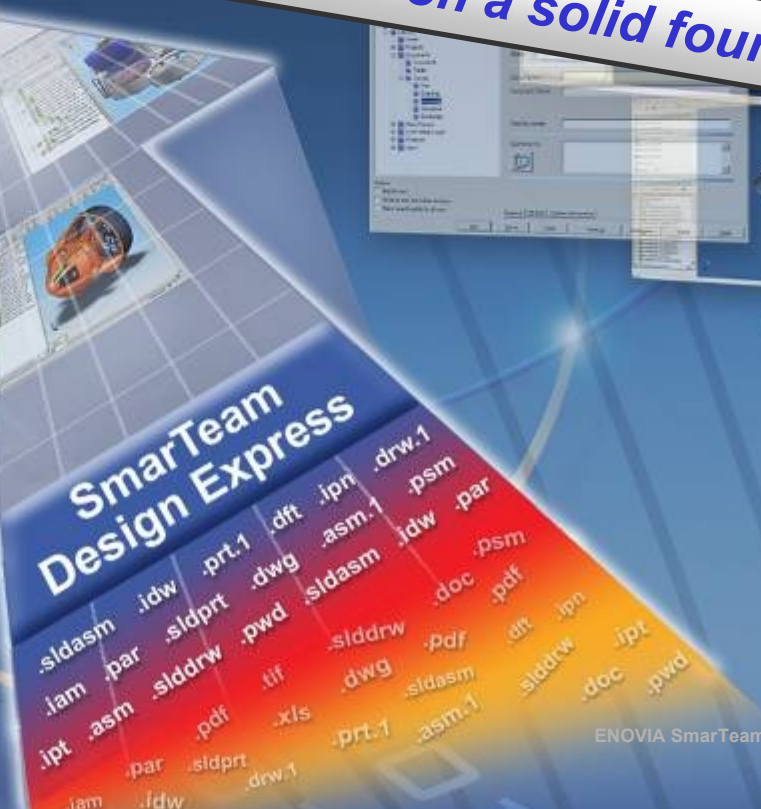


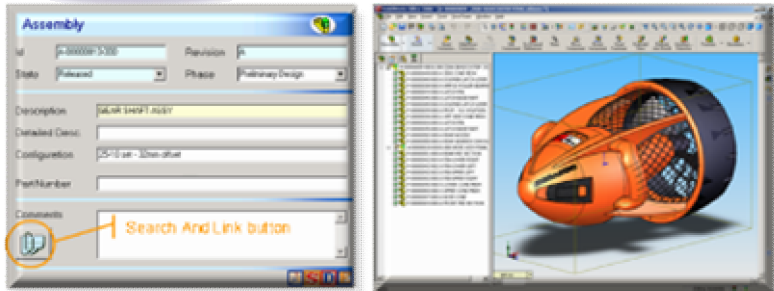
SmarTeam Design Express for Multi-CAD: Solid Edge™

The fastest, simplest way to build your PLM on a solid foundation



SmarTeam Design Express for Multi-CAD

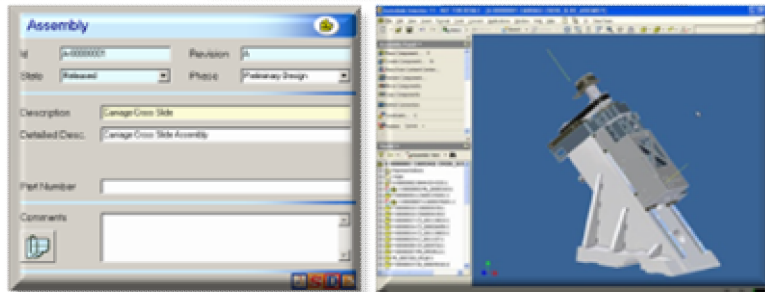
SolidWorks



Rich & flexible data model

Implemented in 10 days

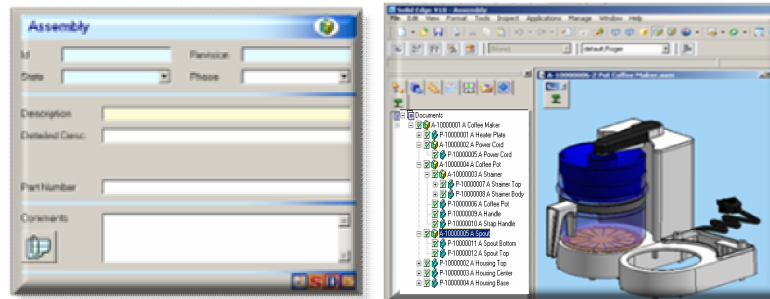
Inventor



Proven Methodology

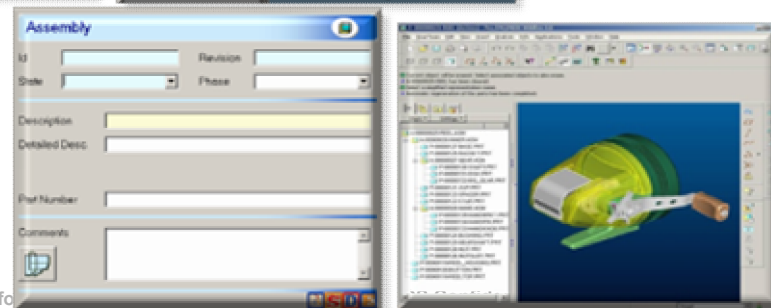
Robust Integration

SolidEdge



Scalable

Pro/E



Agenda

- 1 **What is SDE for Multi-CAD: Solid Edge?**
- 2 **How SDE Resolves your PDM Challenges**
- 3 **Customers**
- 4 **Key Differentiators**
- 5 **Typical Project Plan**
- 6 **Next Steps: Beyond SmarTeam Design Express**



1.1

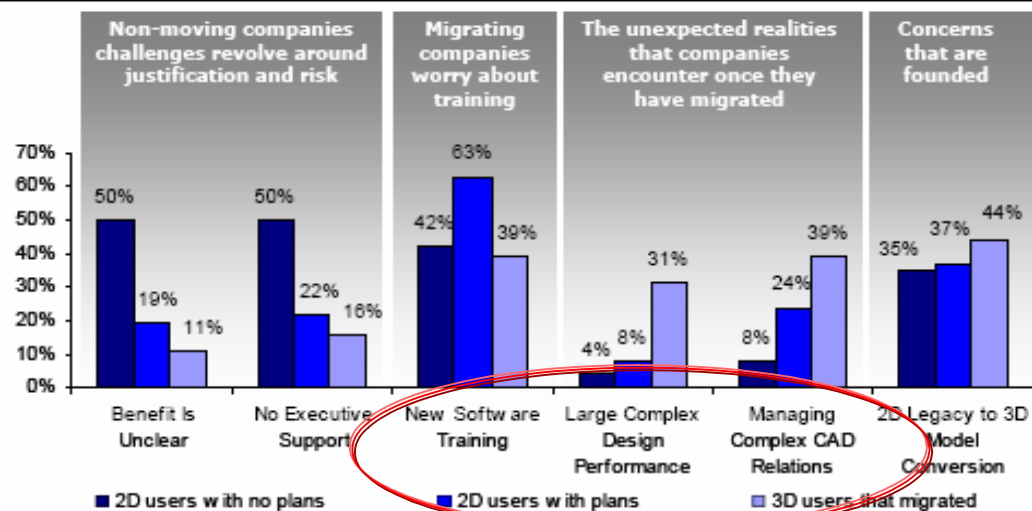
Power brings Complexity: 3D Data Management

- Using Solid Edge for 3D modeling gives you power, but adds complexity that requires sophisticated data management

While best in class performers are taking advantage of 3D modeling's extended and downstream capabilities, many manufacturers run into the unexpected negative consequences of managing complex CAD relationships (39% in Figure 1). To address this issue, best in class performers are taking greater advantage of core data management technologies than their laggard peers.

“The Transition from 2D Drafting to 3D Modeling Benchmark Report – Improving Engineering Efficiency”
 Aberdeen Group,
 September 2006

Figure 1: Challenges to Using 3D Modeling



Source: Aberdeen Group, September 2006

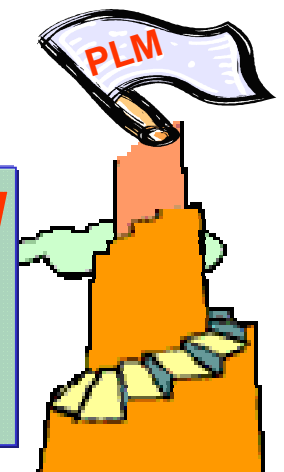


1.2

A Step-by-Step Approach to 3D Data Management

- You need the right solution to manage your Solid Edge designs.
- Industry analysts today indicate that, like their larger competitors, mid-sized manufacturers must adopt Product Lifecycle Management (PLM) solutions to survive.
- But many of these manufacturers find PLM to be too complex, disruptive and costly to implement.
- We offer you a **modular approach** that lets you take practical steps to manage your 3D data today, achieve incremental success that creates momentum for further adoption, and at the same time build a foundation that will let you gradually gain the full benefits of PLM.

“At the entry level, people want easy implementation, and not the endless capability for customization typical of large-scale PLM,” says Bruce Boes, a vice president at Solid Edge. (Desktop Engineering, May 2005)



1.3

What is SDE for Multi-CAD: Solid Edge?

- ENOVIA SmarTeam is a **Windows-based PLM system** that at its PDM core secures product data of all kinds in a robust database and enables your extended design team to easily control and manipulate that data
- SmarTeam Design Express is a **quick-start package** combining:
 - ✦ SmarTeam Editor and the powerful, embedded SmarTeam-Solid Edge™ and AutoCAD Integrations
 - ✦ a pre-configured database and data model optimized for collaborative design, leveraging the combined power of SmarTeam and Solid Edge
 - ✦ a methodology guide that sets out the Collaborative Design practices you need
 - ✦ a dedicated training pack
 - ✦ An implementation program that allows **install within 10 days**
- SmarTeam Design Express is designed to help you start out by getting more benefit from your Solid Edge data, **fast**

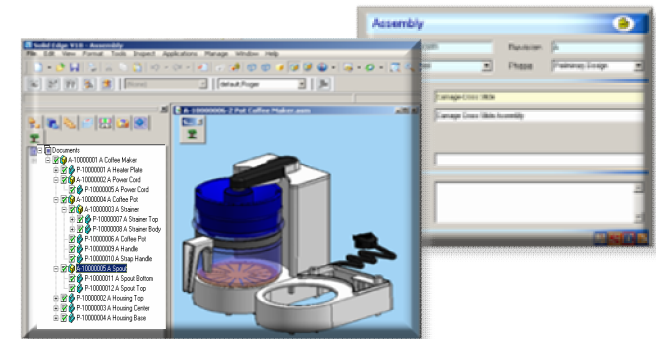


1.4

What is SDE for Multi-CAD: Solid Edge?

