

cenitCONNECT Solution Guide

SAP PLM Software and Service



cenit

Process driven PLM





At a Glance

Support of Competitiveness
Standardization of Business Processes
Encourage global Collaboration

SAP PLM Software and Service

For enterprises who employ SAP ERP and want to consistently organize their business processes and optimize them throughout the enterprise, SAP PLM is the next logical step. CENIT – one of the world's leading consulting and software specialists – provides a PLM solution which supports the entire product life cycle in an integrated system. cenitCONNECT is just that: an intelligent process solution for integrated product development with SAP.

Industry Solutions Based on State-of-the-art Technologies

On the basis of SAP's current PLM 7 platform, we provide enterprises with our innovative PLM industry solutions. Our experts have combined their industrial practice in manufacturing companies with two decades of concrete experience in PDM / PLM consulting and implementation. The resulting optimization potentials for typical core business processes were implemented on the basis of SAP's PLM 7 platform and supplemented by our own specialized software components.

Despite all „best practice“ preparation, each enterprise does, however, have its own, individual requirements which we could not consider in advance in our system configuration. For this reason, all system functions are structured generically and can be extended and / or customized by means of configurations. This way, our solutions remain maintainable with regard to appropriate costs, even in the case of a high degree of individualization. For us, scalability, flexibility, simplicity, and an open architecture are self-evident prerequisites for an up-to-date PLM solution.

An Eye on Clear Objectives

Our PLM industry solutions support you when pursuing the following objectives:

- Optimal support of globally distributed development and production environments.
- Increase of process reliability and quality.
- Speeding up of the core processes within the product development process (PDP).
- Reduction of process and IT costs.

Ease of operability for our users is an integral part for us. Our focus is therefore not only on content, but also on packaging. We are satisfied only if the users of our solutions make their contribution to success with enthusiasm.

The Difference

Easy start-up, easy-to-use application, scalability, and utmost flexibility, coupled with pre-configured industry packages on the basis of years of experience. Proximity to practice – that is the difference.

In addition to the obvious advantage of process consistency, the extension of an existing ERP system to a complete PLM solution also offers tremendous potentials for IT cost reduction by means of less systems. Check out the possibilities of our intelligent and innovative PLM industry solutions for yourself.

At a Glance

Improved transparency

Reduced product development costs

Consistent change processes



Product structure management

The product structure is the essential element of all development and change processes. Along the entire product life cycle, the product structure is enhanced by all relevant product information: Starting with the first specification documents, on to typical engineering data such as CAD models, and leading up to the productionrelevant objects such as assembly simulations.

Objects from all engineering disciplines find their place in the product structure, thus forming the basis for a mechatronic product definition.

Rapid Modeling and Navigating

Already in a very early development phase, the product structure management of SAP PLM 7 supports the modeling of development tasks and the structural planning as well as planning and simulation of product variants. In addition, new technologies facilitate the navigation in complex structures.

CENIT'S solution

On the basis of PLM 7 and the product structure management, our industrial experts developed pragmatic solutions to adapt the handling of comprehensive product structures, variants, and configurations to the respective branch-specific requirements. Especially developed components for the controlled extraction and synchronization of bill-of-materials information facilitate the interaction of engineering and business administration.

Consistent change processes control the maintenance of a product along its entire life cycle and allow for the extraction of history information. Simple functions for bill-of-materials comparison of, for example, engineering bill of materials (E-BOM)

and manufacturing bill of materials (M-BOM) complete the interaction of the various disciplines in the product development process (PDP).

Distinctive, role-based access mechanisms allow for cooperation within a common product structure, even beyond corporate boundaries.

The Object Navigator of PLM 7 and the intelligent crossreferencing of CENIT's Selection Advisor facilitate the navigation in complex structures. The geometrical information is also evaluated for the search of the respective parts.

Advantages and Benefit

- Better **assured decisions** by significantly improved product transparency during the entire PDP.
- **Reduction of product development costs** by variant creation with increased use of frequently used components.
- **Easy and quick access** to product-describing data from all disciplines at any validation date.
- **User-friendly visualization** of product structure and variants whenever necessary (also digital mock-up) in native or neutral formats (3D/2D).
- **Optimal interaction** between development and production.



