

CADISON WORLD

EXPERIENCES & NEWS



Preview to CADISON R10.1

CADISON R10.1 brings real DWG-Export to Microsoft Visio®,
Automation through CADISON® Inventor-Interface

without CADISON®: 4 years

with CADISON®: 1 year

[faster to market: cadison.com]

CADISON® – the object-oriented engineering solution for plant design

CADISON® combines the engineering workflow in a system and thus significantly accelerates the planning processes. All users can see on their workstation – graphically as diagram, as 3D model or via tree structure – the same data and objects so that the latter can be optionally used and modified in a cross-application mode through simple Drag & Drop. Data and/or objects are unique so that errors resulting from redundant data management are excluded. The continuity of individual work steps in an object-oriented database forms the core of CADISON® technology.

CADISON® 3D-Designer:

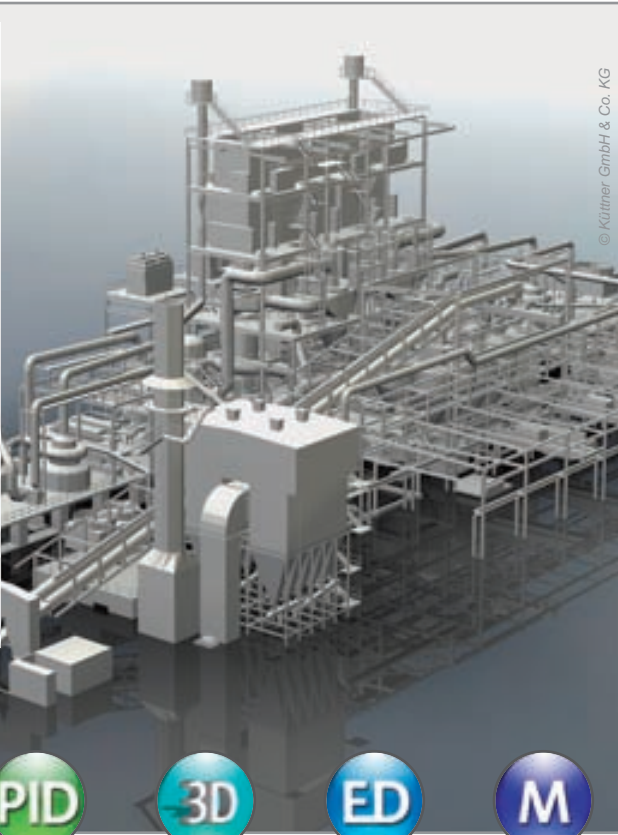
- Error avoidance through 3D planning
- High planning safety through control-based work
- Integrated configurable Management of Change
- Data transmission for stress calculation
- Isometric extraction (ISOGEN)

CADISON® P&ID-Designer:

- Comprehensive visual modification management
- Automatic and standard-conforming structure and hierarchy formation
- Use of standards and master data from catalogue and ERP system
- Simple information reduction for permit procedures

CADISON® MATPIPE

- Pipe specification and component catalogues
- Rule-based component configuration
- ERP Integration
- Standardization
- Graphic-independent customizable components



CADISON® – Integrated Digital Plant Model

Media- and Mass-Balances > Basic Flow-Diagram > Tender Planning > Process Flow-Diagram > Equipment List > Preliminary 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

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This is the third issue of CADISON WORLD and we are really happy that so much of our readers enjoyed the previous ones. Many thanks to all of you for your positive feedback up to here.

Welcome

Today we tried hard to decide which news, updates, success stories and best practice examples etc. are most relevant for our valuable customers and readers.

Sure, CADISON® R10.1 is just in front of us and we'll give you an overview of the main topics inside. Lots of customer requests (PW 2010 and CIC 2010) have been implemented.

Many customers immediately updated their installations to R10 because of the new 64-Bit technology. Huge projects can now be handled and the time of thinking intensively on structuring large projects into small units has gone by.

Time to lead the focus on some really helpful functionality for even more integration on the holistic engineering workflow, which is the real passion of CADISON® technology.

Quite a lot of our users have to deal with Autodesk Inventor data, regardless whether it comes from internal colleagues or external sub suppliers. In R10.1 this will work out easiest. More interfaces like CAESAR II and a real DWG-Export out of PID-Designer for Visio® or a 2D-Extraction will also come along with the next releases. More details on this and all other news you will find inside the magazine.

For technology insiders we have a range of Best Practices which might update their skills and last but not least we will close with a review on CADISON® International Conference 2010. Please mark your calendars: CADISON® International Conference 2011 will take place on the 22nd and 23rd of September.

Enjoy reading CADISON WORLD!

Sebastian Dörr
Sales Director Europe

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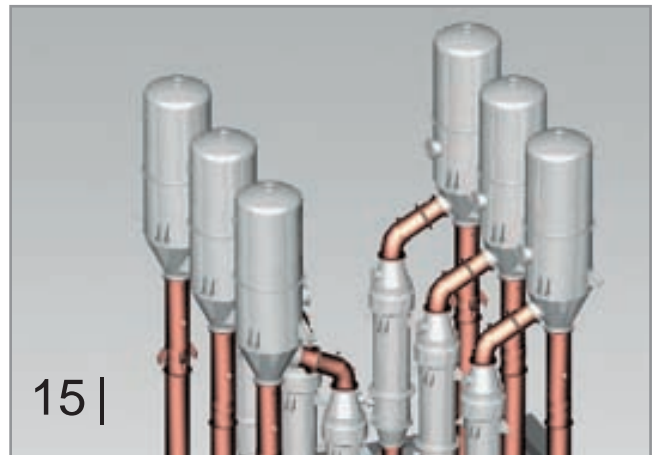
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Detection of Stress and Strain

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CADISON® R10.1 – Inventor-Interface

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3. CADISON® International Conference 2010 in Darmstadt

Some of the wishes of our customers had found their way into the new release CADISON® R10.1 – coming out in May 2011 ...

Advance Notice to Business Workshop on Process Integration

Nowadays, plant engineering processes require professional support from project handling as well as systematic monitoring and project controlling during the entire execution of the customer's order. But never mind the theory. What's the situation in practice today?

Non-integrated plant design and project handling often turn order processing into an unwitting adventure. Admittedly, you have to get that far first. Nowadays, you need to do a bit of arm twisting to get the client to place his order at all. Tendering is a drawn-out affair, with a multitude of quotations having to be submitted.

- Challenges be met overall in project handling
- Workflow organization in plant engineering
- Involving sales
- Information management in plant engineering
- Integrating engineering and project handling
- Procurement and document flow
- Project controlling and progress monitoring

If these are not at least partly automated, unnecessarily high costs are incurred already in the tendering phase, which, of course, have to be passed on to other projects.

The editors of digitalPLANT from the ECONOMIC ENGINEERING magazine have therefore decided to hold, in cooperation with B.I.M.-Consulting mbH (Magdeburg) and ITandFactory GmbH (Baden Soden), a series of workshops on integrated plant design and project handling in the Dortmund area in 19th May 2011 and in the Munich area in autumn 2011. The half-day event is set to start at midday and is aimed especially at decision makers of medium-sized plant engineering and

plant equipment supplier companies. We plan to give our views on the following issues and present solutions:

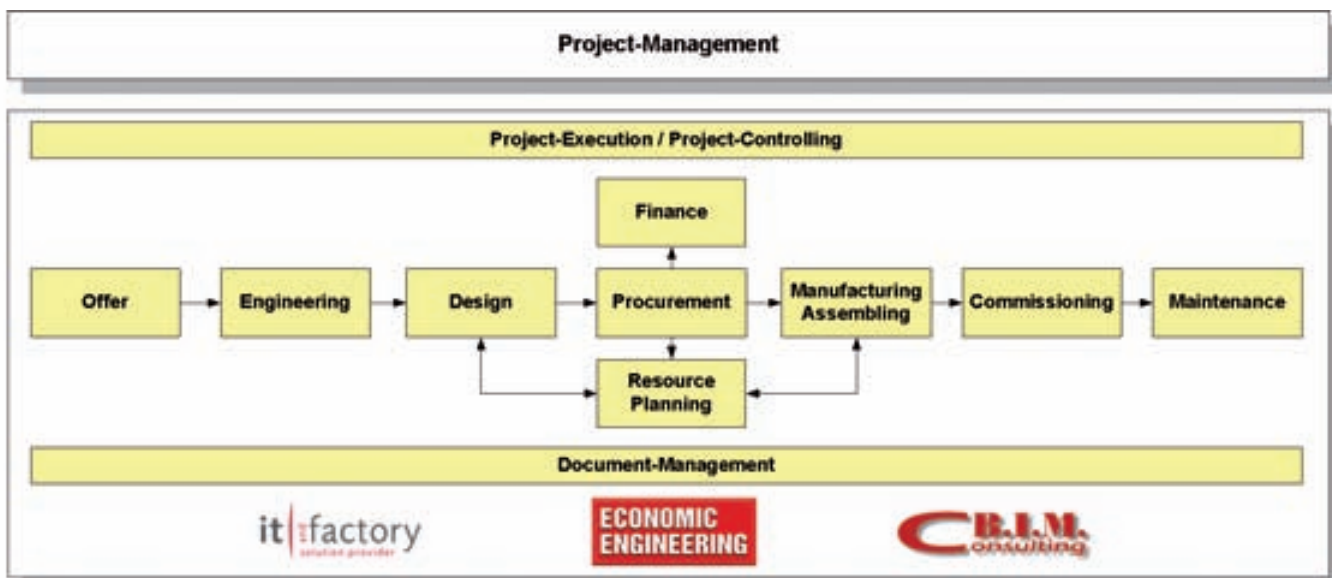
We aren't planning a scientific discussion of what might be possible in the future, but what's doable today and can be expected to work. In the issues of digitalPLANT following the summits, reports will be published on the different events. From different angles we shall discuss effective knowledge management in the tendering process – how a new quotation can be quickly generated from previously executed projects, description of the integration of CAE tools for project handling, transparent description of change management with delta management, best practices in project management and project controlling, live pricing, permanent access to current project data for all involved in the project and evaluations from the view of different project partners.

