Issue 2012 | 1

CADISON WORLD

EXPERIENCES & NEWS

SPECIAL EDITION

Reducing Time & Costs

with automated quotations

CADISON® R12:

Project Engineer goes Web,
3D Import Wizzard …

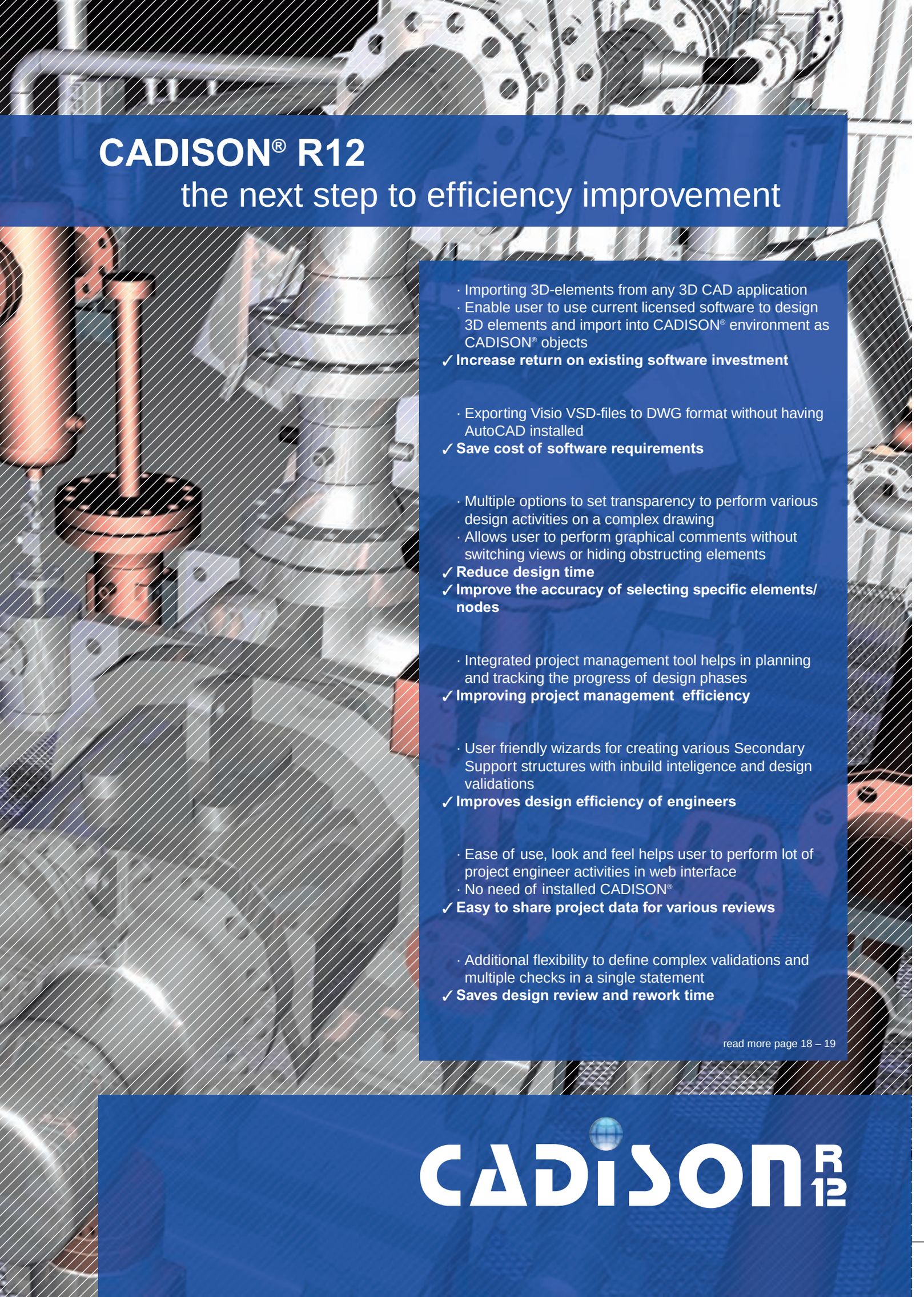
PROCESS

Review + Lookout

CADISON® International Conferences

Securing

Secures Performance for external access of 3D Designers at VPT Kompressoren GmbH



CADISON® R12

the next step to efficiency improvement

· Importing 3D-elements from any 3D CAD application
· Enable user to use current licensed software to design 3D elements and import into CADISON® environment as CADISON® objects
✓ **Increase return on existing software investment**

· Exporting Visio VSD-files to DWG format without having AutoCAD installed
✓ **Save cost of software requirements**

· Multiple options to set transparency to perform various design activities on a complex drawing
· Allows user to perform graphical comments without switching views or hiding obstructing elements
✓ **Reduce design time**
✓ **Improve the accuracy of selecting specific elements/ nodes**

· Integrated project management tool helps in planning and tracking the progress of design phases
✓ **Improving project management efficiency**

· User friendly wizards for creating various Secondary Support structures with inbuild inteligence and design validations
✓ **Improves design efficiency of engineers**

· Ease of use, look and feel helps user to perform lot of project engineer activities in web interface
· No need of installed CADISON®
✓ **Easy to share project data for various reviews**

· Additional flexibility to define complex validations and multiple checks in a single statement
✓ **Saves design review and rework time**

read more page 18 – 19

CADISON R12

This edition of CADISON WORLD appears simultaneously with the opening of ACHEMA 2012. The ACHEMA opening takes place under the aspect of the energy issue and CADISON® also puts its footprint on efficiency improvement.

Welcome

Our satisfied customers reveal with their successes that even you can reach 30 % efficiency improvement in your company through the use of CADISON®.

As one of our first customers the company VPT Kompressoren (Story) has the Citrix solution in use. Thus not only work from the home office gets possible but also the simple and cost-efficient integration of external service providers. This method opens totally new chances to overcome short-term staffing shortages without disclosing the company's data and know-how.

At Borsig Membrane the P&IDs form the basis for contracts with the customers – and of course even for the bid based on that. You'll find more information in this publication. In parallel to that, read in the Best Practice Part how CADISON® may support you in your calculation and preparation of bids, and how you can use the existing automatisms to avoid errors and to save a lot of time and money.

When you read this, CADISON R12 is near delivery and presents again highlights like the import of optional 3D elements, integrated project management, complex validations and multiple checks – but please find more information on the inside pages.

CADISON Best Practice 2012 – new as webinar – provoked a very positive echo for this kind of knowledge transfer. The benefit was high and the effort for participation was small. At least CADISON International Conference 2012 in September will be the right place for personal contacts again – mark your calendar! Please read a retrospect of the last CIC 2011 to find out what you might have missed, and read further interesting articles contained in this issue.

Enjoy reading CADISON WORLD!

Sebastian Dörr – Vice President Sales Europe

EDITORIAL

NEWS

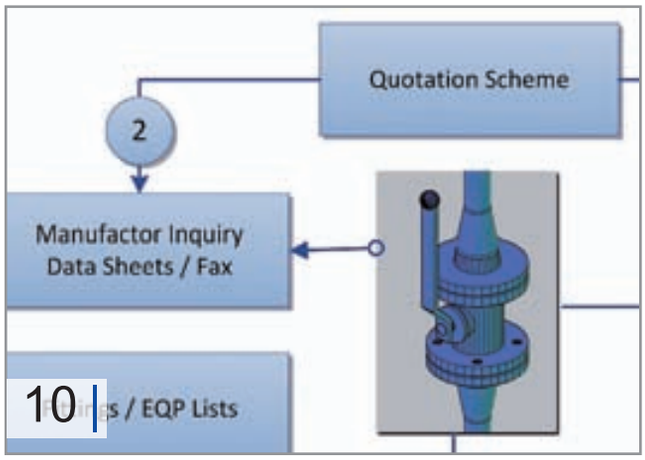
SUCCESS

PRODUCT

BEST PRACTICE

EVENT

SERVICE



Bid Calculation and Bid Preparation
Part 1 of 3

CADISON® Integrated Digital Plant Model
modules and add-on modules

CIC 2011:
From Engineering Efficiency to Plant Efficiency

CADISON® – at a Glance

Key Features

// Cross-trade object navigation with visual highlight function // Modern, ergonomic and intuitively learnable user guidance // Early provision of continuously updated information

Business Benefits

// Multi-Site work of split project groups // Full multi-language capacity through Unicode (e.g. simple changeover between English and Russian and vice versa) together with multi-language inscriptions // Accelerated communication free from losses through central data management // Quick productivity of planning-engineer through easy learning // Continuous availability of joint updated reports and lists // No time or information loss caused by repeated data transmission // High level of planning reliability through rule-based work // Integrated configurable Management of Change // User and role-based access mechanisms