Process solution

Whether in development, change, order construction, prototype construction, initial sampling, or resource scheduling – the control of processes is a central task. In engineering it is of primary importance to safeguard, streamline, and accelerate processes and organize them more economically.

CENIT'S solution

Our intelligent solution for your processes unveils what was hidden in the past. Modern methods for project accompanying cost control assist the users in all matters relating to cost recording, evaluation, and simulation of development, change, and planning processes for manufacturing. The familiar working environment of SAP PLM – and especially SAP PLM 7 – is not abandoned. Our new Advisor technologies contribute to deliberately reducing tasks that do not create value. Recurring processes are automated and expenses in the operational activities reduced – no matter whether the objective is design assessment or the termination of a product.

Process solution for integrated product development

With its trendsetting design, our intelligent process solution provides completely new possibilities of process optimization and process automation. We supply companies with the control center for their processes in SAP, starting with product development and leading up to manufacture. In addition, critical projects and activities can be identified and thus disturbing factors be effectively eliminated.

Industry-specific Extendable Templates

A process solution should be flexible and have a manageable level of implementation. Pre-configured solutions for the different industrial sectors which can be customized and extended at the user's discretion would be ideal.

With the cenitCONNECT process solution and the subsequent industry-specific templates within the PLM context, we do meet these requirements. We offer the optimal balance between minimum implementation costs and maximum flexibility in productive use.

Advantages and Benefit

Improved **competitiveness** by:

- Focus on low costs and high profits due to project-accompanying cost control.
- Free identification of the effects and consequences of changes.
- Shorter project run times due to newly developed methods in process automation.

Standardized **business processes**:

- Reliable and stable processes.
- Streamlined release and safeguard processes.
- Continuous process improvement.

Global cooperation is encouraged by:

- Multi-SAP system support.
- Integration of different disciplines in various teams and at various locations into one overall process.
- Transparent illustration of milestones and degrees of completion.
- Simplification when dealing with project documents produced worldwide.

At a Glance

Availability of up-to-date documents at any time

Automation of mass processing

Gain of quality and time



Document management

Documents in PLM processes are, for the most part, the origin of any novelty. Many innovations begin as ideas, drafts, development and change applications, as well as construction drawings, or they are triggered by simple forms. Process documentations, reports, messages, etc. are often recorded and saved in the form of documents – be it electronically or as hardcopies.

The supply of documents within the project and object context for viewing and editing is thus an essential basic functionality of any high-performance PLM system.

Document management in SAP

In the standard solution, SAP offers an extensive document management (SAP DMS), including all possibilities for the support of cross-location or crosscompany cooperation. In many companies, SAP DMS has paid off for commercial documents in productive use for years. Concerning the integration into the „Office world,“ standard interfaces are employed. For all common CAx authoring systems, SAP provides standard products for the integration. The integration products allow for the complete integration of the engineers and developers into the PLM processes. Management of engineering data and documents is also carried out in SAP DMS.

The merging of commercial and technical documents allows for the complete description of a product, thus offering the optimal platform for the control of documentrelated business processes.