The well-known professor of the Technical University of Dortmund, Gerhard Schembecker, has been enlisted as the keynote speaker. Mr Schembecker will give an introduction in this much debated subject area. Conference language shall be German.

source: Economic Engineering, 2011-02

Dipl.-Ing. Jürgen Stegger will give as 2nd Keynote-Speaker a practical wrap-up about his experience on the subject: More projects with less effort and easier handling.

"Our staff members reach a higher productivity level with CADISON® – this means: More projects are handled easier and with reduced efforts."
Dipl.-Ing. Jürgen Stegger, Managing Director, Borsig Membrane Technology GmbH



Plant Computation more Quickly Practicable

The basic concept behind the Engineering Tool CADISON® is the data continuity in all modules and the automatic data adjustment in case of modifications. Mainly this data consistency convinced the plant constructor LTH Dresden. The company saves up to 50% of time by adapting the catalogue module MATPIPE (pipe specification and catalogue management) in tender preparation and compilation of required spare parts.

Automated Computation

LTH Dresden has been using the installed Engineering Tool CADISON® since 2004. Automatic data adjustment in case of planning modifications has been the decisive aspect for selection of this tool. Mr. Andreas Hiegelsberger, Project Engineering Manager of LTH reports: "We have been looking for a tool that may reliably bring together all drawing components in one computation list." One of the standard features is the generation of a current parts list as Excel table "by pushing a button". LTH went one step further with CADISON® and



Reduced work load

developed an automatic compilation method – the result is a ready-made quotation as Word report.

Since LTH submits about 800 quotations per year, adoption of the system results in reduced workload for project design engineers. "While the project is running through several phases at tendering stage – and this happens frequently in practice – enormous time and cost savings are possible. And we are always sure that calculation and quotation are in accordance with the current state of planning", said Mr. Hiegelsberger. Time saving is convincing: "For a project with a value of 3 to 4 million we today need some 20 hours for preparation of the first quotation – and in the years before we had to invest double the time." Specifically in case of large-scale projects the company had been successful and could convince many customers through prompt submission of quotations.

Now LTH went another step further: The MATPIPE Catalogue had been extended through the category "Spare parts". In the phase of project implementation, customers expect even a list of vital spare parts at a very early stage already, including the prices. The focus in this list is laid on most essential spare parts recommended by manufacturer.

The project design engineer requests from the supplier the information about relevant spare parts for each component (pump, valve, mixer etc.). The planning engineer does not only handle the spare parts in an Excel list but even sets link-ups in Matpipe in the new category "Spare Parts": For example, the valve 3315 is linked up with the spare parts 4516 and 8314. This method becomes standard for all future planning work: In case the planning engineer re-selects the valve 3315 from the catalogue in a project to be handled later, the engineer will automatically get the listed associated spare part(s). Thus each component is associated with the background in-

Spare parts

formation about spare parts that the customer should keep in store.

This new approach is very attractive for a company with many hundreds of quotations to be submitted each year. In former years the employees had to invest up to 100 hours for

preparation of a spare part offer tailored to a specific project. In a project with 2000 and more components a corresponding high number of spare parts will be required. The higher quality level should be noted as well. The planning engineer can be sure that no spare part will be forgotten since this list is automatically configured for each installed component. Mr. An-

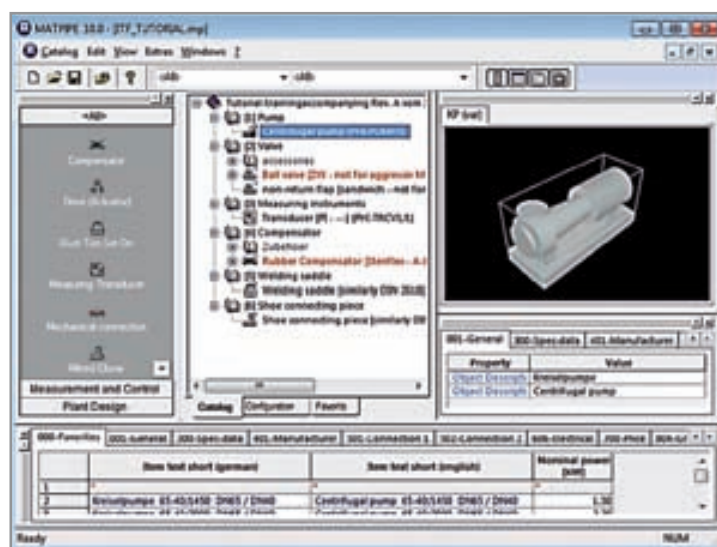
dreas simply ordered through the article number and the plant design engineer increases the operational comfort for its customer.

The next logic step is already under consideration: LTH stores not only one spare part list for each component but gives maintenance recommendations as well, i.e. information about the time when replacement of parts is required under the aspect of equipment availability.



dreas Hiegelsberger expects another advantage: The customer can see which spare parts are recommended for a specific component and gets at the same time the article number announced by LTH Dresden. Thus this spare part can be

Higher value for the customer



CADISON® R10 – Prerequisites

The current CADISON® R10 software is tested and released for the following general conditions:

Windows operating systems:

- Vista Business, Vista Ultimate, Vista Enterprise
- 32-Bit with SP2
- Windows 7 Professional, Enterprise, Ultimate
- 32-Bit and 64-Bit
- Windows Server 2008
- 32-Bit and 64-Bit

Applications:

- AutoCAD 2010, Architecture 2010, Mechanical 2010
- 32-Bit and 64-Bit with Upd. 2
- AutoCAD 2011 (Upd. 1.1), Architecture 2011, Mechanical 2011 (Upd 1)
- 32-Bit and 64-Bit

- Microsoft Office 2007
- 32-Bit with SP2
- Microsoft Office 2010
- 32-Bit and 64-Bit
- Microsoft Visio 2010
- 32-Bit and 64-Bit

Database:

- Versant DB: 8.0.1.2. (VDS-Patch-Level: 8.0.1.2.692)

CADISON® R10 can't be used on a 64-bit system, where is already installed a 32-Bit version of MS Office 2010.

We recommend to use CADISON® R10 only in a homogeneous environment!

For more details please look at http://www.cadison.com/Customers_Care/System_Requirements.aspx or call our Service-Hotline at +49 6196 6092-500.

Detection of Stress and Strain

3D isometric data can be used for efficient pipeline calculation. Stress calculations and strain analyses are required to ensure, that a pipeline exposed to thermal stresses or even subjected to selected dynamic load cases cannot suffer damage itself or cause damage to other plant components. The engineering planning tool CADISON® uses an interface to transmit the isometrics data to the calculation program Rohr2. Thus the planning engineer may commence the stress calculations and the required proofs directly on the basis of CADISON®, so that some 30 to 50 % of time and expenditures is saved.





Large vessels, tanks, reactors and a high number of pipelines are characteristic for chemical plants. In general the pipes are essential components of large-scale technical plants, even in refineries or power stations, since they are required for interconnection of components, for supply and discharge of fluids.

It is not surprising that IT tools for pipeline planning and calculations had been developed early already and are urgently requested by planning engineers. The pipeline calculation program

Rohr2 (supplier: Sigma Ingenieurgesellschaft) has been used by national and international plant construction contractors and equipment operators from the energy sector, chemical and pharmaceutical industry for static and dynamic analysis of complex pipeline systems for more than 40 years already. Even technical inspection authorities use it for examination of pipe system structure analyses.

The manager of Sigma Mr. Stefan Masala states: "Rohr2 is a complete interactive application and intuitively understandable in many fields." First of all, the user shall decide which standard calculation code shall be used "The user has a great variety of national and international codes and standards available for selection, such as ASME, ANSI, EN 13480, KTA or ISO 14692 that are continuously updated in the framework of software maintenance", says Mr. Masala. The user receives assistance for modelling and testing of its inputs through plausibility checks. Verification of stresses and determination of loads are performed automatically in conformity with the selected code.