CADISON® Project-Engineer

Key Features

// Central graphics-independent project platform – the swiss knife of the Project Manager
// Plausibility check of objects and their content
// Easy definition of reports and lists (Word, Excel, Access etc.)
// Structured user and project management – with integrated roll concept
// Revision of objects and documents
// Identification structure that can be freely defined (DIN, KKS and optional company standards)
// Cost calculation in the project for all phases and resources (staff, material etc.)
// Automatic creation of complete project structure as PDF

Business Benefits

// One click – All Information
// More projects with less resources within shortest time
// Transparency in all engineering projects
// Selective and controlled implementation of company standards
// Complete project survey for the Project Manager
// Implementation of complete projects in one platform by all parties involved
// Central and redundancy-free data management of all project elements
// Revision safety

CADISON® MATPIPE the catalog at your fingertips

Key Features

// Knowledge-based modular creation of components
// Preparation of basic, standard and project pipe classes
// Simple import of manufacturer catalogue data
// Parametric variant modelling for preparation of 3D variants
// Automated creation of components through neutral import
// Integration of manufacturer documents (certificates, test reports, ATEX certificates etc.)
// Rule-based component configuration (e.g. basic valve body with different actuators)
// Automatic rule-based adjustment between MATPIPE and the project through the Catalogue Control System
// Simple and comfortable extension of catalogues and data structures

Business Benefits

// Graphics-independent component definition and parameterization
// Significantly lower number of erroneous data inputs through rule-based component configuration
// Integration in the ERP workflow - reliability through prime data verification
// Standardization is possible through direct access to specification data
// Adoption of existing manufacturer catalogues
// Collision spaces for installation and maintenance purposes
// Reduction in modification effort through re-use of stored sub-assemblies

Borsig Membrane Technology

persuades customers faster

Borsig Membrane Technology is not only an internationally successful company offering its customers innovative membrane technology solutions but also it is a leading edge EPC with high-quality planning methods based on the CADISON® software writes BERNHARD D. VALNION (Editor in Chief, Economic Engineering)

The scenario is always much the same: An owner-operator needs to handle or wants to reuse a purge gas produced in his plant – say a chemical plant or a refinery – for the purpose of emission control, product recovery or conditioning. This inert gas contains organic constituents like propylene or ethylene monomers. For such cases, the owner-operator may well call in the expertise of Borsig Membrane Technology (BMT). The company, a member of the Berlin-headquartered Borsig Group with its 600-strong workforce, has been developing intelligent membrane-based separation processes for over 20 years. BMT's outstanding technology is used in a range of applications in the chemical, petrochemical, and oil/gas industries for the treatment of hydrocarbon-containing liquid or gaseous mixtures. Particularly noteworthy are the successful implementation of the gas permeation process for selective separation of organic vapours from exhaust gas, and especially the treatment of vapours released during the distribution of highly volatile hydrocarbons.

The parent company Borsig embraces the following five business units:
· Process Heat Exchanger
· ZM Compression
· Membrane Technology (BMT)
· Boiler Systems
· Service.

As a result of several acquisitions, BMT became part of the Borsig Group, one of the oldest manufacturers in Germany, back in the year 2000. In the 19th century Borsig was the largest locomotive manufacturer in Europe. In 2012, the company celebrates its 175th anniversary. Borsig's order intake ranges between 250 and 300 mill. euros. One core product with which the company can claim world market leadership is the quench cooler used for back cooling ethylene.

Seeking the optimum

As Jürgen Stegger, Managing Director at BMT GmbH, explained in discussion with our editors, the company does have a basic membrane-based process that could be de-scribed as "standard". But extensive custo-mization is required depending on every single project. In the course of a year, twenty to fourty projects with run-between three and fifteen months are realized. A typical plant with a total investment up to 10 mill. euros has a footprint of about 10 x 12 m2.

BMT offers a comprehensive solution pack-age starting at the FEED phase, including construction, maintenance and overhaul. Already in consultation with the customer, the sales team presents a realistic tailor-made solution. At the two sites, Rheinfelden in Southwest Germany and Gladbeck in the Northern Germany, all disciplines are available: project management, process, mechanical, electrical, and instrumentation engineering.

In the FEED phase Aspen Hysys is used for process simulation. But as Mr Stegger assured, they don't just use this simulator straight out of the box: "A lot of customization work was done to map our know-how, e.g. concerning membrane technology, into the simulation tool. Hysys can be used to model all unit operations like compression, adsorption, and distillation. Various case studies are tested to determine the optimal process for the customer." Mr Stegger mentions the customers' specified target values that have to be reached during this process. Based on these results, the dimensions and corresponding parameters of all devices like compressors, vessels, or distillation columns are defined in the process engineering flow scheme (PEFS).

Planning with CADISON®

"A lot of information like the media to be transported or pipe classes to be

used has to be added to the PEFS to generate the P&IDs. All these data have to be managed consis-tently," Mr Stegger stresses. Since the P&IDs are the basis of the agreement with the customer, data consistency is extremely important. The CADISON® 3D planning tool from ITand-Factory GmbH headquartered in Bad Soden near Frankfurt/Germany concentrates the engineering workflow at BMT into one system and thus significantly accelerates the planning processes. The common object-oriented data model for the different fields of application (e.g. tender planning, process engineering, installation planning, pipeline planning, electrical engineering, and instrumentation) enables the integration of all planning phases. CADISON® uses AutoCAD as a 2D/3D geometry engine. The data exchange between Hysys and CADISON® is realized with "MS Excel" as the interface. "When the P&ID is generated, the database is filled and all the people involved in the project are able to query it with filters for special information. Over the whole project run-time, all project data coincide with that depicted in the P&IDs," says the General Manager, emphasizing CADISON®'s data integrity.

Of course, the initial effort required for entering default data into the (project) data-base has to be considered. Moreover, 3D data of reused components have to be generated and copied into the database. "But once this work has been done, a potential source of errors is eliminated because one-to-one data mapping is processed during the whole project lifecycle." explains Mr Stegger, underlining the huge benefit.

The productivity enhancements resulting from the new planning infrastructure are not so important for BMT, Mr Stegger says, but: "If there are two more or less identical projects to execute then the time reduction is obvious because it is only a matter of copying the database and matching it to the actual situation". However, this is not often the case. As mentioned earlier, the increased quality of the planning process is far more important: "For example, the possibility of exporting well-defined revision states from the CADISON® database – so to speak a data freeze at special milestones – makes document exchange with all the contractors involved absolutely traceable."

Experts often propound the view that a vital data exchange between ERP and the plant design system helps to ensure cost transpar-ency in project execution. However, at BMT there is no explicit data exchange between the installed SAP system and CADISON®, meaning CADISON® objects are not referenced to SAP data sets. But there are no reasons to miss this, the senior engineer says. An example helps to explain this: In each project let's say ten or twenty pressure vessels are placed and listed as corresponding objects in the CADISON® database. But when it comes to procurement, because of discount rates across all ongoing projects, these vessels are ordered. The same is true for valves or other purchased components: "We may even buy a larger volume of those parts to keep them on stock for future projects," Mr Stegger explains.

With the introduction of CADISON®, 3D CAD was rolled out at the Gladbeck and Rheinfelden sites. Mr Stegger recalls: "It took some time to train our designers until they were really confident in using 3D CAD because previously we had only planned in 2D. After taking this hurdle, the acceleration in our planning process was obvious: faster navigation through the design, drawings and sectional views being generated at once by mouse click." Also the possibility of clash detection is a big plus for Mr Stegger.

For marketing and sales reasons, the 3D models are prepared with Autodesk Navisworks. "For customer presentations I have always 3D renderings of former CADISON® projects with me. Although there is nothing special about a 3D model, the surprise in customer's eyes when he sees his plant in a rendered 3D model for the first time is always worth seeing." With these visualization techniques, the project time is reduced because Mr Stegger's sales team is able to persuade the customer faster. Quite simply, because BMT's competence is better articulated.

Summary and outlook

A lot of effort was put into getting an overview of the market for plant design tools. "We did this with our modest company size in mind," Mr Stegger explained. In response to our question why ITandFactory had come out the winner of the selection process, the Managing Director explained: "From the very beginning, from the initial consultation up to the sales phase and afterwards, we have been very satisfied with our contacts at ITandFactory. And the hotline service is excellent as well." The quick response time of the CADISON® database supports our decision in favour of ITandFactory.

BMT is taking an additional document management system into consideration. At the moment, it is not possible to link all documents e.g. e-mails or word files to the corresponding project database. "Importing all this information into the CADISON® database would mean losing too much performance," Mr Stegger said and that would be a pity.