Optimized collaborative CAD design and data management

- Secure, structured repository for Solid Edge and other product data (2D and 3D CAD data and associated documents) in the engineering department.
- Full product document history, with traceability, full revision and version control
- Advanced search and query capabilities for documents, links and references
- Controlled document sharing
- Use of standard designs, promoting design reuse
- Embedded viewing of over 450 data formats without native application

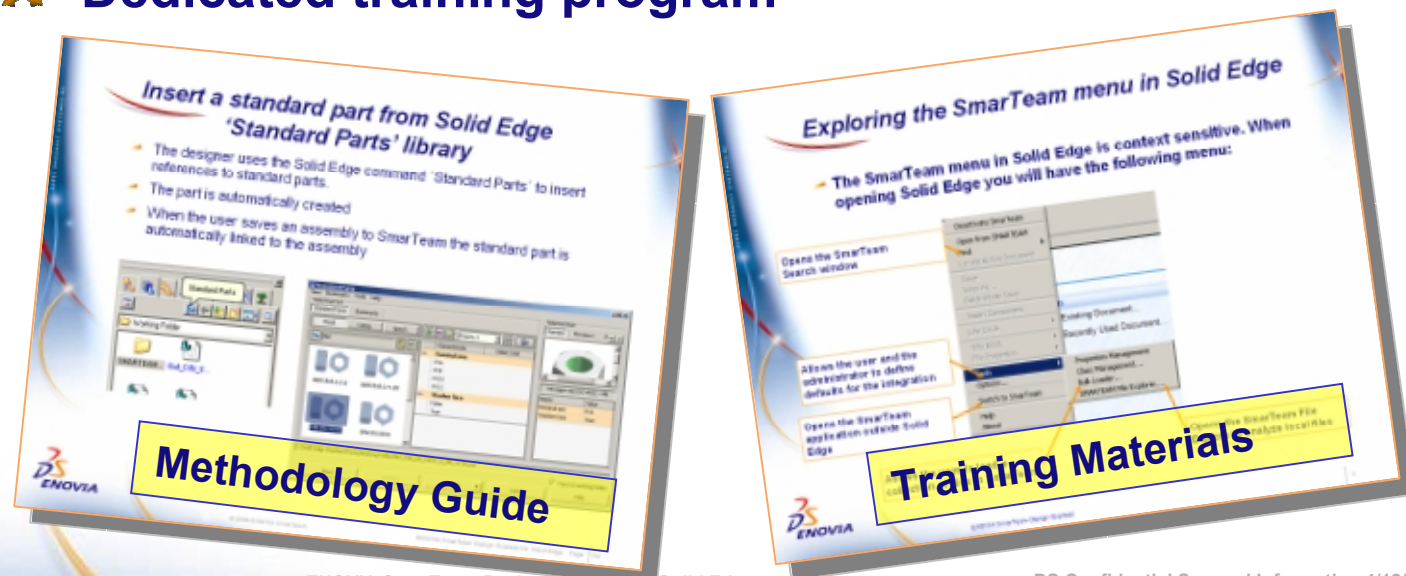


1.5

What is SDE for Multi-CAD: Solid Edge?

Proven methodologies for design teams to optimally and efficiently create, organize, change and share data:

- ✚ Straightforward User Scenarios
- ✚ Optimized settings for executing these user scenarios
- ✚ Methodology support for managing standards
- ✚ Business methods for using the 3D CAD system
- ✚ Tools for drafting and BOM management
- ✚ Dedicated training program



1.7

SDE for Multi-CAD – PLM tailored for Mid-Market

- **Out-of-the-box solutions are best fit for mid-sized manufacturers**
- Analysts forecast strong growth in PLM sales to the mid-market for vendors that adapt their solutions to these companies' key needs:
 - 👤 **A simple, focused project scope:** by starting with basic PDM
 - 👤 **Low implementation costs:** via templates and pre-packaged solutions combining software, services and training
 - 👤 **Take out the guesswork:** via recommending best practices
- **Start small, aim high:** Mid-market companies can better adopt PLM through a phased approach. **SDE is the solid foundation for this PLM.**

PDM will remain the **foundation** for any PLM implementation... this segment (will) continue to capture the bulk of non-CAD PLM investment, **16% CAGR**.

AMR Research Market Analytix Report: Market Sizing Series - PLM Applications Report, 2004–2009, Michael Burkett

SMEs face some unique challenges with PLM arising from their size, including the cost of implementation, the need to change business processes, and a lack of internal resources... leading SMEs are adopting PLM with tools including **templates**, industry-specific solutions, and **best practice processes**...

From Aberdeen report: The PLM for Small to Medium-Size Manufacturers Benchmark Report, March 2006

Tier 2 and Tier 3 will grow significantly over the forecast period due to PLM providers being able to offer both software and service solution sets more **tailored to the requirements and budgets of the SMB market**.

From Product Lifecycle Management Worldwide Outlook, Dick Slansky, ARC Advisory Group, 2006

Agenda

- 1 What is SDE for Multi-CAD: Solid Edge?
- 2 How SDE Resolves your PDM Challenges
- 3 Customers
- 4 Key Differentiators
- 5 Typical Project Plan
- 6 Next Steps: Beyond SmarTeam Design Express

2.1

SmarTeam Design Express first resolves the most basic PDM challenges facing the design team

1

You need to store, structure and secure your product data

2

You need to keep track of changes to documents through revisions and maturity

3

You need to efficiently search for and quickly find the right data within its context

4

You need to enable the design team to share documents in a controlled manner

5

You need your designers to reuse standard parts and designs

6

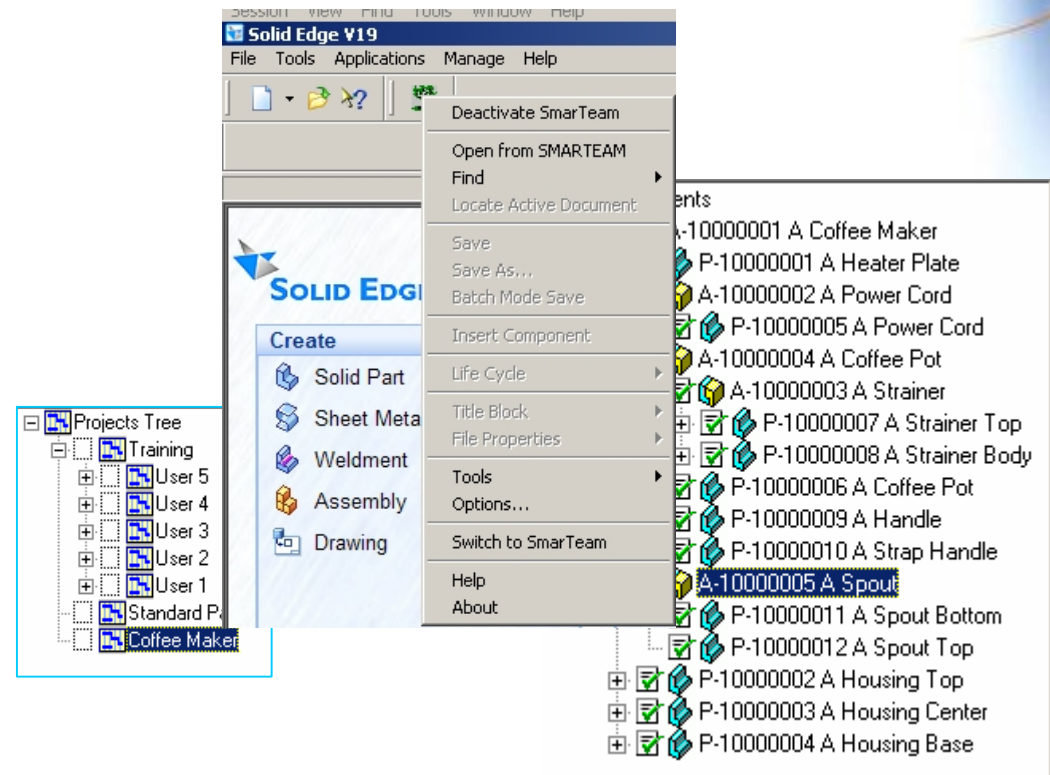
You need to view various data formats without their native applications

2.1

Store, structure and secure your data

Store: Collect and store all product-related data on a single, secure server.

Structure: Organise the documents in standardized way, using categories such as projects, customers, users, etc. to create one homogeneous filing system for everyone, replacing the standard Windows directory structure.



Secure: Data is only accessed via a login ID and password-protected connection, stored on a server with security functions and with an automated tape back-up process.

2.1

Securing and structuring valuable product knowledge

Challenge: As the volume of unwieldy CAD data, complete with assemblies, parts, dependencies, references, links, etc. grows, the data becomes very unmanageable

Solution: SDE offers a pre-configured data model that structures the access to your CAD data, replacing the standard Windows file directory with a product tree, profile cards, queries and wizards that guide users to find any CAD object they need, any time

“We needed a tool to manage a wide range of information concerning product structures and relationships between parts ... because of the huge amount of data involved in our 500 product lines, some of the most complex of which contain up to 2,000 components.... there’s an incalculable gain in efficiency when data is entered once and reused many times.” **Alec Gil, Engineering Manager, S&C Electric, USA**

- Benefits:**
- 👤 Speeds access to product knowledge, spurring innovation
 - 👤 reduces file administration headaches, lowering cost of maintenance
 - 👤 reduces file loss and duplication, saving IT resources and reducing errors

2.2

Tracking changes to documents

- Keep track of the changes made to each document as it matures, without ever renaming the document or copying it to another directory.
- Maintain each revision of the document, enabling access to and reuse of each revision, as well as comparison to previous versions

The screenshot displays the ENOVIA SmarTeam Design Express interface for Solid Edge V18. The main window shows a tree view of documents related to a 'Coffee Maker' assembly. The tree is organized into three main categories: 'A-10000001 A Coffee Maker', 'A-10000001 B Coffee Maker', and 'A-10000001 B.000 Coffee Maker'. Each category contains sub-items for various components like 'Heater Plate', 'Power Cord', 'Coffee Pot', 'Spout', and 'Housing' parts.

