

# JT-based 3D Sales Configurator

The P'X5™ Application at Siemens  
for the Siplace™ Product Line

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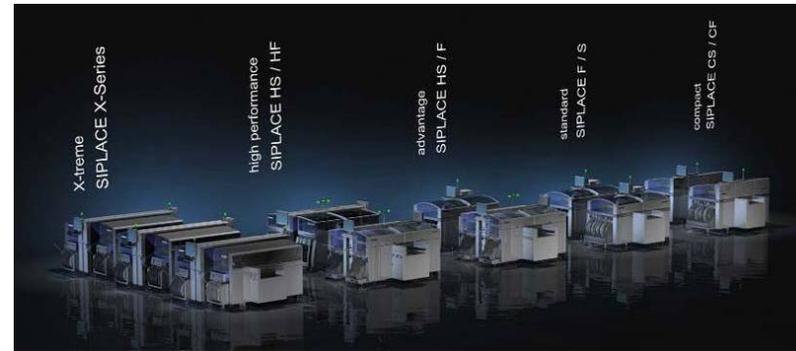
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Zurich, Switzerland

**SIEMENS**

**P'X**  
PERSPECTIX

# Siemens A&D EA

- Siemens
  - Business Area:  
Siemens Automation & Drives
    - 60,800 employees
    - 9,844 Million € sales in 2005
  - Business Unit:  
Electronics Assembly Systems
- Siplace Product Line
  - SMT placement machines
  - Modular machine platform
  - Highly flexible
  - Scalable production capacity



# Challenge

- Complex product portfolio
- Customer-specific product configuration
- Time-consuming sales engineering
- Global international sales
- Inefficient, error-prone quotation process

## **Solution:**

→ Sales Calculation and Configuration  
Software Tool for Siplace Products

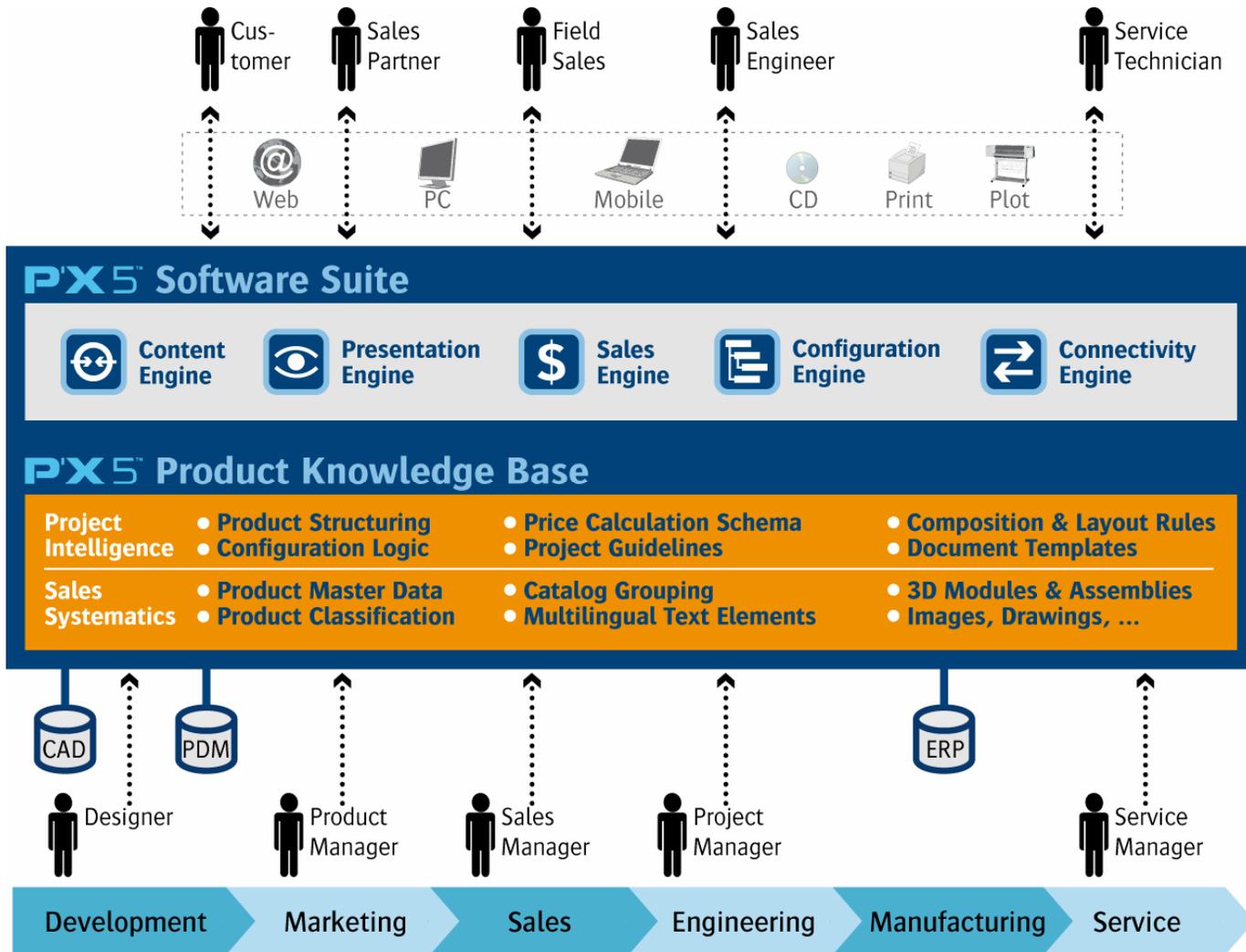
# Requirements

- Support for customer-oriented consulting
- User-friendly and intuitive tool for sales
- Product configuration & layout planning in 3D
- Geometrical, logical & commercial validation
- Knowledge-driven automation
- Consistent generation of documents
- Integration into existing IT: NX, SAP, Siebel, ...

