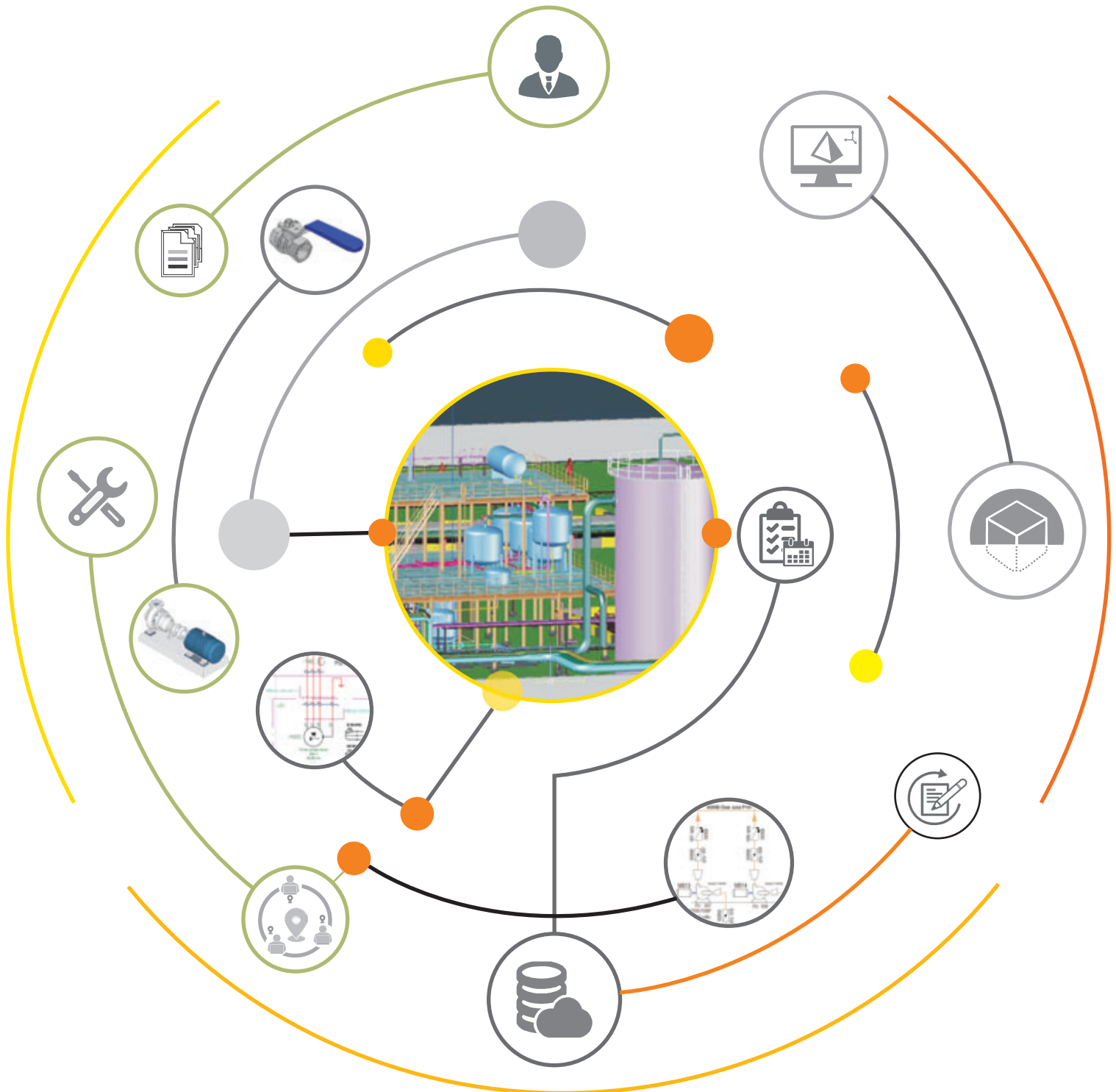


CADISON[®] WORLD

EXPERIENCES & NEWS

Accelerate Digitalization, Remote Working & Engineering
Harmonization initiatives with CADISON



Connecting The Engineering Dots



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<https://www.linkedin.com/company/cadison3d>



<https://www.xing.com/companies/itandfactorygmbh>



<https://www.youtube.com/user/ITandFactory>



Ralf Lehmann



Ajit Joshi



Michael E. Brueckner



Stefan Kraus



Falko Meier



Prashanth Chunduri

Dear CADISON Customers,

Welcome to CIC 2021!

This year once again we bring to you a Virtual CADISON International Conference.

Year 2020 marked the historic landmark year and since then we all have witnessed living our lives with the New Normal. Our technical team has been rigorously working to ensure CADISON to be the most suitable solution for your renewed engineering needs, allowing Remote working and Collaboration even through the difficult period of pandemic restrictions. Thanks to your accelerated adoption of Digitalization and Harmonization initiatives, we are happy to inform that in terms of our CADISON license growth, as well as adding new CADISON customers, the year 2020 was one of the best years for us.

The theme for this year's CIC is Connecting The Engineering Dots.

'Connecting the Dots' is a metaphor to illustrate the ability to see the big picture by bringing together the information from disparate pieces. This perfectly depicts the inherent power of CADISON in the Engineering context, which enables multiple users from different divisions and organizations located in various geographies to seamlessly work together by combining information, data, workflows and applications intelligently.

We are happy to inform that the CADISON footprint continues to grow globally and in past 3 years, we have added new customers in Poland, Hungary, Czech Republic, Slovenia, France, Italy, Spain, UK, South Korea and Australia.

Lastly, we are excited to update you about our very first turnkey project-helping our Customer with their Analog-to-Digital initiative, by converting the point cloud data from a scan of the complete plant into an intelligent 3D model of CADISON. We expect a growing demand, thanks to Hydrogen initiative as well as the general drive towards Digitalization, and are actively working to make CADISON the best solution for such Scan-to-BIM opportunities.