Efficiency Improvement

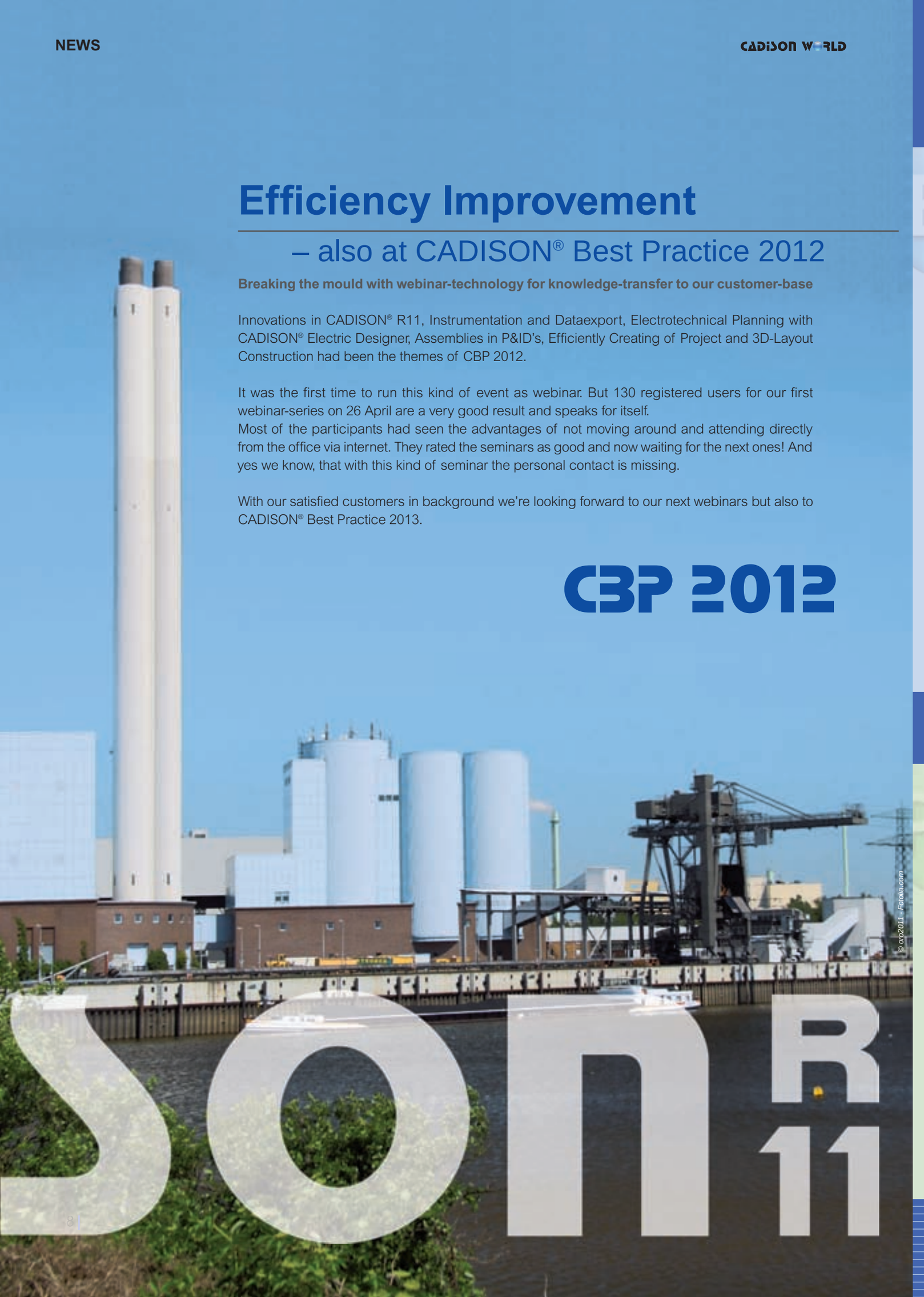
– also at CADISON® Best Practice 2012

Breaking the mould with webinar-technology for knowledge-transfer to our customer-base

Innovations in CADISON® R11, Instrumentation and Dataexport, Electrotechnical Planning with CADISON® Electric Designer, Assemblies in P&ID's, Efficiently Creating of Project and 3D-Layout Construction had been the themes of CBP 2012.

It was the first time to run this kind of event as webinar. But 130 registered users for our first webinar-series on 26 April are a very good result and speaks for itself.
Most of the participants had seen the advantages of not moving around and attending directly from the office via internet. They rated the seminars as good and now waiting for the next ones! And yes we know, that with this kind of seminar the personal contact is missing.

With our satisfied customers in background we're looking forward to our next webinars but also to CADISON® Best Practice 2013.



CADISON® Electric-Designer

Key Features

// Versatile graphic presentation of equipment for circuit diagrams, control cabinet layout and 3D installation planning
// PLC configuration for management and presentation of input and output signals
// Signal lists – intelligent transmission to PLC programming
// Presentation of process flow as function plan with signals
// Comprehensive symbol and circuitry catalogue for rapid preparation of circuit diagrams and power distribution schemes
// Symbol and sub-assembly editor for extension of the own catalogue
// Placement supports and auto-connect functionalities for installation of components and creation of connections
// Numbering and identification system according to DIN and KKS
// Independent administration and processing of plant and location marks
// Administration and processing of potential and contact cross-references
// Automatisms for marking of equipment
// Graphical adjustment of equipment contained in the project and all parameters in the project

Business Benefits

// Integrated and cross-trade planning even in 3D with one system
// No redundant data management between the trades
// Parallel work between process and electrical engineering from the very beginning
// Optional views of the objects according to the trade
// Uniform graphics platform for process and electrical engineering
// No time or information loss caused by repeated data transmission
// Rapid work through highly automated typicals

CADISON® P&ID-Designer

Key Features

// Rapid and intuitive preparation of basic, process and P&I flow charts
// Comprehensive symbol catalogues (DIN EN ISO 10628, ASME etc.) that can be freely prepared
// Rapid and easy change between different standard and freely definable identification systems (DIN, KKS etc.)
// Acceptance of existing objects per Drag & Drop (e.g. Project-Engineer and 3D-Designer)
// Easy detailing of objects – from rough to fine specification – through automated graphics exchange
// Cross-references across several drawings
// Dynamic generation of control circuits
// Status-dependent examination and approval of modifications
// Flow direction control and consistency check across several drawings

Business Benefits

// Comprehensible visual change management
// High level of planning reliability through rule-based work
// Rapid changeover of views of plant, location and calculation world
// Safeguarding the unambiguity of numbering system
// Automatic structure and hierarchy formation in conformity with the standard
// Use of standards and prime data from the catalogue and/or the ERP system
// Simple and rapid information reduction for approval planning
// Simultaneous across-trade work between process engineering and instrumentation

Bid Calculation and Bid Preparation

This Best Practice Article is intended to show you how to use CADISON® for bid calculation with subsequent bid preparation.

Workshop Part 1

Basic principles

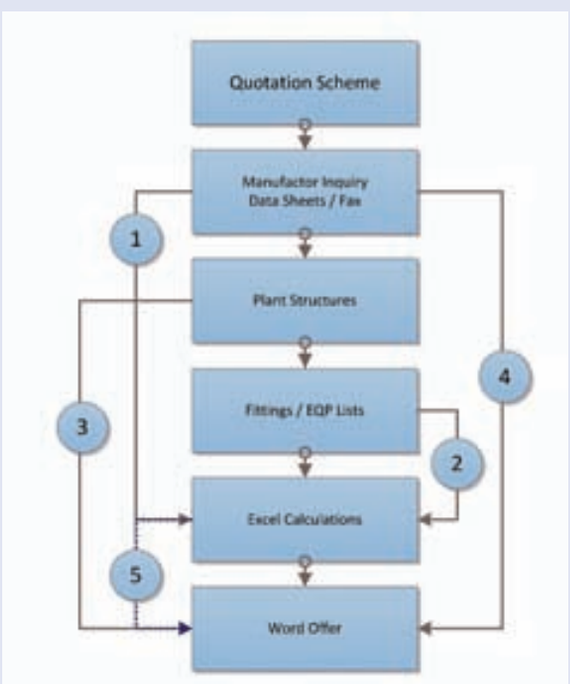
Today a lot of bids have to be submitted before you can acquire a contract. To this end, normally a bid scheme will be prepared as the basis for preparation and supplementation of the respective calculation. Calculation is frequently made with Excel and the required data are taken from the bid scheme (graphic part) and from previous experiences so that they are brought together in a spreadsheet. Items included in the spreadsheets are contained in the bid scheme only partially. The non-graphic information must be collected with huge effort and, depending on the project, the spreadsheet must be adapted. The calculation requirements based on Excel are generally of individual nature and do not always reflect the company standard correctly. Multiple data inputs cannot be avoided in this way and errors will certainly arise.

Another problem is that in the graphic range (AutoCAD, Visio, etc.) not all information like valve, measuring point and pipeline numbers etc. should be shown in the bid scheme.

Today's method of bid preparation
Normally today's method of bid preparation looks as follows:

The bid scheme is prepared with a graphics editor (AutoCAD, Visio, etc.)

1. Inquiries regarding the most different objects are transmitted to different manufacturers.
2. The required lists are prepared (manually, Attribute Extraction etc.) and adopted in the Excel calculation.
3. The plant structures defined before are adopted in the bid or modified.
4. Data taken from inquiries are incorporated in the bid.
5. The determined prices are transmitted to the bid.



This bidding procedure can be performed to a large extent only manually. In case the plants are similar, "Copy & Paste" can be used where applicable. The following manual adjustment and check-up is inevitable, time-consuming and error-prone.