## **Result of Evaluation Project:**

→ P'X5 Software Suite from Perspectix

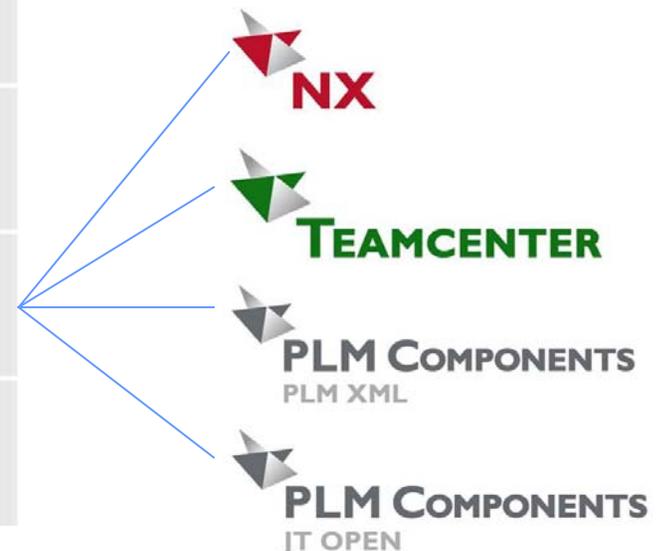
# The P'X5 Solution



# P'X5 Software Suite

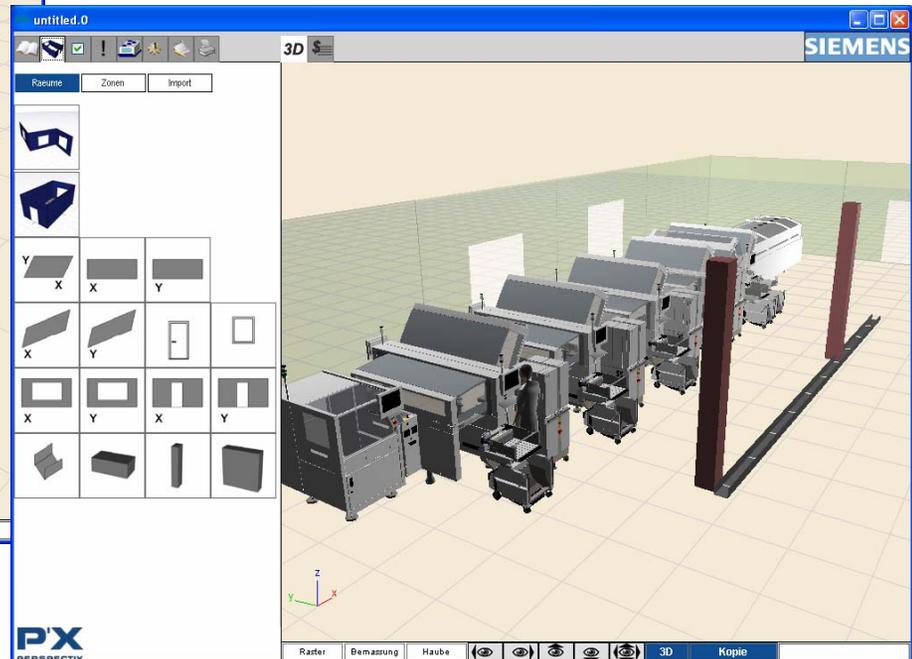
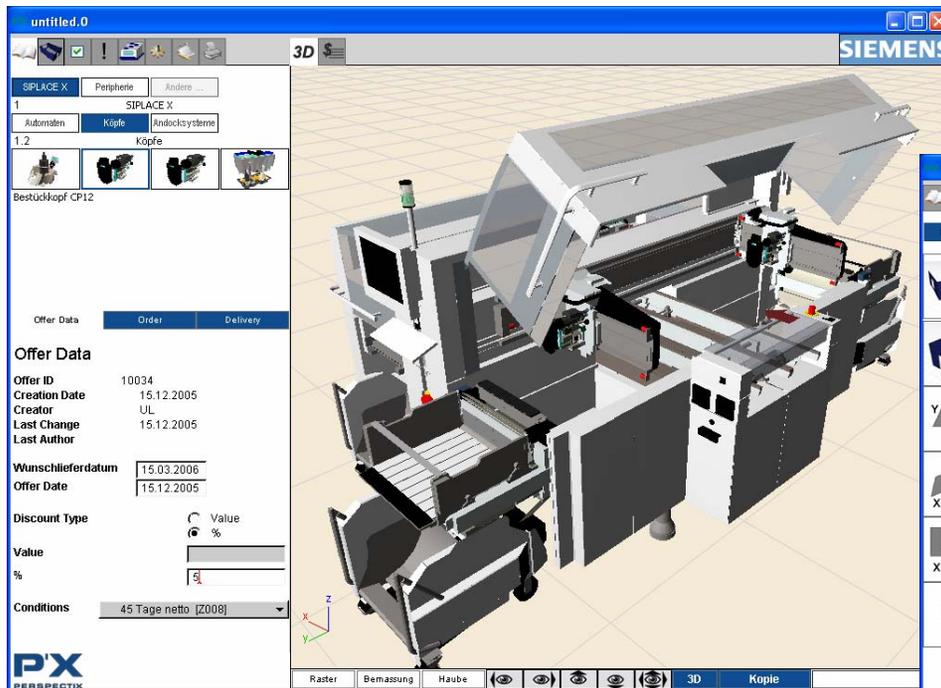