Sincerely,

The CADISON Executive Team

Top Features of CADISON R21

CADISON R21 is available on latest version of AutoCAD 2022

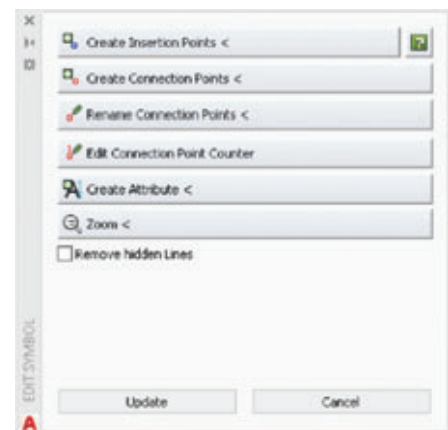
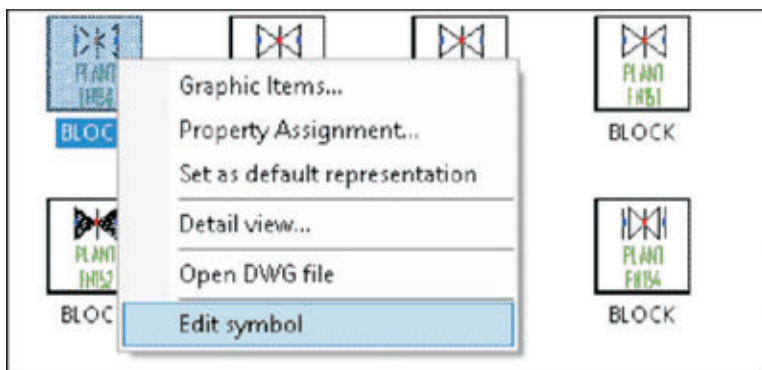
CADISON R21 is now compatible with AutoCAD 2022 platform on Windows 10 operating system with 64-bit architecture. It also supports AutoCAD 2020 and AutoCAD 2021 for customers who are still in the migration phase but want to get all the benefits of CADISON R21.

Symbol editing made easy with new Symbol Editor

In response to the requests from many of our customers, CADISON R21 comes with a much easy way to edit the symbols in the library. It is now possible by the new 'Edit Symbol' command, which can be invoked from 'Object Manager' in Designer environment.

From Object Manager, you can select the symbol graphics to edit it. The graphics, attributes, insertion points and connection points can be added, deleted or changed as required and then use the Update button at the bottom of the dockable dialog box.

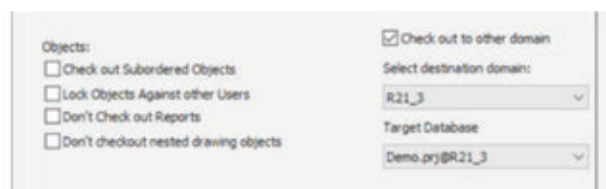
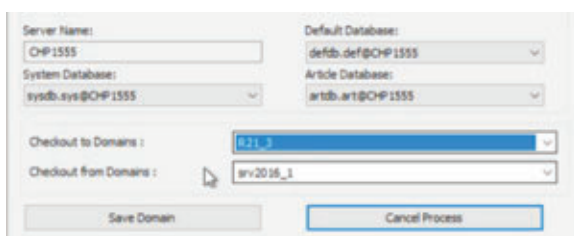
To update the already placed symbols in the current drawing, symbol can be updated with the new graphics using the Exchange Graphic Representation command.



Check-Out Drawings to work remotely

When working in Client-Server mode using a company's LAN architecture, then the Check-Out and Check-In mechanism is ideal for working from locations outside the office server. This is a very useful for people working remotely and they do large amount of data transfer frequently doing their daily work. Now you can Check-out the Working data to your local desktop to continue with the work. The completed data can be checked in again and synchronized in the Project database on server easily.

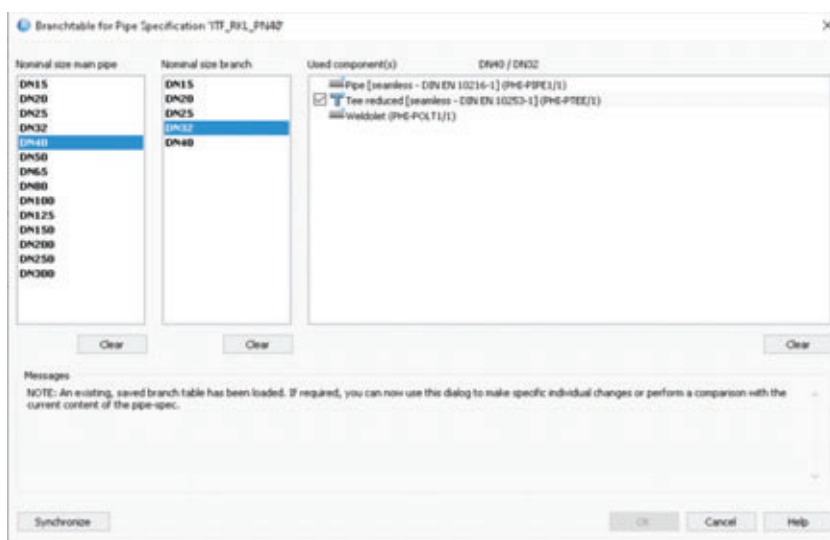
- Configuration of a client domain and the selection of Server and Client using Domain Assistant
- Checked out of drawings and data - from the server to the client (Check-out-push-mode) or on the client from the server (Check-out-pull-mode)
- Check-in of the completed drawings and synchronization of Object data on the server
- Any conflicts with data on server can also be checked and resolved before Check-in of data



Top Features of CADISON R21

New GUI based Pipe Spec Branch tables in MATPIPE

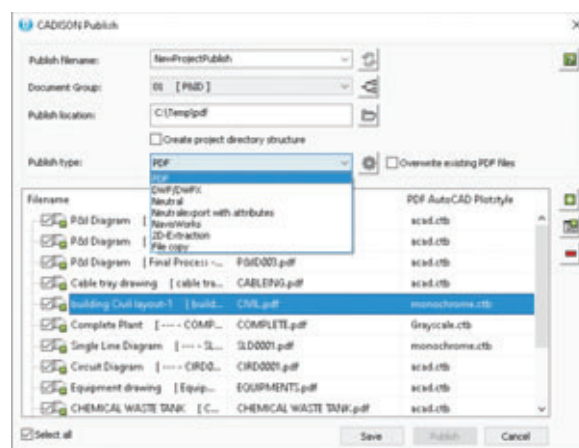
MATPIPE provides a new Graphical interface based feature to easily define the Branch tables in a Pipe spec and configure it as required. You can now select and configure the type of branch based on nominal size. It supports both Tee and Outlets for the branch Pipeline.