Advantages
- No extra tools for calculation and bid preparation are required
- Similar data can be used with "Copy & Paste"

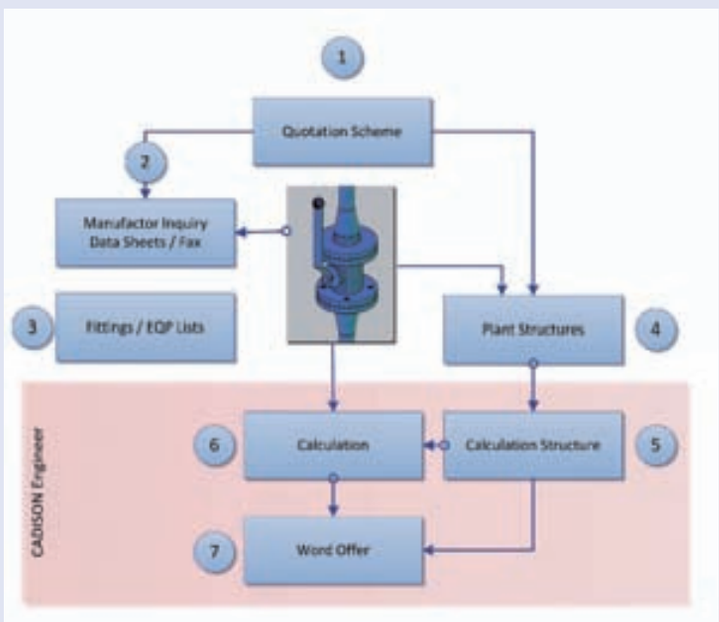
Disadvantages
- Multiple data inputs
- Error burst in case of manual data processing
- Time-consuming procedure through a high number of manual steps
- Use of standards is almost impossible

The Workshop consists of three parts:

Part 1: Basic principles
Part 2: Calculation with spreadsheet (following issue)
Part 3: Bid preparation – inquiry, bid report (following issue)

Bid preparation with CADISON®
To optimize calculation, superfluous manual steps must be reduced or even completely eliminated. The shown chart indicates the principle of the procedure. A difference is made between the graphic (PID-, 3D-, Electric-Designer) and non-graphic ranges (Project Engineer).

1. The bid scheme is prepared with symbols or assemblies from the central library.
2. The objects to be inquired are recorded in the list (report).
   Objects recorded with prices already are directly specified from catalogues.
3. The respective lists can be generated directly from the project or the drawing.
4. Valves and fittings are shown automatically or can be made visible in the plant structure with a few clicks.
5. Individual objects or complete plant structures can be copied from a previously defined calculation structure.
6. List prices are taken either from existing catalogues or completed by hand. Evaluation factors can be pre-set through the ”project structure“ (outline in chapters) or performance items so that the respective price can be calculated.
7. In the last step the calculation structure is evaluated through a report module und edited in a bid (Word).



A calculation matrix is required for illustration of a calculation. This matrix defines which factors are used for calculation. The matrix might slightly differ from bid to bid.

The following modes of calculation are possible in CADISON®:
· Price calculation
  Price fixing through list prices, factors, discount rates etc.
· On-line calculation
  Quotation price, actual price, Delta (even in %)
· Calculation on the basis of working hours
  Splitting into engineering, mechanical and electrical environment

Calculation Matrix

The calculation matrix defines how the calculation will be performed. CADISON® includes a general calculation matrix in the standard already. The matrix can be customer-specifically adapted by means of the object model.
The structure developed in Project Engineer will be found in the calculation and in the bid report in the same way again.

Of course, a pre-fabricated template (for project preparation) is used in this case (see the previous issue of CADISON WORLD), in which the project-specific data are adapted. The latter can be found even in the reports – e.g. as cover sheet, headline, footer etc.

In Project Engineer you can use different structure views for ”setting different cost views“. These views are pre-defined and are even ”clicked together“ depending on the mode of view. Of course, each object with all its features is a unique object in the system.

… continued on page 20

CADISON®

Integrated Digital Plant Model

CADISON® combines the engineering workflow in one system and thus significantly accelerates the planning processes. All users can see on their workplaces – either graphically or as schematic, as 3D model or text-based in a tree structure – the same data and objects in each case so that they can be optionally used and modified on all workplaces through simple Drag & Drop.
Data and/or objects are existing once only. Thus errors as a result of redundant data management are excluded. The sophisticated right system ensures that tasks are handled selectively. Modifications introduced by other users are immediately made available to all other users. The continuity of the individual work steps in one object-oriented database forms the core of the CADISON® technology. CADISON® uses the widespread platforms Autodesk AutoCAD or Microsoft Visio for graphical presentations.

modules

CADISON® Project-Engineer: The basic tool of process engineer and project manager. You may design and calculate your plant graphics-independent so that deeper detailing is possible again in the following stage. This is what we call “Conceptual Engineering”.

CADISON® Project-Navigator: The Project-Navigator is a pure “Viewing Tool” for your access to all engineering data of your projects. It has the same surface like the Project-Engineer and is an indispensable tool for operation and maintenance of your plant.

CADISON® P&ID-Designer: The CADISON® P&ID-Designer plays a decisive role in design, construction, commissioning and maintenance and has an enormous effect on the complete lifecycle of a plant. In this case the preliminary project engineering will be integrated with Basic and Detail Engineering and 2D layout planning.

PID-Designer for Visio®: The PID-Designer for Visio® plays a decisive role in design, construction, commissioning and maintenance and has an enormous effect on the complete lifecycle of a plant. Low costs of Microsoft Visio and the known easy handling of the system are decisive advantages for preparation of P&ID’s.

CADISON® 3D-Designer: Installation and pipeline planning in the 3D model are in the competence of the 3D-Designer. Normally this module is used for access to data from Basic Engineering or P&ID. Efficient assistants are available for installation planning: For instance, isometrics can be automatically generated from the planned pipeline systems.

CADISON® Electric-Designer: Preparation of planning documents for instrumentation, power plants and control but also installation and process measuring and control technology are in the competence of the electric design engineer. The common data base permits at any time the access to information about all trades involved in the project such that planning of electrical engineering can be combined with planning of process engineering.

CADISON® MATPIPE: Independent module for development and management of pipe classes, creation of parameterized 3D components, preparation and integration of manufacturer catalogues, import and export of data plus examination of existing catalogue data to ensure up-to-dateness.

CADISON® Engineer2Web: Use your webbrowser online for direct access to all CADISON® project data. Provided you are authorized to do so, you may not only view project data with Engineer2Web but also modify existing data and structures or create new ones. This is the ideal access feature for maintenance and site personnel and for “pure data consumers” not involved in the planning process.

CADISON® Archiver: The CADISON® Archiver allows you to swap and archive complete projects from the CADISON® productive environment. Archived projects can be rapidly and easily viewed with the CADISON® Archive-Browser without the need to retrieve them from the productive environment. Information about documents in projects completed before plus knowledge from experiences remain directly accessible.

CADISON® ERP-Interface: The bidirectional CADISON® ERP-Interface combines ERP and engineering workflow for creation of a highly integrated system. For instance, orders can be directly released from the engineering workflow and even controlled. During plant operation the technical specifications can be adjusted and the maintenance processes can be initiated. Company-specific standards may be presented individually.

CADISON® Stresstest-Interfaces: The two stresstest-interfaces ROHR2 and CAESAR2 (new with CADISON® R12) makes it possible to transmit all pipeline systems created with CADISON® 3D-Designer to the calculation programs. All required information will be completely transmitted to ROHR2 or CAESAR2 in the form of import-files for analysis. Weak points are recognized and can be iteratively eliminated.

CADISON® Maintenance: CADISON® Maintenance is the solution for lifecycle management in plant construction and maintenance. This module makes it possible to fix essential data like maintenance intervals already in the planning phase, so that data are accessible later for use by your technical and service staff. You may automatically create lists for the maintenance staff (even with an offline version) while modifications are brought back to the life system again.

CADISON® Steel: Use CADISON® Steel to rapidly and easily create your steel construction in the 3D model “around the 3D plant”. Comprehensive component libraries are available, such as steel sections, staircases and railings etc. Apart from automated derivation in 2D workshop drawings, planning can be transmitted via a standardized interface directly to stress analyst and production division.

CADISON® Project-Manager: Tracking Project-Times for the Project Engineer working with CADISON® but also exchanging project-data between Microsoft Project and CADISON® gives the Project Manager the possibility, to track ressources and the progress in the complete project – including orders with a 3rd-party system.

CADISON® Secondary Support Modeler: with user friendly wizards for creating various Secondary Support Structures with inbuild inteligence and design validations.

CADISON® Navisworks: Through integration of almost all known graphics formats Navisworks turns out to be the ideal tool for Design Review Meetings and Highend Visualizations. Navisworks presents complete project real-time views for efficient 3D coordination, 4D planning, photo-realistic visualization and dynamic simulation. Navisworks is the standard tool for detection of collisions with other trades. Apart from graphics, CADISON® object information is made available.