- P'X5 is integrated with UGS Technology
- Perspectix is UGS Foundation Partner



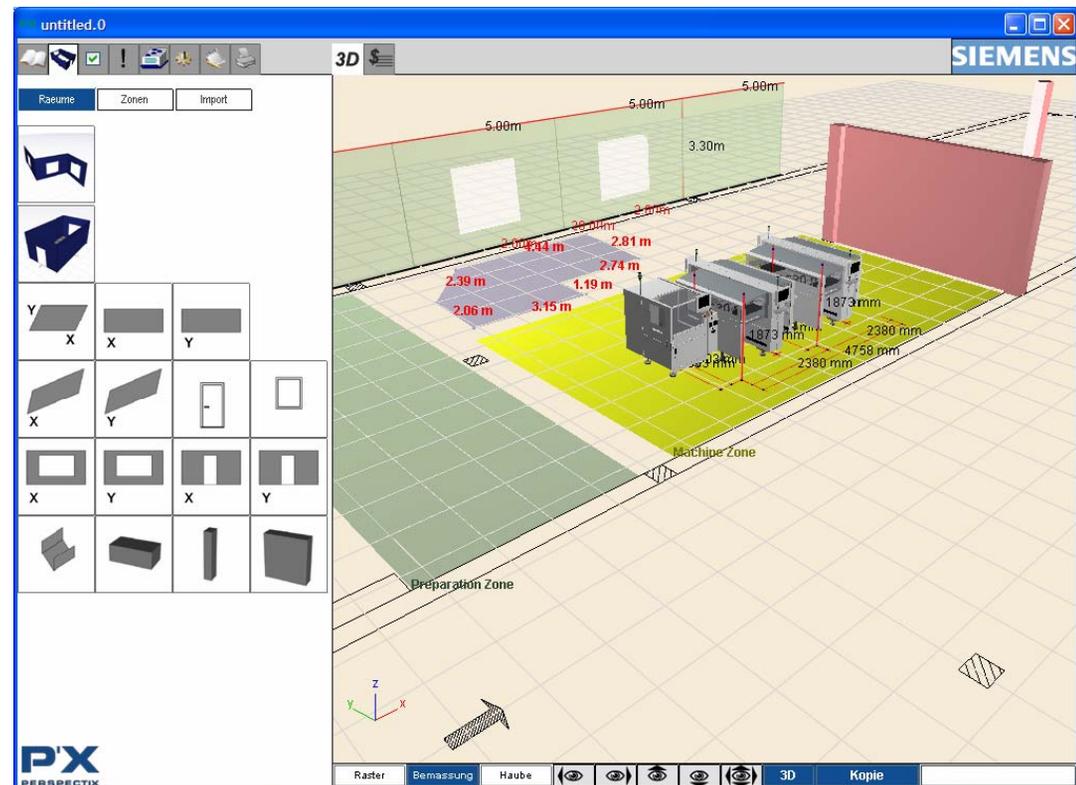
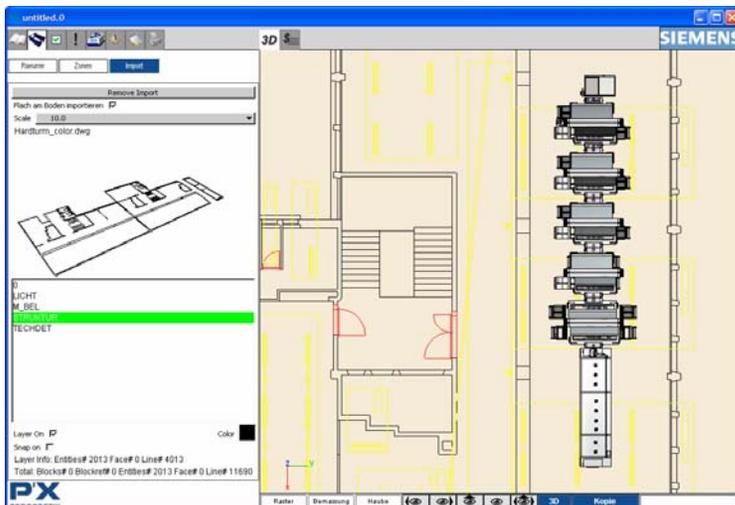
# Machine & Plant Configuration

- Module configuration of Siplace machine
- Line configuration of Siplace plant



# Layout Planning

- Import of DXF/DWG floor plan
- Layouting of zones and building elements
- Collision tests
- Automatic Dimensioning

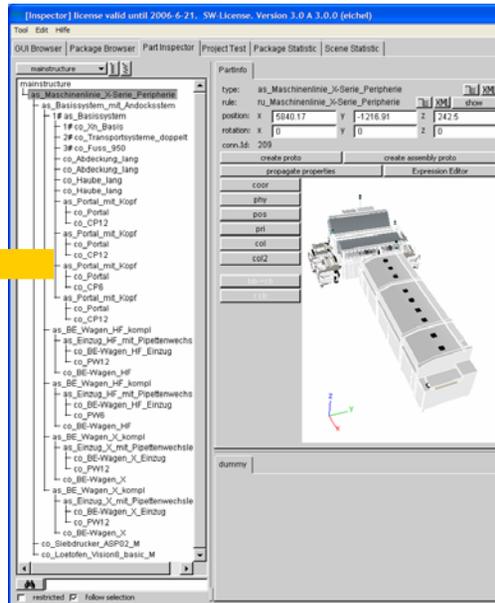


# Calculation & Validation

- Generation of Sales BOM
- Generation of Constructive BOM
- Price, Cost & Margin Calculation
- Conflict Checks

Sales BOM → to ERP/PPS

Constructive BOM → to CAD/PDM



untitled.0

3D

SIEMENS

conflicts

Wrong Type of Machine  
not enough Docking Units

Qu...	Art.-No.	Description
7	119614	Conveyor high 950mm
7	119627	Double conveyor
3	119661	Pip.-Changer for 12 C&P (first placement)
1	119662	Pip.-Changer for 6 C&P (first placement)
5	119700	SIPLACE X-2 (no Heads and Tables)
4	119715	Pip.-Changer for 20 C&P
1	119730	6-Seg. C&P Head
3	119731	12-Seg. C&P Head
4	119732	20-Seg. C&P Head
4	119733	SIPLACE TH
1	119750	SIPLACE X-3 (no Heads and Tables)
1	119780	SIPLACE X-4 (no Heads and Tables)
4	3001807	Holding box for 1 Nozzle
2	888888	Printingmaschine ASP02 M
1	999999	Weldingmaschine Vision8 Basic M

Problem:  
Dieser Maschinentyp kann nicht angebaut werden.  
Die Reihenfolge X4, X3, X2 wird nicht eingehalten