On the right side, a 'Revision' table is visible, showing the following data:

Class	Revision	State	Creation Date	Created by:	Modified by:
1	A	Released	11/09/2006 09:0	Administrator	CAD , Designer
2	B.000	Checked In	12/19/2006 14:4	CAD , Designe	Lead , Enginee
3	B	Released	12/19/2006 14:4	CAD , Designe	Lead , Enginee

Below the table, a context menu is open over the document tree, showing options: Save, Save As..., Check Out, Check In (highlighted), Release, and New Release.

The ENOVIA logo is visible in the bottom left corner, and the text 'ENOVIA SmarTeam Design Express for Solid Edge' is at the bottom center. The page number '7' and 'Page' are in the bottom right corner.




2.2 Tracking revisions, versions and product history

Challenge: Reuse of parts in different products and projects usually requires modifications. The more complex the assembly, the more difficult to trace modifications. When multiple designers access the same files, tracing becomes even more problematic.

Functionality: Checking each revision of a document into the vault enables designers to easily retrace steps to find the exact version needed.

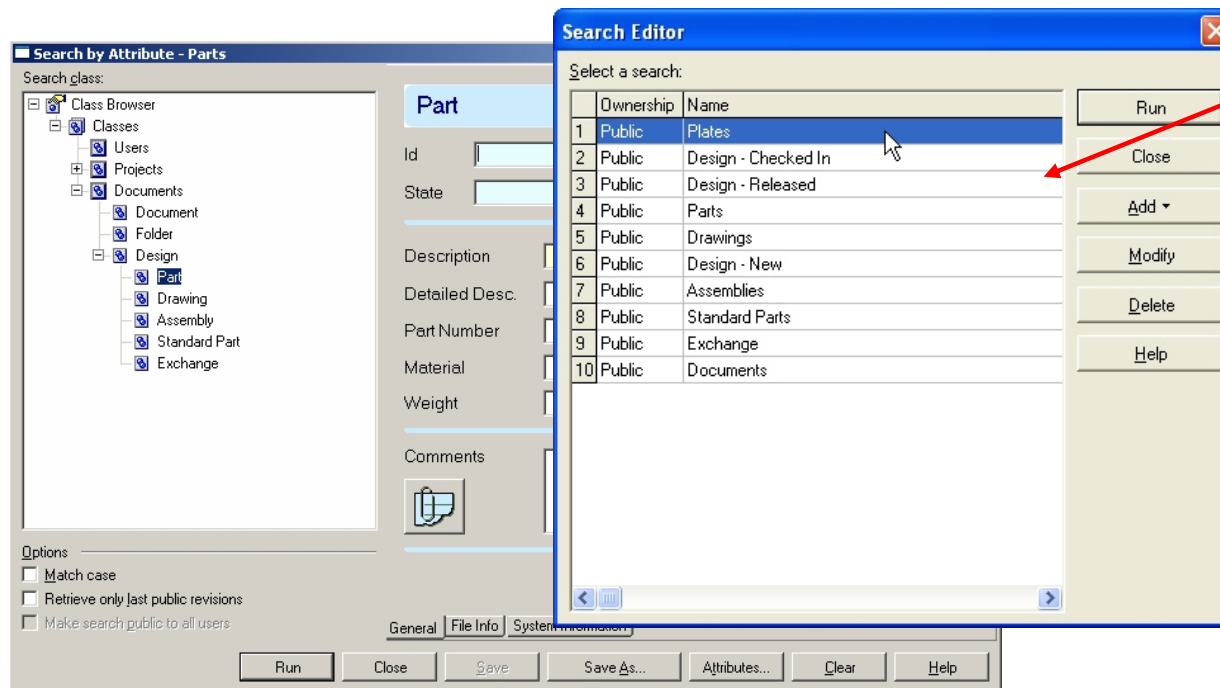
“With SmarTeam production personnel access only the most current design versions, incorrect revisions can no longer get to the shop floor... Departments can collaborate to develop innovative designs and optimize their manufacture.” – Jason Lindgren, Project Manager, Sub-Zero Freezer Co., USA

Benefits:

-  Full visibility into design processes
-  Avoid errors caused by using wrong revision
-  Comply with standards requiring product history

2.3 Efficiently search for the right data within context

- Click once to see in which assemblies a design part has been used
- Find out via a product or part search if a 3D design exists
- Quickly locate all documents associated with any project.
- Search by relations between data, for example, to find a specification document via its relation to a 3D or 2D design, or a new part design via its relation to a price quotation



Saved searches
save time



2.3 Efficient search mechanisms show data in context

Challenge: As data accumulates and file names are similar, it becomes problematic and time-consuming to find any given design by its file name

Functionality: Advanced keyword and text search and query mechanisms allow designers to find exactly what they need, and in full design context, allowing them to better evaluate if the file located is the most relevant to their needs

“Users can search and find parts, configurations, drawings and assemblies by any attribute, such as revision, drawing name, description, drawing number, part number, etc. The software tracks where-used and composed-of relationships automatically, making it easy to determine where a certain part can be found within different assemblies...” Jim Farrell, Lord Corporation, USA – industrial components manufacturer

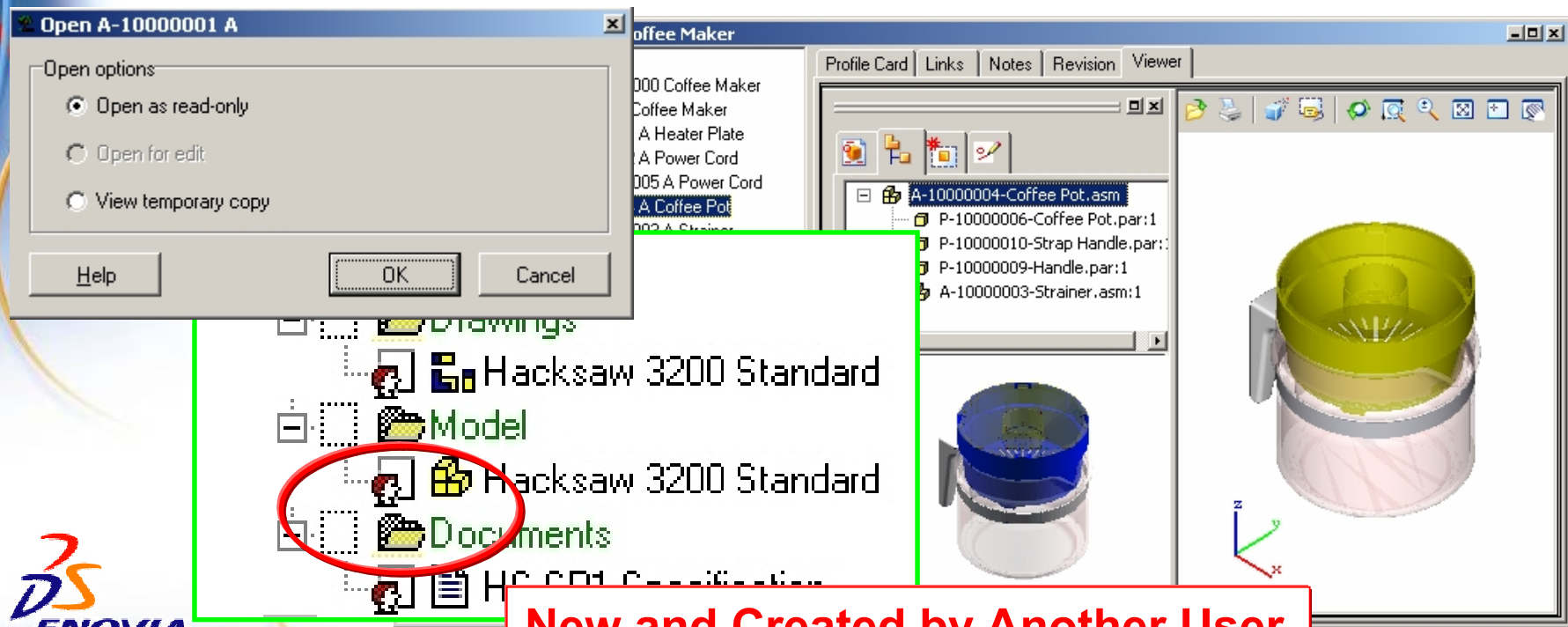
Benefits:

-  *Save valuable time consumed in file administration*
-  *Avoid redundant design through quicker location of existing files*

2.4

Controlled sharing of documents by multiple users

- 👤 **Protect** the work of all members of the team; information is not overwritten, so each modification can be tracked individually.
- 👤 **Audit** the system to see who performed which change at what time
- 👤 **Safely access** the same document concurrently without modifying the original - when one user owns a document for editing, others can only use it in view mode.



