Integrating Creativity & Management

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Product Data Management
Product Lifecycle Management
Today’s designers use the latest CAD systems to define the virtual product with the aid of 3D models, drawings and circuit diagrams. The key requirements of PLM systems include guaranteed validity, worldwide availability, reliable know-how protection, collaboration capability and integration into the PDM and ERP backbone. Openness and multi-CAD capability are crucial for integrating the disciplines and authoring systems.

Central Platform for Reliable CAD Data Management

CIM DATABASE CAD data management automates work steps such as the incorporation of new statuses and synchronisation, filling in title blocks or exporting bills of materials (BOMs). It uses an efficient rights system to guarantee that the CAD data is valid and up-to-date. Support for all leading CAD systems, simple retrieval functions, an efficient repeat part system and intelligent replication mechanisms make CIM DATABASE an ideal platform for global engineering.

Collaborative Product Development

CONTACT Workspaces is an ideal desktop for developers and sets new standards in teamwork, global collaboration and support for the work in progress: It allows teams of developers to work together in an autonomous, synchronised and more efficient manner. All those involved are able to share their work while maintaining control over the complex CAD data.

Overview of Functions and Advantages

- Integration of leading CAD systems
- Accelerated development processes thanks to automation of routine tasks
- Valid and up-to-date CAD data in the PDM and ERP backbone
- Seamless collaboration and process reliability
- Higher productivity and user acceptance
- Multi-CAD data management for teams and global development organisations
The management, use and provision of documents is a central task for companies – and all of their departments. Conventional storage on network drives or in e-mail systems is a dead end because of the large number of documents, interfaces and systems involved. Particularly in development companies with a large number of document types and complex processes, intelligent document logistics that offer clarity and support teamwork are essential.

Intelligent Document Logistics for Product Development

A large variety of documents are used in product development. These range from offers through to interim reports. A single project can involve hundreds or even thousands of documents. And so it is crucial that these are well organised and available to users. The CIM DATABASE document management system is optimised for companies that develop products or operate complex technical infrastructures thanks to its link to other business objects such as projects and products. It speeds up work processes, minimises the cost and effort involved in searching and archiving, and offers better know-how protection – regardless of whether Office documents, e-mails, audit-proof documents or image materials are involved.

Integrated into the Office Environment

The system is simple to operate and offers users familiar elements such as folders and tabs. Documents can be edited seamlessly in Office programs such as MS Word or Excel and the changes are saved directly in the CIM DATABASE document vault. Add-ins facilitate the transfer of metadata from articles, projects etc., directly into a document. E-mails and their attachments can be saved directly from Outlook or Lotus Notes, for example, and made accessible to everyone.

Overview of Functions and Advantages

- Office, multimedia, e-mail etc. including template management
- Quick searching and finding using metadata and full text searching
- Versioning and workflows for controlled changes and guaranteed validity
- Effective know-how protection thanks to a predictive rights system
- Support for audit-proof storage in accordance with the GoB and GDPdU standards
- Seamless integration with MS Office
Product structures, bills of materials (BOMs) and, if necessary, differentiated structure views form the backbone of centralised tasks and processes in product development. They are the starting point for cost and weight calculations, for example, for quantity calculations, material requirements planning and much more. Added to this, there is the need to document changes, releases and the delivery status, e.g. from prototypes to all the components of the overall product.

Systematic Product Structure Management

Systematic product structure management with CIM DATABASE avoids redundancy and inconsistencies, protects against unintentional, “random” and faulty results, and therefore against potentially major liability risks. It forms the basis for continuous product documentation and makes it possible to calculate costs automatically, for example, and to compile documentation. CIM DATABASE supports the identification and processing of individual product configurations in cooperation with variant management.

Special Requirements: Mechatronics

One crucial reason to significantly improve the system for the product development process is the increasingly multidisciplinary nature of products. An integrated data model provides the foundation for both a shared and for discipline-specific views of the product. All the various strands come together in shared product structures: they form the reference for valid configuration of the components from all the disciplines involved.

Overview of Functions and Advantages

- Automatic derivation of product structures from the CAD model structures
- Graphic display with simple and clear navigability
- Direct access to contextual information, such as documents, models and the change history
- Mapping heterogeneous structures of mechatronic products
- Automatic reporting: quantity and structure BOMs, structure comparison, etc.
- Compliance, e.g. according to CMII in combination with CDB Engineering Change Management
Product variety and complexity are cost drivers for downstream areas such as purchasing, warehousing, service, etc. Long-term product management and cost control therefore begin at the source of product variety, where the majority of product characteristics and costs are determined — in development and design. Variant management helps define the necessary solution space precisely, detail and safeguard examples of individual variants from this space, and manage these variants efficiently as individual product configurations.