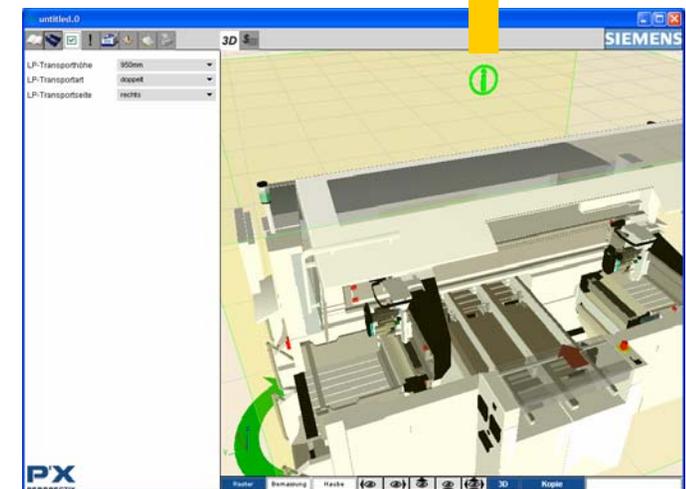
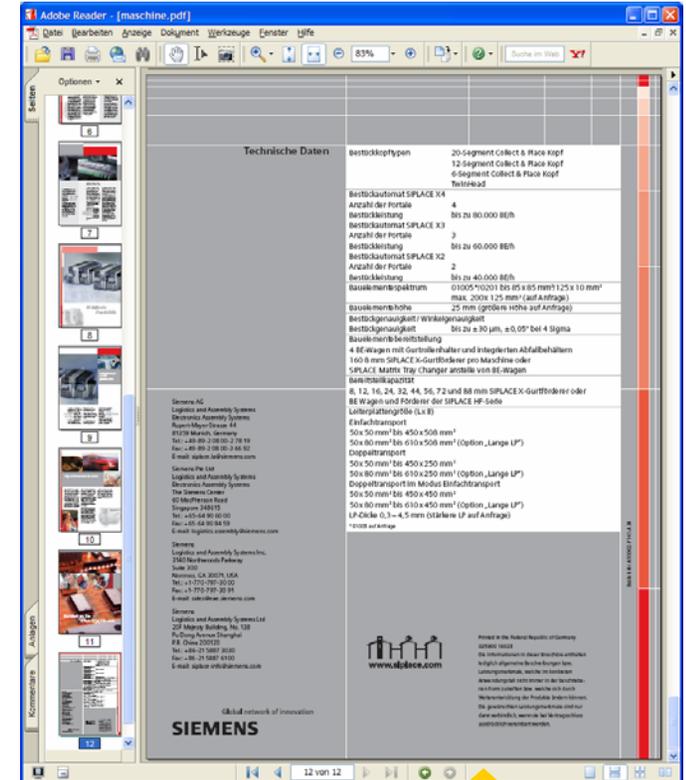
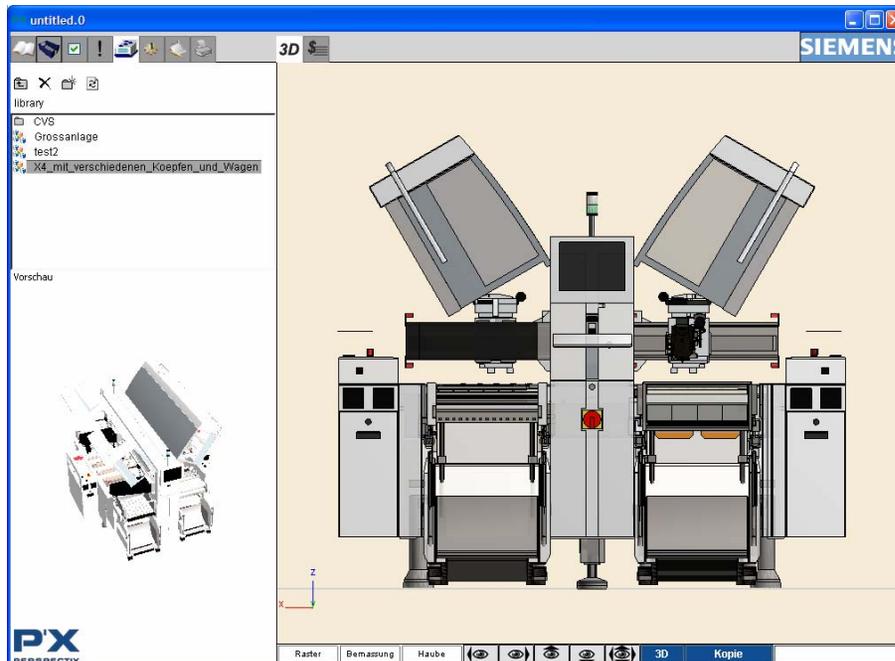
How to solve:  
Nehmen sie einen niedrigeren Maschinentyp, oder verbauen sie weniger Portale

Update

PX PERSPECTIX

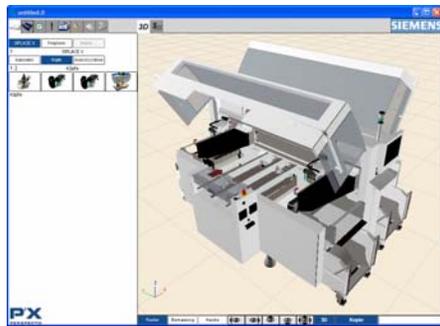
# Visualization

- 2D and 3D Views
- Animation
- Links to technical documentation

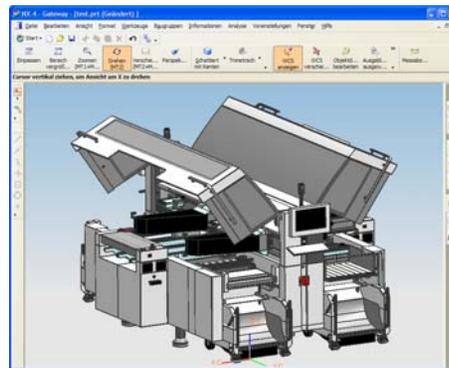
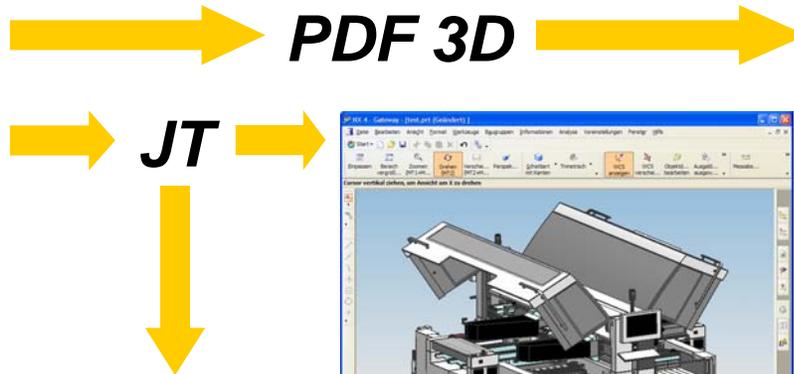