'CADISON Publish' configuration for Automated export from Designer

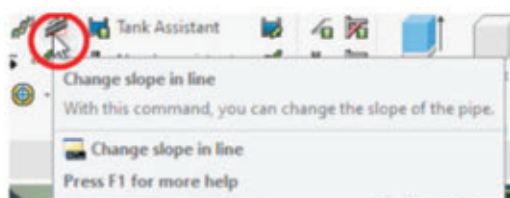
With 'CADISON Publish' it is possible to define any number of file export configurations. User can now define an export set with any number of drawing and documents. User can also define export configuration the export file type for PDF files, DWG files (original file and NeutralExport DWG files), 3D DWF files, NavisWorks (NWC) files and 2D Extraction (2D DWG file created out of layouts). It also supports selection of AutoCAD Plot styles for 2D publish to PDF files.

Export configurations are stored in Project database and the configurations can be executed at any time in Designer. The processing is done in background by utilizing all the available CPU cores.



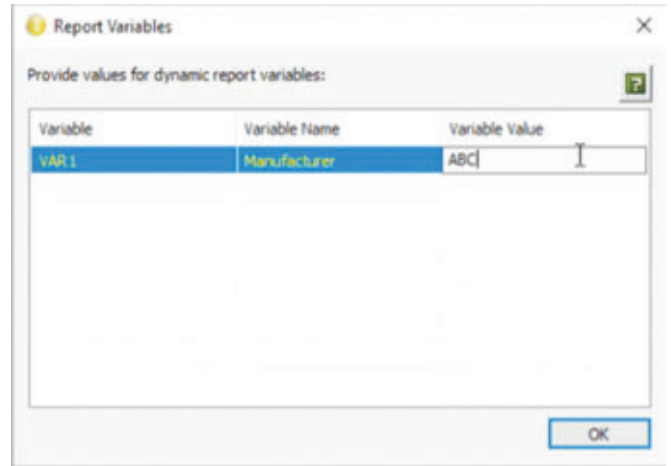
Easy to Change slopes in 3D pipelines

CADISON Designer now offers a command to change 3D pipelines to sloped 3D pipelines. It allows to convert straight horizontal segment to slope pipeline or convert slope pipeline segment to straight horizontal segment. The Change slope value can be entered in Degree or in Percent (° or %).



CADISON Reports: new property filters with variable values

CADISON Reports now have the feature to define up to 20 variables like Date or Manufacturer name or other variables. These variables can be used in the report template files in report queries. On report creation CADISON asks for values for these variables to be entered. After report is created, CADISON stores the given values of these variables for the created report, and when updating the report, CADISON automatically uses the same variable values to run the report. This allows the definition of dynamic / variable reports, like a manufacturer specific component list.



Variable	Variable Name	Variable Value
VAR1	Manufacturer	ABC

Enhancements in IFC Interface

CADISON R21 also supports exporting building structure objects (building and floors) to IFC file. Objects which are manually assigned to buildings and floors are exported including the building and floor data.

Dynamic property export: Based on an Object Master property, CADISON can export different properties to IFC files. For example, the exact type of a compressor or a valve can be defined by the TYPECLASS property, and based on the exact type, it is now possible to export different properties and to give type specific property names for the export.

Enhanced CAD and Inventor Import

The enhanced import functions can be used to import 3D components and equipments. During import, the user can define pipeline connections for the imported geometry based on the Nominal size and Pressure rate and Connection standard, Connection type can be defined as Weld, Flange and Nozzle with flange. For every defined connection a CADISON Pipe specification can be assigned for use. Based on Nominal size and Connection type and with the help of the assigned Pipe spec, CADISON creates native piping connections with full CADISON logic. When connecting CADISON pipelines to these pipe connections, all required connection elements are created automatically.

Enhanced Form Designer and User Input Forms

The Input forms now support adding graphics in forms. Different graphic objects can be added to an Input form like rectangles, ellipses and lines to separate different areas in a form. Define graphic properties of graphics, like line / outline color, line thickness and fill color are also possible in the new interface. It allows to define 'tab order' of controls and allows to define the order of the input fields which should be used when navigating to a form by using TAB key and RETURN key. Multiple forms can be loaded in Form Designer simultaneously to enable copy and paste of controls between multiple forms.

CADISON R21 has many new features. Also the existing feature and functions are enhanced to give more improved performance and efficient working for best User experience. Keep watching for more in CADISON Release notes and CADISON Newsletters for details.

CADISON Maintenance: Lifecycle Management for Plant operations

Plant Maintenance is a set of cost-effective practices to keep plant operational over longer period. This involves specific functional checks, servicing, repairing or replacing of necessary devices & equipments, machinery, building & infrastructure and support utilities in the plant.

The operation of a plant usually needs variety of tasks to be managed, such as regulatory and legal requirements, maintenance cycles, remodeling and renovation and system optimizations, which are just a few examples of the tasks. It also enables the user to recognize the possible challenges within technical system in good time before a failure occurs. The time and cost optimization also play an important role for all plant operators in terms of keeping the plant operations competitive.

In CADISON, most of the data required for maintenance is readily defined and generated during the design and planning phases, e.g., Designation, Material, Order number, Article number, Type number and Manufacturer, etc. Being able to use this data directly in the lifecycle of the system is an important advantage for the continuous use of data with CADISON. The planners can hand over the object data, drawings and 3D models to the operator for use and thus combine range of services in the plant.

Code No.	Counting	Complete	Object Description	Installation date	Last smaller service	Next small service	Maintenance
002	-0/00	-	REBOILER-5	20.04.2021	---	20.10.2021	1M
001	-0/01	-	EVAPORATOR VET.	20.09.2021	---	20.10.2021	1M
001	-0/01	-	EVAPORATOR VET.	20.10.2021	---	20.11.2021	1M
002	-0/00	-	DISTILLATION COL.	20.10.2021	---	20.11.2021	1M
019	-0/00	-	HEAT-EXCHG-4	20.10.2021	---	20.11.2021	1M
010	-0/00	-	ACQUIFICATION	7/1/2021	6/1/2021	9/1/2021	1M
001	-0/00	-	REBOILER-2	7/12/2021	6/1/2021	9/1/2021	1M
004	-0/04	-	REBOILER-5	7/11/2021	6/1/2021	9/1/2021	1M
019	-0/00	-	DISTILLATION COL.	7/11/2021	6/1/2021	9/1/2021	1M
010	-0/00	-	DISTILLATION COL.	7/11/2021	6/1/2021	9/1/2021	1M

Object Class	Installation date	Last smaller service	Next small service	Last large service	Next large service	CO-Object ID	Database	Project
Process	20.09.2021	---	29.10.2021	---	20.09.2022	13.0.366252	Integral...	Mainte...
Process	20.10.2021	---	29.11.2021	---	20.09.2022	13.0.366254	Integral...	Mainte...
Process	20.10.2021	---	29.11.2021	---	20.09.2022	13.0.366253	Integral...	Mainte...
Process	20.10.2021	---	29.11.2021	---	20.09.2022	13.0.366254	Integral...	Mainte...
Process	20.10.2021	---	29.11.2021	---	20.09.2022	13.0.366252	Integral...	Mainte...