2.4 Collaborative Design Management

Challenge: Designers collaborating on a shared data set cannot concentrate on pure design tasks if they need to worry about other users accidentally erasing or changing their work through inadequate mechanisms to control the collaboration



Functionality: Lifecycle mechanisms give designers visibility into each design's status and detailed records of each revision, enabling them to confidently work concurrently on the same files

"We work as a team using a number of linked 3D models and associated design tools to ensure designs adhere to defined rules ... the latest project data is easily available to all engineers employed on the project, thereby ensuring that engineers are not working in isolation; they have full visibility of all design changes as they happen." Darren Caines, Integral Powertrain, automotive engineering firm, UK

Benefits:

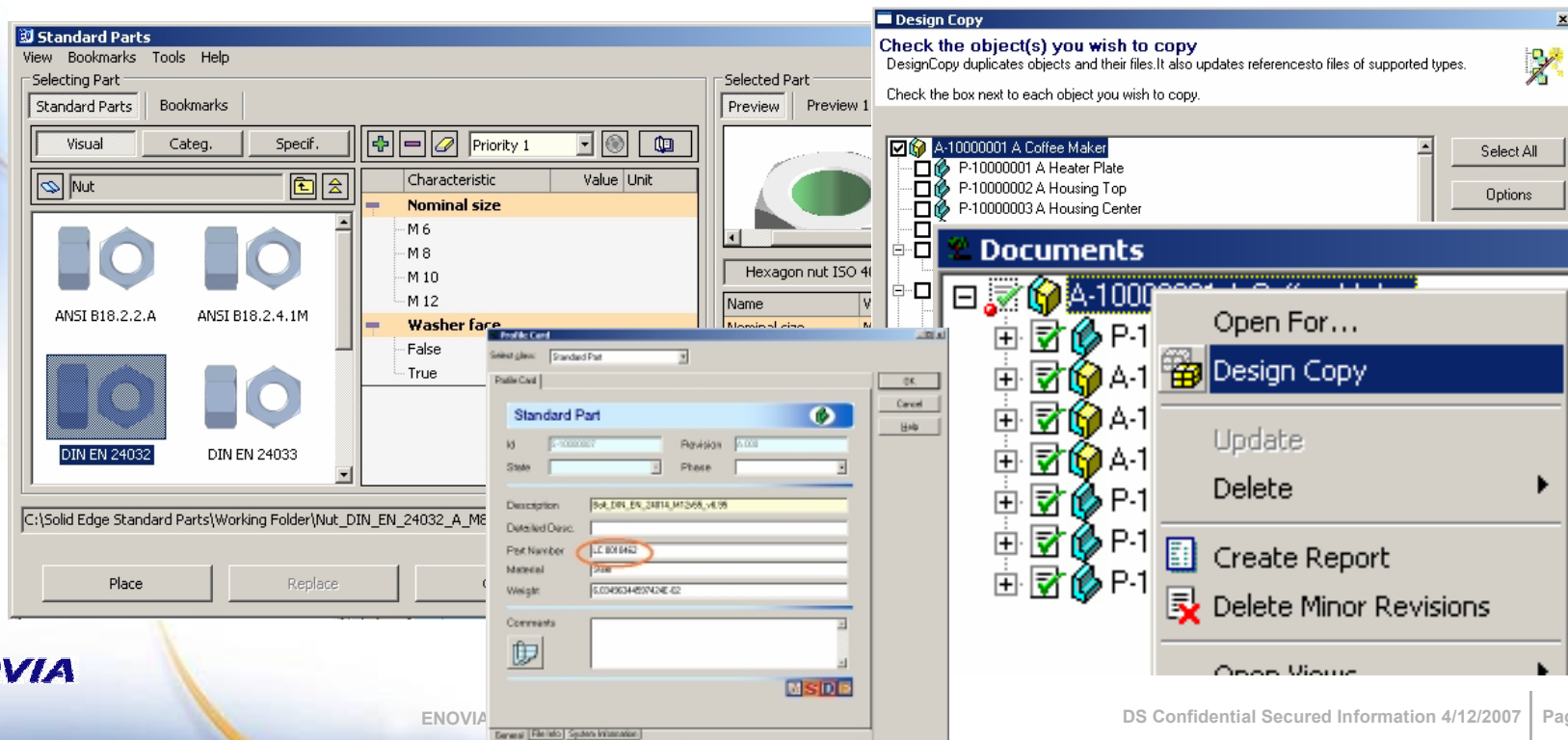
- Drive innovation through meeting of minds*
- Raise productivity through efficient allocation of design resources*
- Reduce bottlenecks via better visibility into joint design tasks*

2.5 Promote the reuse of standards and existing data

 **Promote** and support the mandatory use of standard documents (purchased parts or designs) and ensure their correct use with no duplications or non-traceable changes in design 

 **Reduce** the number of duplications of similar parts to minimize stocks and enforce sourcing policies

 **Encourage** the use of copies of existing product as starting points for new designs, eliminating duplication of designs in multiple projects.



The screenshot displays the Solid Edge software interface with several windows open:

- Standard Parts**: A window for selecting standard parts. It shows a list of parts with columns for 'Characteristic', 'Value', and 'Unit'. The 'Nominal size' characteristic is expanded, showing options M 6, M 8, M 10, and M 12. The 'Washer face' characteristic is set to 'True'. A 'Profile Card' dialog is open, showing details for a 'Standard Part' with ID 'P-10000001', Revision '0.001', and Part Number 'LL 801 642' (circled in red).
- Design Copy**: A dialog box titled 'Check the object(s) you wish to copy'. It lists objects to be copied, including 'A-10000001 A Coffee Maker', 'P-10000001 A Heater Plate', 'P-10000002 A Housing Top', and 'P-10000003 A Housing Center'. A 'Select All' button is visible.
- Documents**: A window showing a list of documents. A context menu is open over the list, with options: 'Open For...', 'Design Copy', 'Update', 'Delete', 'Create Report', and 'Delete Minor Revisions'.

2.5 Promoting Part Standardization and Design Reuse

Challenge: If designers are free to select any parts or components, especially purchased components, the company will stock low volume of wide range of parts, causing inventory and pricing problems; starting new design projects from scratch expends valuable design resources on redundant work

Functionality: Designation of standard or “master” parts for common components; use of “design copy” to jump-start new projects with proven, existing designs that can be innovatively modified to meet new requirements

“Using (SmarTeam) to archive files also can reduce part counts and associated costs by facilitating design standardization procedures that uncover slight variations in multiple components where a single configuration would suffice. (It) greatly improves our ability to manage part configurations.” Swagelok, USA – industrial components manufacturer (valves)

Benefits:

- ✚ Reduce inventory overhead and delays due to inefficient sourcing
- ✚ Speed time to market and drive innovation by reusing existing designs

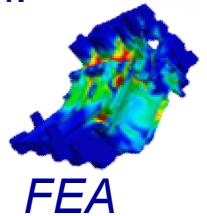
2.6

View variety of data formats

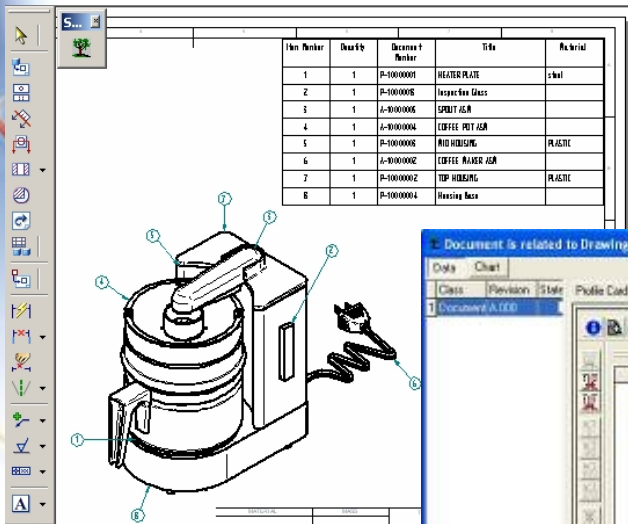
Manage and map information inside documents through the SmarTeam integrations to various CADs, MS Word, MS Excel, etc.

Visualize via SmarTeam digital documents in any of more than 450 formats (.par, .psm, .asm,.dft, tif, pdf, etc. that are stored in any location.

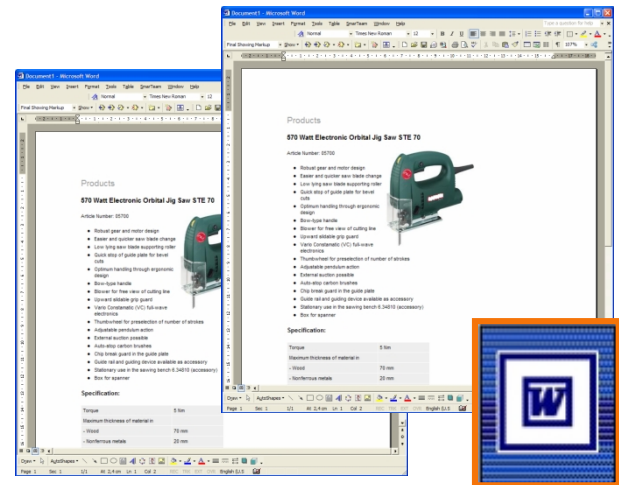
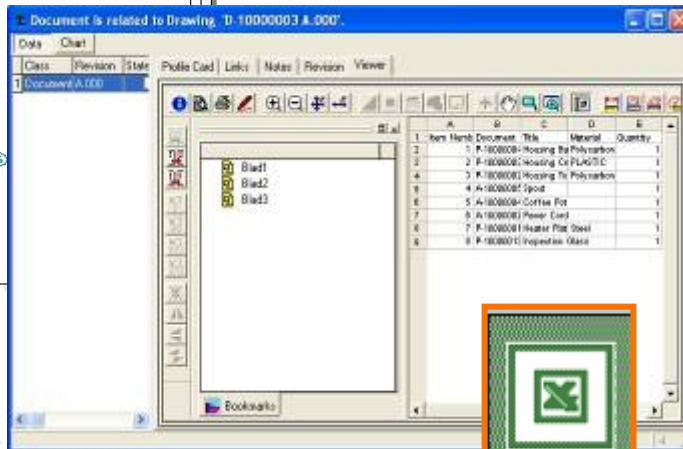
Display integrated MS Word and Excel files within SmarTeam without opening the applications



FEA



Item Number	Quantity	Document Number	Title	Material
1	1	P-1000001	HEATER PLATE	Steel
2	1	P-1000005	Inspective Glass	
3	1	A-1000006	SPRINT ASA	
4	1	A-1000004	COFFEE PRT ASA	
5	1	P-1000006	RIB HOUSING	PLASTIC
6	1	A-1000002	COFFEE RAJER ASA	
7	1	P-1000002	TOP HOUSING	PLASTIC
8	1	P-1000004	Heating base	



Specifications and Documentation



2D Models

2.6

View Various Data Formats without Native Applications

Challenge: Designers prefer to stay inside the design workspace and to avoid devoting time and memory resources to view documents related to design that require them to open additional applications

Functionality: SmarTeam enables designers, as well as other users, to view files in more than 450 different formats without needing the native application. This functionality enables designers to properly classify and link various kinds of documents to projects and to designs to ensure that all the data can be easily viewed in context.