Mr. Masala: "In principle, Rohr2 is used in all applications where pipelines are operated under pressure and temperature conditions. Apart from statutory provisions for calculation, even the desire to develop cost-saving conceptions plays a decisive role." More than 500 customers with more than 1000 licences demonstrate the broad acceptance on the market.

Stress calculation in sensitive pipeline systems

One of these applicants is AMR-Engineering. The company has been a project engineering and plant construction contractor and supplier of machines and equipment for chemical and pharmaceutical industry, power engineering and metallurgical industry for more than 40 years already. Some 40% of AMR's turnover are derived from supply of tanks, steel and pipeline construction. Therefore it is not surprising that this engineering undertaking has been working with the calculation program Rohr2 for more than 20 years already.

Dipl.-Ing. Jürgen Pagel, technical manager of AMR-Engineering, reports: "Stress calculation is obligatory in case of sensitive pipeline systems in plant engineering, especially in nuclear power stations – and the customer requests this in most different forms, or it is dictated in the applicable codes and standards. We must verify that stresses in pipelines cannot exceed the defined limits. Sometimes it is even necessary to simulate situations, such as different operating regimes or even extreme load case situations and severe accidents."

The pipe support system used for pipeline installation must be applied so that excessive stresses can occur neither in the course of conventional operation nor in case of rare situations like water hammers. When planning nuclear power stations, even improbable occurrences like aircraft crashes, earthquakes or shock waves resulting from an explosion must be simulated as load case. Mr. Pagel says: "We can examine all these dynamic load cases with Rohr2."

The features of ROHR2 at a glance:

- Pre-processing and post-processing via interactive user interface to be operated intuitively;
- Comprehensive component data bases;
- Automatic determination of loads like wind, snow etc.;
- Automatic generation of stress analyses;
- Automatic determination of maximum bearing and joint loading;
- Static analysis according to theory of 1st and 2nd order;
- Dynamic analysis according to modal response method and direct integration;
- Intrinsic values, earthquakes, pressure surges, any time-dependent load situations;
- Load sequences, load case hysteresis;
- Non-linear properties like bearing clearance, bearing friction etc.;
- Flexibility of tank nozzles;
- Pipelines made from plastic materials;
- Buried pipes and lines;
- Hydraulic shock absorbers, dampers, Visco dampers;
- Automatic report generation;
- Graphic and tabulated documentation of inputs and results;
- Filter functions for selection of results;
- Documentation of sub-domains;
- Data export for texts and graphics.



“Handling of ROHR2 is relatively easy to learn. The challenge is the correct interpretation of calculation results and their implementation in the planning of actions that meet practical requirements. However, the planning engineer should have profound background knowledge of static analysis.”

Dipl.-Ing. Jürgen Pagel, technical manager of AMR-Engineering

The AMR planning team always calculates even the reaction of a pipeline to thermal stresses. “So we can avoid such cases like loads existing on pipe nozzles of a tank or reactor and getting excessively high in response to alternating temperatures with resultant damage to this plant component.”

Mr. Jürgen Pagel takes it as essential advantage that the engineering tool CADISON® available since 2008 for 3D planning offers an interface for coupling to Rohr2: All relevant properties of pipelines designed in the 3D model can be transmitted to the stress calculation program by means of the NTR file containing the descriptive data for analysis. “We generate the pipeline isometrics from the 3D model initially created with CADISON®. Data, even the coordinates of pipeline, valves and fittings, internal items and connections, are transmitted automatically via interface to the calculation program. Thus our planning staff can start the stress calculation work and prepare the required proofs directly on the basis of CADISON® so that some 30% of time and effort are saved.”

The interface makes it possible to adopt a large share of calculation-rele-

vant system data from CADISON® without any extra expenditure. If necessary, missing calculation-specific information can be self-supplemented in Rohr2.

Project example:

AMR had been awarded a contract from RAG Aktiengesellschaft for engineering, fabrication, supply and installation of a new electric filter for gas cleaning, including the table foundation, as extension of the existing electric filter plant. The new gas filter has a capacity of 40,000 m³/h and adds its capacity to the existing capacity of the four filters running already with a capacity of 25,000 m³/h each. The purpose is to use the electric filter for reduction of tar and dust content in the coke gas to a residual content of <10 mg/Nm³. The inter-connection pipelines have a diameter of 1400 and 1200 mm, respectively. The true-to-detail planning took place in the 3D model with CADISON® while pipeline calculation was based on Rohr2.

Mr. Georg Kremer, managing director of the CADISON® provider ITand-Factory, states: “Apart from reduced planning time and cost saving the cou-

The benefit of CADISON® interface for coupling to ROHR2:

- Avoids erroneous data input since repeated data input is not required;
- Use of standardized and recognized calculation methods;
- Very rapid analysis and calculation for evaluation of results;
- Reduces the calculation expenses by 30 to 50%.

pling between CADISON® and Rohr2 helps the plant design engineer to get a higher level of planning safety through reduced error proneness.” In combination with report generation that is integrated in Rohr2 and largely automated and individually adaptable, the calculation time and, thus, the expenses can be reduced by up to 50% according to users’ statements. By the way, calculation results can be presented graphically as well: You can directly see through the coloured background how pipeline stresses are distributed and where the stress limits are exceeded.

Mr. Jürgen Pagel concludes: “An integrated planning tool like CADISON® helps to avoid extra work caused by system breaks. To be more precise: Due to its seamless data continuity up to the calculation program Rohr2 this tool family avoids multiple data entry. We can save planning expenses and time even through simple creation of isometrics and availability of updated and complete parts lists plus bills of quantity reflecting the interim status of the project.”

source: Dipl.-Ing. Hans-Jürgen Bittermann, Press Agency bitpress, Lamsheim.

CADISON® modules installed with AMR:

- Project-Engineer
- P&ID-Designer
- 3D-Designer
- MATPIPE
- ROHR2 Module
- NavisWorks for visualization

30 % faster through
interface to CADISON®

CADISON® gives a fresh

Impetus to Open Grid Europe

ITandFactory will assist Germany's leading long-distance gas supplier, Open Grid Europe, with the integrated CAE solution CADISON® in the company's future engineering processes. Implementation includes the use of CADISON® in the domains of plant engineering, operation and documentation.

with a total length of some 12,000 kilometres the longest German long-distance gas supply network. ITandFactory (ITF) is one of the leading contractors for complete solutions in the field of process industry. Being a joint venture of the undertakings Neilsoft Ltd. (India) and TRIPLAN AG (Germany) –



After the six-month pilot phase with participation of sub-suppliers of Open Grid Europe, the company ITandFactory had been awarded the contract for introduction of CADISON® in December 2010. The use of CADISON® shall ensure the central unification of processes in the domains and implement this in one joint engineering platform. CADISON® shall be coupled to other company solutions through integrated interfaces and be available as central information system in engineering and plant documentation.

In the medium term, engineering information about the compressor stations operated by Open Grid Europe will be processed, maintained and supplied at some 150 CADISON® workstations. Development and adaptation of this infrastructure and planning platform is supported by means of external engineering consultants. This platform shall help to accelerate and simplify the communication with sub-suppliers.

CADISON® steps on the gas

Mr. Frank Jankowiak – sales manager of ITandFactory – is very happy about this project: “With Open Grid Europe we had been successful to win another key player in the gas supply sector as customer. Thus CADISON® develops more and more as the standard CAE solution for gas suppliers - CADISON® just “steps on the gas”.

Open Grid Europe with its domicile in Essen is among the 13 long-distance network operators in Germany and maintains

both companies being known as reputed engineering contractors. ITF understands itself as solution provider supplying its customers with solution-oriented and process-oriented IT tools together with associated conceptions.

The focus of the CAE solution CADISON® brings our customers on a higher efficiency in plant design, integration of plant construction and creation of intelligent plant documentation with high-efficiency IT tools.