Engineering Products with Numerous Variants

CIM DATABASE variant management starts in the early development phases and it enables efficient creation of complex variability models, where required. If necessary, different views can be considered separately, such as the internal view and the customer's view. Solution spaces are defined using 150% structures, properties, rules and constraints. The variant generator derives reliable variants from this and supports even large and very large solution spaces virtually in real time.

Rapid Development of the Solution Space

Thanks to properties-based creation of the variability model, the design engineer does not need either items or BOMs in the early phase. This makes things a lot easier, especially for products with many variants. Variant research can also be properties-based. The different views (technology, customer, etc.) mean that the variant space described by the maximum BOM can be displayed and processed in line with requirements.

Overview of Functions and Advantages

- Variant management directly integrated into the development process
- View control for technology and customers, for example
- Minimum overhead: modelling in early draft phases without mandatory reference to specific item
- Easy to operate, rapid variant generator for even large and very large solution spaces
- Automatic variant development by means of the product and model structure (DMU)
- Continuous process support through to the ERP system
There potential savings from standardising and reusing established solutions in production companies are enormous. Development processes are accelerated, design engineering resources are used better, product quality improves and purchasing, administration and storage costs fall. A suitable repeat part and preferred part system allows you to make effective use of this potential.

**Savings thanks to Classification and Preferred Parts System**

CIM DATABASE supports classification, from creating families, through to creating and evaluating characteristics. Thanks to its user-friendly, design-related operation, you have access right from the start to a system that enables step-by-step preparation of the range of parts and that can be integrated in other processes. CIM DATABASE leaves plenty of leeway for a system to match your portfolio and it supports methods and procedures based on DIN 4000, 4001 and 4002.

**Visual Parts Retrieval for Intuitive Navigation**

Reusing parts and the know-how connected to those parts is supported systematically by means of the graphical classification plan. This user-friendly, visual display of parts enables intuitive browsing through search results, as well as providing information about available parts with the same or similar properties. When combined with the flexible SML system, this creates the conditions essential for high development productivity.

**Overview of Functions and Advantages**

- Generic groups and characteristics bars based on DIN 4000/4001/4002
- Flexible structuring of a stock-wide property catalogue, e.g. structured according to functional, geometric and physical properties
- Fast searching and locating by means of properties and the multimedia classification plan
- Integration in leading standard part systems, such as CADenas PARTsolutions
- Cost reduction and quality improvement thanks to reuse and preferred parts
Engineering changes are among the most important processes in the product lifecycle. Due to their major influence on quality, costs and delivery times, a systematic approach is indispensable. The challenges involved include controlling change processes securely but flexibly, and speeding up cycle times.

**Transparent Workflows Control Engineering Changes**

CIM DATABASE Engineering Change Management (ECM) represents a highly flexible tool for workflow-controlled change management. The backbone of the digital change process consists of well-arranged folder structures combined with automatic transaction control. The CIM DATABASE PLM component updates the product-defining data and documents in a controlled manner. It also performs change control for the statuses of simultaneous, often interdisciplinary processes, such as for digital safeguarding, sampling or tool design. In addition, the CIM DATABASE PLM component supplies all participants with the relevant parts, documents, models and accompanying documents in a clear folder format.

**Automation and Accelerated Throughput Times**

Depending on the product group and product maturity, changes need to be checked by various sets of subscribers. CIM DATABASE ECM makes it easy to map these processes and, if necessary, to adjust them dynamically and in a rules-based way. Checkpoints can be allocated on the basis of rules and evaluated directly. CIM DATABASE ECM can easily be adjusted to the specific requirements of a company.

**Overview of Functions and Advantages**

- Workflow-controlled, secure and documented processes
- Acceleration thanks to parallelisation and progress monitoring
- ECR/ECO/ECN logic
- Freely configurable test procedures and accelerated cycle
- Rules-based template management, e.g. on the basis of product maturity
- Clear, direct access to all current data and documents for a change
Today, more than ever before, companies rely on being able to exchange product and project data with other companies—be it with the client or with their own suppliers or engineering bureaus, for example. This places high requirements on the prompt implementation and reliability of data exchange processes. The scenario becomes even more complex if agile exchange processes within a collaboration with other companies are involved.