“It is important for us to give access to our clients in order for them to visualize their projects in real time, and observe the progress, while securing the data and maintaining confidentiality,” Jean-Pierre Bregeon, ABMI, project engineering firm, France

Benefits:

- Save time and resources otherwise spent to purchase, install, train on and maintain other software applications*
- Save designers' time and memory needed to run additional applications*

2.7

SmarTeam Design Express Resolves Basic PDM Challenges

1

Secure, structured storage of valuable product knowledge

2

Revision tracking, version control and product history

3

Efficient searching that shows data in context

4

Collaborative Design Management

5

Part Standardization and Design Reuse

6

Viewing of Data without its Native Application

Agenda

- 1 What is SDE for Multi-CAD: Solid Edge?
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3.1

SmarTeam and Solid Edge: Quick Return on PDM and Secure Path to PLM Success

“S&C selected ENOVIA SmarTeam software as their collaborative PDM solution... **in the first phase of implementation, the system was set up to manage over 80,000 Solid Edge engineering drawings**, plus other legacy files... We needed a tool not just to store drawings but to manage a wide range of information on **product structures and relationships between parts** ...capturing this critical information and managing the files in SmarTeam creates a **valuable historical record** ... people **throughout the enterprise** can use Collaborative PDM in this manner, engineers, those on the shop floor, in sales, field service, marketing and procurement.”

Alec Gil, Engineering Manager, S&C Electric Co.



ENOVIA SmarTeam enables Ricoh to **effectively manage our Solid Edge 3-D model data**. The design process is carried out over several locations, and SmarTeam Multi-Site facilitates **collaborative design** and cooperation between these locations... SmarTeam has significantly **increased manufacturing efficiency** by improving coordination between the different parties involved in the production process - development, design, materials purchasing and the manufacturing shop floor.



Hiromichi Ema, Leader, Design Dept., C&F Business Division, Ricoh

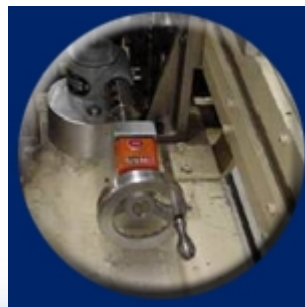


Company Profile:

- ✚ R.A. Jones, Kentucky, USA, subsidiary of worldwide provider of high performance packaging equipment and services IWKA, produces high-speed packaging machinery and solutions
- ✚ Small, privately-owned business emphasizes total solutions, complete services and high responsiveness to customers
- ✚ Customers include leading food, beverage and drug manufacturers

Business Challenges:

- ✚ Requirements of consumer goods packagers increasingly complex, demanding many customized features and quick turnaround time
- ✚ Need to sell machines as part of broader solution based on knowledge
- ✚ Growing volume of 3D data difficult to navigate; locating files is difficult and time-consuming
- ✚ Redundant design wastes resources and reduces productivity - need to facilitate design reuse and part standardization



3.2

R.A. Jones: Efficient Design Management Accelerates Product Turnaround



Solution:

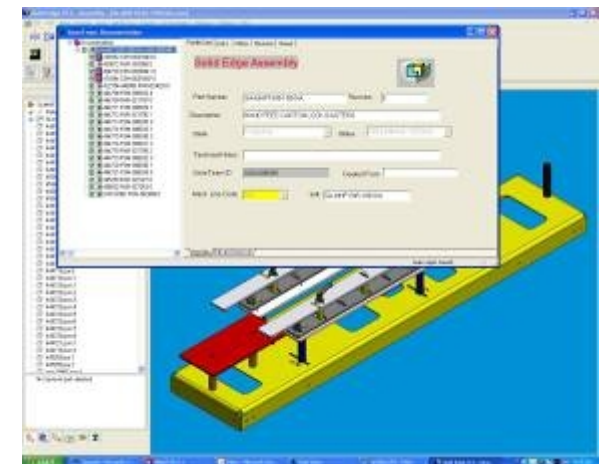
- ✚ SmarTeam Editor, **Solid Edge Integration** (63 seats)
- ✚ Customized integrations to print distribution system, shop floor machining programs and ERP (Syteline)
- ✚ SmarTeam used by engineering, production, machine shop, manuals group, production and inventory controls depts.; final drawings released by SmarTeam shared also with vendors

Benefits:

- ✚ Accurate revision management enables concurrent design and reduces errors, scrap and rework
- ✚ Part standardization and design reuse reduce costs, optimize and accelerate new product design
- ✚ Rapid location of parts throughout machines' long lifetimes improves customer service
- ✚ Faster turnaround and critical on-time deliveries to customers
- ✚ Thousands of hours saved annually

"SmarTeam helps when engineers are working on the same Solid Edge design concurrently...it was a critical component in our move to a 3D modeling environment."

Dave Hamblin, CAD/PDM Systems Engineer, R.A. Jones



Company Profile:

- ✦ Kässbohrer Geländefahrzeug AG, Germany is a worldwide leader in the supply of all-terrain vehicles, including the PistenBully for ski slope and trail preparation, BeachTech for beach cleaning, and various other special all-terrain vehicles
- ✦ Sales Revenue - € 100 million; 450 employees
- ✦ Sales and service centers in France, Italy, Austria, Switzerland and USA

Business Challenges:

- ✦ Integration of various “island” systems and data sources
 - ↳ ERP application - FACAM (German system) soon to be replaced
 - ↳ CAD data - EMS, Solid Edge, E-CAD
 - ↳ Other applications - MS Office, MS Access
- ✦ Engineering - Product Lifecycle Management
- ✦ Customer Service - View of Product Data, Service Reports
- ✦ Sales - Contact management; Product Configurator
- ✦ Purchasing - View of Product Data
- ✦ Controllers - View of Product Data, Project management
- ✦ Manufacturing - View of Product Data
- ✦ Quality - View of Product Data



3.3

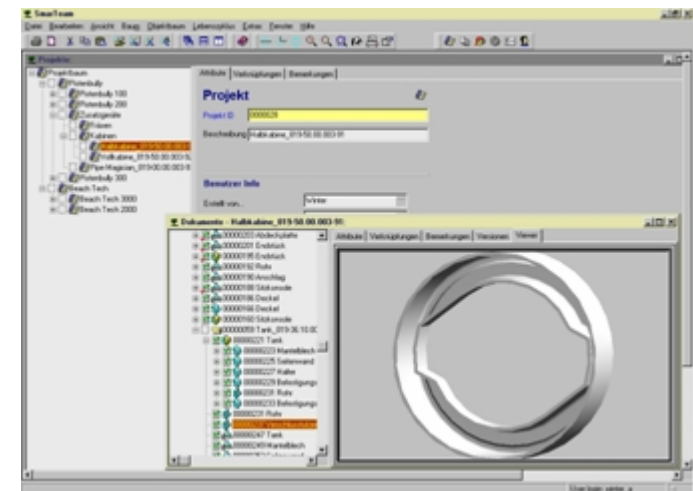
Kässbohrer Geländefahrzeug AG Achieved Success through Phased Implementation

Solution:

- ✚ SmarTeam Editor, Web Editor, **Solid Edge Integration** and Workflow
- ✚ PBU Systeme provided significant services - consulting, data and workflow modelling, and sales product configurator
- ✚ From initial CAD -integration system for one product, expanded across products and across departments
- ✚ Future Plans to integrate with new ERP to be chosen

Benefits:

- ✚ Unified, company-wide access to product data
- ✚ Collaboration across enterprise based on access to product data by sales, purchasing, QA and other departments across the enterprise
- ✚ Slow but steady implementation gains company's understanding and confidence



3.4

S&C Electric – Product Data Shared between Engineering and Manufacturing and across Enterprise



Company Profile:

- ⚡ Electric power switching and protection equipment manufacturer
- ⚡ Sites in Illinois, California, Wisconsin, Canada, Brazil and China;
- ⚡ 2001 revenue: \$364 M; 2,000 employees

Business Challenges:

- ⚡ Document searches caused costly delays and data loss
- ⚡ Parts, data, and BOM information copied manually
- ⚡ Outdated document versions led to errors
- ⚡ Information from engineering to manufacturing flowed manually

*“At approximately the same time as we selected **Solid Edge** as our CAD system, we started looking for product data management...we selected SmarTeam because it handles data from a variety of CAD systems better than any other PDM system we saw.”*

“SmarTeam meets all of the business needs that we identified – multi-CAD integrations, multi-site collaborative engineering between locations, ability to design engineering workflows and ability to integrate with business systems such as ERP. “

Alec Gil, Engineering Manager, S & C Electric Co.



3.4

S&C Electric – Product Data Shared between Engineering and Manufacturing and across Enterprise

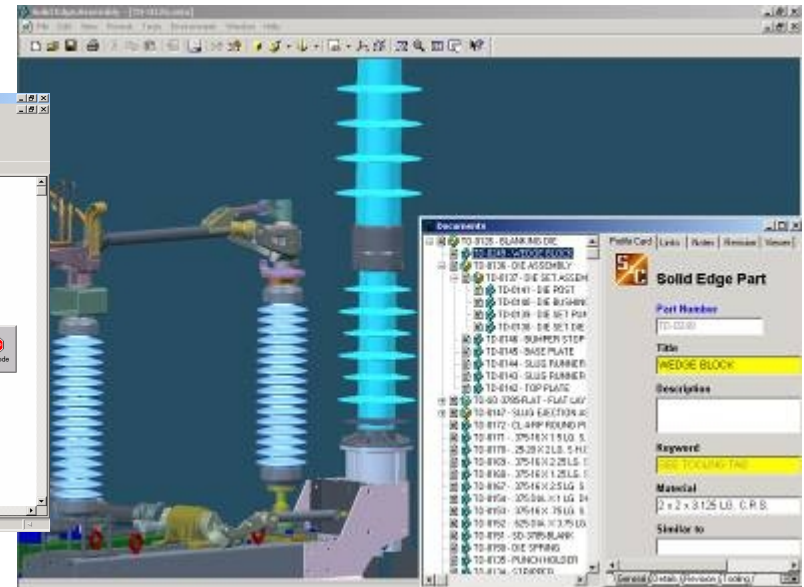
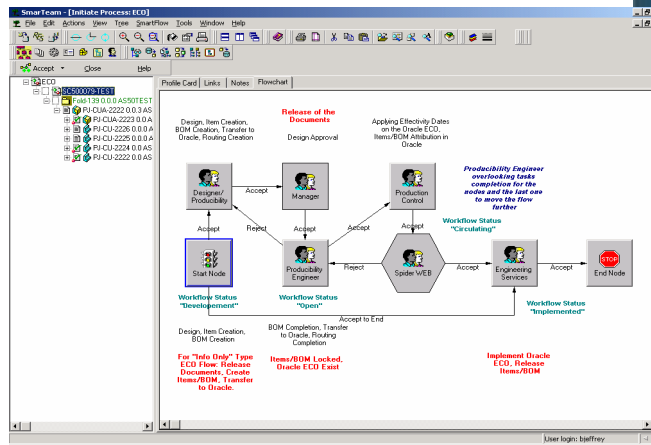