# Document Generation

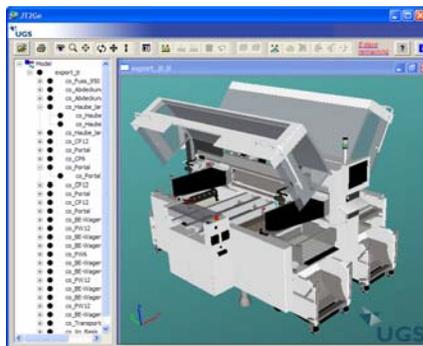
- PDF output with embedded 3D for down-stream process
- JT output for engineering process (CAD / PDM import)



P'X5



CAD



JT2go / TC Vis



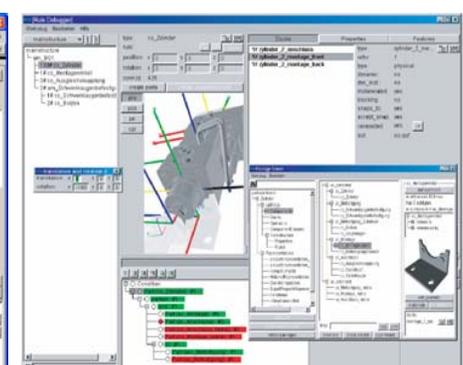
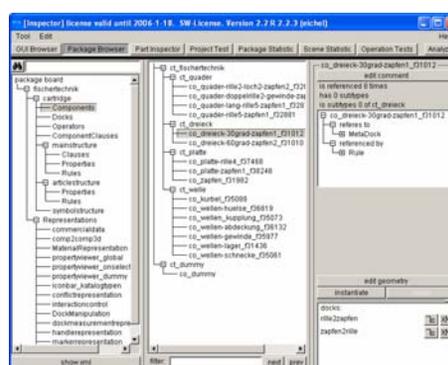
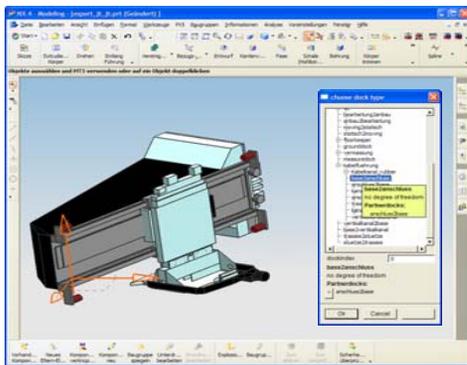
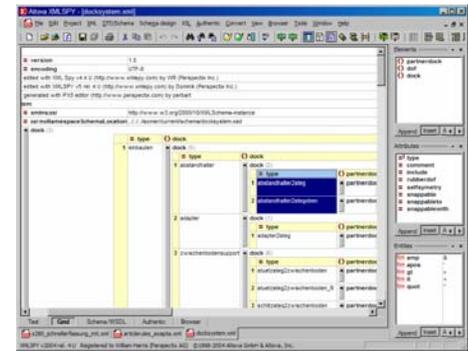
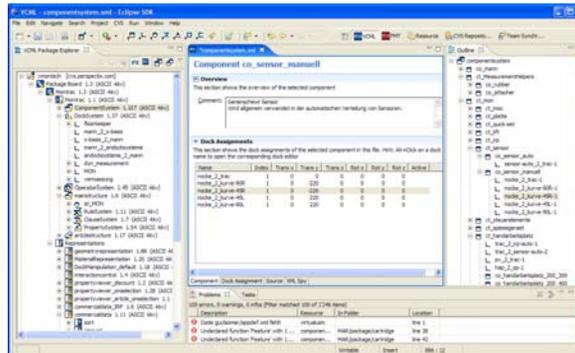
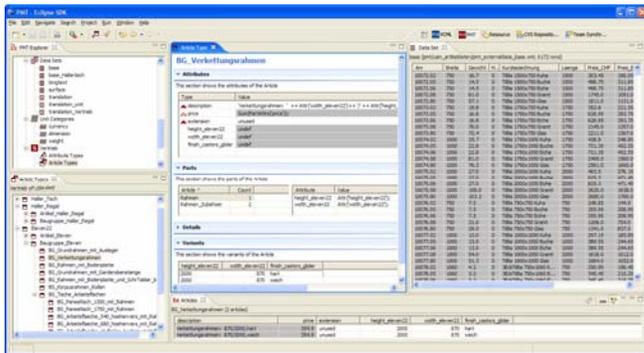
Adobe Acrobat

# Knowledge-driven Automation in P'X5

<b>AutoSolving</b>	Automatic solution finding with formal and geometrical constraint solving
<b>AutoPlacing</b>	Automatic positioning and connecting of product modules
<b>AutoRouting</b>	Automatic path search for cabling and piping
<b>AutoAssembling</b>	Automatic generation of product structures and assembly aggregations
<b>AutoMeasuring</b>	Automatic dimensioning and labeling of configured components
<b>AutoTransformation</b>	Automatic generation and transformation of multiple BOM structures
<b>AutoValidation</b>	Automatic conflict checks and solution evaluations
<b>AutoPricing</b>	Automatic cost, price and margin calculations
<b>AutoDocumentation</b>	Automatic generation of documents for offers, assembling, layout plans, ...
<b>AutoTranslation</b>	Automatic generation of multi-language output
<b>AutoAnimation</b>	Automatic generation of movement and explosion paths
<b>AutoUpdate</b>	Automatic synchronization of master data and transactional project data