CENIT'S solution

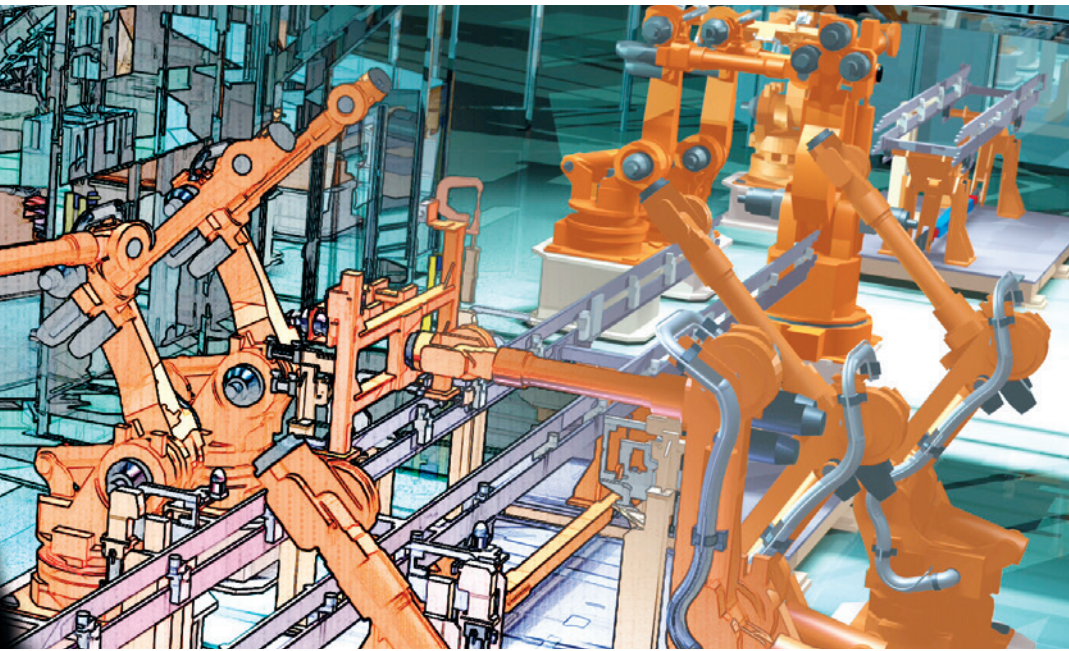
Our industry solutions benefit from SAP DMS in preconfigured applications for guiding the users in the process context. The often tedious and nerve-wrecking searching and processing of

papers in a valid version, a readable format, with the correct status, etc. can be dispensed with. By means of the direct provision of the documents from the task to be processed within the business process, we gain a high user acceptance and maximum process reliability.

With our Advisor technology, we provide parametercontrolled components for background processes which can be directly activated or planned – even when depending on other tasks. Complex mass processing of documents can thus be realized with just one click. Of course, process security is the top priority here, and processes such as creating, copying, version or status change, object links, or neutral-format conversions are supported.

Advantages and Benefit

- Reduction of costs and lead times by avoidance or automation of activities that do not create value.
- High user acceptance, since the user can focus on core tasks by relieving time-consuming search routines.
- High gain of quality and time by the early availability of correct information, for example for procurement and manufacture.



At a Glance

Intelligent 3D documents

Replacement of text
by graphic

Easy and intuitive
operation

Visualization

The simple comprehension of complex facts requires new ways of communication. Product visualization is a simple method for displaying complex contents in a simplified way. By means of text and image combinations, the essential is comprehended more quickly and remains in your memory.

Instead of abstract speculating, our PLM industry solutions offer detailed, reliable evaluation, even in the case of complex structures and large amounts of data.

CENIT'S solution

To be offered the current construction of the product at any time – that is the declared objective of our solution. In addition to visualization, we provide extensive possibilities of simulation and analysis for this.

We bring visualization into SAP wherever it is relevant for the process and can be realized technically. For in engineering, the saying „A picture is worth a thousand words“ is also true. Usage is clearly more user-friendly – in other words, simpler and more intuitive.