Product Data Exchange Automatic, Easy and Fast

The user initiates and handles the communication with partners from his or her workstation using CIM DATABASE PDX (Product Data Exchange) — without having to rely on the CAD system! The PDX component automates the exchange processes, thereby accelerating cooperation within the company. Company-specific rules and processes for shipping, receipt, quality inspections or formats are stored centrally on the PDX server. Errors that occur when data is exchanged and during manual processing are largely avoided. CIM DATABASE PDX supports known standards such as Odette FTP and ENGDAT.

Collaboration Portal for Cross-company Processes

Distributed and collaborative product development means compiling tasks, distributing them, collecting the results and integrating them into the company’s own database. Often, tasks change during the development process or improvements are made to the results. Using the Collaboration Portal allows third parties to be involved directly in defined processes over the Internet, receive order and CAD data, and synchronise results. And all while the client maintains full control and data security.

Overview of Functions and Advantages

- Secure and simple exchange of data with partners in line with international standards such as ENGDAT
- Automatic compilation of all shipping orders with complex assemblies
- Automatic accounting of completed exchanges
- Legal certainty guaranteed by documentation of all transaction parameters
- Transparent integration of other companies into company processes using a dedicated web application
Even small companies distribute their production or even development sites internationally these days. Sophisticated products are developed in networks together with partners and suppliers. This means that the benefits of centralised IT systems have to be combined with the challenges of prompt local availability and effective synchronisation of different locations. The physical location of a design engineer needs to be irrelevant when working with a 200 MB or greater CAD assembly at another site.

**Intelligent Replication**

Vault replication makes it possible to distribute CAD models, project documents, etc. to any number of integrated locations. There is no unfiltered reconciliation, unconsolidated stocks are not multiplied and the company's wide area network is not blocked: synchronisation is controlled by means of saved rules. For example, time windows with low data volumes can be used in line with need, related document structures can be synchronised en bloc and only participating project sites are supplied with project data.

**Autonomous Locations Thanks to Site Replication**

Site replication makes it possible to operate development networks without a singular, centralised database. The locations do not require a constant online connection to a head office and can synchronise with other locations on a time- or event-controlled basis, for example. Site replication supports locations that require maximum system availability but do not have stable and high-performance long-distance connections.

**Overview of Functions and Advantages**

- Optimum support of globally distributed development organisations
- High-performance transaction characteristics even across intercontinental wide area networks
- Intelligent file replication leading to optimum use of network resources
- If required, site replication for synchronising otherwise self-sustained locations
Projects are becoming increasingly complex and meeting project targets is more and more important to a company’s overall success. Integrated project management provides companies, project managers and teams with a comprehensive project system. With particular emphasis on product development and designing complex infrastructures, this involves focusing on target-oriented cooperation between the various departments, locations and companies with maximum transparency with regard to time, costs and quality.

Effective 360° Process and Project Management

With its integrated process, project and product view, the 360° method provides support for planning, monitoring and controlling and, above all, the project work itself. The process logic is based on work results, enabling systematic, qualitative controlling. This type of platform for managers and engineers is indispensable to many companies, allowing them to keep track of the increasing complexity of products and processes.

Comprehensive Planning, Monitoring and Collaboration Functions

Gantt charts and MS Project integration, company-wide resource planning and quality-oriented results planning enable comprehensive planning and monitoring. Integrated document, task and open issue management supports collaborative project handling.

Overview of Functions and Advantages

- Database-assisted multi-project management
- 360° product, process and project view for planning and monitoring efficiency of times, costs and results
- Integrated company-wide resource planning
- Comprehensive collaboration functions
- Comprehensive process support, e.g. with task management and ad-hoc workflows
- Project controlling in real time
To get ahead of the competition, companies have to continuously improve their products and processes. These improvements can be measured most systematically and controlled best with the help of key figures. The universal key figure management solution from CIM DATABASE PLM makes it easy to define any key figures to simply measure and control the quality and performance properties of products and projects, as well as PLM business processes such as engineering change management.

Controlled Product and Process Development

CIM DATABASE key figure management supports day-to-day operations by means of product and project key figures in line with Design to X and classic project controlling, such as using an earned value analysis. In addition, development organisations can use the solution to continuously improve their processes. For example, they can reliably identify any weak spots such as overly long throughput times, then define measures and monitor and evaluate the effectiveness of these measures in real time.

Reliable Foundation

Key figures characterise business objects and business processes quantitatively. However, they consist of more than just the key figure itself: in general, further aspects are also of interest, such as automatically calculating actual key figures at freely defined intervals, automatically aggregating actual values according to object structure, recording the actual value history, or the option of defining targets for key figures by means of formulae.