Solution:

- 👤 **SmarTeam - Editor, Web Editor, Solid Edge Integration, Workflow, BOM, Gateway to ERP and Multi-site**
- 👤 **Multi-site deployed at 4 sites - Chicago, Franklin, Toronto, Orlando - two sites California and Brazil to be added**

Benefits:

- 👤 **Better products, delivered to market faster**
- 👤 **Streamline engineering and manufacturing processes**
- 👤 **Leveraging of intellectual capital for increased innovation**
- 👤 **Elimination of costly errors**



3.5

Volvo Construction Equipment Leverages Product Knowledge Across Global Sites

VOLVO CONSTRUCTION EQUIPMENT

Company Profile:

- ✦ A global leader in manufacture of construction equipment, Volvo CE, HQ Belgium, member of the Volvo Group, produces a diverse range of wheel loaders, haulers and other heavy equipment at plants in Sweden, Germany, France, Canada, Korea and in the US.
- ✦ Annual turnover - \$297 million, over 10,000 employees worldwide

Business Challenges:

- ✦ Create a one-company vision, integrating acquired companies and enabling sharing of product knowledge across enterprise
- ✦ Develop high quality products at the lowest cost
- ✦ Remain competitive in fast-changing industry
- ✦ Management of Multi-CAD and legacy product data
- ✦ Integration with SAP corporate ERP System
- ✦ Integration with and eventual replacement of in-house PDM



3.5

Volvo Construction Equipment Leverages Product Knowledge Across Global Sites

Solution:

- ✦ **SmarTeam Editor, CATIA and Solid Edge Integration, Multi-site** deployed worldwide at 5 sites in Sweden, Germany, France and US, with remote connection to another 6 additional stand-alone sites
- ✦ **Multi-site creates one cross-corporate product database, consolidating multiple legacy systems, heterogeneous processes, and isolated data vaults**
- ✦ **Long-term multi-phase enterprise re-engineering program planned**
 - ✦ **Phase 1 Global Part Management for Part Sharing**
 - ✦ **Phase 2 Global Structure and Configuration Management**

Benefits:

- ✦ **Common access to consolidated database reduces search time, redundant design and use of incorrect data, saving time and reducing design costs**
- ✦ **Standardization of parts, reducing variance and volume, saves on part design and management costs**

“Our engineers can instantly access existing (Solid Edge) parts in SmarTeam, meaning that we now create fewer new ones. Our ability to reuse parts has a direct impact on our profitability.”

Pascal Martinez, Product Portfolio Development Process Leader, Volvo CE



VOLVO CONSTRUCTION EQUIPMENT



Customer Profile:

- Based in Israel, Nova develops, produces and markets metrology systems for process control for the semiconductor manufacturing industry

Business Challenges:

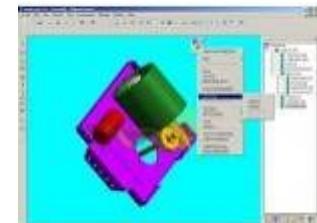
- Manage complex product and process configurations
- Enable accurate product design collaboration across supply chain

Solution:

- SmarTeam Editor, Navigator, **Solid Edge Integration**, Community Workspace and BOM
- SmarTeam manages complex product assemblies, Engineering BOM across turn-key suppliers and designers (in PLM) through to automatic transfer of BOM for Manufacturing to ERP

Benefits:

- Rapid access to extensive engineering information
- Integrated supply chain enables faster, more accurate product to market



*“(Using **SmarTeam and Solid Edge 3D**), the flow of engineering data is greatly enhanced because the two systems integrate. Engineers save documents from Solid Edge in SmarTeam to maintain all versions of our designs.”*

Yaniv Luria, IT Manager, NOVA

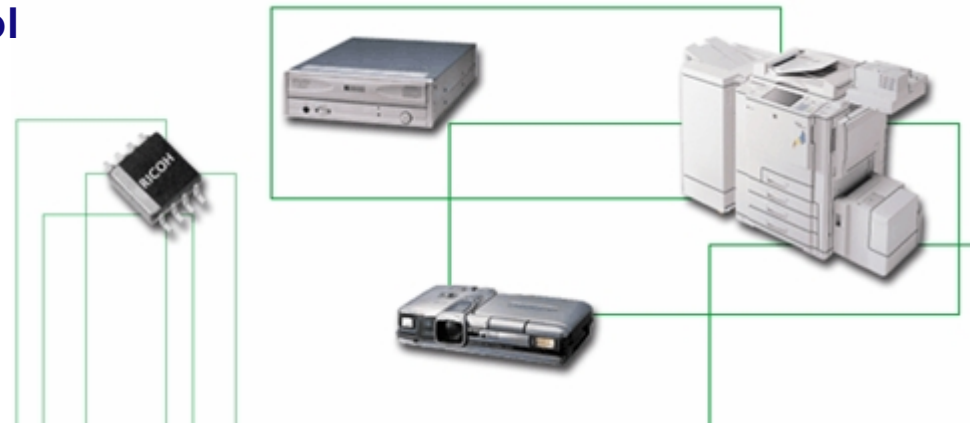


Company Profile:

- ✦ One of the world's leading suppliers of office automation equipment, including copiers, facsimile machines, data processing systems, and related supplies, also renowned for its state-of-the-art electronic devices and photographic equipment
- ✦ Headquartered in Japan, employing 74,600 worldwide
- ✦ Net Sales in FY ending 3/2003: \$16.1 million

Business Challenges:

- ✦ Design Collaboration
- ✦ Proactive Reuse of Product Knowledge
- ✦ Document Management
- ✦ Revision/Version Control



3.7

Ricoh Company Ltd. – Controlled Distributed Design Scenario Across Distant Sites

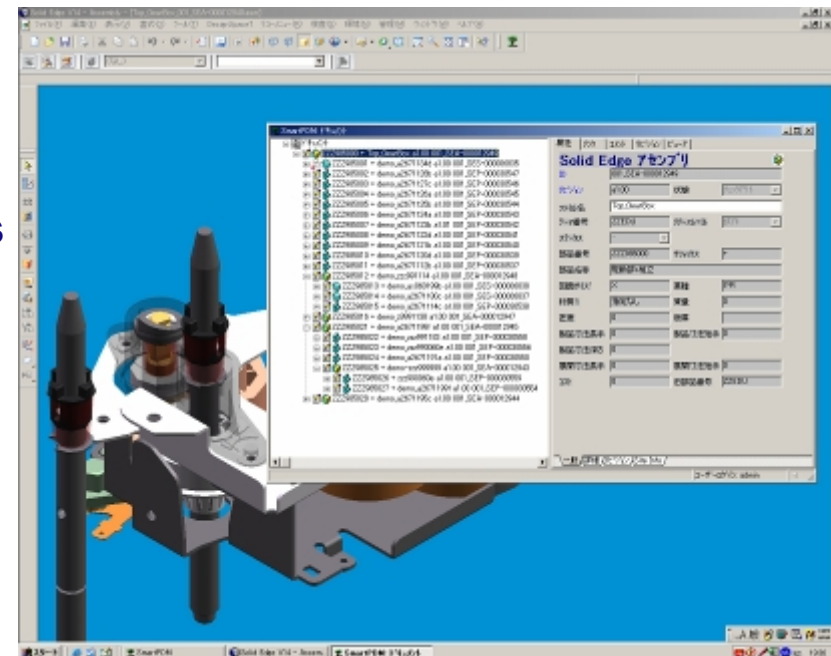


Solution:

- ✦ SmarTeam Editor, **Solid Edge Integration**, Multi-Site
- ✦ SmarTeam is deployed at four sites across Japan and one site in China; a second site in China is to be added in 2004.
- ✦ Transition from 2D design to 3D design is in progress.
- ✦ The number of licenses is expected to exceed 300 in the future.

Solution Benefits:

- ✦ Improved near real-time design collaboration between the different Ricoh design groups located at different sites across and outside Japan.
- ✦ SmarTeam's flexibility and power has enabled Ricoh to build numerous customized enhancements and integrations, such as access via Lotus Notes.
- ✦ Smooth, successful multi-site installation, most recently in China.