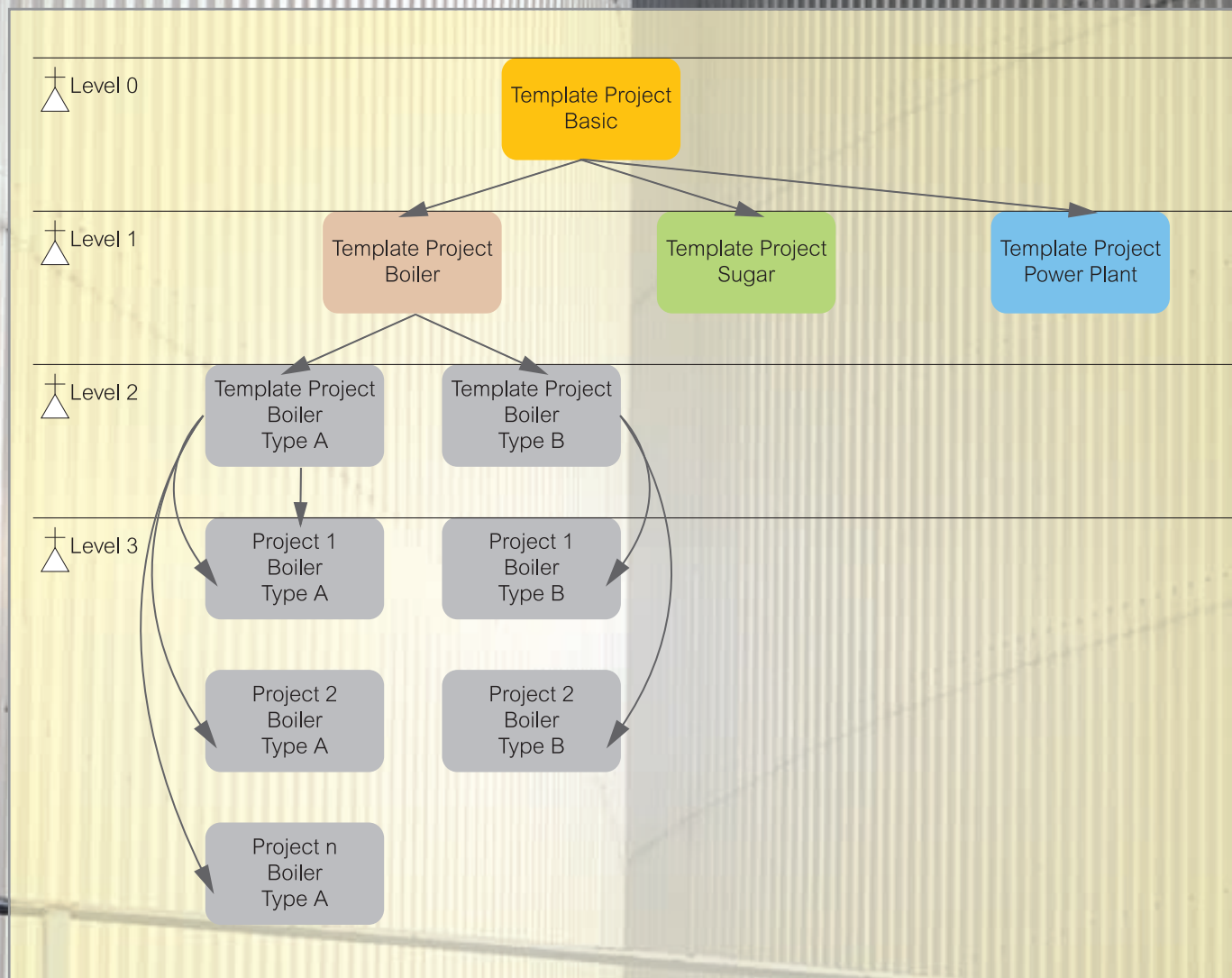
ITandFactory expands the Branch-Office Krefeld

While growing the customerbase in the Ruhrgebiet-Area in the middle-west of Germany around Köln, Dortmund, Düsseldorf, Essen, ITF is expanding its Krefeld Office. The Ruhrgebiet-Area is the industry-motor of Germany. All the relevant chemistry and energy suppliers have their offices in this region. With this in mind, it is obvious – even by the background of our project win at Open Grid Europe in Essen end of 2010 – to grow this subsidiary. Frank Jankowiak, sales manager in the north, will lead the office. He is confident for 2011 to acquire more energy suppliers.

Practical Examples for template project

In CADISON WORLD 2 we discussed template project in an overview. Now we want discuss this on a best practice way. The chart below shows an real example. A company is working with different department and with different section.

That could be e.g.: Boiler, Power plant, Sugar plant

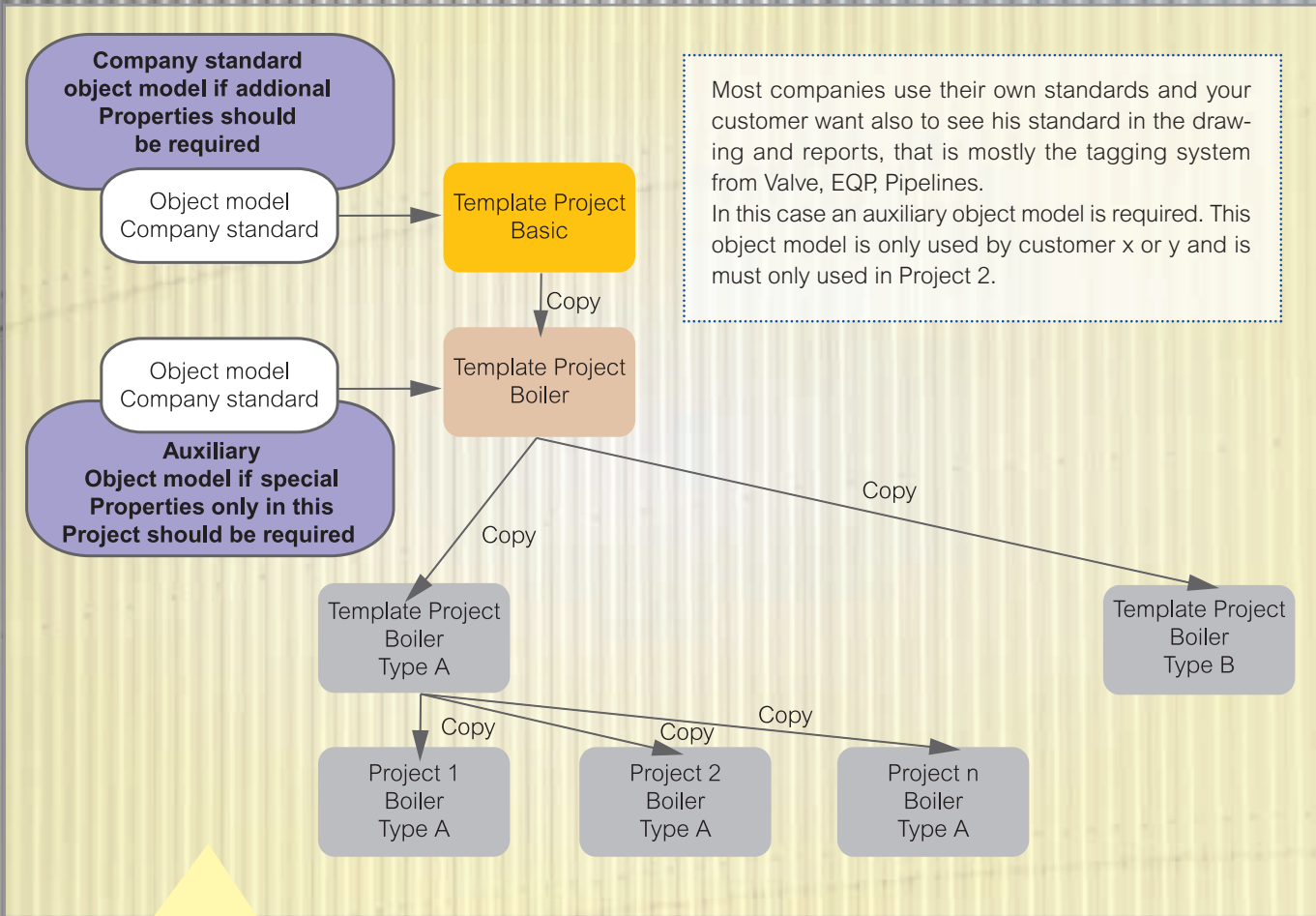


Level 0 is the Basic Template and will reflect the company standard with the CADISON® standard object model or a additional company object model.

Level 1 is a copy from the level 0 and will have types from the department (Boiler, PwPlnt, Sugar ...).

Level 2 is a copy from level 2 and could reflect different type of projects.

Level 3 is the work copy from level 2 where the user makes only required changes in the existing data sets, report update.



The template Boiler for example will have more special requirement for the Boilers

- Standard PI&D
- Standard Report
- Standard Datasheets
- Hook ups

The Basic Template is the company standard. The project is empty and includes only structures

- Documentgroups
- Media
- Plant structures
- KKS structures
- Cost and calculations structures
- View settings
 - Table view
 - Tree view
 - Object inspector



House of Decentralized Environmental Solutions

Ever since its inception in 1996, WAPP (Water, Air, Pollution and Prevention) has been setting new standards of excellence in the areas of Water, Waste, Energy & Environment Management. “With our integrated approach based around Solutions, Services and Technologies, we offer continuous value addition to our customers, a concept we call Eco-Inno-Vision,” says Rajesh Jain, director of the company.

Today, WAPP has developed into one of the leading companies in India in the fields of energy, environmental and waste management. The company has been growing at a compounded Annual Growth Rate of nearly 25 % since inception. Companies engineering professionals are recruited from IITs (Indian Institutes of Technology) and other reputed engineering institutions with a particular emphasis on Process, Mechanical, Civil, Environmental and Electrical disciplines. WAPP has successfully completed over 200 projects, particularly in the sectors of Waste Water and Water management, across India over the last 15 years and employs around 500 people – with the head office in Delhi and branch offices in Mumbai, Chennai and Kolkata. Supplementing them is a nationwide team of project personnel located at various operation sites to service on-going projects working in tandem with clients.