Based on this information from planner, a time schedule of the upcoming maintenance work can be created for each individual component of the plant. The intended workflow can be briefly described as follows:

- The Project Manager sets a maintenance flag in Project Engineer for the projects that are subject to maintenance. Maintenance dates such as 'Installation Date' and dates for the 'Next Maintenance' should also be set here
- Preparation of the maintenance data, calculation of the services dates and selection of the objects for maintenance is done in the Online module of the Maintenance tool and exported through a transfer file to the Offline module for use at the plant site
- The services team at site receives the transfer file in Offline module using a standard Windows system, performs the maintenance activities and updates the details for the objects identified for maintenance using the Offline module and then save the data again in the Transfer file and it can be imported back into the CADISON system using Online module
- The 'Inst-Scheduler' has the task of checking all project databases for Due-Maintenance at a certain interval and displaying Due-Databases. The scheduler is typically started via the Windows 'Task Scheduler'

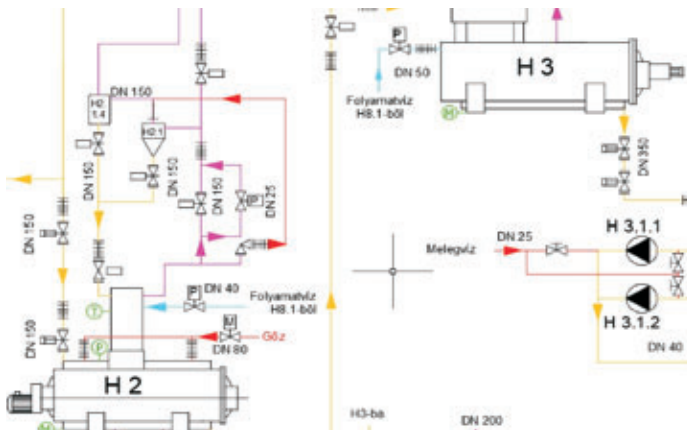
CADISON Maintenance module advantages:

- Automatic generation of Maintenance dates and lists by reuse of CADISON data
- Time and cost savings through integrated automation with always up-to-date information

CADISON helps Titech60 maximize their Design efficiency and accelerate turnkey installations

Titech60 KFT established in 2004 in Hungary, is a General Contractor and Consulting company in the Byproduct-Rendering industry, specialized for poultry solutions. The main activities of Titech60 include designing, on-the-spot installation and putting in operation of technologies for the disposal and utilization of animal by-products and wastes of animal origin. Titech60 provides environment-friendly solutions, prepare turn-key projects, technology designs and also install all required systems & equipments in short span of time. It has references in all of the Rendering plants operating in Hungary, and few in Central-Europe.

With growing business, Titech60 felt the need to look for new age 3D Design smart solutions, which are really well developed and mitigate the daily design routine issues generally faced by experienced Industry Engineers and Planners while using legacy tool sets and improve the overall design efficiency. For Fitting and Installation team, one of key requirement of the new solution was to have high Planning efficiency and easy surface visualization features of 3D designs while still maintaining all aspects of detailed drawings and documentation. Also the new tool not only had to have the ability to select modules as per different business scenarios but also maintain affordability quotient.



CADISON - Maximizing Efficiency in Process Plants

CADISON enables design of fast-track, new facilities, upgrades, expansions and modernization process in Process Industry. CADISON combines the entire engineering workflow in one system. It comes with modular architecture which allows the customer to select the modules as per their requirements. The solution is flexible, enabling users to adapt its own workflow, which can be modified quickly and efficiently to meet the company standards. With CADISON, all important information can be called up and processed at any time and regardless of location. Additionally, it also

comes with built-in ISOGEN functionality which allows the users to create Isometric drawings with only one click and share them quickly with the Pipe fabricators and Site Installation teams.

“I suggest CADISON for all CAD users who face lack of time to do design in time, do modifications on site where you face unexpected issues”



Mr. Arnold Balázs, Technical Director,
Titech60 Kft. Hungary

CADISON enhances the Design Engineering Process through integrated approach with Plant design methods and allows Designers and Engineers to work more closely together and share information back and forth on a single Design platform. This contributes to reduced errors, saves Engineering work hours, and lower Operations and Maintenance costs significantly.

M&E Solutions adopts CADISON E&I Designer as a Comprehensive design solution for large infrastructure projects in Australia

The M&E Solutions team provides unparalleled experience in delivery of Systems for road and rail tunnels in Australia. M&E Solutions has been responsible for the delivery of Mechanical, Electrical and Control systems associated with major road and rail tunnels for over 30 years. They have played a significant role in the delivery and completion of more than 16 road and rail tunnels to the demanding Australian infrastructure market. Expectations and stringent requirements increase with every project as end users require the latest technology, high quality and the benefit of learnings from each completed project. M&E Solutions brings a depth of experience as well as access to proven resources. The team adds value right from the tender phase to the development of the project design through procurement strategies, installation, commissioning and project completion.

What made M&E Solutions select CADISON E&I Designer as a preferred solution

Modern tunnel projects contain a significant number of integrated systems, large quantities of equipment and a high level of repetition of design information. Design of these systems needs to take place in parallel with the changing space restrictions imposed as the tunnelling design progresses through installation and commissioning. Due to short project timeframes and limited resources, M&E Solutions needed an intelligent design software solution that can deliver numerous repetitive drawings for their projects, and which can be maintained easily through a database system.