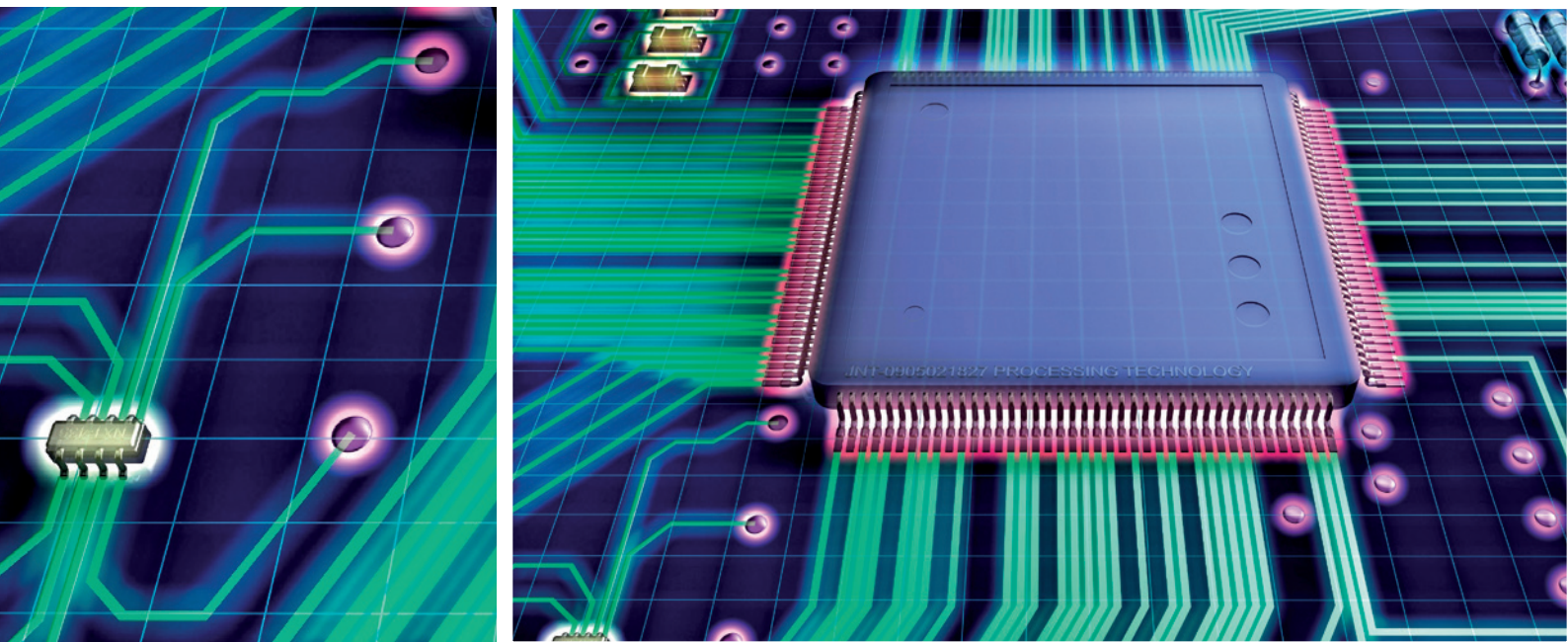
Intelligent 3D Documents

Within the process context, we collect 2D drawings and 3D geometries with meta data from the ERP and other product-describing systems. Based on this data and on configurable templates we create interactive („intelligent“) documents – in fully automated mode. We rely on standard formats such as, for example, 3Dpdf, html, etc.

Visualization data in the RH and / or JT neutral format and intelligent documents are created and updated within the process context in a fully automated manner. By request, our solution also takes care of the distribution to internal and external process participants in addition to the provision of the documents in SAP.

Advantages and Benefit

- Significantly **improved process security** by visualization of the products in the context of a mandatory product structure long before the production of the first prototype.
- **Cost reduction** by general replacement of text by graphics information and a high degree of automation during document generation, especially in the case of multi-national documentation requirements.
- **Increased process speed and quality** due to the intuitive and secure recording of product contents by all process participants beyond the boundaries of location, language, and company.
- Open architecture for the generation and visualization of product presentations, guaranteeing **high investment security** and any **scalability**.



Mechatronics development

Often, the creation and modification of mechatronic products requires the integration of teams distributed all over the world and different technologies which are used in mechanical, electrical, fluid, hydraulics, or in software engineering. Ongoing coordination of the developers among each other and with functional areas outside the field of engineering is the key for effective mechatronics product development.

CENIT's Solution

The mechatronic product structure is the central element of our industry solutions for distributed product development. We always offer the best solution package to companies, depending on their „PLM maturity level.“ Starting with the integration of mechanical design into the SAP processes, for example with the CATIA V4, V5, or V6 SAP integration, via the connectivity of circuit-board design in Mentor, Cadence, Zuken, or Altium, and leading to system engineering with interdisciplinary cooperation.

Several 100 customers with ten thousands of users from development and construction already use the advantages of integrated product development with SAP PLM. This long-term experience from practical use characterizes our mechatronics products and service packages.