Core Competence Progression

In many industries, water is used extensively as a processing medium. Any reuse or recycling process of wastewater can have a dramatic impact on a plant's operating and maintenance cost. WAPP specializes in developing and implementing a range of water reuse processes for some of the most demanding and challenging industrial applications. WAPP exclusively promote WAPPSYS Oxy-Bio Technology, which is a modified Sequential Batch Reactor (SBR) process for wastewater treatment for all target segments. Its advantage lies in automation to minimize manpower and manual controls, lower space/equipment requirement and reduced energy cost. With unique and aggressive business models, leveraging on the existing core competence, WAPP is now venturing into the areas of:

- Automation Solutions
- Green Building Solutions
- Solid Waste Management
- Biotechnology-Environmenta Solutions
- Energy Efficiency / Renewable Energy
- Asset Management Engineering Services.

To achieve these goals, WAPP decided – among many other things - to implement the professional engineering tool CADISON® (see interview below). The benefits of CADISON® support the ambitious goals of WAPP: The tool combines the engineering workflow in

one system and thus significantly accelerates the planning processes. The common object-oriented data model for the different fields of application (tender planning, process engineering, installation planning, pipeline planning, electrical engineering, instrumentation etc.) makes it possible to integrate all planning phases so that time and costs are saved.

CADISON® serves to collect valuable information in the tendering phase already so that staff members have the required data available in all later phases of project handling.

Interview

“CADISON® helps in streamlining engineering processes”

Rajesh Jain, the Promoter & Director of ‘Enhanced WAPP Systems’, is a graduate in Chemical Engineer from IIT, Delhi, and has over fifteen years of experience in the sector of water/wastewater management, environment management and waste-to-energy projects. He keeps in mind the client perspective and has steered the company to successfully diversify into strategic areas and services. As a leader, he has catalyzed rapid growth for WAPP. And he decided to work with CADISON®. Here's why.

CADISON WORLD (CW): Mr. Jain, what were your plant engineering challenges towards achieving maximum productivity? How has CADISON® helped you to overcome these challenges?

Rajesh Jain: We had limited capabilities before CADISON®. But now with CADISON®, we can do certain process in lesser time with lot of precision, like P&ID, 3D, Piping, and generating Isometrics and proper BOQ (Bill of Quantity), which were too much time consuming and were done in parts. Administration has become user friendly and simple.

CW: What were your challenges for a similar capacity project without CADISON®? What benefits did you observe with CADISON®?

Rajesh Jain: Before CADISON®, we had to do lot of engineering aspects as separate exercises. Hence we had to do lot many cross checking for any possible mismatch among these. But now, since all are integrated and automatic, total time for delivery has been reduced and errors are minimized. Visualization was difficult in AutoCAD drawings and job would become person specific. CADISON® has solved some of these problems.

CW: In conclusion – how has CADISON® enhanced your competitiveness with respect to the end user?

Rajesh Jain: CADISON®, with its intelligence, helps in streamlining engineering processes with minimal confusion. Thus minimizing errors.

CADISON® R10.1 – Inventor-Interface

Many CADISON® customers and their suppliers use Autodesk Inventor as design tool for detailed planning of specific machines and equipment with very complex geometry, assemblies and joints that by far exceed the data required for pipeline and tank construction.

These complex structures should be imported later with the CADISON® 3D-Designer in the framework of the “Overall planning of a plant” and further used for installation planning and pipeline installation. Starting with version R10.1, a new CADISON® Inventor-Interface will be available for automation of numerous manual actions that are now still necessary so that the user receives massive support for import in CADISON® and can benefit from automation of this import.

It should be outlined here that the interface is “workflow driven”, i.e. design work is performed with the appropriate design-specific tool – Inventor or CADISON®. This is specifically applicable even to modifications. Now CADISON® inevitably needs only all required geometry data, such as outside dimensions, connections, transitions etc. Detailed surface information like bores, threaded and blind holes and other fabrication details are normally not required.

The following basic data are required for successful implementation:

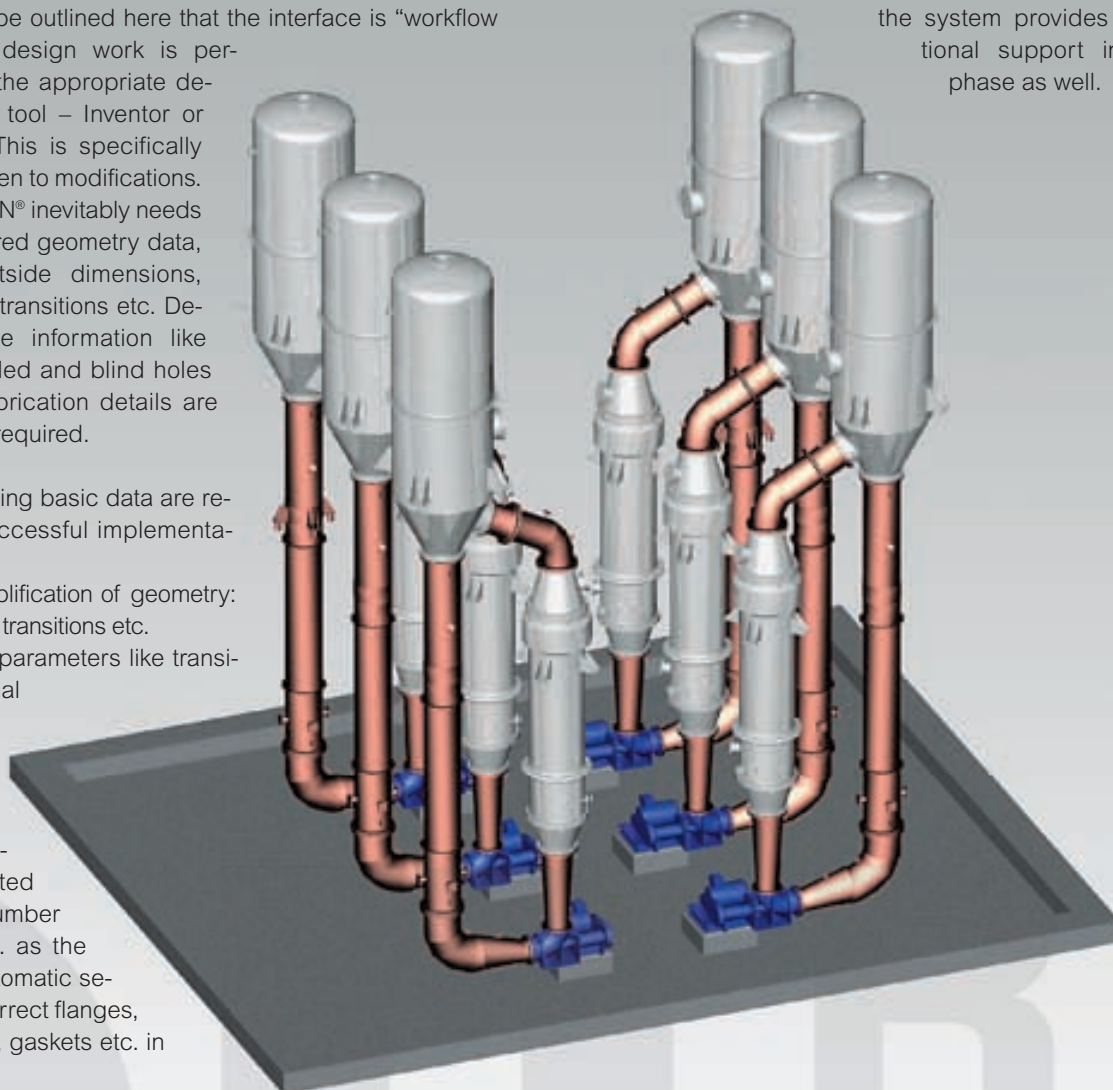
- Data for simplification of geometry: outer edges, transitions etc.
- Connection parameters like transitions, nominal diameters etc.
- Connection parameters like rated pressure, number of bolts etc. as the basis for automatic selection of correct flanges, weld seams, gaskets etc. in CADISON®.

Implementation of interface takes place under the slogan “Import without extra data”. This means that the investor/user supplies data “as they are”, and the CADISON® user enriches them with the missing information while import takes place.

To make this a little more precise, you may find below a selection of required information that may of course be adopted in case it is present in the inventor already:

- Type of object for connection (flange, pipe, bend, nozzle etc.)
- Connection standard (DIN, ANSI etc.)
- Type of gasket
- Type of sealing face
- Nominal pressure
- ...

Of course the access to catalogue entries defined in MAT-PIPE already is possible so that the system provides additional support in this phase as well.



Outlook to CADISON® R11:

In case of further detailing within Inventor, the information can be re-imported through a “modification note” to CADISON® again – in this case only with the Delta-Information.

Integrated design and calculation process at Wingas

European energy provider Wingas relies on CADISON® for designing the landing point of the Nord Stream pipeline near Greifswald. About the company's new redundant free and integrated engineering process.



ments for the first supply of gas through this pipeline. Two new onshore pipeline links are to be constructed, starting in Lubmin near Greifswald, where the Nord Stream pipeline comes on shore:

- OPAL (Ostsee-Pipeline-Anbindungsleitung – Baltic Sea Pipeline Link) will transport natural gas 470 km south to the German–Czech border near

Olbernhau.

