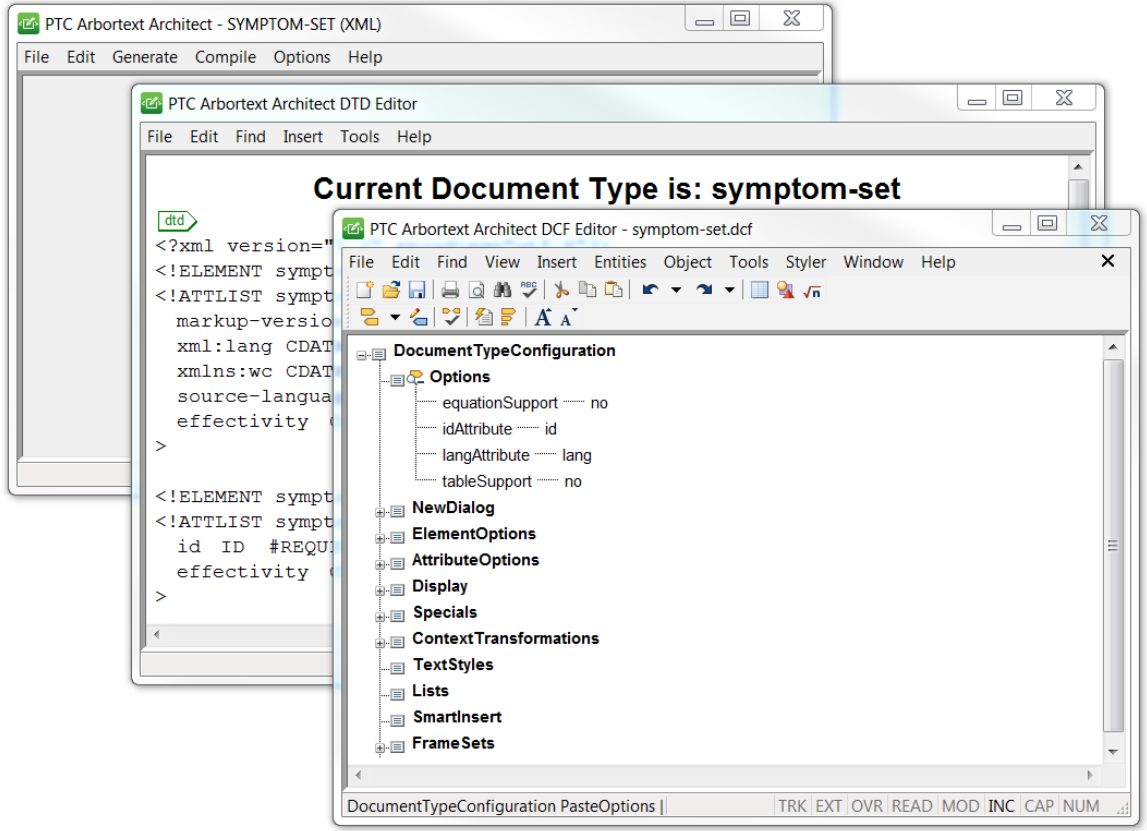
Print Preview during editing

Supports PDF creation

PTC ARBORTEXT ARCHITECT

Capabilities

- Editor for maintaining XML DTDs and Schemas
- Automate test content for stylesheets and authoring templates
- Integrate custom doctypes in the Arbortext Environment



Benefits

Creates modular, maintainable XML DTDs and Schemas

Customize menus and input forms for specific tasks

XML tag aliasing

ADVANCED STYLESHEET MANIPULATION

USE CASES

- Performance vs ease of use – Arbortext Layout Developer (ALD) templates are excellent in enabling speed in preference to being able to change the stylesheet easily
- Document Finishing (previously known as touch up) - if 100% automation is not achieved, then ALD templates allow users to finish the document after getting 80%, 90%, 95% of the way there using Arbortext Layout Editor
- Layout Requirements – Examples Include: floats, complex tables, constrained content, non-XML tests (eg testing formatting results), colour management... More complex than a typical Word document
- Non-standard Workflows – Examples Include: multiple input files, non-XML content, multiple differing outputs, or interactive PDF... Then ALD is the way forward

ARBORTEXTLAYOUT DEVELOPER/EDITOR

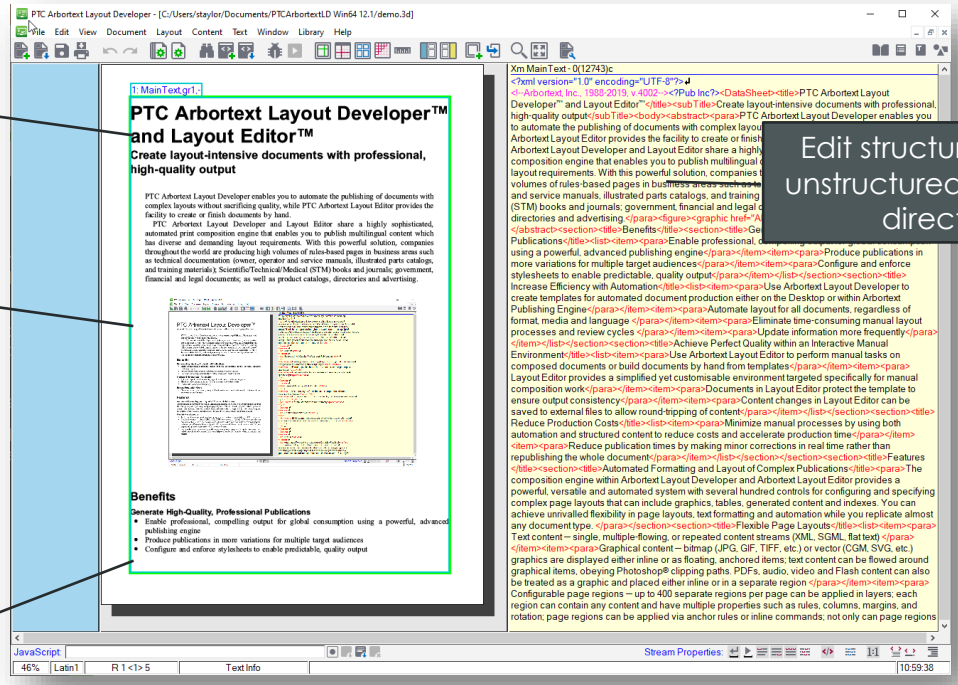
Capabilities

- Automate the creation of high-quality print documents
- Associate page layout and text formatting with content, environment and formatting test results
- Access the composed document to manually enhance the output to achieve perfect results
- Generate compliant output including PDF/ X, PDF/ A and PDF/ UA

Access hundreds of text formatting properties

Automate complex page layouts

True WYSIWYG gives immediate feedback



Edit structured and unstructured content directly

Benefits

Interactively create formatting and resolve output issues

Build automated publishing solutions without compromise

True XML support guarantees content integrity

SME COLLABORATION

THE PRODUCT DOCUMENT JOURNEY

Publication Manager

Creates Empty Document

Send Request to Engineer/ SME to populate the document with product knowledge

windchill®

request@email.com
SME

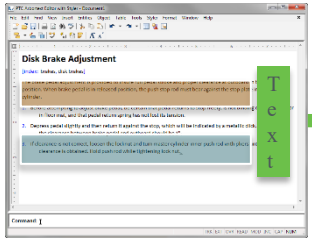
ptc arbortext® Web Editor

Engineer/ SME submits the product knowledge to Technical Document Authoring Team

Technical Document Author

Technical Publications Team uses the SME document and completes the document using PTC Arbortext Editor

windchill®



ptc arbortext® Editor

review@email.com
SME's

ptc arbortext® Web Reviewer

Text

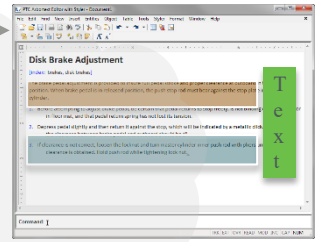
Technical Document Author

Technical Publications Team uses the SME reviewed document

Review in Web Editor Comments/ Approval from SME

Advanced Edits using PTC Arbortext Editor

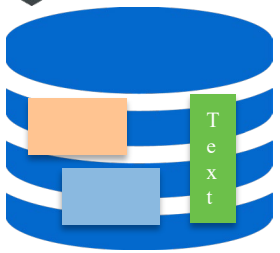
ptc arbortext® Web Editor



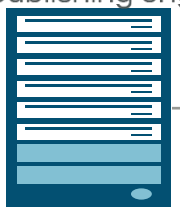
ptc arbortext® Editor

Engineer/ SME's Review the Updated Document and approves/ Comments for Technical Publications Team to publish