Accurate Processes without Detours

The early interface-free integration of typical follow-up processes such as procurement, test, or internal and external production is based on a consistent and transparent configuration management within the integrated ERP/PLM system. The controlled synchronization of native CAD libraries with SAP – even across distributed locations – encourages the usage of preferred materials. The effect which component

changes have on the entire product can be directly comprehended on an interdisciplinary level. Our solution creates clarity concerning the different development stages and leads to an understanding of the entire product history. This is especially important when dealing with a huge amount of product variants and products with a short life cycle.

The direct bill-of-materials transfer from the CAD systems into SAP allows for an early provision of correct manufacturing bills of materials with the associated product information. This helps to dispense with timeintensive and error-prone data preparation and manual bill-of-materials recording.

All product information required for a concrete task is supplied to the process participants within the correct process context in suitable formats, for direct postprocessing in the specialist department. Pre-configured operational processes with the simple possibility of ad-hoc adaptations by the project manager thus combine process security with the necessary flexibility in actual product development.

Advantages and Benefit

- **Shorter innovation cycles** by optimal support of product-creation processes distributed worldwide.
- Significant **increase of process security** of typical versioning, validation, test, release, and changeprocesses.



Collaboration

Nowadays, product development and production take place in a team. Closely networked partnerships characterize the picture – customers, suppliers, locations all over the globe determine our working day.

All participants rely on current 3D product data, drawings, reports, etc. in a suitable format and with the required quality.

CENIT's solution

Collaboration is a central business process for each and every modern enterprise. Our PLM industry solutions consider three collaboration scenarios described below:

1. Collaboration in the worldwide network

Centers distributed all over the globe assume development tasks. The teams cooperate in a joint process. Information is to be evaluated without delay and always up-to-date within the system. With its Document Distribution Manager, cenitCONNECT efficiently and intelligently ensures local availability and thus best-possible performance when accessing even large amounts of data, such as, for example, complex 3D originals.

2. Collaboration beyond company boundaries

Close partners cooperate on a common platform in processes with direct access to all necessary data. Users should be able to rely on redundancy-free and up-to-date information. Access via Internet provides a flexible integration of worldwide operating teams – both in one's own company and with external partners. Based on the new safety measures of SAP PLM 7 concerning direct collaboration, CENIT provides industry-specific solutions. A tailor-made authorization concept for individual scenarios ensures the protection of the processes without interfering with daily work routines.

3. Collaboration of independent partners

Only the flexible compilation of clearly defined working packages allows for the inclusion of partners who work at subtasks independently of a common backbone. The simple re-integration of the work results, the quick exchange of ideas, assessments, and modifications are an essential part. The cenitCONNECT Enterprise Connector provides the necessary adaptations of the processes to the participants' requirements with only a slight need for configuration. Naming conventions are complied with in a manner totally transparent for the participants, the formats required for 2D and 3D data are generated, and the quality of the working packages safeguarded.

Advantages and Benefit

- Significant **reduction of coordination tasks** because of information which is always up-to-date – the employees and partners focus on the processes that do create value.
- **Transparent collaboration**, since processes can be documented and understood without additional effort by the participants – expensive misunderstandings and delays are prevented.
- **Security and flexibility** for all participants, since modern methods secure the data against unauthorized use – a quick, process- and project-related adaptation of the rights, roles, and rules is possible.

At a Glance

Data access across
different systems

Streamlined processes

Reduced research time



Integration services

Seeing and understanding at one glance what is going on in the company – this is what a modern service-oriented integration platform provides.

The central management of the processes of all departments can only function if all access a uniform database. In reality, however, the data is organized in different systems and databases.

CENIT's Solution

Based on a modern process platform, cenitCONNECT integrates all required objects, not only the stakeholders, no matter in which system they originate.

You do, however, have to consider different requirements. The productivity of concurrently working development teams in different locations must, for example, not be affected. For this reason, the different data has to be exchanged with the process platform, if possible in real-time.