- The 440 km long NEL (Norddeutsche Erdgasleitung – Northern German Gas Link) will terminate at Rehden in Lower Saxony.

OPAL NEL Transport will take on the role of network op-

Gazprom, and Wintershall, Germany's largest crude oil and natural gas producer. The firm is active in natural gas trading and distribution in Germany, Belgium, France, Great Britain, Austria, the Czech Republic and Denmark, and, in the role of an EPC, responsible for the erection of OPAL and NEL. Another notable example of Wingas' construction competence is the largest natural gas storage facility in Western Europe, in Rehden. It represents roughly a fifth of the entire storage capacity in Germany and thus makes a sustainable contribution towards supply security in the country. Key business figures for 2009 are:

7,6 billion Euro Net Sales (-15,8 percent compared to 2008), 392 Million EBIT (±0 percent), and 382 employees (+4 percent).



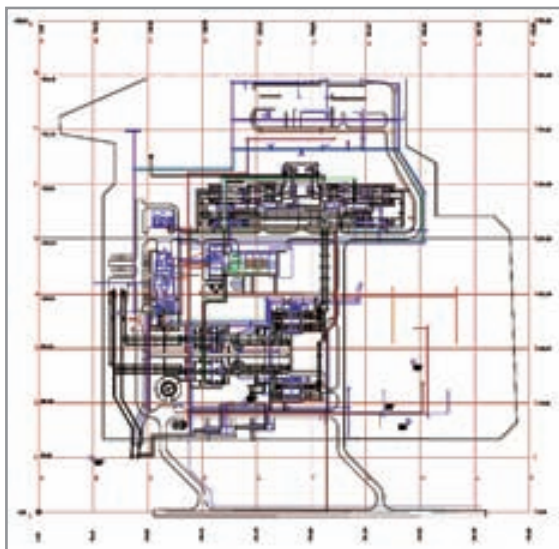
To further increase supply security and ensure that Germany's and Western Europe's demand for gas imports is covered in the long-term, OAO Gazprom (Moscow), BASF (Ludwigshafen/Germany), and E.ON Ruhrgas (Essen/Germany) signed an agreement in principle in the fall of 2005 for the construction of the so-called Nord Stream pipeline. Covering a distance of around 1 200 km through the Baltic Sea, the Nord Stream pipeline will be laid from Vyborg (Russia) to the German Baltic coast near Greifswald(1).

As early as 2005, European energy provider Wingas (Kassel), a subsidiary of Wintershall Holding (Kassel) and Gazprom export agreed on arrange-

erator for OPAL and NEL in the future. OPAL is scheduled to come on stream in 2011. The approval processes in Mecklenburg-Western Pomerania and Saxony have already been concluded, and the first pipes were laid there in October 2009. The authorities have given the approval for the construction and building permit for the complete OPAL. NEL is to come on stream in time for the commissioning of the second Nord Stream offshore pipeline in 2012. The planned OPAL and NEL gas pipelines are to be connected to WTKG's long-distance gas pipeline network, among others (see map). Wingas was formed in 1993 as a joint venture between the world's largest producer of natural gas,

All-in-one supplier requested

In a talk with our editor, Christian Manshausen, piping design engineer and responsible for the CAD-system at company's Kassel-site, spoke about the successful introduction and deployment of CADISON® R9 for a redundant free and integrated 2D/3D design process. Before the introduction of the design planning suite in January 2009, a detailed benchmarking has shown up soon that CADISON® will be on the short list: "Since we are in close cooperation with architects, one of our main selection criterias was", Mr Manshausen remembers, "that the future tool should run on top of the Autocad platform to avoid interoperability problems." And this in fact is true for CADISON®. Fur-



thermore, the system provider, ITand-Factory GmbH based in Bad Soden/Germany (ITF), convinced with remarkable short reaction times on any kind of inquiries. "One face to the customer was crucial for us", Mr Manshausen adds, meaning that Wingas would like to have only one vendor delivering the plant-engineering-IT tools, namely Autocad updates, 2D/3D plant design, and review tools to avoid misunderstandings in responsibilities for the support. In summary the CAD-responsible states: "Most of the special requests ITandFactory could fulfill immediately. In particular, we really appreciate the direct access to vendor's software development department if something had to be customized".

Now, five seats of CADISON® Release 9 are running on top of Autocad 2010 in Kassel. They are used to generate the P&IDs and the detail engineering in 3D (3D-Models, isometrics, reports, etc.). Objects for standard equipment items are defined under the help of the catalogue application Matpipe, non-standard parts are modeled by using special functions of Autocad. All this information is also used creating isometrics. The database of CADISON®, a licensed product from Versant, works "fast and absolutely reliable", as Mr Manshausen assures, preventing the users from data redundancy. Most advantageous of the system architecture is its ability to provide a total integrated 2D/3D design process.

Data exchange to the electrical side of the design takes place via CSV for-

mat (MS Excel). Wingas uses Eplan PPE (2) for the electrical documentation, and Autodesk Navisworks for design review, clash detection and the generation of 3D renderings. But: "Although clash detection can automatically be performed by Navisworks I prefer to trust my own eyes, e.g. analyzing manually below grade intersections of pipings and cable trays", Mr Manshausen says.

Due to its large size, the design of the natural gas reception station at the German Baltic Sea shore is not of a straightforward type. The Lubmin site will process more than 55 Bil-

No straightforward design

lion m3 natural gas annually. There, the gas comes on land and first will be cleaned, then pre-warmed and afterwards reduced in pressure. To meet very high safety standards, all equipment items have to be carefully dimensioned and analyzed already during the planning phase. That was the reason why a few years ago Mr Manshausen has decided to choose the CAE application Rohr2 (3). The CAE application calculates the elasticity of piping for various cases (operating, emergency blow down, etc.).

For Mr Manshausen it was obvious that only an automated data exchange between the plant design tool and the CAE program guarantees the fulfillment of the comprehensive requirements. Hence, the vendor was asked to deliver a powerful interface between both tools. Indeed, under active support by Mr Manshausen and in close cooperation with Sigma1, ITandFactory programmed an error-free tool-to-tool communication: A remarkably high success rate in between 95 and 99 percent of all data imports to Rohr2 could be realized. This is a fantastic value for an interface

proving that the team did a very good job. Within minutes the data import into Rohr2 and the corresponding preprocessing is finished. And by the way, in order to run a calculation process only by pushing a button such a high quality interface is absolutely necessary; otherwise one has to interrupt the process repeatedly and check the results manually.

Close the loop

Progress never stops, and Wingas wants to go further as well. Mr Manshausen has in mind a bidirectional interface between CADISON® and Rohr2: "Modifications on the design made

within the Rohr2 application should be automatically referenced back to the CADISON® database", Mr Manshausen explains. If this is realized a closed loop between design and calculation will push forward the engineering process onto the next level of efficiency. But at the moment some patience is requested. According to ITF's managing director, Georg Kremer, this feature will be available in 2011 or in 2012. But Wingas will not have to wait to the brand new 64 bit version of CADISON®. It will be presented during the International CADISON® Conference 2010, taking place end of September in Darmstadt/Germany, and will be released by the end of this year.

source: *Economic Engineering*, 2011-01, Dr.rer.nat. Bernhard D. Valnion

(1)Wingas Annual Report 2009:
for further details see www.wingas.de,
(2)www.eplan.de,
(3)www.rohr2.de



Christian Manshausen, Wingas

Photos / Source: Valnion / Wingas 2010

R10.1 brings real DWG-Export to Visio

PID-Designer for Visio® is completely integrated into Microsoft Visio Professional (2007 and 2010) and is marketed by ITandFactory as an independent product. It frequently happens in the project business that P&ID's are to be delivered even in the DWG/DXF format because of contractual obligations. Unfortunately, the standard DWG/DXF-Export for Visio provides only insufficient results with drastic discrepancies of "technical information" in drawings so that such information is sometimes no longer sufficient for users.