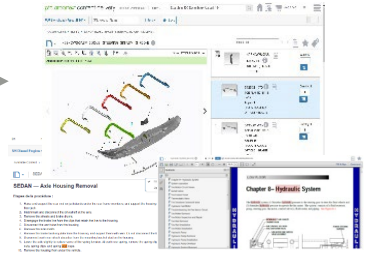
windchill®



ptc® arbortext® publishing engine

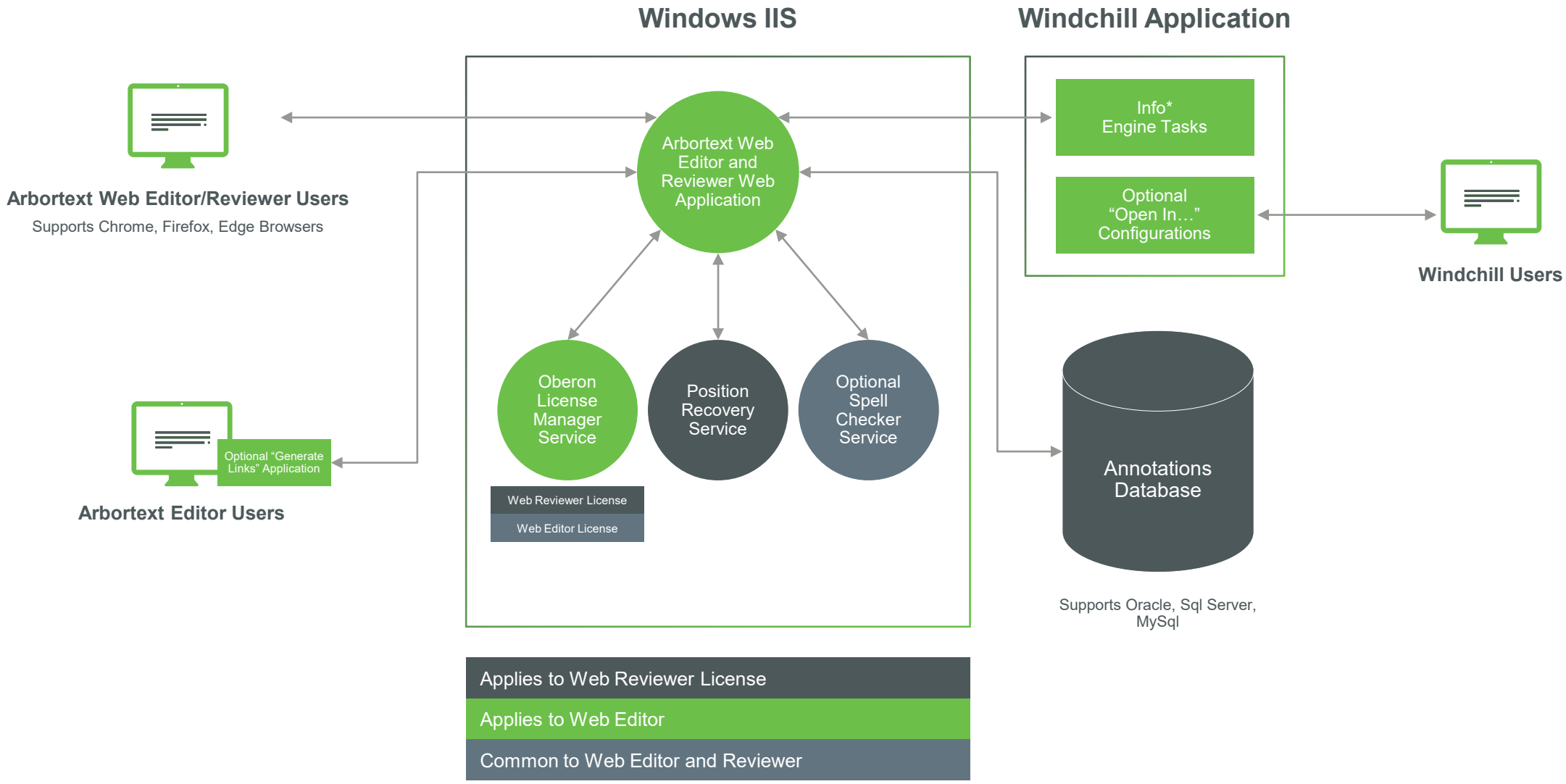


ptc arbortext® Content delivery

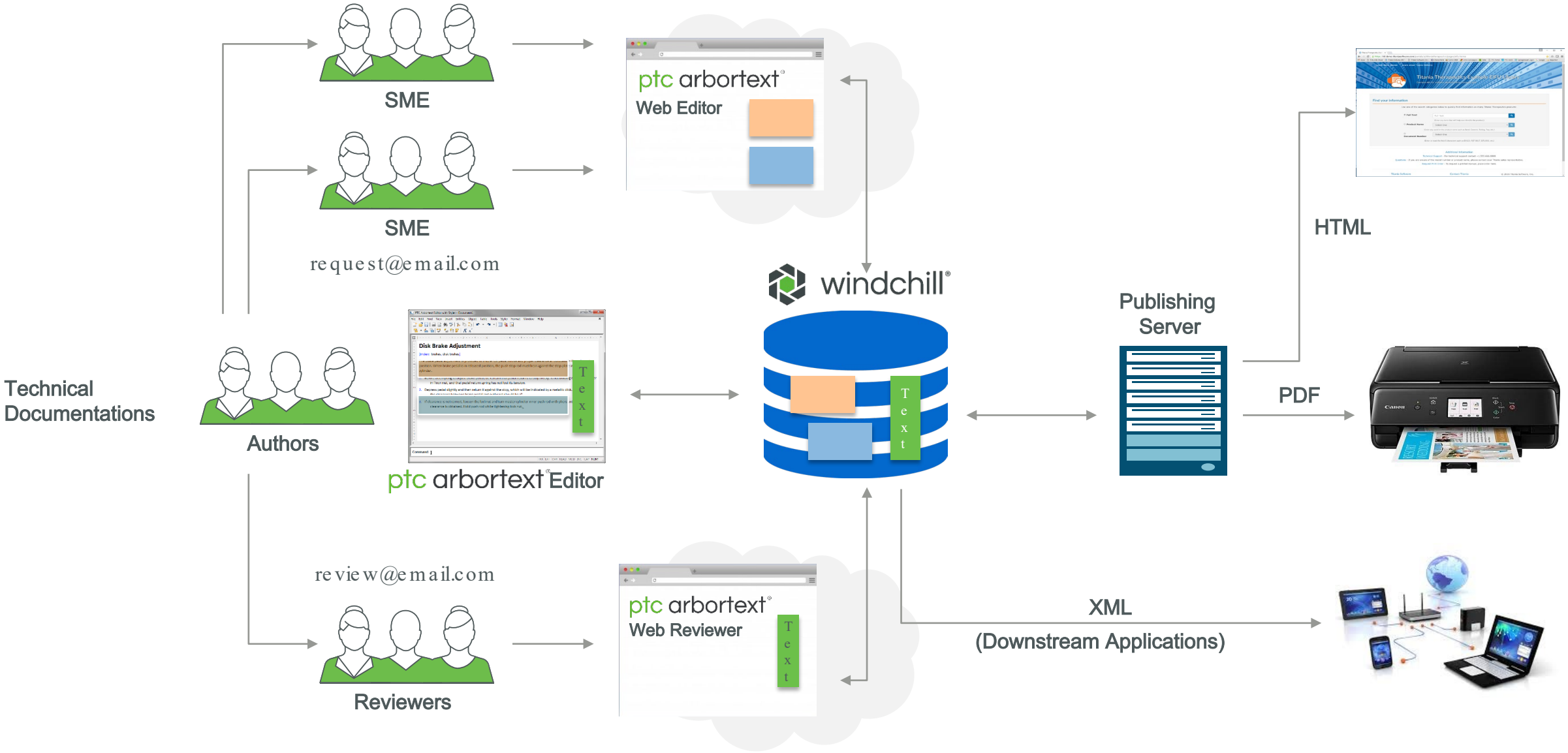


Electronic Content Delivery

IT ARCHITECTURE



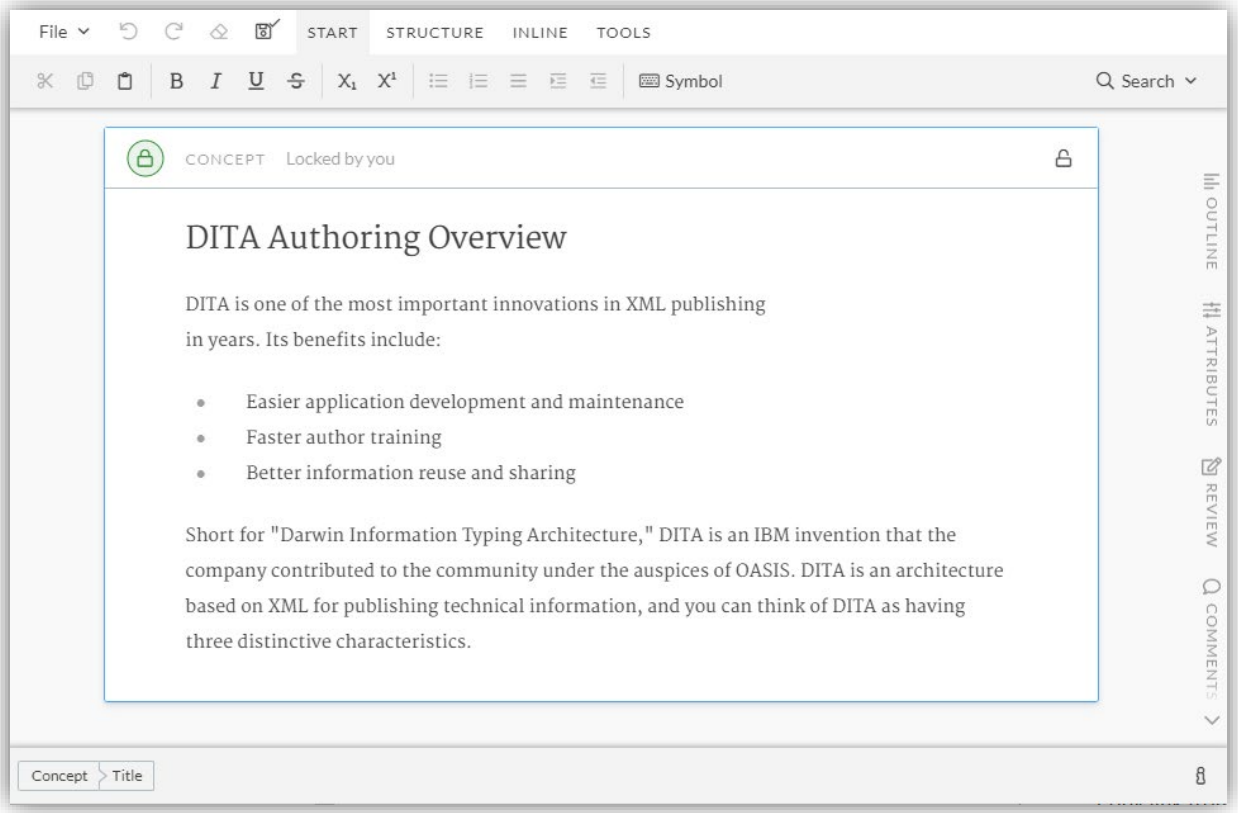
WORKS WITHIN YOUR EXISTING ENVIRONMENT



PTC ARBORTEXTWEB EDITOR

Capabilities

- Create structured textual information
- Customize and configure based on business requirements
- Integrated with PTC Windchill for seamless content management capabilities