Overview of Functions and Advantages

- Real-time controlling by automatically calculating and monitoring key figures
- KPIs for products, projects and PLM processes
- Basis for balanced scorecard system
- Direct integration in measures management
- Transparent and reproducible display for all participants by means of dashboards
Globalisation and market dynamics are making innovative ideas increasingly important to competitive success. The prerequisites for utilising ideas to the full include, in particular, recording, evaluating and scheduling those ideas systematically in your portfolio. Another key factor is continuous tracking in development projects.

Lifecycle of Ideas for Systematic Development and Use

The innovation process starts with an analysis of the need for development and defining targets. The CIM DATABASE component builds ideas management on this foundation: it maps the idea development process from recording and networking, via filtering by stages, through to evaluation and complete implementation in the PLM system. The basis for this is a suitable ideas lifecycle: at each stage of specification, ideas are checked using specific evaluations of potential, costs and risks. At the end of the review cycle, a decision recommendation is made and, if positive, the idea is transferred to the regular product development process.


Suitable ideas that cannot be used immediately are archived so that they can be accessed again when needed. Individual ideas can be linked to other ideas and problems, creating a knowledge network. When integrated into the PLM system, ideas management can create additional synergy effects, such as integration into portfolio management. Furthermore, employees can put forward their ideas easily and track the assessment of those ideas – which is a crucial factor in employee motivation.

Overview of Functions and Advantages

- Systematic support for the lifecycle of ideas
- Central control of evaluation rules and processes
- Less wastage thanks to knowledge network
- Direct integration into the development process
- Better employee participation thanks to „visible“ processes
- Crowd sourcing to customers and users

Innovation and Ideas Management
Optimum processes suited to your company, in line with best practices, are some of the most important factors ensuring competitiveness. Current manual methods leave a lot of room for improvement, which can be achieved with system-supported workflow management. Product development – with its high proportion of creative activities that can only be scheduled to a limited extent, significant division of labour and a large degree of parallelism – poses particular challenges to practical support.

**Status Monitoring and Guaranteed Validity Improve Time, Costs and Quality**

For many objects in product development, such as documents, items, projects, open issues etc. the description and knowledge of their status are decisive for their subsequent usage. Their lifecycle, represented as status networks, forms a reliable and controlled description of development, from creation through to decommissioning.

**Regulated Flow Control by Means of Processes and Tasks G/K**

A CIM DATABASE workflow defines tasks and orchestrates their orderly sequence. A workflow can consist of just a few tasks or it can be very extensive, such as in the case of interdisciplinary, interplant validation of engineering changes. A workflow can be structured from templates at the touch of a button or it can be defined individually and ad hoc by the user. Users benefit from personal task views and direct access to contextual data such as parts, documents, etc.

**Overview of Functions and Advantages**

- Process acceleration thanks to digital methods and parallelism
- Process transparency thanks to systematic task management
- Greater process reliability thanks to process control and documentation („compliance in process“)
- Automation of routine activities: notification, accounting, batch operations, etc.
- Process optimisation thanks to key figures analysis of procedures combined with CIM DATABASE key figures management
The quality of the platform – that is, the technological basis of the application functions – has a decisive impact on the future compatibility of the PLM solution. The key factors here are flexibility, scalability, openness and adjustability to individual needs; not forgetting medium- and long-term continuity and innovation, as can be seen in customer loyalty and release policies. CIM DATABASE is a leader in this field.

Flexible Component Architecture

The architecture of CIM DATABASE fulfils the core requirements of a globally available, highly scalable and flexible PLM platform. It encapsulates significant aspects such as business process logic, dialog presentation, document storage, database storage, job services and other dedicated architectural components. It forms the basis for outstanding multisite capability, update capability and maintainability. The component architecture combined with open standards such as Web Services supports agile further development of standards and company-specific adjustment.

Comprehensive Development Platform

Companies use CIM DATABASE as a turnkey solution, e.g. for CAD data management. For these companies, which want to map their specific methods and processes, CIM DATABASE is also one of the most efficient development environments on the market. Based on the powerful and widely used Python programming language and software library and its integrated development environment (IDE), which is based in turn on Eclipse, CIM DATABASE supports professional, integrated development and customising.

Overview of Functions and Advantages

- Investment security thanks to product continuity and openness
- Outstanding adaptability thanks to component architecture and professional development environment
- Scalability of team data management through to global PLM backbone
- Powerful central services for user management, data security, distributed locations, workflows, infrastructure, etc.
"SAP has recognised that ideal solutions for individual companies have to take account of non-monolithic architectures, and they have acted accordingly," (SAP Enterprise Portal, Galileo Press). This proves: an ideal overall solution for a specific company consists of a combination of best-in-class solutions that each provide optimum support for their range of requirements. PLM systems therefore have to be particularly open and capable of integration in a network, such as ERP systems and CAx authoring systems.