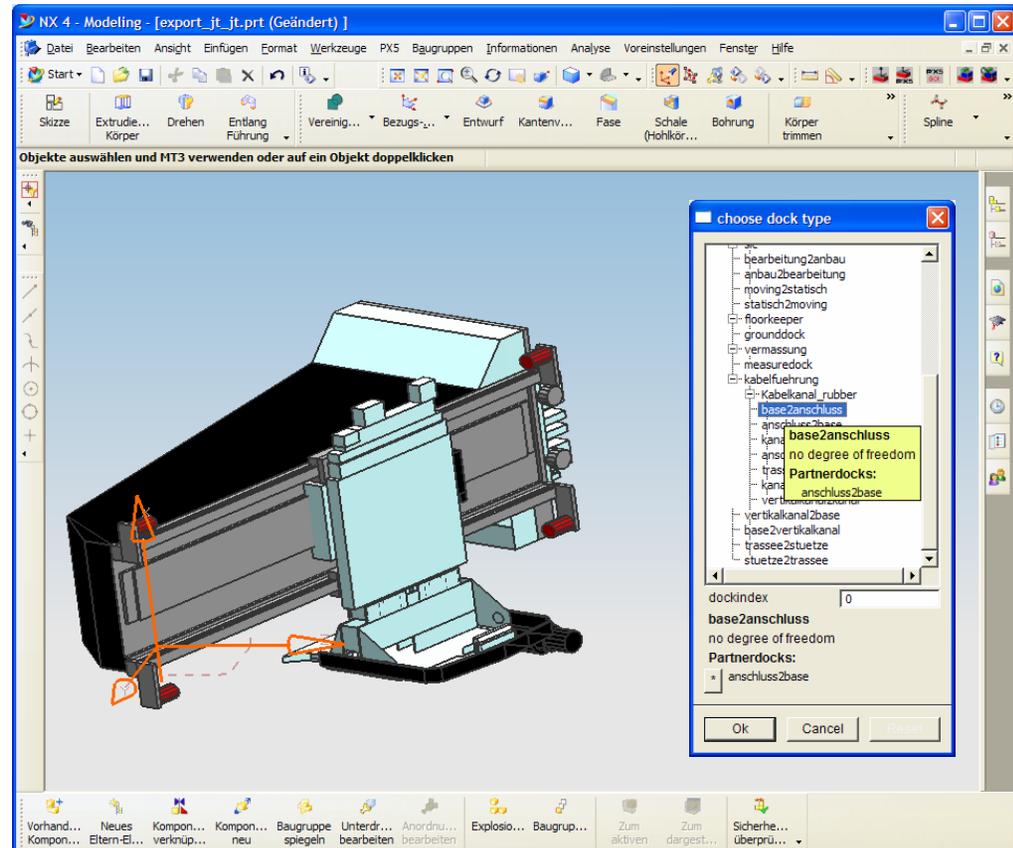
# P'X5 Authoring Workbench

- Editor for Product Information used in Sales Configurator
  - Master Data Harmonization
  - Product Classification
  - Expressions & Rules Editor
  - Run-time Test Environment
  - P'X5 CAD Plugin for NX
  - based on Eclipse IDE



# P'X5 CAD Plug-in for NX

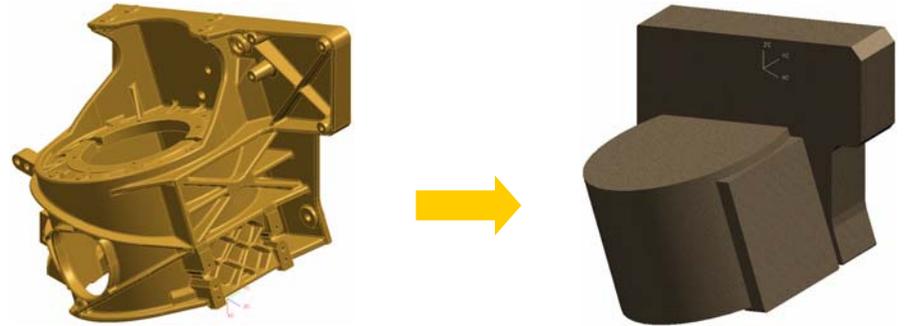
- Define Snap Points (Connection Points) on Part
- Classify Module Interfaces
- Capture Design Intent of Modular Building System
- Export from NX to the P'X5 Authoring Workbench



# Preparation of lightweight JT

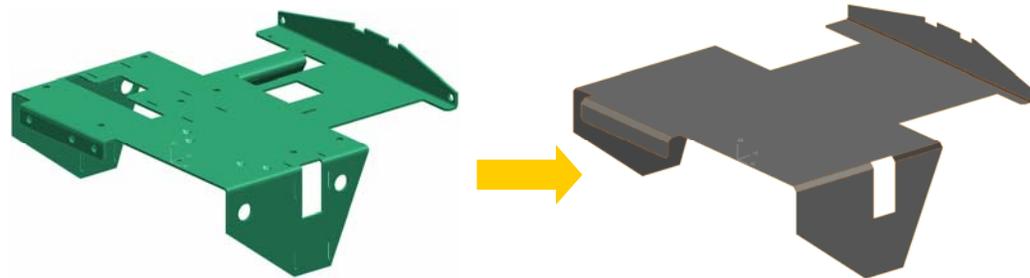
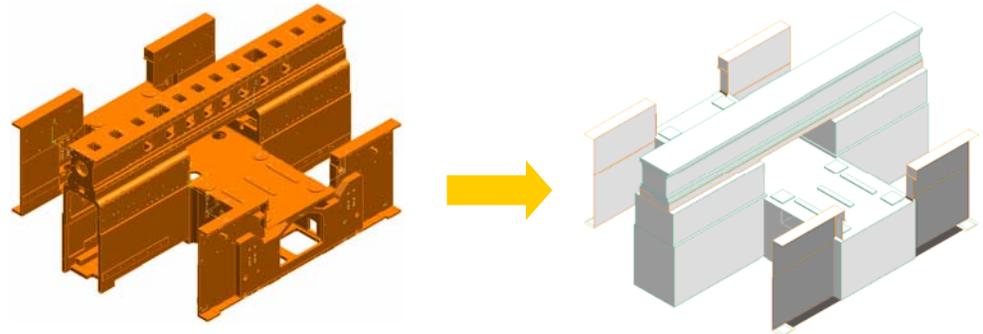
- Goals