- Familiar word processing features
- Easily reuse content



Benefits

Increase authoring productivity

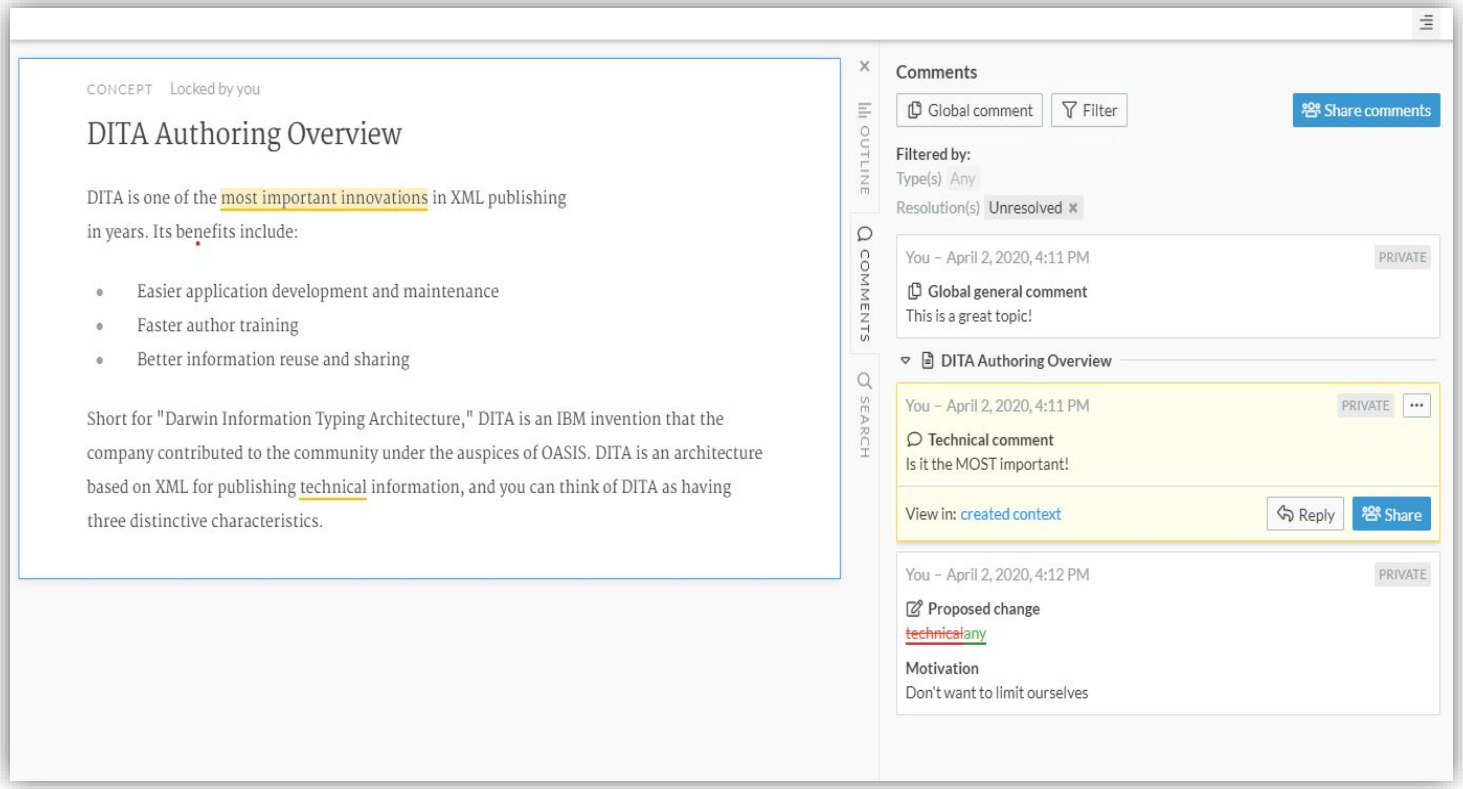
Concentrate on content accuracy

Eliminate duplicate efforts through content reuse

PTC ARBORTEXTWEB REVIEWER

Capabilities

- Web-based annotations and commenting
- Real-time collaboration on the same content
- Indicate type and motivation for proposed change
- Ability to filter comments to focus view
- Manage disposition of comments
- Built-in Integration with Windchill