CADISON® Application Programming Interface (API): The CADISON® API allows you to optionally integrate your CADISON® engineering workflow in your business workflow. CADISON® API offers you a high rate of flexibility – not only for external access to data, contents, structures and points of view of CADISON® but you can use it even for dynamic data exchange. New objects can be generated and existing objects can be modified or even deleted. Thus you have a new quality of openness and accessibility of database content. CADISON® API can be used by all customers as free-of-charge supplementary module.

add-on modules

CIC 2012
– mark your calendar –

CADISON® International Conference: 27 – 28 September 2012 in Frankfurt

Please review your CADISON® wall calendar and mark your electronic calendar too.

At CIC 2011 (see also a review on page 21) we've bet with you, that even your company was able to reach "30% efficiency improvent" and we've shown how to do that.

Beside news around CADISON® R13, customer speeches and CADISON® Best Practices, we will show for example how to improve and automate your offers and quotations by up to 80%. A come together for dinner and time for exchange of experiences with other customers and ITandFactory will round-up next conference.

See you at CIC 2012!

CADISON® 3D-Designer

Key Features

// Simple and rapid installation and pipeline planning
// Adjustment of drawings with CADISON® P&ID-Designer or CADISON® Project-Engineer
// Efficient Make2D functionality for drawing derivation and simple preparation of sectional views
// Fully integrated work with civil engineering and steel construction
// Easy preparation of pipelines to be laid with gradient
// Easy manipulation of components in pipelines
// Parametric pipeline supports
// Use of parameterized components (MATPIPE, Inventor etc.)
// Use of design assistants for easy modelling (tank, pipe nozzle and staircase assistant etc.)
// High-performance planning in the shaded mode
// Automatic preparation of isometrics (fabrication, assembly and documentation isometrics etc.)
// Comprehensive and complete data transmission for pipe stress calculation (ROHR2, CAESAR2 etc.)
// Freely configurable data transfer to visualization solutions
// Object-Inspector for rapid access and modification of object data

Business Benefits

// Significant reduction of planning, calculation and assembly errors through 3D planning
// Integrated and configurable Management of Change
// Early data transfer to pipeline manufacturer
// High-duty data transmission for stress calculation and consequently, premature analysis
// State of the art isometric derivation (ISOGEN integrated)
// Implementation of projects of any size through simple and comprehensible structuring mechanisms

CADISON® Project-Navigator

Key Features

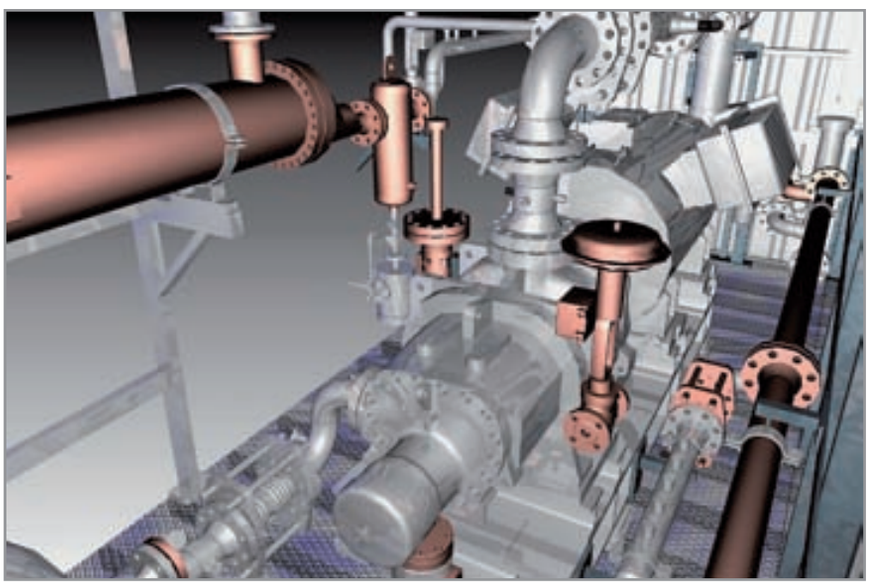
// Central graphics-independent project platform – Key turning point of the project
// Navigation and viewer tool of the CADISON® project data
// For project control and subsequent further processing of project data during plant operation
// Search, select, list and report functions
// Call-up and issue of documents and drawings (plotting) without CAD
// Information for maintenance & repair of the plant
// Roll and target-specific views of the project
// Generation of most different reports (proposals, calculations, parts lists, apparatus lists, cable lists, lists of measuring points, lists of valves & fittings, pipeline material lists etc.)
// Strengthening of business relations with your customers through provision of project data

Business Benefits

// One click – all information
// Transparency in all engineering projects
// Complete project survey for the Project Manager
// Quick finding through selective search for project information
// Ease of operation
// Generation of reports for operation and maintenance of a plant
// Complete survey of plant structuring

Secures Performance

for external access of 3D Designers at VPT Kompressoren GmbH



Compressor plant design with CADISON® in 3D

CADISON® as the object-oriented and integrated engineering solution for plant construction combines the complete engineering workflow so that time and money are saved and productivity of planning engineer is improved. But what happens in case the planning engineer works outside the company? The company VPT Kompressoren GmbH uses the virtualization technology Citrix to secure the performance of CADISON® in case of external access to 3D models.

Since more than 30 years the company VPT has been the supplier of industrial customers requesting air and gas compressors, for instance as booster compressors for gas turbines in power stations, as flare-gas compressors on offshore platforms and for use in chemical and petrochemical industry. In the meantime the company extended its activities even to the sector of regenerative power generation (biogas). VPT is a specialized supplier of plants on a turn-key basis together with all required ancillary equipment, such as filters, dryers, coolers, pipelines, draining systems, valves and fittings etc. The company offers user-specific overall concepts covering not only project planning, design, production, erection and commissioning but also staff training and maintenance.

The manpower includes 39 employees and almost the same number of freelancers so that the company may ease the situation in case many orders are to be handled at the same time.

VPT has been using CADISON® as planning tool for many years already since this object-oriented and integrated engineering solution for plant construction unites the complete engineering workflow from tender planning and process technology, erection planning, pipeline planning and electrical engineering up to instrumentation etc. Another important feature: The tool supports project management in networked teams. Until now the ‚multi-user ability' has been understood merely as the possibility for joint use of project data but CADISON® offers a new dimension for this. Now it is possible for the first time to have an optional number of staff members working at the same time on the same project (e.g. process engineers and I&C technicians). This becomes possible by means of the intelligent Check-IN / Check-OUT technology.

But what about the performance of CADISON® 3D planning in case of external access per VPN tools (Virtual Private Network) and Remote Desktop? When working a longer time on a complex 3D model with a low-efficiency laptop, performance might dramatically decline. VPT found a solution through use of the virtualization technology of Citrix. The Citrix technology does not require any obligatory local graphics workplaces for work with computationally intensive graphics. The planning engineer can location-independently get access to efficient workstations even with a laptop.

From the viewpoint of the plant design engineer or operator the central provision of virtual desktops offers the specific advantage of faster knowhow transfer: Citrix makes it possible for national and international participants working on the same project to cooperate much closer and more efficiently.

Citrix: Performance for the external 3D planning engineer

In case of desktop virtualization the user interface gets de-coupled from the terminal unit. Thus the laborious and expensive provision of individual user clients is no longer necessary. Instead of that they can be centrally provided from the computer centre as virtual

desktops for individual users in the company. The result: The rigorous separation of operating system, applications and user profiles considerably facilitates lifecycle management of virtual desktops along with remarkable reductions in storage requirement.

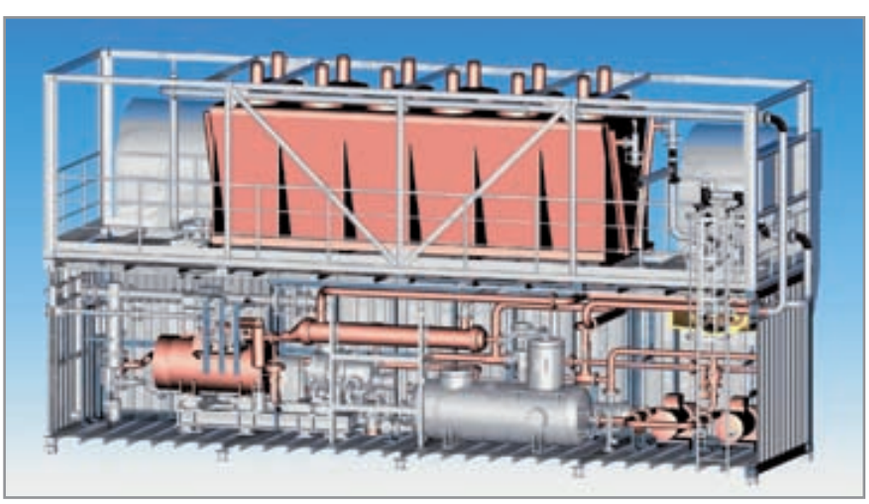
The initial point for the first Citrix installation with VPT Kompressoren GmbH was the desire of the Design Engineer Mr. Bastian Lenz to work from his home office. Mr. Matthias Retterath as the competent project manager defines the problem as follows: "Our workmate Lenz performs planning work with AutoCAD and CADISON® primarily in the 3D range – and in this case the usual standard solution via VPN tools and Remote Desktop is not fast enough so that "judder-free" and smooth workflow is not possible in the high-end graphics range." One essential aspect is that CADISON® has been based on a central database so that all staff members working on a joint project have access to this central database.