The key features that M&E Solutions was looking for:

- The ability to generate multiple specific drawings from a single typical drawing
- The ability to update parameters on these specific drawings via a spreadsheet or database in an intelligent way
- A database link between the drawings and the data
- Links between the various drawing types in order to detect and / or amend all relevant drawings when a change occurs
- It was also important to consider the existing engineering environment, to reduce the learning curve to match available skills, and to achieve an optimal solution between the investment in tools, hardware, IT infrastructure and manpower

CAD tools coupled with some smart database ideas allow the users to keep the physical aspects associated with equipment locations synchronized with the changing tunnel design. The missing piece in the puzzle which has turned M&E Solutions to CADISON is improving the efficiency of generating Electrical design and drawings and then providing the ability to keep them synchronized with the changing physical design.

CADISON offers all the capabilities such as links between schematics, terminal arrangements, cable schedules, asset lists and other data.

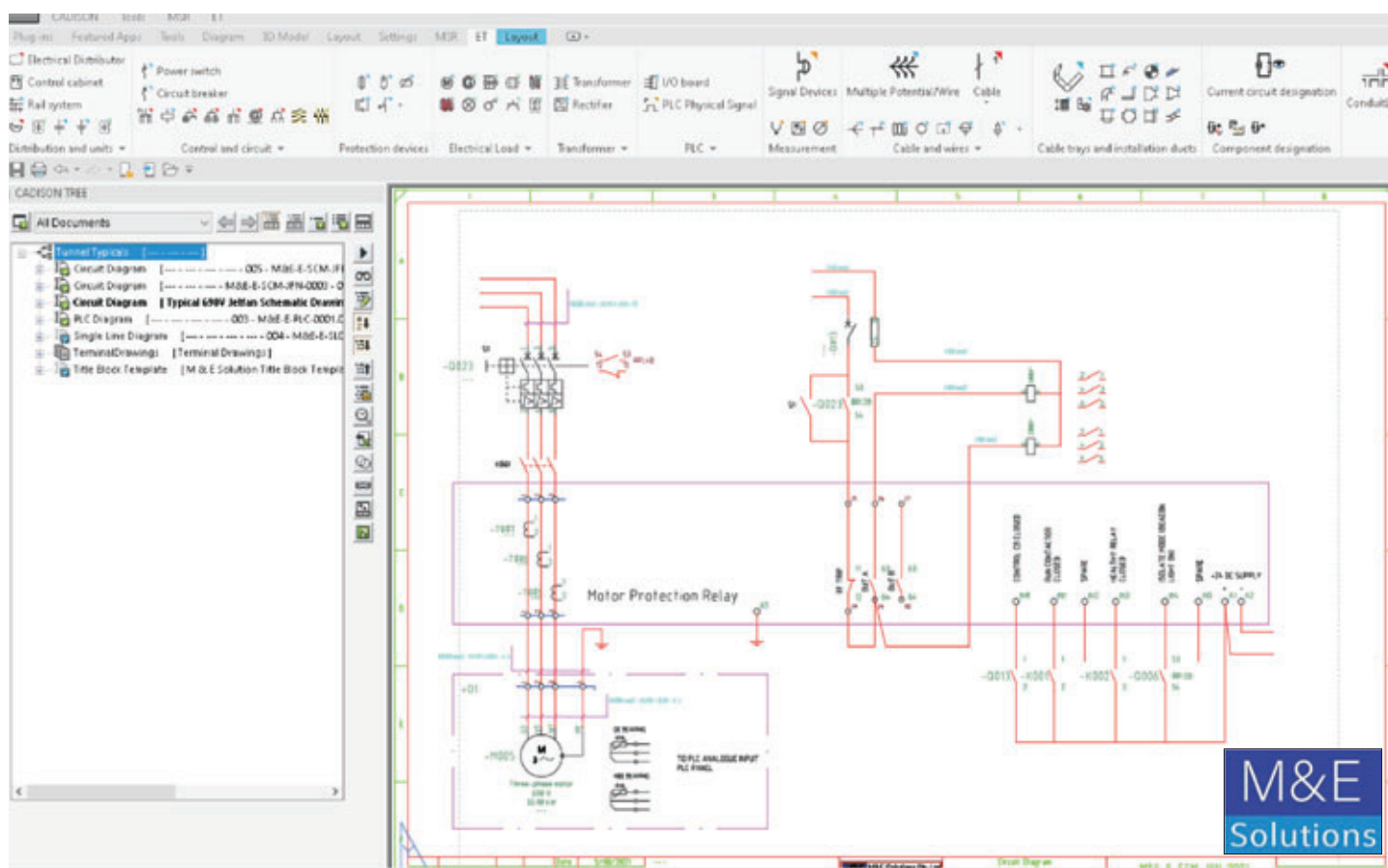
“CADISON offers most of the features we were looking for in a single package. We did find other products on the market that could offer these features, but most required the purchase of multiple products to achieve a similar functionality to that offered by CADISON through a single product.”

Mr. Peter Valeontis,
Director, M&E Solutions Pty Ltd.



Key benefits harnessed by M&E Solutions

- 30-40% reduction in drafting time with creation and reuse of unique Construction sets for whole assembly
- Easy and quick update of multiple object properties using data export / import using Excel in .xml format
- Drag and Drop functionality for frequently used symbol with customizable Symbol Palettes
- Automatic Creation of PLC drawing with the help of Excel sheets
- Customizable and Automatic generation of Reports and various Asset lists, in various formats like Word, Excel and pdf files
- Quick and Accurate creation of Terminal drawings
- Easy access to information such as cable length and 'from & to' device information, etc. with Cable Schedule functionality



CADISON Support Team – CADISON Advantage:

Though these are still early days for M&E Solutions with CADISON, it is already looking very promising. With the help of training from the CADISON Global support team, M&E Solutions' team members have familiarized themselves with CADISON in the short period and have also explored the highly flexible nature of CADISON to customize it as per their own workflow and use it in their upcoming project deliveries.

“CADISON Technical team has been very supportive to us while we became fully familiar with CADISON and finally used it in a project. We look forward to continuing this relationship in the future.”