Benefits

Review with Subject Matter Experts

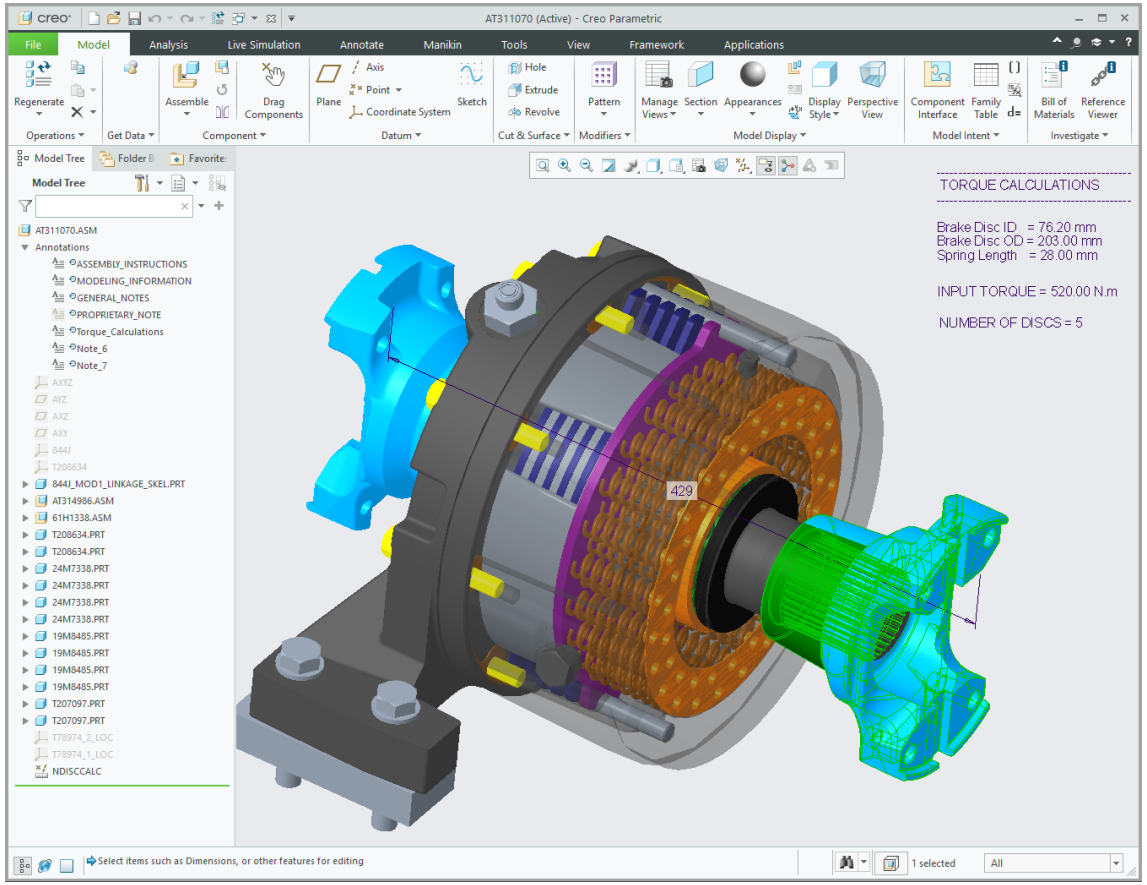
Propose Content Changes

Comment on Source Documentation

ILLUSTRATION TOOLS

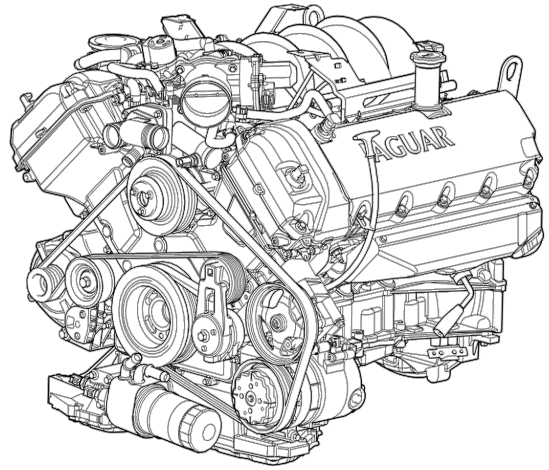
CAD BASED ILLUSTRATIONS

- CAD data is highly accurate and should be leveraged for creating illustrations
- Maintain a link to 3D source objects
- Create a digital thread linking to engineering source data
- Illustrations tools do not require heavy CAD applications
- Protect source materials
- 3D BOM
- Illustrations created from Model Based CAD

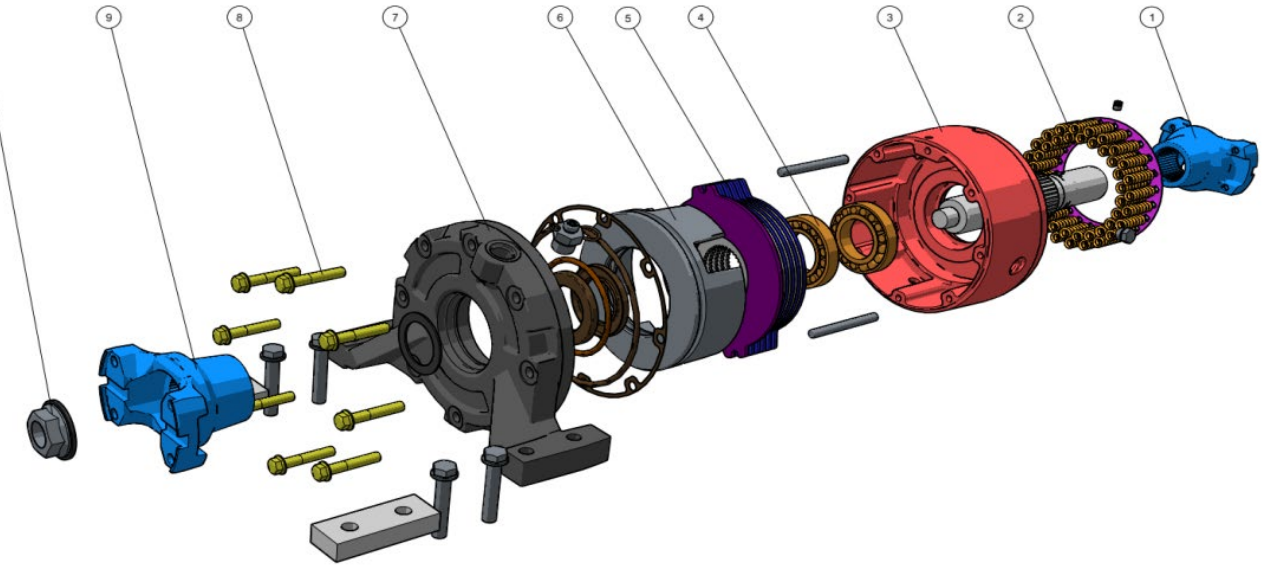


CREO ILLUSTRATE AND ARBORTEXT ISODRAW

- Arbortext IsoDraw
  - Best-in-class Technical Illustration tool for creating 2D illustrations from 3D CAD, 2D vector, 2D raster, and/or scratch
  - 2D output (.iso, .svg, .png, etc.)



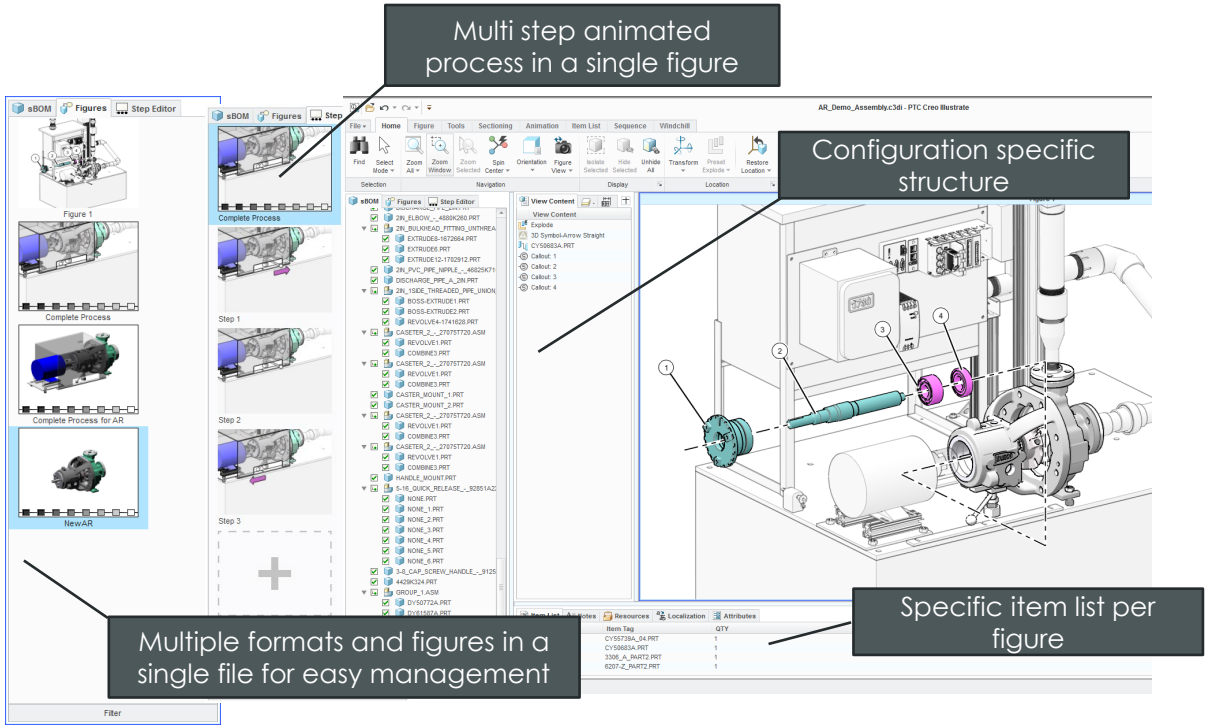
- Creo Illustrate
  - Reuse 3D geometry to generate rich, interactive technical illustrations
  - 3D or 2D output