In general, VPT with two locations in Germany, a number of internal sales and erection employees and external freelancers is faced by the problem that data inventory must be kept consistent for all project participants. In principle, this works properly with the conventional procedure (remote desktop) but in case of multi-hour work in the 3D range the performance limit is reached rather quickly. Mr Lenz stated: "People needing access to the 3D model and the central database only a few minutes per day via the remote desktop from their laptop to get informed about the current status of planning work might find the comparatively slow access as acceptable. However, this is no longer efficient in case I have to work many hours per day with this low performance rate. By use of Citrix I can do my planning work now from my home office with the same speed as if I would be on my workplace at VPT in Remscheid. Using Citrix, I can work from my home office the same as local!"

In addition to that, Mr. Lenz praises practical details like this: "Depending on the respective application, you may for instance adapt the image quality to the graphics. In my day-to-day business I am working with loss-free image quality. In case of design review with complex graphic presentation I can adapt the image quality so that I can fluidly continue work."

Step-by-step VPT is now going to equip its marketing and after-sales divisions with Citrix. Moreover, the company anticipates the chance to supply itself with free engineering capacity both on the national and the international level. Mr. Retterath: "Under the aspect of increasing shortage of qualified staff, excellent perspectives can be anticipated. We established initial contacts to some external engineering offices already."

The conclusion: Citrix helped VPT to acquire a company-owned and safe Cloud Technology, After release, staff members and external planning engineers may get access to the centrally managed CADISON® database from any workplace with a laptop so that complex 3D models can be handled. Even under the aspect of missing human resources which we deplore today already, VPT now has available an important strategic tool for the safe standing of the company: "Citrix virtually opens for us the perspective to integrate external planning staff from home and abroad efficiently into our planning team – so to speak in real time and not with a more or less large time loss caused in former times through shipping and updating of drawings", stated Mr. Matthias Retterath. Using Citrix and CADISON® means that real collaborative work around the world is definitely no longer a problem.



Advantages of VPT's container concept are plausible. The machine can be pre-assembled and tested in the workshop under defined and clean conditions – this raises quality and reliability of equipment to a higher level.

Brief information regarding Citrix

Citrix was founded in 1989 and combines virtualisation, network and Cloud-computing technologies in one complete product portfolio and permits virtualised working environments for users and virtualised computer centres for IT divisions. More than 230,000 companies worldwide are using Citrix technologies so that they can deploy their IT environment rapidly, easy and cost-efficiently. The company with a turnover of 1.6 billion US-Dollars (2009) has 10,000 trading and alliance partners in more than 100 countries.

"Our design engineers perform their planning work primarily in the 3D range – and in this case the conventional standard solution via VPN tools and remote desktop is not fast enough for "judder-free" and smooth workflow" (VPT Project Manager Matthias Retterath).

Matthias Retterath

Bastian Lenz

Generic CAD Import

Importing 3D-elements from any 3D CAD application which support SAT-format, or directly from AutoCAD DWG. User can also define the required connection points interactively as it was available in Inventor Interface.

· enable user to use current licensed software to design 3D elements and import into CADISON® environment as CADISON® objects

✓ **Increase return on existing software investment**

VISIO® DWG Exporter

An embedded DWG converter in PID-Designer for Visio® provised additional functionality to export Visio® P&ID drawings as AutoCAD DWG drawing.

· exporting Visio® VSD-files to DWG format without having AutoCAD installed

· no need for having AutoCAD installed

✓ **save cost of software requirement**

Set Transparency in 3D-Designer

Set Transparency is one of awaited feature in CADISON® environment, which enables user to handle complex drawings in a better way. The transparency of element / bunch of elements / elements on selected layer to desired level between 0 to 100%, that the elements are available in drawing but will not hinder the varoius graphic operations.

· allows user to perform graphical commends without switching views or hiding obstructing element

reduce design time

✓ **improve the accuracy of selecting**

✓ **specific element/node**

Project Manager

Syncronization of Project Plan between Microsoft Project® and CADISON® is improved. All task, resources will be syncronized based on the MS Project UID,which enable to rename and rephrase task discription without changing task id.

· Integrated project management tool helps in planning and tracking the progress of design phases

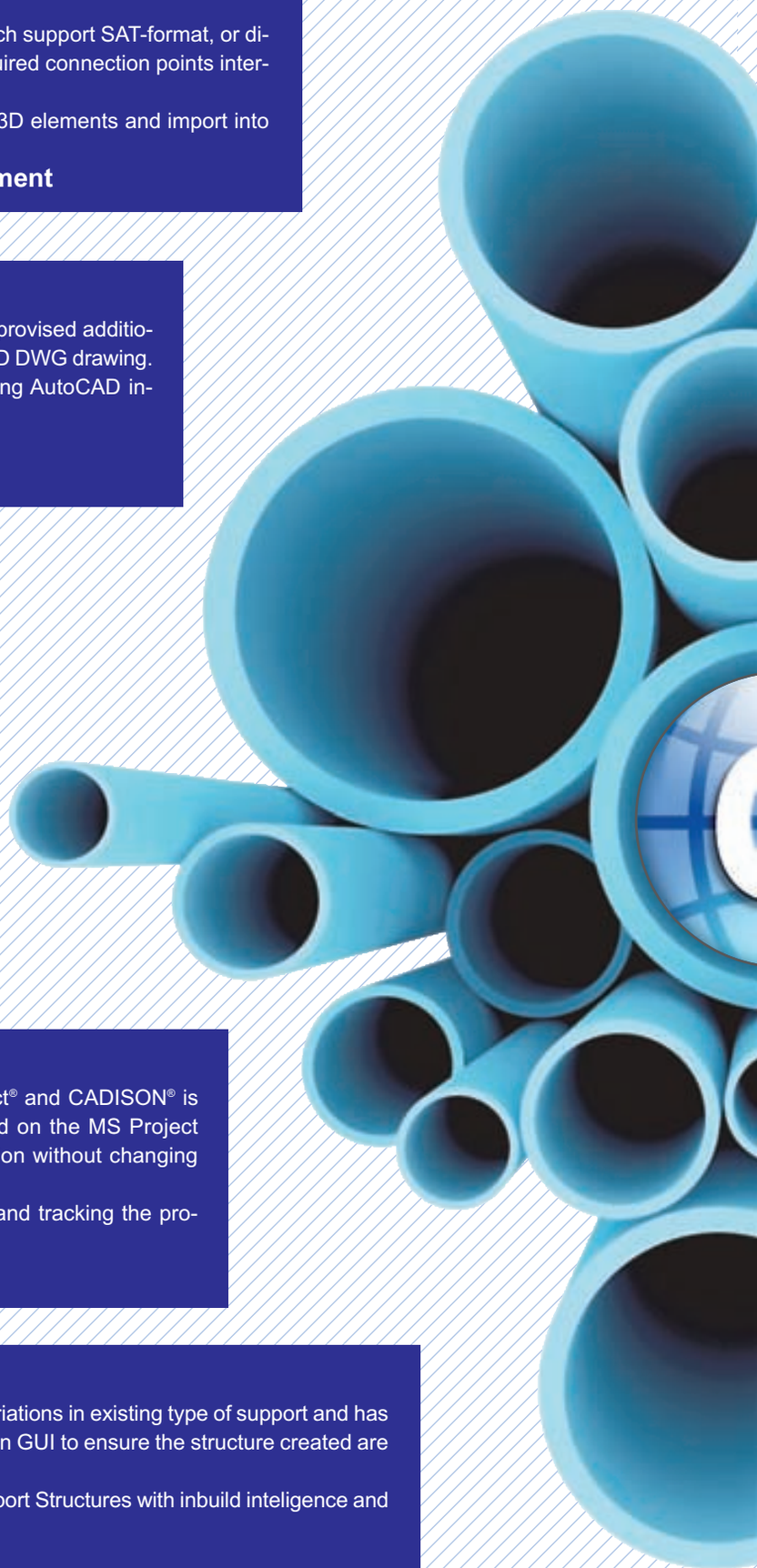
✓ **improving project management efficiency**

Pipe Support – Secondary Support

The module is enhanced in R12 with features to create variations in existing type of support and has also added a lot of industry validations at data entry level in GUI to ensure the structure created are constructable and elrectable in construction phase.