Clarity with SAP NetWeaver®

With the SAP NetWeaver® platform, SAP provides all possibilities for interchanging data between systems. For this, the most up-to-date technologies such as Web services can be used. SAP's NetWeaver® PI provides the necessary middleware to interconnect different systems with the appropriate means. Using ESR (Enterprise Service Repository), the required Web services can be easily managed so that re-usability is guaranteed.

Thus, data can be viewed from within cenitCONNECT in all relevant systems and be modified, if necessary. Our specialists from CENIT's SAP Competence Center can expertly advise you with regard to system integration and provision of the necessary services.

Advantages and Benefit

- **Optimized management** by development of a companywide PLM data and process base with consideration of already made investments in third-party systems.
- Clearly streamlined processes with obvious **quality increase**.
- High gain in quality and time by early availability of correct information, for example concerning procurement and production – also beyond company boundaries.
- Noticeable **cost advantage**, since effects and influence of product changes can be seen beyond subject and system restrictions.
- Constant clarity of the different development stages.
- **High user acceptance**, since there is no need for tedious research in different systems with the associated different log-on mechanisms.



At a Glance

Affordable & fast entry

Optimal process optimization

Best Practice methods

Service competence & implementation methodology

We belong to the leading SAP PLM integrators and are strategic partner of SAP AG. On the basis of decades of industry experience, we offer professional SAP PLM services. In this, we are supported by a network of partners and suppliers worldwide.

As SAP's strategic partner, we have the competence to optimize the product development process for enterprises from the manufacturing industry. We realize this by providing the complete product data in a controlled quality and a suitable format to all process participants worldwide. Our solutions enable our customers to realize PDM / PLM processes of any kind more quickly, better, more safely, and at lower costs. Our solutions are tailored to the needs of special industry sectors, they can be individually configured, and they are scalable from PDM to PLM.

We guarantee our customers a cost-effective and quick implementation, streamlined operation, and flexible expansion possibilities.

What Sets us Apart

- Our professional PLM consultants with their industry-specific knowhow are experts in listening to what our customers have to say.
- The implementation of a PLM system is a complex issue. We ask and scrutinize the details. Because it is our job to effectively consider and analyze the interactions between the used technologies, the people involved, and the ideal processes.
- We have decades of experience, and we build on this foundation. Our best-practice methods are the ideal base for the streamlined and cost-effective realization of customer-specific requirements when implementing and optimizing PLM.

- It is a matter of course for us to plan the steps and work according to plan. Depending on the main focus, we place emphasis on different and established methods for consulting as well as the realization of PLM projects.
- We guarantee mutual cooperation with clearly defined performance – binding, flexible, and reliable.

Standardized Implementation Methodology for Quickly Visible Successes

The best process optimization can be achieved by the seamless extension of SAP's business solutions with CENIT products and the business-process-oriented implementation of these solutions within the framework of our standardized PLM implementation methodology ezPLM.

This method was developed in cooperation with SAP. ezPLM is a standard process provided jointly by SAP and CENIT. The process covers the definition, classification, and implementation of a SAP PLM core system – including migration of development data and documents from the existing PDM / PLM system into SAP PLM.

For our customers this means quickly visible successes on the basis of standard delivery of predefined scenarios and the realization of phase concepts. Our cenitCONNECT portfolio is industry-specifically distinctive, can be flexibly configured, and is scalable from a PDM up to a PLM solution.



CENIT AG

For over 25 years, CENIT has been successfully active as a leading consulting and software specialist for optimizing business processes in the Digital Factory, Product Lifecycle Management (PLM), SAP PLM, Enterprise Information Management (EIM), Business Optimization & Analytics (BOA), and Application Management Services (AMS) fields.

CENIT complements standard solutions by strategic partners such as DASSAULT SYSTEMES, SAP and IBM by providing well-established own software solutions. These include the FASTSUITE product family for software solutions in the Digital Factory field, cenitCONNECT for SAP PLM-related processes, cenitSPIN as a high-performance PLM Desktop, CENIT ECLISO for efficient information management as well as CENIT SERVICEMANAGER – a platform for integrating software systems into the ECM system.

The enterprise employs around 700 staff worldwide, serving customers primarily from the automotive, aerospace, mechanical engineering, tooling and molding, financial services, commercial and consumer goods industries.

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