PTC CREO ILLUSTRATE

Capabilities

- Deliver configuration - specific graphical information
- Generate parts lists and call outs directly from CAD metadata to produce dynamic parts lists
- Create 3D animations to visually describe complex service procedures
- 2D and 3D publish and export capabilities



Benefits

Increase Service and Parts accuracy

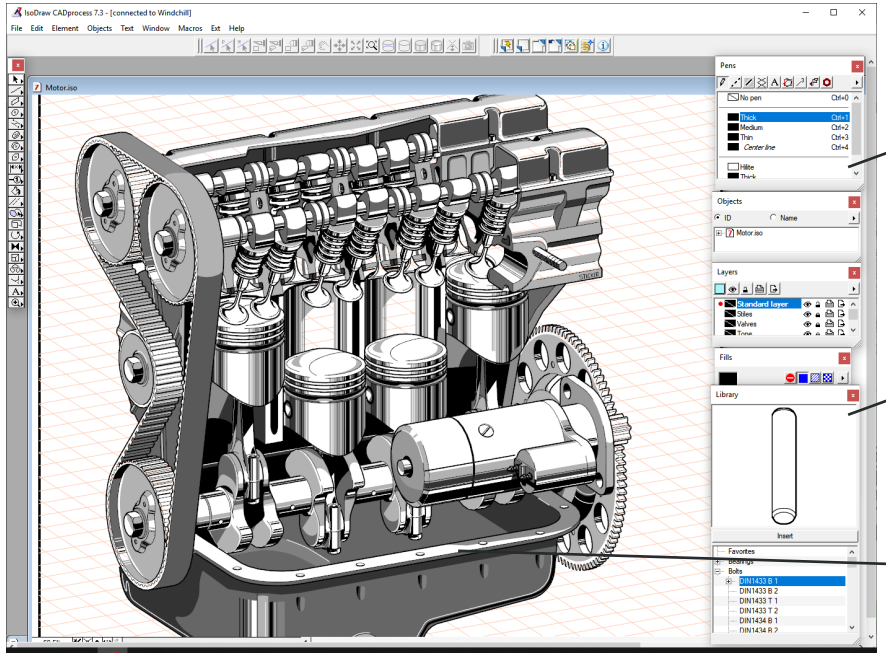
Accelerate maintenance and repair times

Enhance Customer Experience

PTC ARBORTEXT ISODRAW

Capabilities

- 2D Vector Drawing with full suite of custom drawing tools
- Can work with2D raster, 2D vector, and 3D source objects
- Complies with standards for technical publications (IETMs, S1000D, ATA)
- 2D vector or raster publishing



Perspective Drawing Tools

Bring 3D, 2D Vector, and 2D raster sources into a single illustration

Layers and shading

Benefits

Style & Pallet Tools

Interactive Hot-Spot Creation

Macro Language

SERVICE PARTS INFORMATION AND INSTRUCTIONS

COMPONENT AUTHORING ORGANIZATION

- Information Structures: Functional or Product Structure View

Name		C	Version	State
Bus_Information_Structure			A.9 (Ser…	Released
1 MetroBus			A.4 (Ser…	Released
Air System			A.5 (Ser…	Released
Accessibility			A.5 (Ser…	Released
Body and Interior			A.5 (Ser…	Released
Brakes and Wheels			A.6 (Ser…	Released
Parking Brake			A.22 (Se…	Released
Parts List, Parking Brake			A.3 (Ser…	Released
Parts List, Outer Housing Kit			A.3 (Ser…	Released
Parts List, Hardware Cap Screw Kit			A.6 (Ser…	Released
Parking Brake Sequence PVZ			A.1 (Ser…	In Work
Parking Brake Animation PVZ			A.1 (Ser…	In Work
3D Parking Brake Video MP4 GDD			A.2 (Ser…	Released
Pressure Test (topic)			A.1 (Ser…	Released
Park Brake Will Not Release (topic)			A.1 (Ser…	Released

- Publication Structures: Book or Deliverable Structure

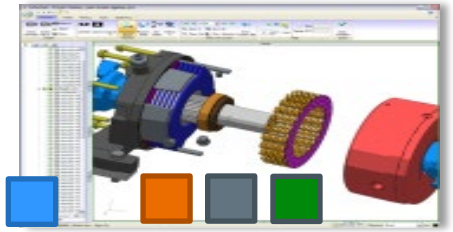
Name	Version	State
Parking_Brake_Service_Manual	A.2 (Service)	In Work
Table of Contents	A.1 (Service)	Released
Chapter 1: Assembly and Disassembly	A.3 (Service)	In Work
Park Brake Assembly (topic)	A.1 (Service)	Released
Pressure Test (topic)	A.1 (Service)	Released
Park Brake Disassembly with Animation (topic)	A.1 (Service)	Released
Chapter 2: Installation and Removal	A.2 (Service)	In Work
Chapter 3: Specifications	A.2 (Service)	In Work
Chapter 4: Troubleshooting	A.2 (Service)	In Work
Error Codes (topic)	A.1 (Service)	Released
Pressure Test (topic)	A.1 (Service)	Released
Park Brake Will Not Apply (topic)	A.1 (Service)	Released
Park Brake Will Not Hold (topic)	A.1 (Service)	Released
Park Brake Will Not Release (topic)	A.1 (Service)	Released
Index	A.1 (Service)	Released

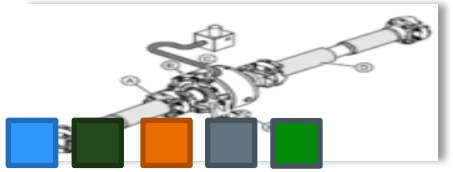
APPLICABILITY

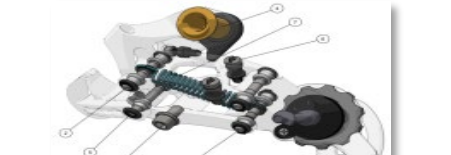
- Filterable fields for technical content: options, serial numbers, dates

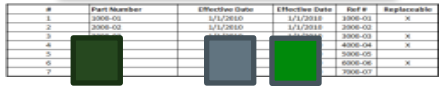
- Exhaust
- Braking
- Engine
- Safety

- Documentation
- Operating Procedures
- Service Procedures
- Spare Parts List









Options

- 4 Wheel Drive
- 2 Wheel Drive

Conditions

- Warm Climate
- Cold Climate

- Serial Numbers

DOCUMENT & CONTEXT VIEWS

Document Centric Information Management

- 880J Loader Publications
  - Parts Catalog
    - Illustrations
    - Sections
  - Repair Manual
    - Disassembly & Assembly
    - Figures
      - 0000020096
      - 0000020098
      - 0000020097
    - Removal and Install
      - 0000020087
      - 0000020116
      - 0000020090
      - 0000020103
  - Self Help_eLearning
  - Service Bulletin
  - Standards
    - Caution
    - Figures
    - Logos