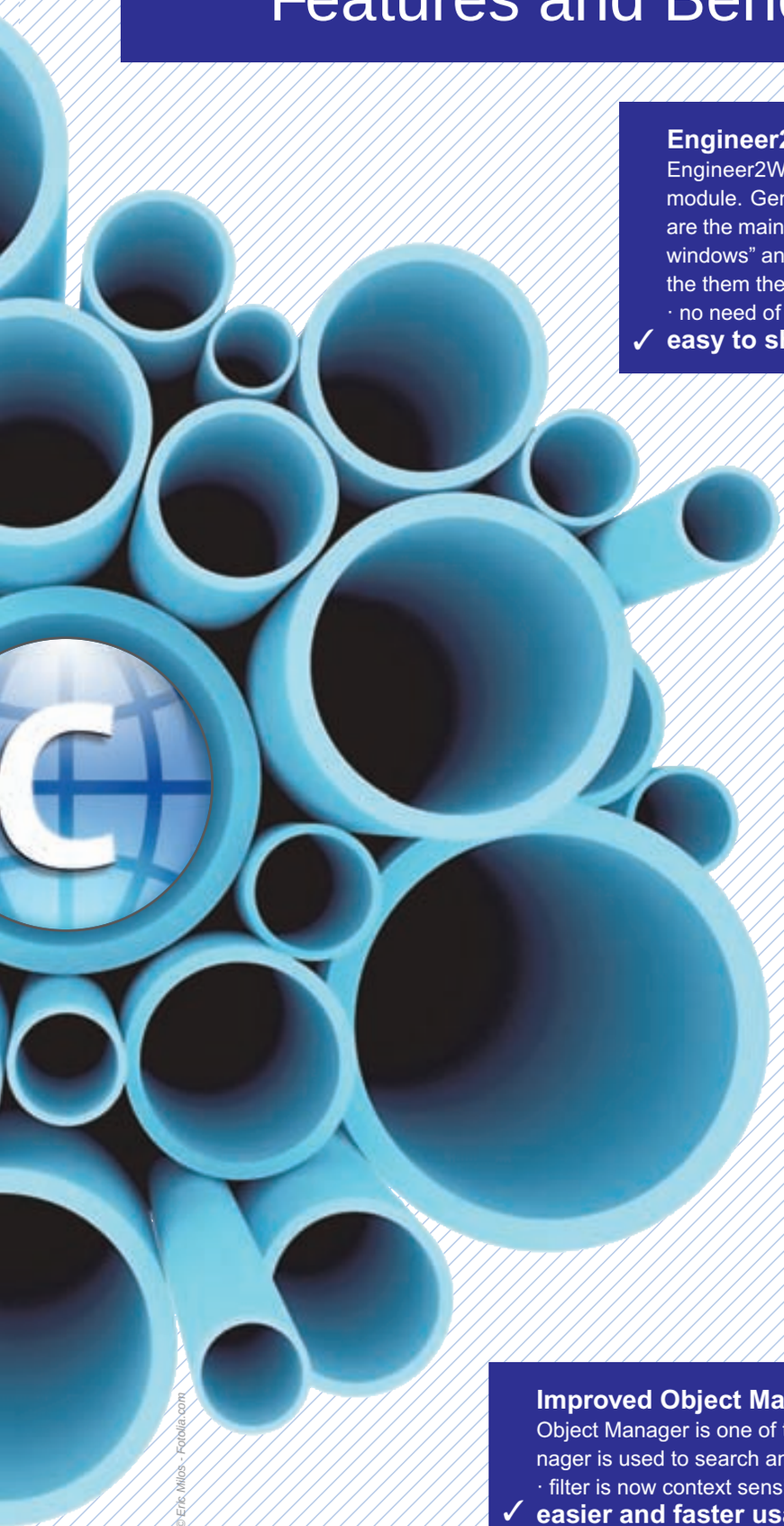
· user friendly wizards for creating various Secondary Support Structures with inbuild inteligence and design validations

✓ **improves design efficiency of engineers**



CADISON® R12

Features and Benefits at a Glance



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Engineer2Web

Engineer2Web is moving towards a web-based Project-Engineer module. Generating various reports but also inserting new objects are the main-tasks for Engineer2Web. More ease-of-use of “splitter-windows” and implementing a single-page concept for objects helps the them the user to customize his “desktop”.

· no need of installed CADISON®

✓ **easy to share project data for various reviews**

Improved Inventor Interface

With enhancements to the interface you can now also import Inventor assembly. Imported objects can now also updated in the CADISON® enviroment. R12 allows user to add new connection point to planar face of any shape which enables user to create connection ponts on any surface.

· additional flexibility to define complex validations and multiple checks in a single statement

✓ **saves design review and rework time**

Improved ”Logic Analyzer“

Logic analyzer is one of the powerful generic tool which helps user to run various verifications to identify the mistakes/disparities in designs. This will prevent the user from manual error checking. There is no longer a limit on number of checks in single statement. Additional logical operators AND & OR added to create any level of complex check in a statement.

· Enables user to write complicated check-routines to find errors which used to consume a lot of expert time

✓ **saves design review and rework time**

Improved Object Manager

Object Manager is one of the mostly used functionality in CADISON®. Object Manager is used to search and insert objects into CADISON® environment.

· filter is now context sensitive

✓ **easier and faster usage**

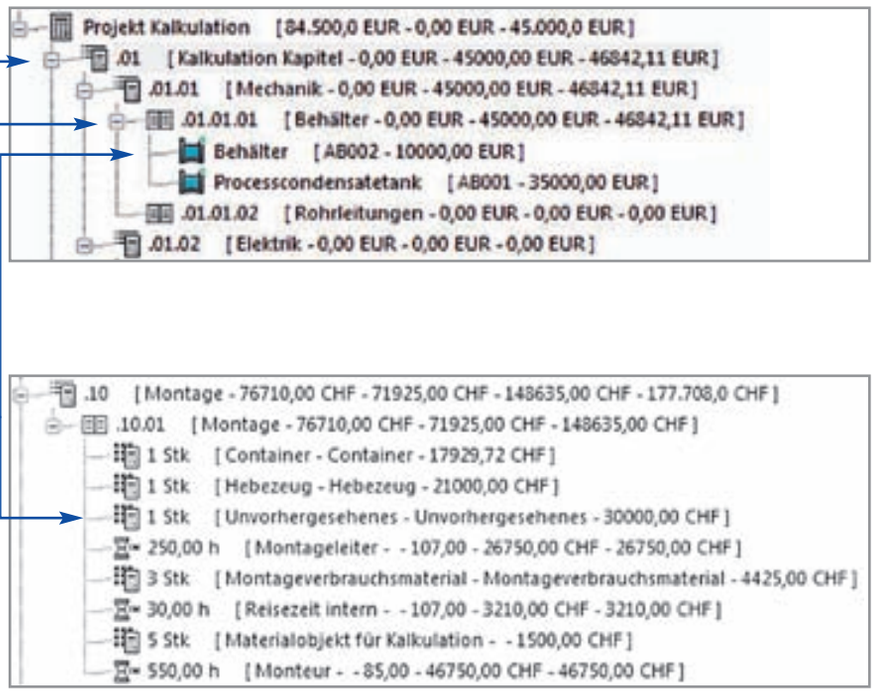
Even different detail views can be presented through different views.

Calculation structure

1. Project – Sum of all chapters in one project
2. Chapter – Sum of all performance items in one chapter
3. Performance item – Sum of all objects in this performance item
4. Object – Objects like pumps, tanks, pipes, fittings, time objects etc.

Objects can be included both in the (graphic) bid scheme or as non-graphic objects in the Project Engineer (see the structure image).

Consequently, the tank AB002 might appear in a number of configurations – depending on the mode of view.



Example: Calculation factors in the object "Tanks"

Description	Value	Unit	Action
Quantity	10	m	Manually
Calculation unit	100	€/m	Manually
Total calculation price	1000	€	Calculated
Surcharge rate	1%	Percent	Manually
Sum of surcharge rate	10	€	Calculated
Factor for risk allowance	1%	Percent	Manually
Sum of risk allowance	10.1	€	Calculated
Cost recovery factor	1,2		Manually
Sum of cost recovers	204	€	Calculated
Profit allowance	1%	Percent	Manually
Sum of profit	12	€	Calculated
Sale price of material	1236	€	Calculated
Overall factor	1.24		Calculated

Preparation of such a calculation matrix is obligatory. The calculation method for definite factors (yellow) is defined in the respective company standard.

Continuation

In the next issue of CADISON WORLD we'll demonstrate how a bid calculation is made in CADISON®.

CIC 2011 – From Engineering Efficiency to Plant Efficiency

Citrix® introduces CADISON® in Cloud / Engineering tools on the move

Plant construction projects are more frequently characterized by internationalisation. This means on the one side distributed project processes exceeding culture and time limits and on the other side shorter project life spans. The key word for that is: Time-to-Market. How can we assure quality and manage the costs under those circumstances? This had been one of the central isues of the "CADISON® International Conference 2011". As the congress report reveals, there had been interesting contributions.