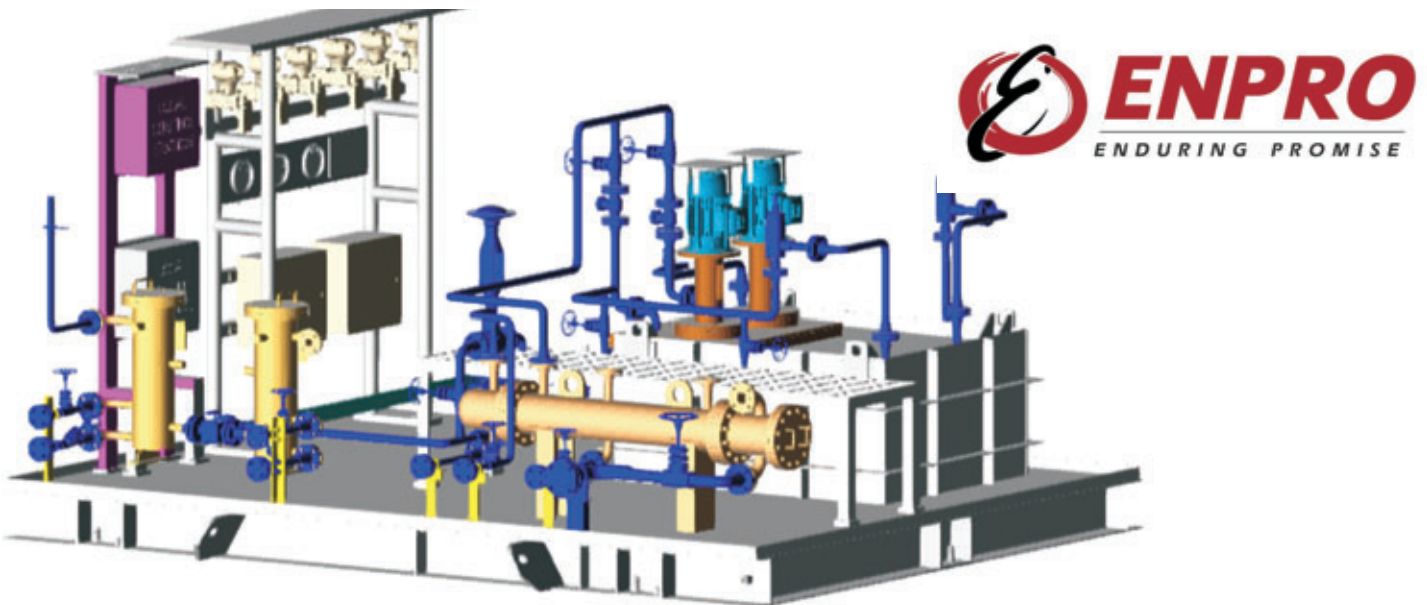
Mr. Nino Inocentes,
Senior Project Engineer, M&E Solutions Pty Ltd.

Smart & Integrated CADISON P&ID and 3D Models to improve ENPRO Industries productivity and quality to design / manufacture Skid systems by more than 30%

ENPRO Industries is a world leader in design and manufacture of mechanical fluid systems for Oil & Gas, Power, Fertilizer and Chemical industry. ENPRO specializes in all kinds of skid-based systems like Lube-Oil consoles, Gas-Seal Panels, Chemical Injection Skids, etc. ENPRO has over 32+ years of experience working with all major turbo-machinery manufacturers (OEMs), EPCs and end-customers and has supplied over 4000 skids globally.

Prior to implementing CADISON, ENPRO was using AutoCAD for creating P&IDs and Autodesk Inventor for making 3D models. However due to use of non-intelligent AutoCAD platform, the P&IDs were not smart and were not linked to the 3D models, which resulted in many miss-outs and errors during design changes and revisions. Generation of Isometrics was a time-consuming task and also the Report generation for BOM, MTOs and other lists for integration with SAP was done manually, consuming more time.

In order to address these issues, ENPRO started looking for software specialized to deal with the 'Skid' design. Skids are complex systems, as detailed as big plants, but on a small footprint – making pipe and tube routing critical. Each of ENPRO's projects comes with a different set of challenges... like complexity due to variations and requirement changes from clients during skid manufacturing. Therefore, the Revision management capabilities were an important aspect while choosing the new tool. It was also important to consider existing employee skill sets and the current engineering environment.



To overcome the challenges at various levels, the key expectations of ENPRO from the new tool were:

- Should be a Spec Driven Solution
- It should help to do space optimization in the Skids in 3D
- Ability to reuse, modify the skid designs per customer-specific requirements
- Easy and comprehensive change management, right from Concept to Commissioning

CADISON, with its Object-oriented approach, offers a tight integration of P&ID and 3D model, smart spec-driven P&ID module, a massive library of components and a Project Document Management system using

CADISON Project Engineer, all within the same solution. Right from document management to design and manufacturing and finally, handover of all deliverables to the customer as a complete single design package is the key to successful project delivery.

CADISON has several advantages and key differentiators why ENPRO chose CADISON as their next tool instead of other softwares available in market:

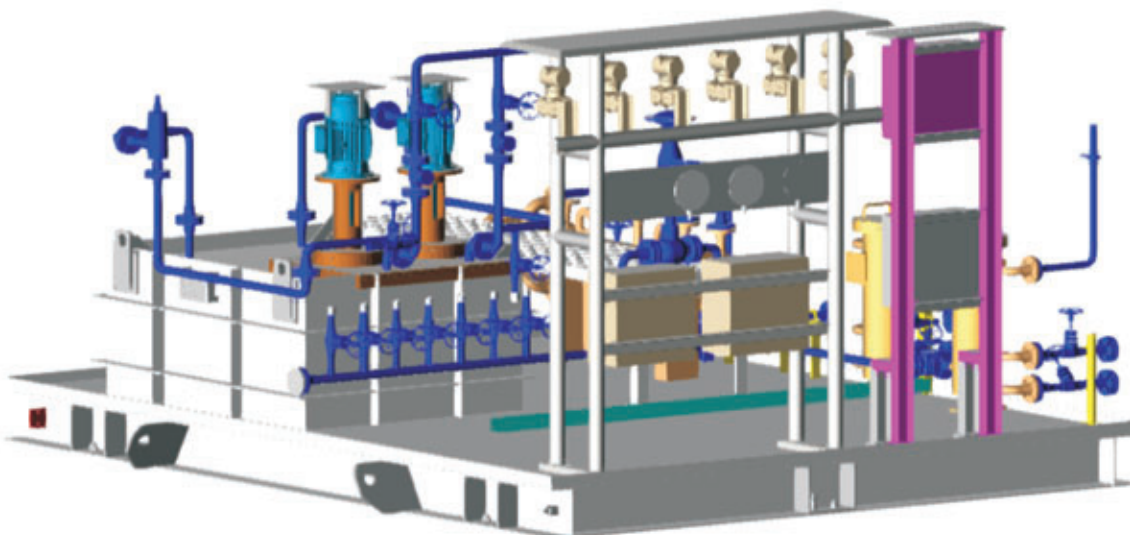
- Robust Project Document Management system in the solution
- Significant reduction in time for design, with inbuilt calculations and logical checks
- Automatic Report generation: huge saving compared to the manual methods
- Reusability of drawings across projects with easy revision management
- Built in Library of standard symbols and easy way to create custom libraries and Construction sets (assemblies)
- Integration of PID & 3D Model to synchronize and validate the unused designs
- Catalogs and Pipe Spec creation using MATPIPE
- ERP Interface functionality which enables transfer of the plant documentation into SAP (documents and meta files)
- Supports data imports and export in several formats for detailed design using neutral export and SDNF, pipe stress analysis using ROHR2 and CAESAR II, import from Inventor
- More efficient workflow and error free deliverables in all popular formats: .dwg, .pdf, .dwf and .nwc formats