Illustrated Parts Catalog

Operator / Repair Manual

Service Bulletin

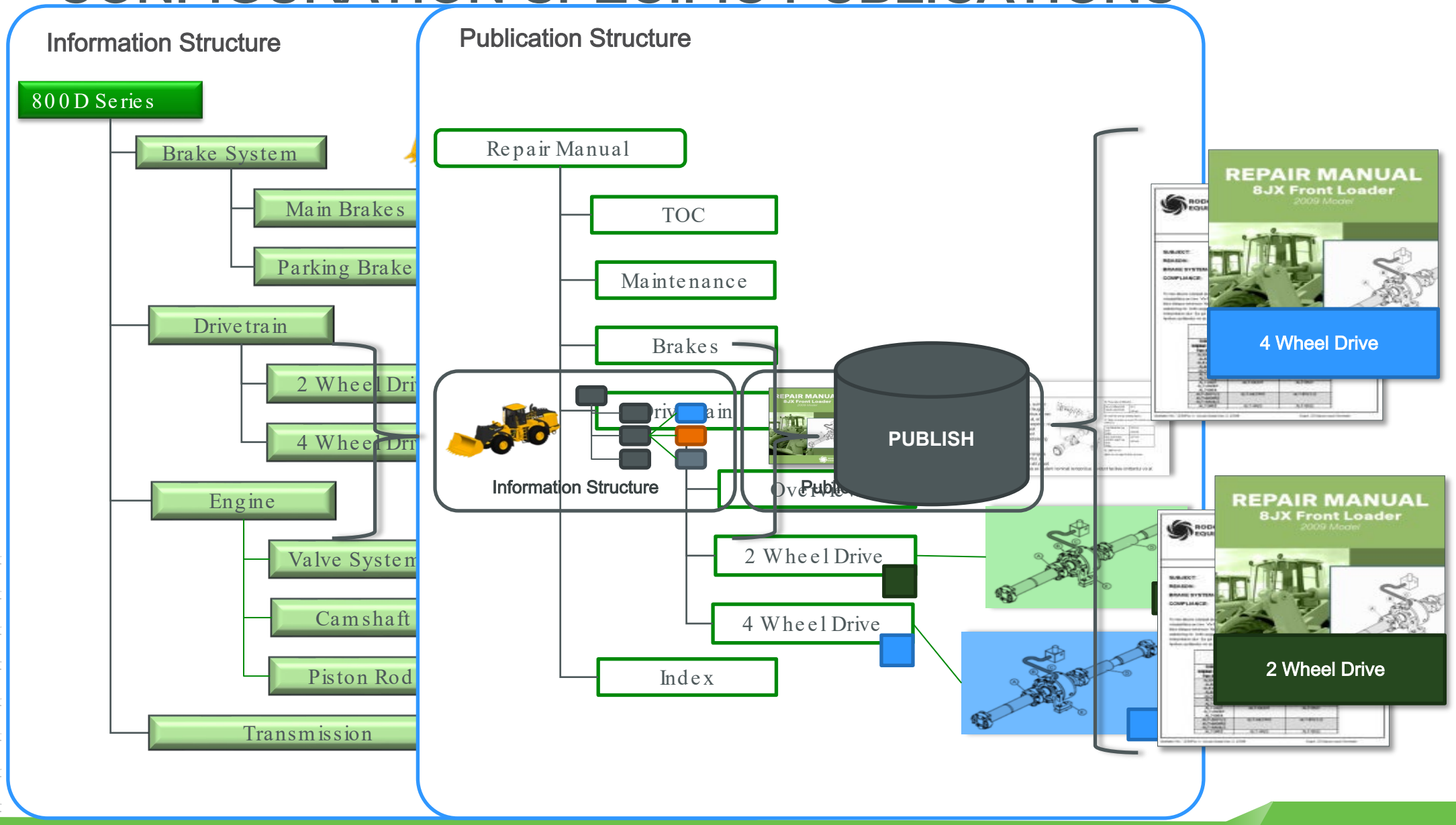
Self Help / eLearning

Product -centric Information Management

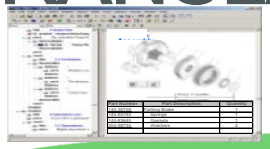
- Exhaust
- Braking
  - Illustrations
  - Operating Procedures
  - Service Procedures
  - Spare Parts List
- Engine 4.0
- Engine 6.0
- [OTHER}

2 Wheel Drive | 4 Wheel Drive | Warm Climate

CONFIGURATION SPECIFIC PUBLICATIONS



TRANSLATION PROCESS FLOW



XML

Service Information & Instructions

- Parking Brake
  - Service Schedules
  - Repair Procedures
  - Troubleshooting

Publishing Engine

Japanese
French

English

French, German
English, Chinese

Query content for translation NEW or CHANGED

Prepare Translation Package

- Parking Brake - FR
- Parking Brake - DE
- Parking Brake - JA
- Parking Brake - CH

Generate export files

Package (Original XML Source)

Deliver Translation Package

Import & associate translated files

Package (Unique Translations)

Add translated Files & update Package

Approve or request updates

Review translations

Subject Matter Experts

LSP's System

- Translation Projects
- LSP T&Cs
- Budgeting
- Translation Memory
- LSP Workflows
- Terminology

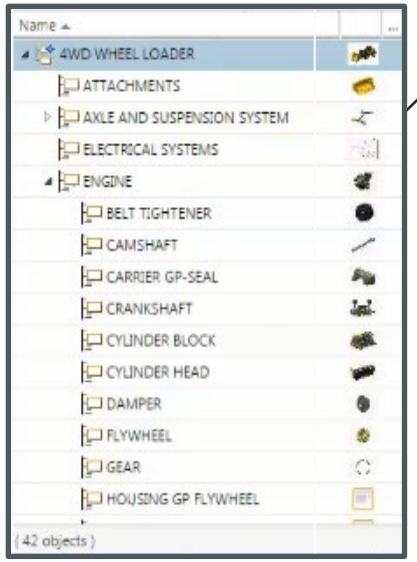
Language Service Providers

Translation Evaluation, Execution and Review Management

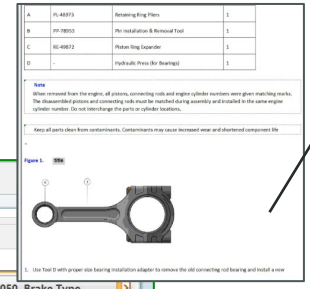
PTC WINDCHILL SERVICE INFORMATION & INSTRUCTION

Capabilities

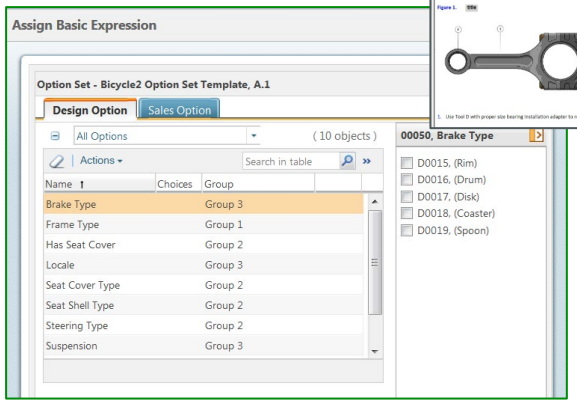
- Manage all the information necessary to service the product
- Manage translated content for global information delivery
- Apply set of conditions to enable context specific information delivery
- Deliver service information via interactive and print output
- Enables enterprise change management process



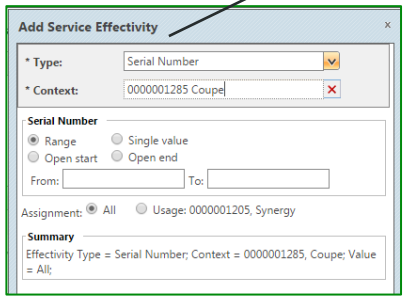
Information & Publication Service Structures