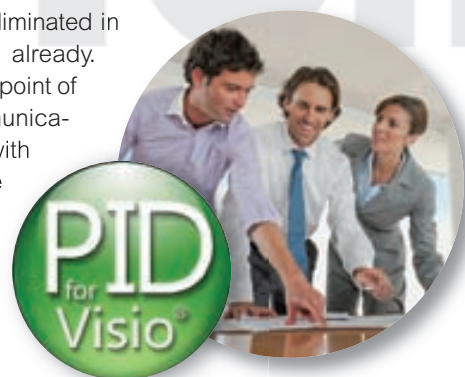
The following problems are identified by product management of ITandFactory:

- Faults in conversion of shapes: For instance, circles are exported as ellipses, or ellipses become distorted
- Line colors of shape geometries and links are not adopted correctly
- Line thicknesses are not adopted correctly
- Fillings and/or hatching patterns seem to be lost
- Line ends (arrow heads) are not adopted

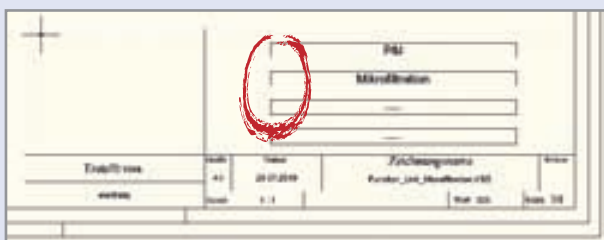
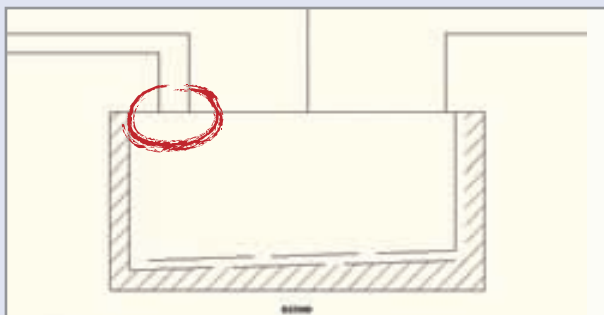
- Upset and/or stretched texts are not adopted correctly (AutoCAD does not know upset or stretched texts)
- Texts are frequently provided with frames or lines
- Self-defined line types, patterns and fillings are not adopted.

Therefore, ITandFactory decided to develop a new interface for elimination of this problem. The major share of above-mentioned problems will be eliminated in the version 10.1 already.

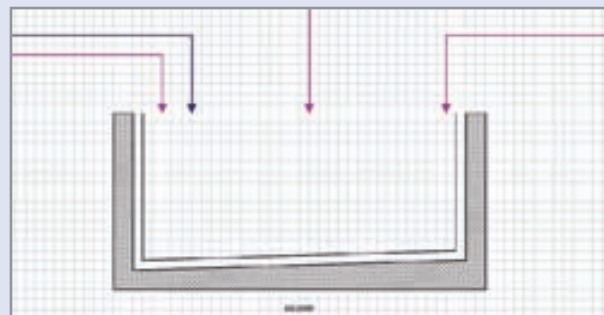
From the technical point of view, direct communication takes place with AutoCAD via the OLE/.Net interface. As a result of this, we have all functions from both worlds available for use.



Visio Original – DWG-Export



PID-Designer for Visio® – DWG-Export



Two P&ID-Solutions: Different Approach – Same Datapool

ITandFactory GmbH headquartered in Bad Soden, Germany, includes two P&ID solutions in its portfolio. CADISON® P&ID-Designer is based on the Autocad graphics engine while the more recent development PID-Designer for Visio® is based on Microsoft Office Visio (3). Both solutions work with the object-oriented CADISON® database. CADISON® integrates the engineering workflow in one system and consequently accelerates the planning process significantly.

Besides the main modules such as Project-Engineer, P&ID-Designer, 3D-Designer, Electric-Designer and Matpipe (pipe classes and components), for special applications, add-on modules are available for ERP interfacing, archiving, stress calculation, web project access and steel construction.

Users can enjoy the benefits of the CADISON® database – multisite working, access to symbol libraries, freely selectable standards, consistency checks and report generation. The labelling system (the standard is DIN + KKS) can be extended specific to customer needs. “Both solutions are definitely justified,” comments Sebastian Dörr, Sales Director for Europe, “and address different user levels. If a user works with Autocad, he’ll probably want to continue working with P&ID on this platform as he is already familiar with the user interface and mode of operation.” Dörr adds: “If, however, the user wants to take a new direction and wants to equip engineering and sales with one common tool, then we recommend P&IDs on the basis of the intuitively operated Microsoft Office Visio.”

The two solutions have the same scope of functions. The deciding criteria are the operability and the price – and on price, the Microsoft Office-based solution is unbeatable. And both tools permit individual customizing, to adapt, for example, the attributes for layers, line styles, colours or fonts to company standards.

Key features and benefits are:

- Bidirectional dataflow
- Rule-based inheritance
- Extendable standards-compliant labelling systems
- Efficient utilization of intelligent components
- Multisite working
- Multi-language support – multi-language documents.

As CADISON® is always used as a data pool, naturally it is also possible to generate any reports and lists, such as a



Claus Quast, Visio Competence Manager Microsoft, presenting PID-Designer for Visio® at CIC 2010

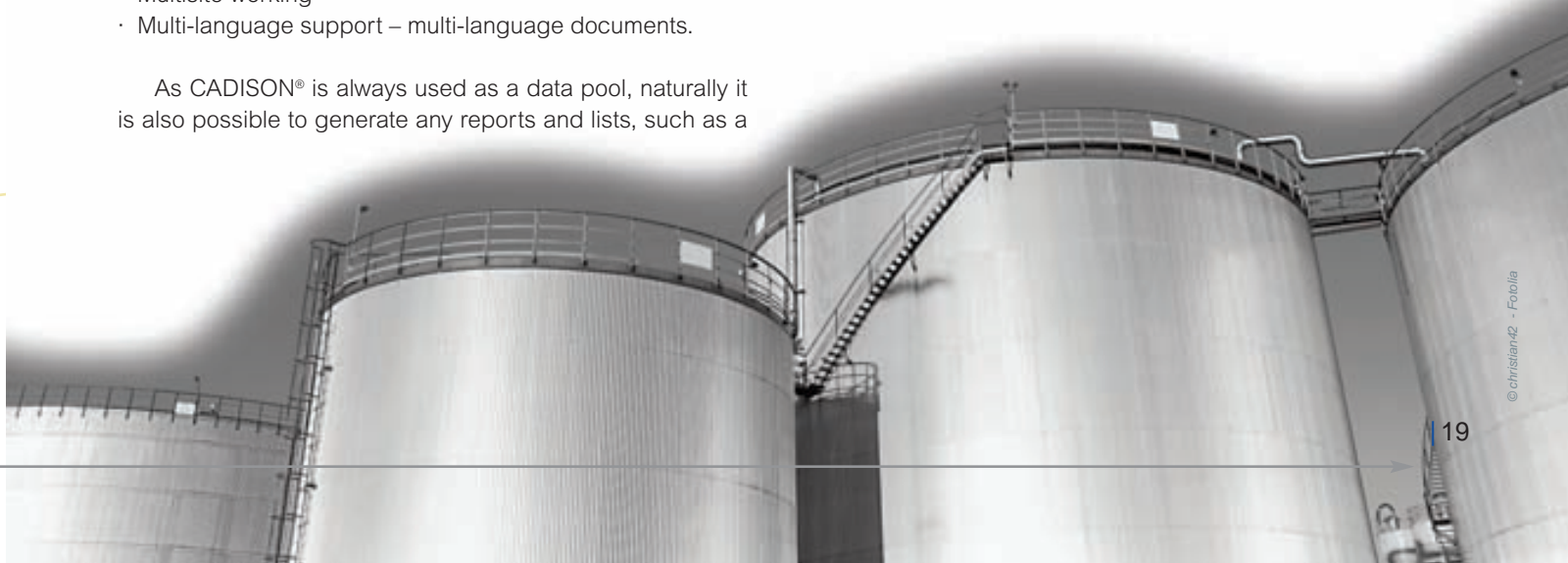
list of valves and accessories, a specifications sheet, or a cost listing as the basis for a tender. CADISON® does not prescribe to the user in which order and with module he has to work. So the tender planner can create the first flowchart with CADISON® P&ID designer by drag & drop and derive the first lists for tenders or quotation requests.

In the next step, detail planning is completed at the 3D designer workstation. In each case, changes in all CADISON® modules are made visible, eliminating any risk of incorrect planning. If an object is added during 3D detail engineering, this can also be displayed and edited in the P&ID-Designer as well as in the Project-Engineer.

Talking about being spoilt for choice, Dörr says: “The choice naturally depends on the requirements of the potential user: Who is going to work with the solution? Another issue is no doubt the industry! The Autocad-based solution is accepted in the traditional planning markets – thanks to its familiar user interface, the Microsoft-based solution is not tied to the process industry and is, so to speak, open to all industries.

For ITandFactory the answer is meanwhile clear: “We therefore favour PID-Designer for Visio®,” explains Dörr and points out that PID-Designer for Visio® is to be used increasingly in tackling new markets.

*source: Economic Engineering, 2011-01,
Dr.rer.nat. Bernhard D. Valnion*



CADISON® R10.1 –

Advanced Security Concept

CADISON® intrinsically has a fully perfect security concept. Each access to project data and files is secured through the user administration.

Let us take CADISON® Project-Engineer for example:

- Project-Engineer is started and
- The user must perform the CADISON®-Login (after that, CADISON® controls all further accesses to projects and associated files).
- Project selection appears in the form of a Tree-Dialog. The user has to select a project – and the user verification follows to make sure that the registered user has the right to get access to the selected project.
- Provided the access is assumed, the project will be opened.
- In addition to that, the so-called visibility control in the project defines which user is authorized to get access to certain objects.

- This mechanism forms even the basis for administration of documents and document groups in the database. Thus only “authorized access” via the “Tree” in Project-Engineer is possible.