“The entire configuration and implementation took close to six months, but we feel this time is required to get the software and library configured correctly. The CADISON team has been extremely supportive and continues to assist us with all our queries, doubts and suggestions – be it minor or major. We are expecting massive efficiency improvements in our design process and a lot of mistake-proofing. And we are just scratching the surface. CADISON offers a lot of features which we are yet to explore, and we look ahead to a fruitful partnership in the future”.



Mr. Anuj Karkare,
Executive Director

CADISON team supported ENPRO to create the library of symbols, components and piping specification for their business use. For ENPRO making a P&ID in CADISON takes slightly more time, however the duration taken to create the 3D model, drawings and reports has been drastically reduced. With CADISON, ENPRO has achieved more than 30% improvement in Skid design efforts while simultaneously reducing the errors drastically.



Plant Design & Equipment Engineering Solution

CADISON® Project Engineer: A non-CAD solution for Project Planning, Cost Estimation, Engineering Information & Document Management, Workflow & Change management throughout the Plant Design Life Cycle. It enables managers / leads to plan conceptual engineering, generate bidding proposals and schedule tasks with or without MS Project. This helps to track and monitor the complete project data / information from Concept-to-Commissioning.

CADISON® PED add-in enables classification of the pipelines and equipments into the corresponding category of the Pressure Equipment Directive (RL 2014/68/EU) - including determination of the necessary assessment modules.

CADISON® P&ID Designer: A comprehensive spec-driven module for the 'creation of Intelligent PFDs / P&IDs' and 'Instrumentations (measurements & hook-ups)'. It can perform Pipeline Sizing and Utility Pump Sizing Calculations for optimum selection of equipment at the P&ID stage. It supports various standards (DIN, EN, ISO 10628, ISA 5.1, ANSI, etc.) and can be easily adapted to the company standards and reporting formats. Preconfigured-design rule-based checks for Data and Drawing Validation, built-in capabilities such as Symbols and Construction sets creation, Auto Legend and Auto Tagging, etc. significantly reduce the drafting efforts. The **Process Documentor** feature enables the documentation of each Process steps, e.g., to define starting, cleaning or shut down of equipments / open and close of valves for operation & maintenance or to show media separation ways.

CADISON® 3D Designer: A complete 3D plant design module for Plant Layout, Pipe Routing, Equipment Modeling, General Arrangement & Isometric Drawing creation and Report Generation (BOMs, MTO & Datasheets). It provides the users with various time-saving wizard and design assistant such as Section Box for GA drawing creation, 'Tank Assistant' & 'Nozzle Assistant' for creating 3D vessels and tanks. Data export and import in neutral CAD formats and 'PCF import' of existing isometrics brings 3D Designer to the core of the Plant design. The unique ability to graphically synchronize and validate the 3D Plant information with P&IDs caters to Process design consistency and operational safety at all design stages.

CADISON® Electrical Designer: A comprehensive solution for Electrical Engineering Design, Documentation and Management. It is a unique combination of tools for 2D Schematics & Controls Designs; Sizing Calculations (Cables, Earthing, Transformers & UPS); with 3D Conduits & Trenches, 3D Cable Tray & Panel Layouts. Productivity tools such as automatic generation of Terminal Drawings, Contact Sets, PLC I/O Board Drawings and Reports Generation (BOMs, MTO & lists) reduce the drafting time significantly.

CADISON® Steel Layout: A wizard-driven module for planning and creating 3D Steel Structures like Ladders, Staircases, Platforms, Handrails, Trusses, Water Tanks and custom assemblies such as Pipe supports, Spiral staircases, etc. It's SDNF export interface enables the users to export steel structure data to Tekla and Advance Steel for detailing. It is configurable to adapt design standard and custom guidelines for validation of parameters and steel profiles for improved designs.

CADISON® MATPIPE: A Parametric Catalog Engine for creation and management of Pipe Classes, 3D Catalog Objects and integration of Manufacturer's Catalog with the import & export functionality for maintenance. Database of Templates, Piping Component Libraries from Design Standards and an extensive list of Catalogs from prominent vendors are also available. User Management with Revisions of Master & Working Catalogs enable to standardize and maintain versions (replica and extended replicas) of catalogs at the organization level. The **'Catalog2Cloud'** feature enables a central Catalog Management System over the intranet or Internet for multi-site catalog management.

CADISON® Pipe Support Modeler: An intelligent wizard for Standard Pipe Supports to the Users to create and edit different types of pre-defined Secondary supports in an easy and intuitive manner. Users can also quickly create non-standard pipe supports manually. Automatic hook-ups (production drawings) creation and Reports generation reduces the documentation efforts. It can further be used for Electrical Cable Trays, HVAC Ducting Systems and Bus-ducts Supports as well.

CADISON® Project Navigator: A navigation tool to access engineering data of a project with a user interface similar to the Project Engineer module. It can be used for project review and also for further processing of project data during the plant operation and maintenance, which also serves as a paperless documentation platform.