- Performance
- Data reduction
- Prevent reverse engineering



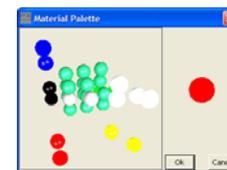
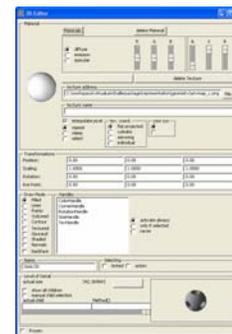
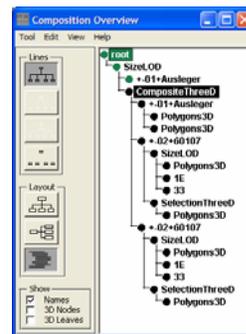
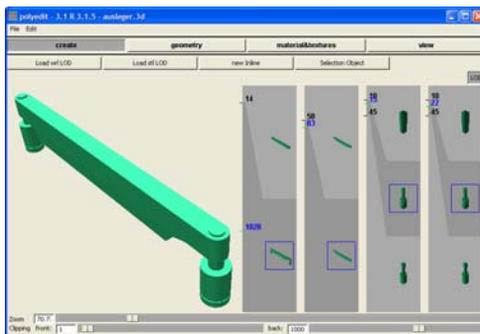
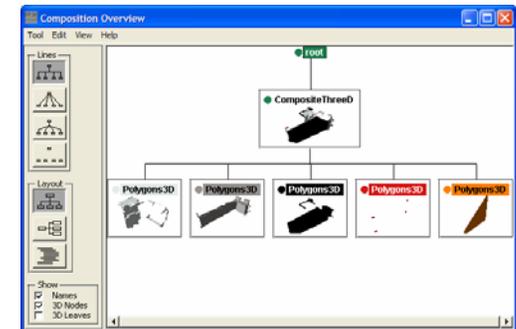
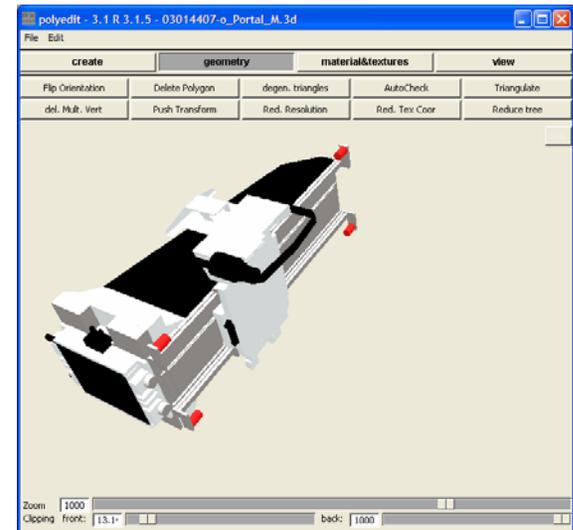
- Tasks in NX

- Create reference set
- BOM filtering
- Feature filtering
- Export as JT



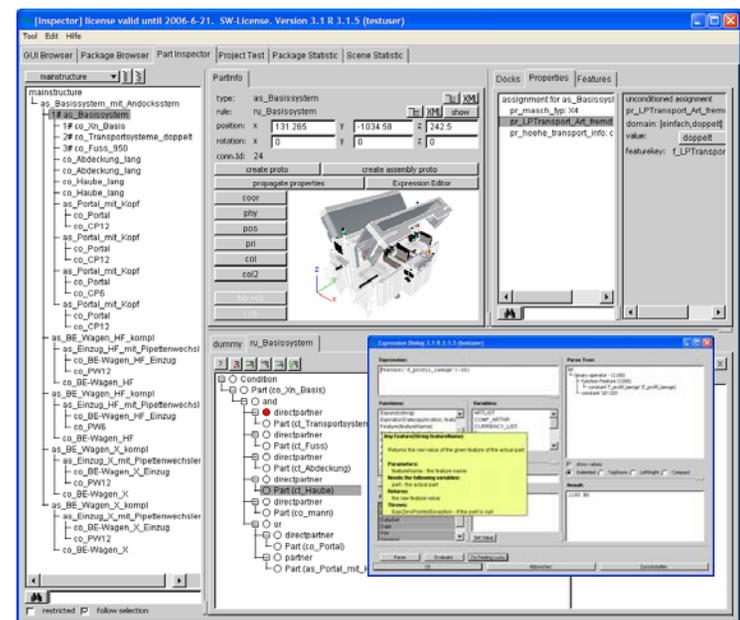
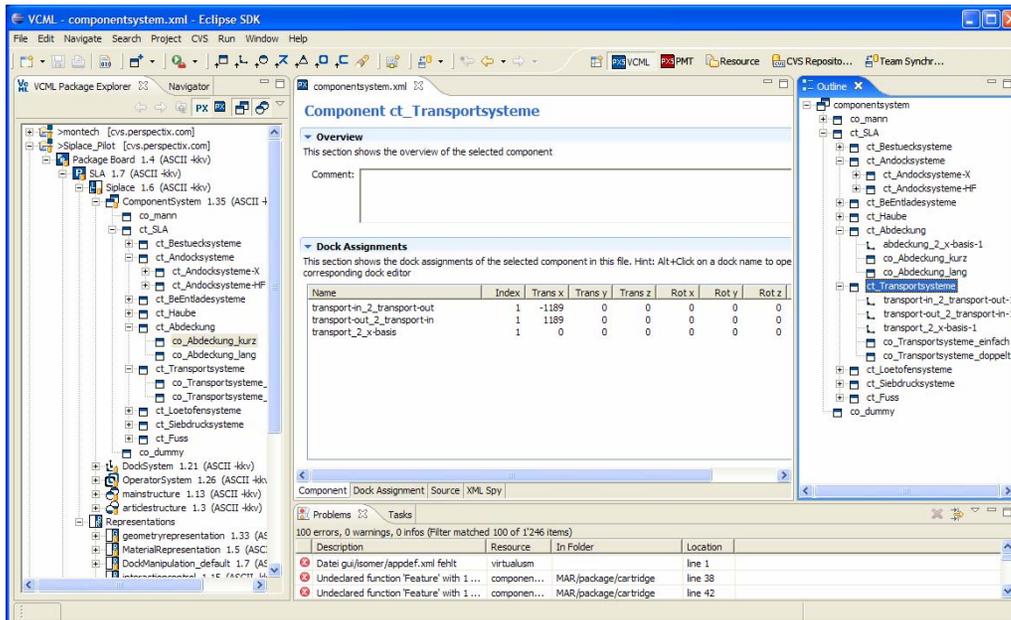
# P'X5 Authoring Workbench

- Enhance Visualization Data
  - Edit Level-of-Detail (LOD)
  - Reduce Scene Graph
  - Define Colors
  - Add Transparency
  - Add Textures
    - Texture Mapping
    - Environment Mapping