With 130 participants from 10 nations the 'CADISON® International Conference 2011' had been so international as never before. The selected place of the conference of this year had been the 'darmstadtium' in the centre of the university town Darmstadt as a perfect meeting point for science, economy and culture with a high level lectures and discussions. Even the symbolic force was correct: While the chemical element darmstadtium with the ordinal number 110 is formed from the connection between one lead and one nickel ion so interesting new properties are developed, the conference informed the audience how ITandFactory with partners like Citrix help the engineering tool CADISON® to acquire attractive new features.

From technology trend to market drivers

When specialists of a specific technical branch come together, the most interesting question is: What are the news on the market? Mr. Ajit Joshi, Managing Director of ITandFactory GmbH detects in the engineering worldwide similar developments with plant designers and operators: He considers the "digital wave" as the most essential technology trend. Not only in relation to use of social networks but also in relation to Cloud Computing gaining importance in combination with growing data volumes and complex plants. Good news even for hardware and IT provider. Even smaller engineering undertakings must invest more into their IT Infrastructure since they manage even large-size projects, says Mr. Joshi.

Almost all undertakings are dealing with the continuity of data in the workflow ('interoperability'). Interfaces not existing or interfaces with non-sufficient compatibility never ceased to be one of the crucial points in the branch. The intra-discipline data exchange functions perfectly with an integrated tool like for instance CADISON® but in case of different platforms we still reach limits.

Mr. Joshi states: "Since plants are getting more complex on the one hand and the global competition to acquire engineering orders is getting harder on the other hand, all engineering service provider must do the splits that isn't easy: Cost reduction and increase of productivity. He recommends the engineering tool CADISON® as the current solution since it can be demonstrated that efficiency is increased by at least 30%. Project examples from national and international CADISON® clients show that this is not only wishful thinking.

Paradigm change for planning tools

Mr. Ketan Bakshi, Chairman of ITandFactory and manager of the Neilsoft-Group but also majority shareholder of ITandFactory GmbH (another shareholder is the engineering-service provider Triplan AG), even thinks about a paradigm change in engineering. He summarizes his ideas under the slogan "Transform engineering – create business value' (from engineering to entrepreneurial net product)".

Mr. Bakshi states: "Customers want to create their products faster and with lower costs. Therefore they need support: Solution providers that accompany them in this phase that the desired target can be reached together." He promises: Even CADISON® R11 helps the design engineer to save some 750 engineering hours for the implementation of an average project. In case of R12 to be introduced on the market in the middle of 2012, the

Ajit Joshi, Managing Director ITF

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CADISON Intern

engineer may save further 1000 engineering hours.

Moreover, IT provider should be able to develop customer-specific tools. He underlines: "ITandFactory is small and flexible enough to provide this". The figures are clear: In the past three years ITandFactory invested additional 15% per year in product development. In the last six months alone the undertaking increased its development capacity by one third.

Moreover: The cooperation of Neilsoft and Triplan in the joint society ITandFactory will ensure that all customers will benefit from the global know-how and the long-year international experiences of engineering specialists from Neilsoft and Triplan. This will include assistance in the migration of inventory data (AutoCAD, paper printouts) into the 3D models of CADISON®.

What will be the development trend of CADISON® in the coming years? Mr. Bakshi states: "The focus will be clearly shifted from engineering efficiency to plant efficiency what definitely means: The optimum energy and water footprint will be in the centre. We shall offer the required tools for giving support to the design engineer in this new orientation – such as search assistants giving support to the design engineer responsible for the purchase of components. Even Cloud technologies will be used more intensively in order to optimize cooperation within the whole supply chain. Last but not least smart tools are required that may actually support the design engineer in the design of a plant."

Efficient planning processes through modularization

In this connection Professor Dr.-Ing. Gerhard Schembecker from TU Dortmund presented an interesting approach. His initial point: The growing

rnational Conference 2011




globalization increases the pressure on the chemical industry in Western Europe. Even specifically in Germany the focus must be increasingly shifted to the production of special chemical products and pharmaceuticals. These product groups are manufactured in small batches but many and complex reaction steps. The slogan is applicable here as well: Time-to-market is getting more and more critical.

"Nevertheless we are still constructing so as if the plants are mega-plants, which it takes an average of 10 years up to commissioning." But in this period of many years the basic assumptions regarding the sales potential are frequently changing etc. as a result of the simple fact that the markets have changed. "Therefore we need a fundamentally different plant design philosophy" says Mr. Schembecker. He recommends standardized modules with one independent process engineering function in each case that, in principle, can be used again. These modules are filed knowledge-based and in the form of a decision tree in a data base. "It should be our target that the system shows the design engineer in the development of a Piping and Instrumentation Diagram (P&ID) which variant will produce which costs."

The design engineer receives only an 80% solution as result but this solution is available very quickly. Can we accept an 80% solution? Of course, says Mr. Schembecker: "In case of such a corridor planning under the aspect of plant output we might have to accept 10% higher investments but these are peanuts in comparison with cost advantage due to the enormous time saving. We start production much earlier."

Citrix: The access of CADISON® through the Cloud

Citrix was founded in1989 and combines virtualization, network and Cloud computing technologies in one complete product portfolio that generates virtualized operating worlds for users and virtualized computing centres for IT division. More than 230,000 companies worldwide are using Citrix technologies in order to develop the IT environment rapidly, easily and cost-efficient. The undertaking with a turnover of 1600 million US-Dollars (2009) has 10,000 commercial and alliance partners in more than 100 countries.

Among them is even ITandFactory with CADISON®. The advantage: When using the Citrix technology a local graphic workplace is not ultimately required for work with compute-intensive graphic. The design engineer has access independent of the location to high-efficiency workstations even with a laptop.

If a user gets registered on its computer via the Web-Interface of XenDesktop, the access gateway first of all checks the safety features of the terminal unit. The user will be granted the corresponding rights to use applications and documents depending on the user's work on a company-owned computer, its private PC or from on a computer installed e.g. in an Internet-Café.

From the view of a plant design engineer and/or operator the central provision oft he virtual desktops mainly offers the advantage of of the rapid know-how transfer: Citrix makes it possible that national and international participants in one project are able to work together much closer and more efficiently.

The conclusion: The use of Citrix and CADISON® R11 ensures that the actually collaborative work around the globe is definitely no longer a problem. ITandFactory wants to take up a bet even today already that all plant design engineers working with CADISON® may increase their efficiency by at least 30%. The reports of national and international CADISON® customers presented on the congress reveal that the bet risk is kept within tight limits. The development targets presented on the ‚CIC 2011' show that the management fixes standards that are still higher. Last but not least a paradigm change is standing before: CADISON® is on the way from engineering efficiency to plant efficiency.

The next CADISON® International Conference

27 – 28 September 2012

CIC 2012

A potential source of errors is eliminated because one-to-one data mapping is processed during the whole project-lifecycle.

The possibility of exporting well-defined revision states makes document exchange with all the contractors involved absolutely traceable.
Jürgen Stegger, Managing Director,
Borsig Membrane Technology

“The overall engineering process starting from design to installation is considerable faster and really more transparent. Changes are implemented much quicker and with all this the effort for designing a plant will be dramatically reduced.”
Dipl.-Ing. Jens Willumeit, Systemadministrator,
Oerlikon Neumag

“Compiling a first offer with CADISON® for a 3 to 4 Million Euro project requires about 20 hours – before CADISON® we had need double the time!”
Andreas Hiegelsberger, LTH Dresden

"CADISON® saved to us approximately 30 % of expenditure time"
Dipl.-Ing. Hartmut Claussen, Head of Project Management & Mechanical Engineering, Oerlikon Neumag

CADISON® – Integrated Digital Plant Model

Media- and Mass-Balances > Basic Flow-Diagram > Tender Planning > Process Flow-Diagram > Equipment List > Prelimary Layout > Specifications and Suppliers > Instrumentation > Ressource Management > Calculation > Revision-Management > Project-Analysis > Process-Calculation > Pipe-Specification > P&I Diagram > Specification for Inquiry > Structural/Statics > Layout Planning > Installation Planning > Equipment Planning > Structural and Piping Design > General Arrangement Drawings > Piping Design > Piperack Layout > Electrical Design > Report Extraction (BOM) > Materials Management > Maintenance and Operations > Post Costing Analysis and Documentation

it and factory
solution provider

ITandFactory is one of the largest providers of complete solutions in the field of process engineering. Being a joint venture of the companies Neilsoft Ltd. (India) and TRIPLAN AG (Germany) – both companies known as reputed engineering undertakings – we understand ourselves as solution provider supplying our customers with solution and process-oriented IT tools plus associated concepts.
Higher efficiency in plant planning, integration of plant construction and intelligent plant documentation with high-efficiency IT tools are in the focus of our CAE solution CADISON®. The growing international orientation of our organization creates synergetic effects with the cross-linked and global way of thinking of our customers. It is our target to ensure a maximum benefit for the customer through utilization of latest technologies. Our customers may profit from a maximum return-on-investment.

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