Information Element Management



Applicability, Effectivity conditions



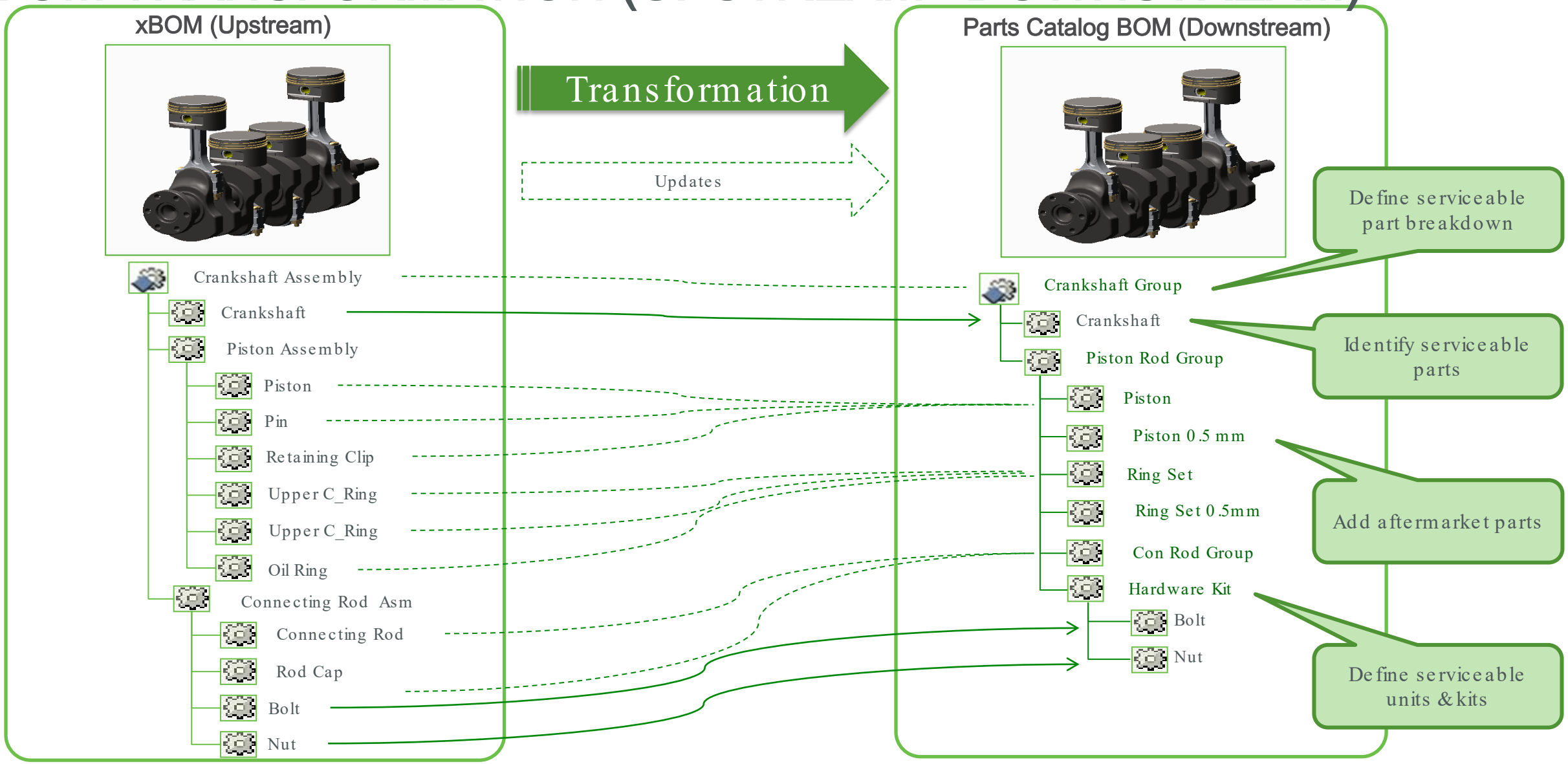
Lifecycle, version and workflow management

Benefits

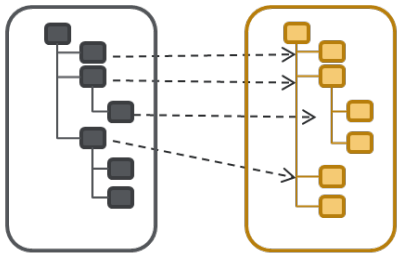
Improved service information quality	Improved technician efficiency	Increase authoring productivity

XBOM TRANSFORMATION & ILLUSTRATED PARTS CATALOGS

BOM TRANSFORMATION (UPSTREAM– DOWNSTREAM)



TRANSFORM ENGINEERING DATA INTO SERVICE CONTENT



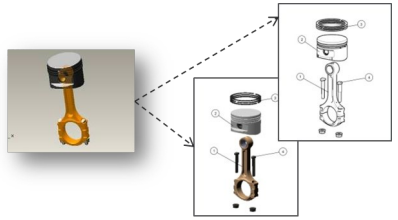
BOM Transformation

Step 1:
Restructure Source BOM into associative Parts Catalog BOM

Item	Part #	Part Name	Qty	Notes
1	200-1100	Connecting_Rod	4	Always replace hardware (200-5100)
2	300-1100	Piston	4	
	300-1150	Piston (.50 Oversize)	4	Requires 100-1150
3	100-1100	Ring_Set	4	
	100-1150	Ring_Set (.50 Oversize)	4	Use with 300-1150 Only
4	200-5100	Hardware_Kit	4	

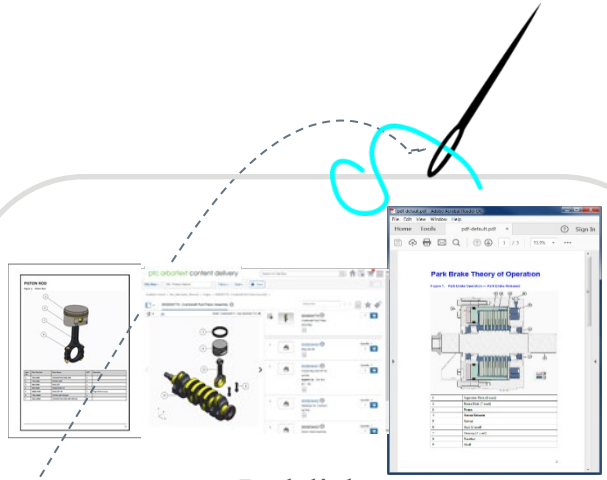
Create Parts List

Step 2:
Automate generation of parts list items linked to Parts Catalog BOM



Create Illustrations

Step 3:
Use engineering CAD or legacy graphics to create parts list illustrations; automatically generate callouts and hotspots in 3D illustrations



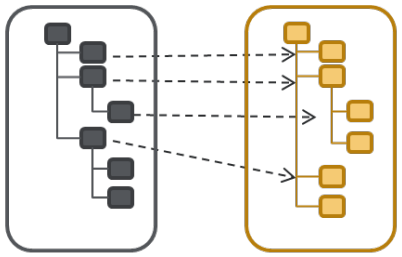
Publish

Step 4:
Publish the parts catalog to multiple formats using the same methods for XML technical content management

Change management to identify impact of BOM changes & incorporate updates into Parts Catalog BOM, parts lists, and Illustrations for up-to-date service content delivery

Impact Analysis and update

TRANSFORM ENGINEERING DATA INTO SERVICE CONTENT



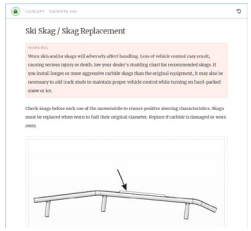
BOM Transformation

Restructure Source BOM into associative Parts Catalog BOM

Create Service Structures

Create Information Structure and Publication Structure(s)

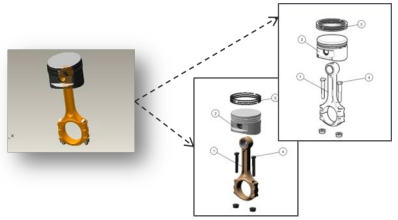
Create parts lists and author service procedures/ content



Easily author reusable content components & associate to engineering data (for change management

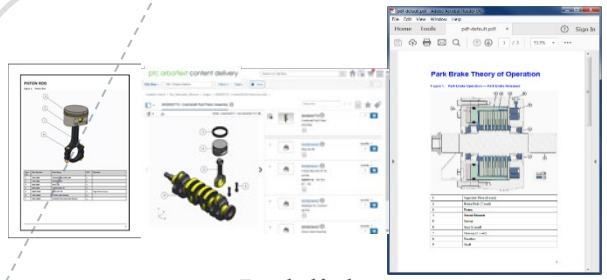
Item	Part #	Part Name	Qty	Notes
1	200-1100	Connecting_Rod	4	Always replace hardware (200-5100
2	300-1100	Piston	4	
	300-1150	Piston (.50 Oversize)	4	Requires 100-1150
3	100-1100	Ring_Set	4	
	100-1150	Ring_Set (.50 Oversize)	4	Use with 300-1150 Only
4	200-5100	Hardware_Kit	4	

Automate generation of parts list items linked to Parts Catalog BOM



Create Illustrations

Use engineering CAD or legacy graphics to create parts list illustrations; automatically generate callouts and hotspots in 2D/ 3D illustrations