Agenda

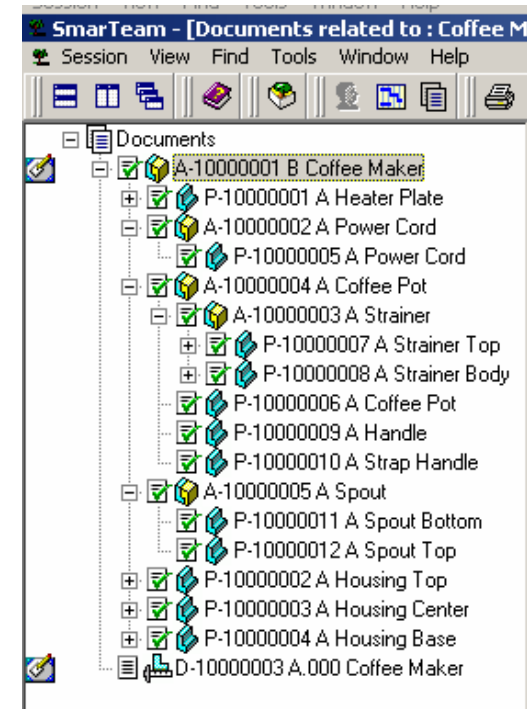
- 1 What is SDE for Multi-CAD: Solid Edge?
- 2 How SDE Resolves your PDM Challenges
- 3 Customers
- 4 Key Differentiators
- 5 Typical Project Plan
- 6 Next Steps: Beyond SmarTeam Design Express

4.1

SDE for Multi-CAD: Solid Edge – Key Values

- Enables streamlined management of 3D design, managing parts, assemblies, drawings and Bills Of Material derived from drawings. SDE best practice for collaborative design optimizes:

- ✚ Advanced search capabilities
- ✚ Simple lifecycle and revision management
- ✚ Copying of designs and associated documents
- ✚ Automated title block creation
- ✚ Engineering BOM management
- ✚ Design Reuse



4.2

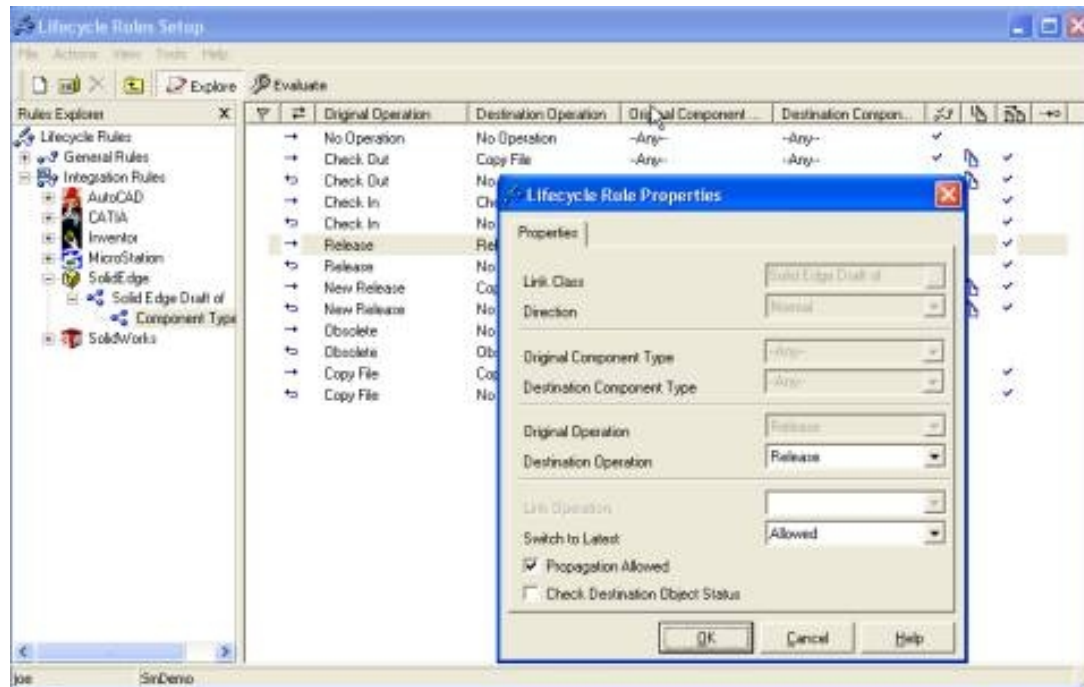
ENOVIA SmarTeam –Solid Edge Integration Key Features

General

- 3D embedded viewer for Solid Edge Documents

Seamless integration

- Data Manager Tree (DMT)
- Attributes displayed in the Data Manager Tree are according to Display Attributes settings in the SmarTeam Properties Tree view

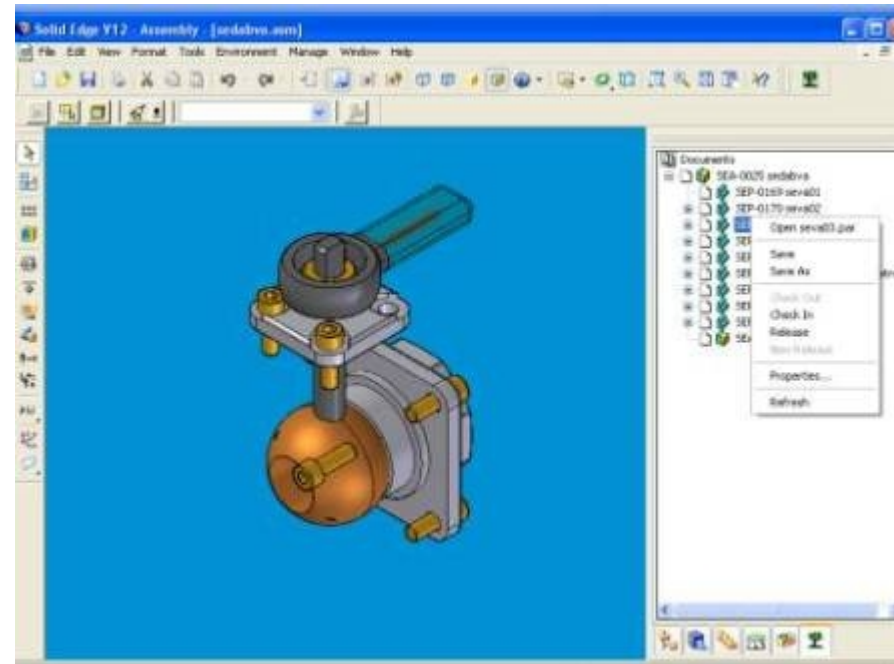


4.2

ENOVIA SmarTeam –Solid Edge Integration Key Features

Assembly and Drafts Management

- 👤 Automatic Bill Of Materials (BOM) integration
- 👤 Automatic data synchronization maintains data integrity
- 👤 Track “Where Used” and “Composed Of” relationships automatically
- 👤 Lifecycle rules on Drafts are defined in a Lifecycle Rules Setup
- 👤 Allows to define rules based on Lifecycle operations
- 👤 Collaborative Design
- 👤 Shared Workspace supporting concurrent engineering



• **New ENOVIA SmarTeam Major Release**

- Will certify one latest available CAD release (Solid Edge V19)
- Major CAD feature support will be treated as SmarTeam highlights

• **New CAD Major Release**

- Will be added to the following available ENOVIA SmarTeam Service Pack
- Will be certified by ENOVIA SmarTeam up to 5 months in most cases (according to SP dates and policy)

• **Service Pack Certification**

- ENOVIA SmarTeam will certify CAD SPs based on customer needs
- Supported CAD SPs will be included in the subsequent ENOVIA SmarTeam SPs

4.4

ENOVIA SmarTeam – Robust Multi-CAD Integrations

Robust Multi-CAD Integrations:

- 👤 **Single collaborative platform** among diverse engineering teams, working on different CADs
- 👤 **Full part and assembly management**, incl. their component parts, while maintaining dependencies and integrity during lifecycle operations
- 👤 **Embedded functionality** in the CAD Application: manage, view, edit, and annotate
- 👤 **Latest CAD Version Certification**
- 👤 **Native CATIA Integration**



"We needed multi-CAD PDM software which could interface not only with CATIA but also with all the other software applications, since we have over 250 CAD stations equipped with the major software applications on the market."

Jean-Pierre Bregeon, CEO, **Groupe ABMI**, engineering consulting firm, France

VALUE: Eliminates the need to re-key data and prevent work on outdated designs, dramatically reducing errors and saving valuable time



4.4

ENOVIA SmarTeam – Robust Multi-CAD Integrations

- **Only ENOVIA SmarTeam supports all the following capabilities for all major CAD tools: (for 3D CADs: CATIA V5, SolidWorks, Pro/Engineer, Autodesk Inventor, Solid Edge; for 2-D CADs: AutoCAD, MicroStation)**
 - 👤 View CAD Files in the native format without conversions
 - 👤 View Native CAD Geometry
 - 👤 Maintain Relationship with Core Files (Part, ASM, Drawing)
 - 👤 Check In / Check Out Directly from CAD Application
 - 👤 Revision Block and Title Block mapping
 - 👤 SmarTeam Data Manager Tree (DMT) in CAD Application
 - 👤 Open from SmarTeam CAD documents by browsing in SmarTeam projects
 - 👤 Store and Maintain Relationship with Associated files (Family Tables, Design Table, etc...)
 - 👤 Design copy – unique design re-use functionality
 - 👤 Bi-Directional Attribute Mapping
- **Other vendors may support this level of integration only for their own CAD tools**



4.4

ENOVIA SmarTeam – Robust Multi-CAD Integrations

- Enables users to **seamlessly** manage, view, edit, and annotate a **multiplicity of CAD designs** and other related documents
- Supports the **“in-process” methodology**, enabling CAD users to manage documents and drawings from within their native CAD environment
- **Eliminates the need to re-key data** and prevent work on outdated designs, dramatically reducing errors and saving valuable time
- Provides full Part and Assembly Management, enabling the management of **complex assembly hierarchy structures**-including component parts--while maintaining dependencies and integrity during lifecycle operations