# P'X5 Authoring Workbench

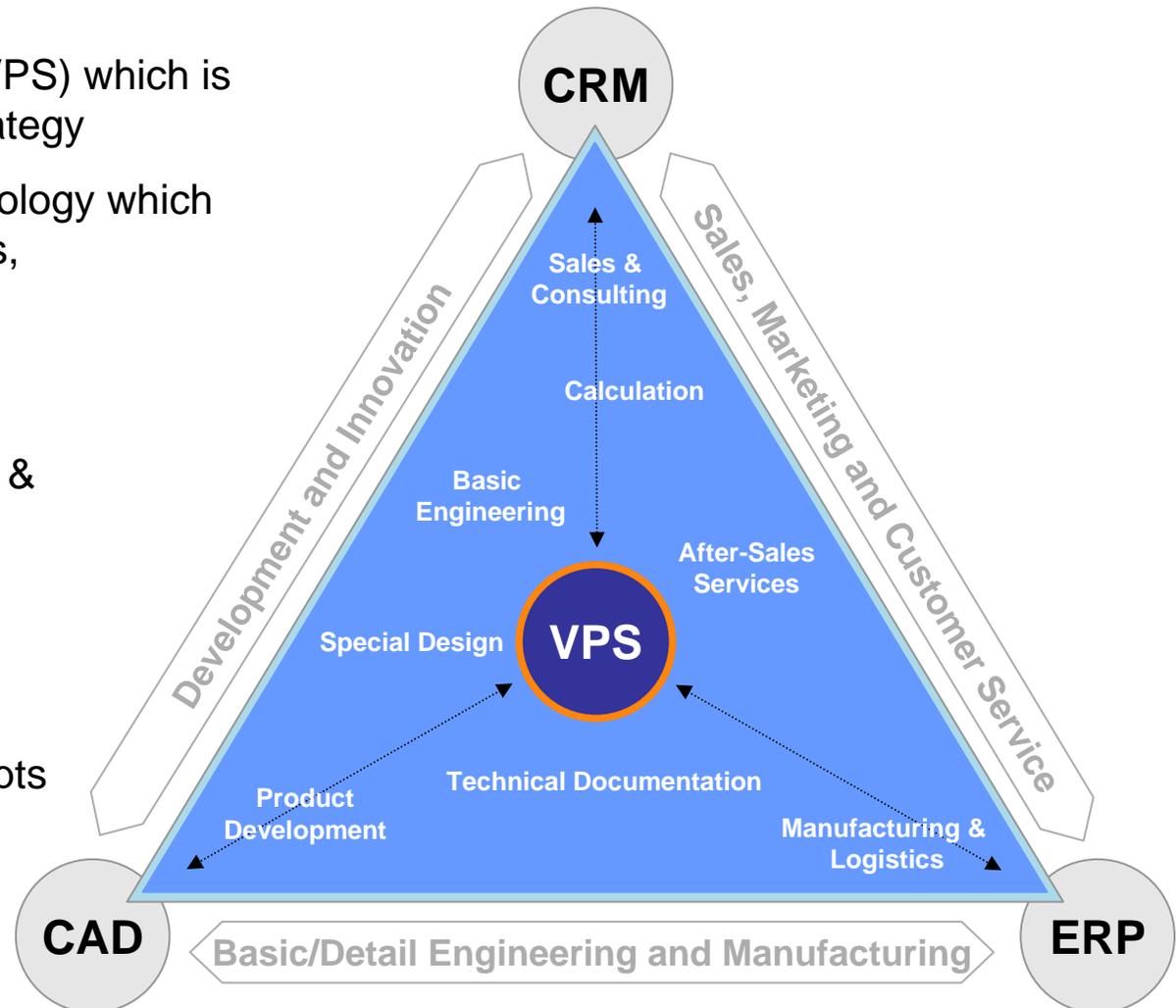
- Product Data Integration & Harmonization
- Product Classification
- Rules and Expressions
- Run-time Debugging & Automatic Testing



# P'X5 Visual Product Selling

Perspectix offers

- Visual Product Selling (VPS) which is a proven integration strategy
- P'X5 configuration technology which is predestinated for sales, basic engineering and after-sales services
- XML-based product knowledge base & integration-middleware
- flexible methods for variant & modular product portfolios
- expertise on PLM concepts and PLM-integrated sales engineering solutions

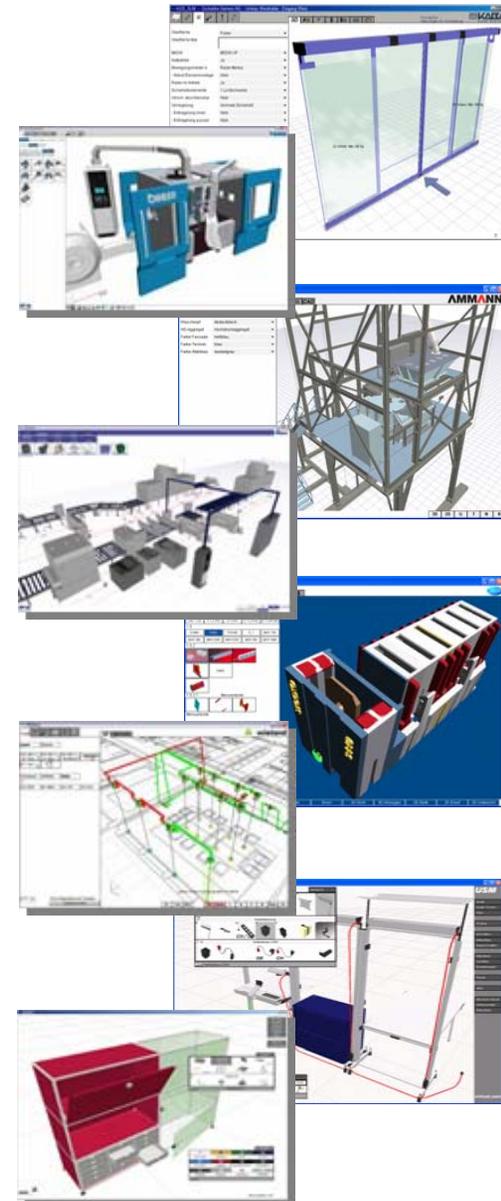


# Perspectix

- **Perspectix** optimizes technical sales, basic engineering, and after-sales service of complex, multiple-variant products in four sectors:
  - mechanical engineering
  - plant construction
  - electrical engineering
  - workplace and storage systems
- With the **P'X5™ Software Suite** Perspectix supports manufacturers in the implementation of rationalizing and differentiating concepts for **PLM-integrated sales engineering**.

**P'X5™**

Visual Product Selling. Powered by Perspectix.



# Contact

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