Consequently, the CADISON® database has one database “File” for each file existing in the file system (drawing, list, report etc.) – the reference to a physically existing file. All files are stored in a central project repository on the CADISON® File-server. The extended safety concept of CADISON® R10.1 responds here and controls such cases of access. In the future access to projects will be approved or prohibited in a more differentiated mode. Among others, revised files are stored so that they are made unchangeable.

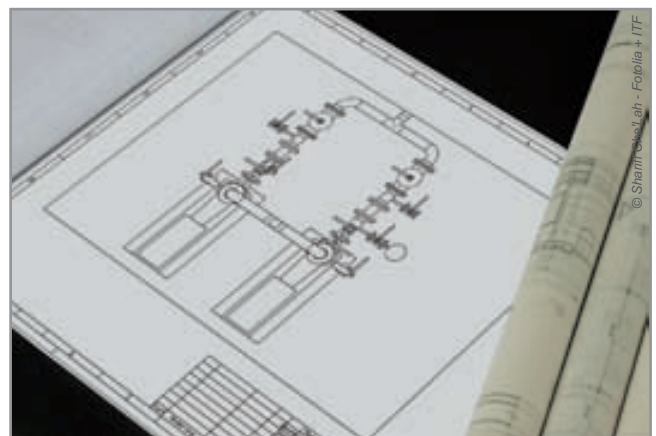
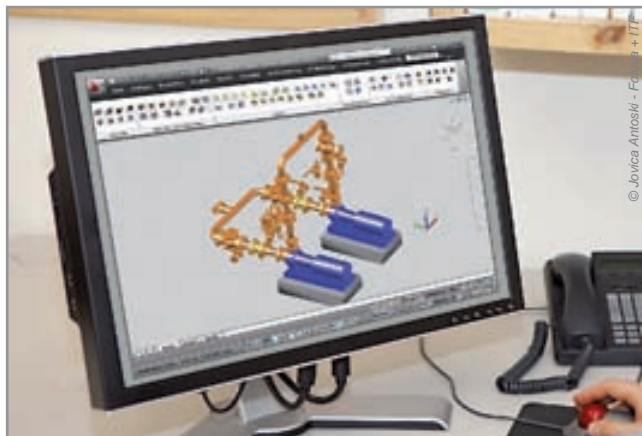
Enhanced 2D-Extraction for supporting the assembly process

Some of the CADISON®-users are asking for a 2D-extraction. What do we understand and what is the technology behind? Normally all needed information about a plant could be viewed directly in the 3D-model. Also it is possible to create multiple sections of this model.

Usually manufacturers or workshops don't have the powerful CAE-Tools like designers have. Therefore they need easier digital prints or at least only a paper print. Nevertheless do they need exact data about the design. Here we go with the new

2D-Extraction: This interface calculates a 3D construction-plan into a 3D-model – but converted in a 2D-area. So the first look is exact the one on the screen, but in reality it's a print on a paper.

The advantage of this 2D-Extraction is to have more precision within all the descriptions and measurements. So a manufacturer can get the exact length out to the plan – and if dimensioning is missing – with a ruler direct from the print.



Checklist for Creating Pipelines

The process for creating pipelines is a workflow through the whole engineering process and differs from company to company. The planner has to go through different steps, while the Project Manager needs the information at every time. The work is normally done from different people at different times. So it is the difficult for the Project Manager, to have an overview to the real status in pipeline working. The checklist below help the planner to go true each point in the workflow, where he has to sign every step in his work.

Needless to say, that you also can create this list inside CADISON® and work on it to share it with the other planners!

Author: Michael Brückner, ITandFactory



Description		Date	by
<input type="checkbox"/> 3D-Routing is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Pipeline is checked with P&ID	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Overlay is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Connections to EQP is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Flow direction is placed	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Insulation value is filled out	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Insulation Spec Property is filled out	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Tracing Spec is filled out is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Primary Support is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Secondary support is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Text marking with primary support is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Quality check is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Design review is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Stress calculations is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
Design review			
<input type="checkbox"/> Design review is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Clash check is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Required date are filled out	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
Isometrics			
<input type="checkbox"/> Isometric pre check is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric preview is done	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric data are complete	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric is ready for plotting	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric is plotted	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric is approved	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____
<input type="checkbox"/> Isometric is given to the customer	<input type="checkbox"/> not required	_ _ _ _ _ _ _	_____

“Our staff members reach a higher productivity level with CADISON® – this means: More projects are handled easier and with reduced efforts.”

Dipl.-Ing. Jürgen Stegger, Managing Director,
Borsig Membrane Technology GmbH

“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

“Most important is to shorten the duration of the whole project even so getting higher quality for our customers. Besides that it opens an earlier and much more precise resource planning for our own procurement and workshops.”

Dipl.-Ing. Karl Laschkolnig, Department Manager,
URBAS Maschinenfabrik GmbH, Völkermarkt

“Because of having the teams working in parallel, the overall project schedule is much more tightly.”

Carsten Kollenbach, General Manager,
VPT Kompressoren GmbH, Remscheid



CADISON® – Integrated Digital Plant Model

Media- and Mass-Balances > Basic Flow-Diagram > Tender Planning > Process Flow-Diagram > Equipment List > Preliminary 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

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3. CADISON® Inter ends with mor

Presentation of CADISON® R10, the 50 %-idea an



With the terms “practical experience and strategy” the conference can be summarised best.

Practical Day

The first day was characterized by four different workshops; the topics for each had been compiled through a user survey beforehand. During the breaks and also in the future evening event the participants had the opportunity to exchange experiences not only with each other but also with the staff members of ITandFactory.

Strategy Day

The second day was influenced by strategy: A highly provocative speech titled “The 50 %-idea” held by Prof. Dr. Wozny (TU Berlin) enlivened already at the beginning the discussion. Today it still may take up to 10 years from product idea to industrial production. The 50 %-idea which was developed during the Tutzing-Symposium 2009 focuses basically on modularisation and the accompanying massive time saving! Faster and more cost-effective engineering are no longer visions! On this both managing directors of ITandFactory Georg Kremer and Hans Ekdahl took a stand.

Ketan Bakshi, CEO of Neilsoft – Neilsoft is besides TRIPLAN majority shareholder of ITandFactory – ventured into the technological future and positioned ITandFactory clearly as a Solution Provider!

International Conference 2010 in Darmstadt

More than 100 attendees

and live-user references were some of the outstanding topics

Solution Provider

ITandFactory is, with its partner and the Neilsoft-group, the only provider on the CAE-market to offer besides its software solution CADISON® and the implementation of same also engineering services as comprehensive package. This was presented through a vivid live broadcast to Indonesia. In the future special industry packages (Power, Pharma, Food & Beverage etc.) will be made available.

Success

The customer success stories were conversational topic no. 1 of the participants. So during another live broadcast to the Ukraine a complete power plant project was presented.

Microsoft

The simplicity and easiness of the new PID-Designer for Visio® will revolutionise the engineering workflow through further developments of Microsoft. The cloud will play an important role in this.

CADISON® – The Future

The final highlight of the speeches was the outlook into the future of CADISON®. Beside more efficient tools, integration and standardisation remain key topics of the future. CADISON® user will be able to supply data to all external systems in the future.

Customers Design the Future

More than half of the conference attendees have verbalised and prioritised their wishes in the afternoon:

2D-Extraction, Cross-Site working, better Inventor-Interface, improved undo function, stronger integration of 3D-modeling system were only some of the much discussed topics.

Efficiency Enhancement

At the end of the conference efficiency enhancement measures were being raffled under everyone present: The first price – 3 days Efficiency Consulting onsite – winner: Dr. Bamberg (Merck, Darmstadt), the second price – 1 day Efficiency Consulting onsite – win-



The winner: Dr. Bamberg, Ms. Gröbel, Mr. Magerkohl

attend next year's conference. The success stories were very positively rated as well as the CADISON® future workshop.

The next CADISON® International Conference

22 – 23 September 2011

CiC 2011

ner: Ms. Gröbel (Göcking, Oelde) and the third price – a Training of one's own choice at ITandFactory – winner: Mr. Magerkohl (IWT, Hannover).

Very High Satisfaction

Our attendees judged: The CiC 2010 was a very successful conference with a high satisfaction- and recommendation-rate. The vast majority of participants were already sure, that they'll

Future of CADISON® – First Results of the CiC 2010 Workshop

Some of the wishes of our customers had found their way into the new release CADISON® R10.1 – coming out in May 2011: we'll have a lot of performance-optimizations, a new 2D-Extraction, a Visio-DWG-Interface und a comprehensive Security-Concept.

→ Please find details on page 15, 18 and 20 – CADISON® R10.1



Hans Ekdahl, Managing Director ITandFactory



Sebastian Dörr, Sales Director Europe ITF



Ketan Bakshi, Managing Director Neilsoft



Georg Kremer, Managing Director ITandFactory



Prof. Dr. Günter Wozny, TU Berlin

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ITandFactory is a joint venture between Neilsoft Ltd. in India and TRIPLAN AG in Germany, and with this combination we are uniquely positioned to provide our customers with solutions comprised of software, process oriented IT tools & the associated design concepts.

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