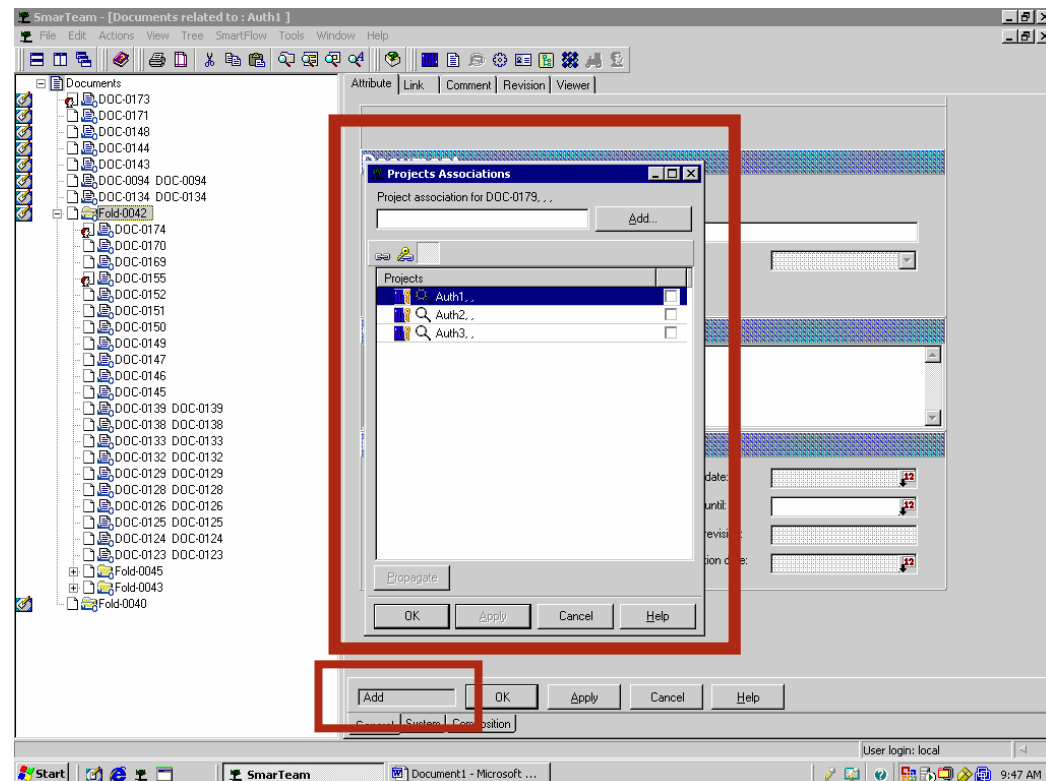
4.4

ENOVIA SmarTeam – Robust Multi-CAD Integrations

Enhanced Security Mechanism

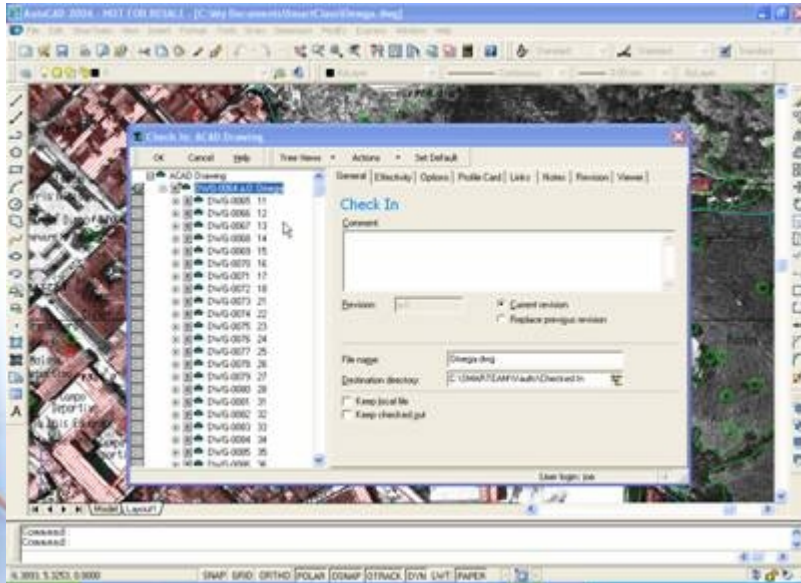
- ✚ Add & secure objects to restricted projects – across the entire SmarTeam portfolio
- ✚ Based on users project-based authorizations
- ✚ Adheres to enterprise security work model

New in V5R17



4.5

ENOVIA SmarTeam – Robust AutoCAD Integration



General

- ✎ Embedded viewer **Reference Management**
- ✎ Xrefs and Xrefs Overlay link support
- ✎ Xref, Overlay and Image tracking
- ✎ Automatic data synchronization maintains data integrity
- ✎ Track “Where Used” and “Composed Of” relationships automatically

Design Copy

- ✎ Copy an existing CAD product structure to create a new design, and redesign selected components

Support Xrefs and Xrefs Overlay links

- ✎ Users can include relevant link information in a drawing structure
- ✎ Business Rules can be applied to both kinds of links



- ✓ Product capture and knowledge reuse maintain data in new design
- ✓ Link distinction enables to define separate lifecycle rules

- **Latest IT support**
- Supports Microsoft Windows XP SP2, and Windows Server 2003 SP1
- Supports Microsoft Word, Excel and Outlook 2003 SP1 and 2002 (XP) SP3
- **64-Bit Certification**
 - 👤 Customers operating CAD in a 64-bit environment benefit from full robust use of SmarTeam
 - 👤 Extends relational design on very large assembly work
 - 👤 Preserves link integrity across whole datasets

→ Enhances overall user productivity gain

→ Promotes processes shaped by customer needs, not IT

Agenda

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5.1

Typical Project Plan

- SmarTeam Design Express is packaged as an **out-of-the-box** application:
- The approach was developed through implementing SmarTeam for many existing customers. It includes a **combination of software and services** necessary for a quick and low cost implementation of Solid Edge and SmarTeam.
- SDE has been designed for “plug & play” use within your company, **without any customisation** other than the name of the users and the installation and working directories.
- An SDE for Multi-CAD: Solid Edge project does not include the Solid Edge implementation itself: the installation of Solid Edge workstations and Solid Edge user training are prerequisites.
- The project incorporates:
 - **Training** of users on the Collaborative Solid Edge Design Management methodology
 - **Validation** of methodologies at the customer site
 - **Execution** of methodology

5.2

Using SDE in the Solid Edge Environment

Project-based navigation
Arrange per product, per customer, per order

Design Collaboration:

Work concurrently around the same assembly always accessing accurate information

Organization:

Built-in structure and rules to leverage traceability and reuse

Management of Solid Edge relations

View relations between all Solid Edge data immediately, such as parts, assemblies, drawings, etc. ...

Change Management

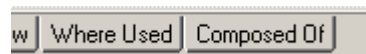
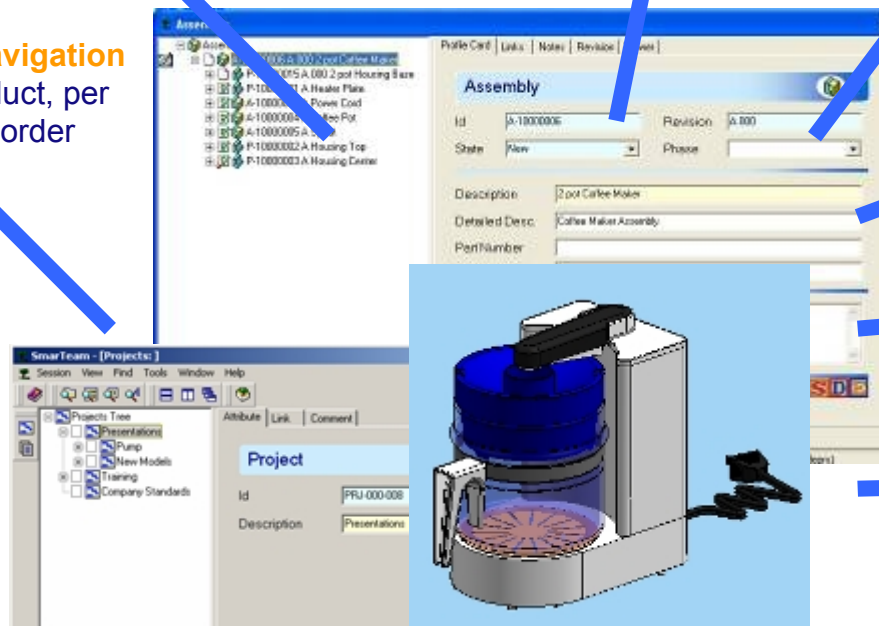
Support the lifecycle and revisions of all documents

Promote Reuse

Business standards management

Extend secure access

Allow non-CAD users to visualize CAD data



Impact analysis

Be aware of the impact of engineering changes

The “**quick start package**” provides:

- **Pre-configured database** with data model for optimized Solid Edge collaborative design management
- **Methodology Guide** to steer the implementation in your engineering department
- **Delivery Notebook** to track your implementation, from software installation through to completion of the final checklist after training and review of the methodology
- **Technical training materials**, including demonstration
- **Value proposition** explaining how to expand beyond engineering / design department management out to management of the full product lifecycle across your enterprise



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6.1

Beyond SmarTeam Design Express

The initial objective of SmarTeam Design Express is to provide an **out-of-the-box solution** for the design department which meets all the basic needs.

However the openness of ENOVIA SmarTeam allows you to extend the implementation **beyond these basic needs**. There are various ways to expand beyond the first step:

Inside the design department enhancing the basic implementation with company-specific needs

- Title block enhancements
- Batch printing
- Non CAD document management
- Release and change processes
- Etc ...

Inside the engineering department extending the management of product data:

- Items management
- Multi-discipline collaboration around the BOM
- Release and change processes (ECR/ECO)
- Link to ERP

Across the supply chain to manage design and product data with your OEM's or suppliers

- Exchange data with suppliers
- Bidding and costing
- Quality processes
- Etc...

SmarTeam Design Express: ***Foundation for the Future***

Typical Successful Customer Implementation:

- Phase One: secure design document management
 - Designers get used to managing lifecycles with ENOVIA SmarTeam
 - Database accumulates accurate design data reflecting product structure combining assemblies, master designs and standard parts
- Successive phases (not necessarily in this order)
 - Optimized BOM management
 - Automated business process management
 - Distributed multi-site product development
 - Enterprise application integration
- A well-defined, limited project scope is a **key success factor**, especially in the first phase. After gaining experience with PDM, you understand how to best proceed to the next phases, **step-by-step**.

“Building up a Product Lifecycle Management system can only happen in small stages. Employee acceptance is extremely important because staff have to change their procedures.”

- Roland Weidmann, Kässbohrer GmbH



- **Easy to implement and very scalable:**
 - ⤴ No need for costly software programming teams
 - ⤴ No need for full-time, expert system administrator
 - ⤴ Easy to implement within the context of an enterprise business system environment (ERP, etc)

- **User Interface easy to tailor for each typical user:**
 - ⤴ Design Engineer / Manufacturing Engineer
 - ⤴ Purchasing Agent
 - ⤴ Sales Representative / Pre-sales or Marketing
 - ⤴ Customer Support / Documentation Writer
 - ⤴ Project Manager

- **Database Structure is easy to customise**
 - ⤴ Add / Change attributes
 - ⤴ New object / document / form add on or edit

- **Easy graphical WORKFLOW Design and Execute process (beyond SDE)**

Thank You!

Questions?

Contact your authorized ENOVIA SmarTeam reseller

For any other unanswered questions, contact
sde@smarteam.com