Integration Platform

The CIM DATABASE is both a PLM system and an integration platform. Its open data model, open architecture and standard interfaces for leading CAx tools and ERP systems, as well as its excellent Office integration, safeguard the integrated and company-wide system network and continuous business processes.

Connectivity thanks to Standards

As one of the leading PLM systems, CIM DATABASE supports cross-system data and process integration by means of standards such as Web Services and XML. It also meets the requirements of Service Oriented Architecture and Enterprise Application Integration.

Overview of Functions and Advantages

- Open data model and open architecture can be expanded by customers and partners
- Standards such as Python, Web-Services, Eclipse, XML, LDAP etc.
- Standard interfaces to leading ERP systems such as SAP, Infor/Baan, Axapta, Navision, Psipenta, IFS etc.
- Standard interfaces to CAx authoring systems such as CATIA, Creo, AutoCAD, Inventor, SolidWorks, NX, Solid Edge etc.
- Best-in-class while simultaneously offering integrated processes and consistent and reliable data
Customer satisfaction with our products and services is our goal and the benchmark we set ourselves. We have successfully completed numerous projects in recent years together with those customers. Our customer base is concentrated in the following sectors:

▪ Automotive & mobility
▪ Machines & plant construction
▪ Hightech & electronics
▪ Consumer products
▪ Public infrastructure

What Our Customers Say

“For us, CIM DATABASE is the central module in our PLM strategy, as this PDM solution helps us to plot out the entire process chain. We now see CIM DATABASE as a strategic solution in our corporation.”

Jürgen Kelle, Project Manager for Information Technology at Sennheiser

“Product lifecycle management (PLM) with CIM DATABASE has played a big part in shortening our throughput times by 30 to 40 per cent in recent years, particularly for complex testing and assembly systems for the automotive industry.”

Harald Kurz, Head of IT at teamtechnik Maschinen- und Anlagen

“Without the company-wide CIM DATABASE PLM platform, we would never be able to process our global projects in the time allotted, never mind calculate the effort and costs involved.”

Thomas Burlage, Head of the Component Development and Sales EBU in the Cellasto division at BASF Polyurethanes

“(CIM DATABASE lets us plan and implement engineering changes securely, as well as handle all the legal consequences.”

Michael Claus, Chief Information Officer at Hitachi Power Europe
CONTACT Software is a leading provider of open solutions for the innovation process and PLM. Faster time-to-market, more reliable data and processes, improved control, compliance, as well as lower product and development costs are among the key benefits. Our customers include numerous market leaders in the automotive, mechanical and plant engineering, medicine technology and aerospace industries, as well as operators of public infrastructures.

Portfolio

The core of the product portfolio consists of the following standard solutions:

- CIM DATABASE PLM for product data and product lifecycle management
- Project Office for 360° project and process management
- Workspaces for collaborative CAD and multi-CAD data management
- Fast Concept Modelling for faster parametric design and integrated CAx process chains

Customer orientation

CONTACT is exceptionally focussed on its customers, many of which it is linked to in long-term partnerships. This is proven by excellent references for sector and process experience, PDM/PLM technology and project execution.
Turning Ideas into Successful Products

Do you want to prepare your product development for global competition? Innovative products are the result of engineers’ creativity, project managers’ talent for organisation and management’s leadership, in short: they are made by people. CIM DATABASE combines the needs of systematic and purposeful product development with the creative potential of your colleagues.

The foundation of this solution consists of project and process support and integrated methods, such as advanced quality planning on the one hand, and far-reaching individual adaptability, collaboration support and opportunities for self-organisation, on the other.

Here, the diversity of disciplines, departments, and tools, associated with the claim of the highest consistency and continuity of processes throughout the product life cycle, premise open systems. Open connectivity is excellent with high profitability for the company.
CIM DATABASE Overview

CIM DATABASE PLM is the information hub for all data and documents throughout the processes and projects in product development. CIM DATABASE is designed to be a turn-key solution and, at the same time, makes high-quality scalable and customised solutions possible by means of the comprehensive application portfolio and extensive adaptability.

CIM DATABASE supports the core application fields of product lifecycle management by means of a comprehensive data and process model for the virtual product from portfolio planning and the conceptual phase through to synchronisation with the logistical processes.

CIM DATABASE is exceptionally suitable for project and construction teams as well as for global development networks and large company structures. The open, service-oriented architecture ensures the consistency of business processes in conjunction with other IT solutions across the company such as ERP.