Publish

Publish the parts catalog and service manuals to multiple formats using the same methods for XML technical content management

Change management to identify impact of BOM/ CAD changes & incorporate updates into Parts Catalog BOM, parts lists, document components and Illustrations for up-to-date service content delivery

Impact Analysis and update

PTC WINDCHILL SERVICE PARTS INFORMATION & INSTRUCTIONS +XBOM MANAGEMENT

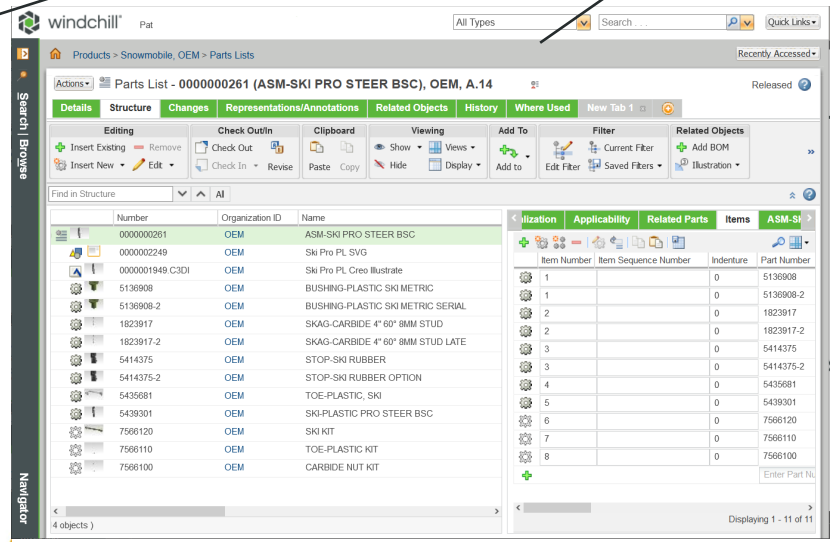
Capabilities

- Define and manage Service Bill of Material (sBOM)
- Create 2D & 3D callout graphics for illustrated parts catalogs
- Automatically generate parts lists from Service BOM
- Product configuration specific delivery of parts information
- Enable enterprise Change Management to understand engineering changes impact

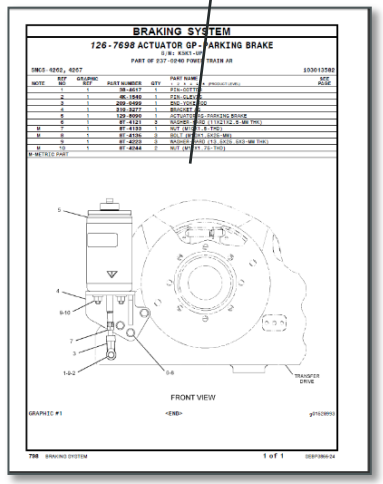
Associative Service BOM Definition

- Crankshaft Assembly
  - Crankshaft
  - Piston Assembly
    - Piston
    - Pin
    - Retaining Clip
    - Upper C_Ring
    - Upper C_Ring
    - Oil Ring
  - Connecting Rod Asm
    - Connecting Rod
    - Rod Cap
    - Bolt
    - Nut

3D Illustrated Parts Information Management



2D Illustrated Parts Catalog Output



Benefits

Improve part identification

Improve part ordering accuracy

Increase service parts revenue

ARBORTEXT CONTENT DELIVERY

OVERVIEW

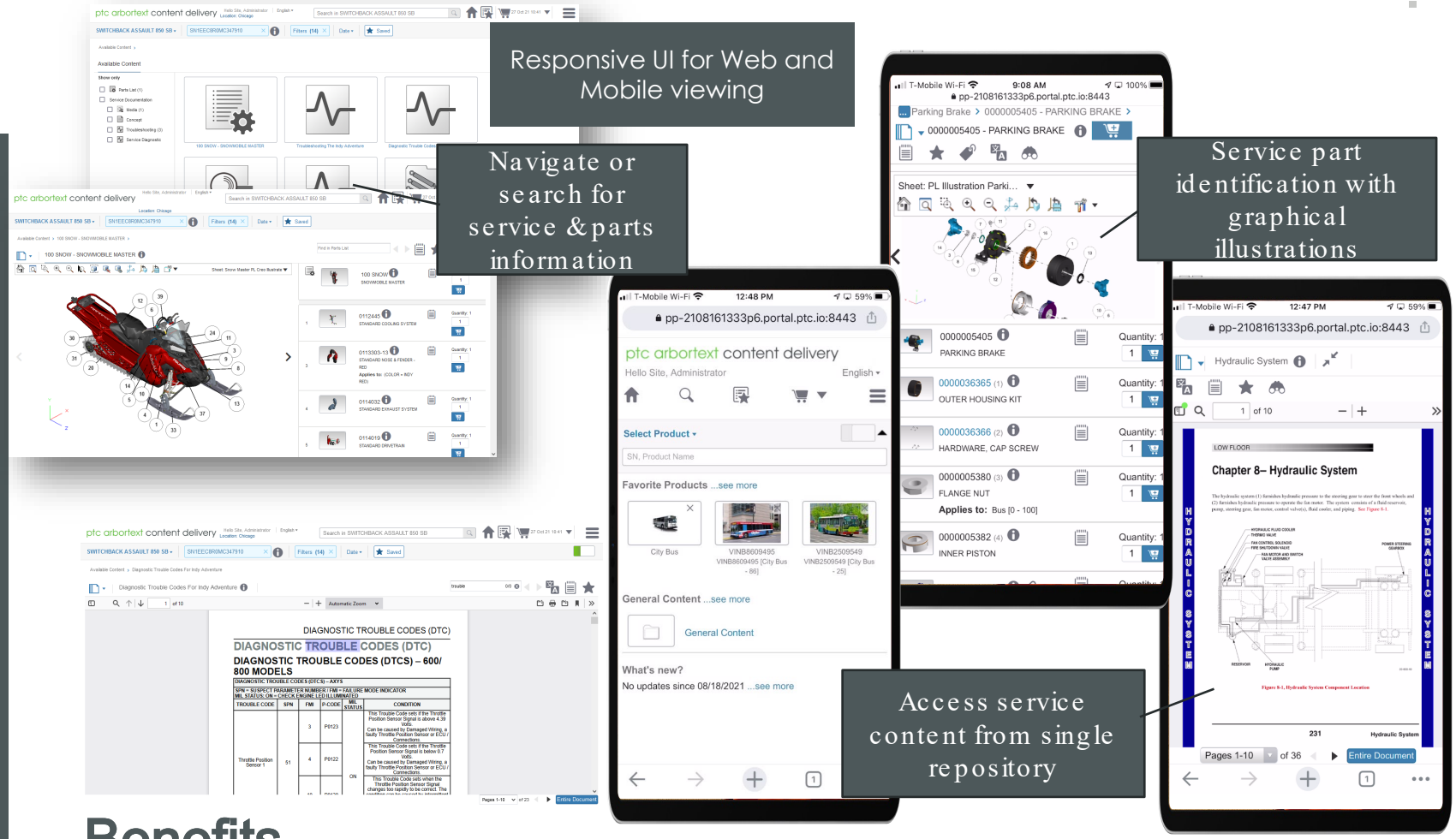
- Provides access to updated, configuration specific, service information, and parts catalogs.
- Precision search, navigation and filtration pinpoint the user to the necessary high-quality information, boosting technician productivity and increasing field efficiencies.
- PTC Arbortext Content Delivery is a powerful scalable foundation which provides a single web portal to access your content
- Viewer supports mobile and offline delivery

ARBORTEXT CONTENT DELIVERY

Contextual Delivery Platform

Capabilities

- Consolidated access to existing service content in multi-languages
- Contextualized searching and filtration of content for specific model or serialized equipment configuration
- Robust navigation with dynamic TOC
- BOM driven Delivery of illustrated parts catalogs
- Deliver dynamic, interactive 3D and 2D illustrations
- Print for on -demand PDF outputs
- Integrated eCommerce module
- Responsive UI for Web and Mobile viewing
- REST APIs
- Offline module
- Cloud Ready
- ACD Analytics



Benefits

Content delivery to point of service

Improved technician lookup Using Mobile devices or Laptops

Reduced time for service event resolution

ptc

DIGITAL TRANSFORMS PHYSICAL

THANK YOU

ptc.com