CADISON® P&ID Designer for Visio: A spec-driven process engineering solution for Conceptual & Detailed Engineering that can be used for Proposal Generation. This is an easy and quick to use tool to create intelligent P&IDs and PFDs using MS Visio® Platform and still all the data is integrated with other CADISON modules in realtime. Its ability to export to AutoCAD, Pipe and Pump Sizing, Generation of Automatic Legend, Tagging, Report and integration with the 3D Designer makes it a powerful tool for the process industry.

CADISON® Archiver & Browser: An independent tool for Archiving of completed project databases from CADISON production environment. Archived Projects can be quickly and easily viewed with CADISON Archive Browser like a knowledge management platform. The archived projects can be re-activated or restored to work on future developments at any time.

CADISON® Maintenance: The CADISON Maintenance Management Tool is a tool for planning, managing and documenting technical inspection and notifications, schedule / planning of maintenance, repairs, and other measures for various objects in plant to maintain the operations efficient and reduce breakdowns. It also includes scheduling and tracking deadlines for next maintenance after the service is completed. It supports creation of test and inspection reports in different forms and management of the test history for corrective and preventive maintenance.

CADISON® ROHR2 / CAESAR II Interface: It has the feature and ability to export all pipeline systems created with CADISON 3D Designer to ROHR2 or CAESAR II for the quick and accurate static and dynamic analysis of piping system. All the required information will be completely exported in the form of .ntr files in ROHR2 or .cii file in CAESAR II for analysis based on user-defined variables and accepted industry guidelines.

CADISON® ERP Interface: CADISON provides interface with well-known ERP systems like SAP, Movex, Infor and others for dynamic data exchange. It establishes a mutual connection wherein Orders like purchase requisition can be directly released and also controlled within engineering workflow.

CADISON® Inventor Interface: It enables the Users to import an Autodesk Inventor part or assembly file along with the inventor properties in SAT and XML format into the CADISON environment as a CADISON object. It helps to import & update objects from the Inventor original / updated model.

CADISON® IFC interface: This provides exchange of graphics and data between AEC industry tools and CADISON 3D Designer with import revisions. The interface supports IFC2x3 and IFC4 configuration mappings for exchange. All object data in IFC can be imported into CADISON objects. Export process supports mapping of CADISON object properties with AEC objects.

CADISON® Equipment Simplifier: A customized wizard designed for the automatic simplification of large equipment models. It reduces the size and complexity of models upto 90% from different CAD formats with (interactive) manual or auto mode options and exports the results in DWG for CADISON.

CADISON® Application Programming Interface: CADISON API enables the Users to integrate CADISON engineering workflow with business workflow and organization specific document management tool. API developed for external access of CADISON data, contents, structures and even dynamic exchange of data / information.

The connecting element: Natural gas transmission system by GASCADE

GASCADE Gastransport GmbH ('GASCADE') based in Kassel, Germany, is a renowned transmission system operator for natural gas with its own engineering department. It has been using the integrated planning solution CADISON since 2009. In the meantime, all modules of the object-oriented CADISON system architecture are in use: Project Engineer, P&ID Designer, 3D Designer, Electrical Designer, MATPIPE, Steel Layout, Pipe Support Modeler, Project Navigator, as well as the ROHR2 and IFC interfaces.

Flagship project management



Let's take the recent project compressor station VS Radeland 2 with three compressors of 22 MW each as an example.

The built-up area amounts to approx. 10 ha. The pressure-bearing area was planned with CADISON: a total of approx. 10 kilometers of pipe with tees from 1" to 56". In addition, there are water-bearing pipes as well as supply and disposal lines underground. The database contains 2,500 fittings and 1,300 measuring points. The majority of these are mapped in 96

assemblies and expandable assemblies as well as 19 000 2D/3D objects. The CADISON Equipment Simplifier, for example, was used to dramatically simplify a gas cooler: In the course of data reduction, 8 000 objects, such as screws or washers, were deleted, 10 000 holes were removed and 98 000 surfaces were converted. In this way, 256 MByte became only 30 MByte file size, which could easily be positioned as a DWG drawing in the CADISON project.

For its pipeline project, GASCADE uses process flowsheets with CADISON objects and create piping and instrumentation diagrams (PI&Ds) based on them. For 3D planning, the planners use CADISON objects for simple assemblies consisting of a graphic, a representation and a drawing type, as well as expandable assemblies comprising different graphics with different drawing types. "For this purpose, we analyzed and clustered the assemblies used according to their common features. This significantly reduced the number of extensible assemblies that needed to be created. Using the CADISON Object Manager, we then structured them according to function, medium flowing through, and pipe classes," says Mr. Florian Jeß, GNA - Engineering Technology at GASCADE.



Mr. Florian Jeß,
GNA

Engineering Technology

Close partnership

How has the use of CADISON developed in the company over the many years? With regard to the project VS Radeland, Mr. Christian Manshausen, main consultant for design/CAD/engineering technology, summarizes: "This plant was modeled in less than 24 months. We had very good experience with the advanced assembly technology."



Two plants of a similar type and another on a slightly smaller scale were planned with three employees, supported only by some other people who did not devote their working time entirely to these projects. This impressive efficiency could be achieved, because the work packages were carefully structured in advance.

Mr. Christian Manshausen: “During the lead time, we gave a lot of thought to what had not gone quite right in the projects before. In addition, there were other challenges. VS Radeland 2 was not only about planning the gas pipelines, but also about the underground supply - for example, the laying of water pipes and the power supply. CADISON provided us with excellent services here.”



Mr. Christian Manshausen
Main Consultant
Engineering Technology

But how were the lessons learned applied successfully? Mr. Christian Manshausen explains: “The assembly department manufactures the parts according to an engineering manual. We digitized this by storing the corresponding parametric components 1:1 with spatial information in a library - exactly in the form that corresponds to the manual. We were aware that surveying errors always occur, especially when determining heights. Therefore, we also modeled the foundations with the appropriate height adjustability to eliminate such errors. In addition, when the foundations are set down, the construction mesh coordinates are read into the CADISON object.” The foundations are therefore no longer specified by the assembly, but result from library data. The catalogs were created by ITandFactory. Plus, an editable initial view window was added in the course of the implementation so that the foundations can be adapted to the current installation situation in no time at all.



Mr. Christian Manshausen: “We developed the idea of the initial view window for foundations together with ITandFactory. This made it possible to reduce the error rate to practically zero. In this way, a flexible standard was created that is also binding for assembly.”

A partnership for B2B life

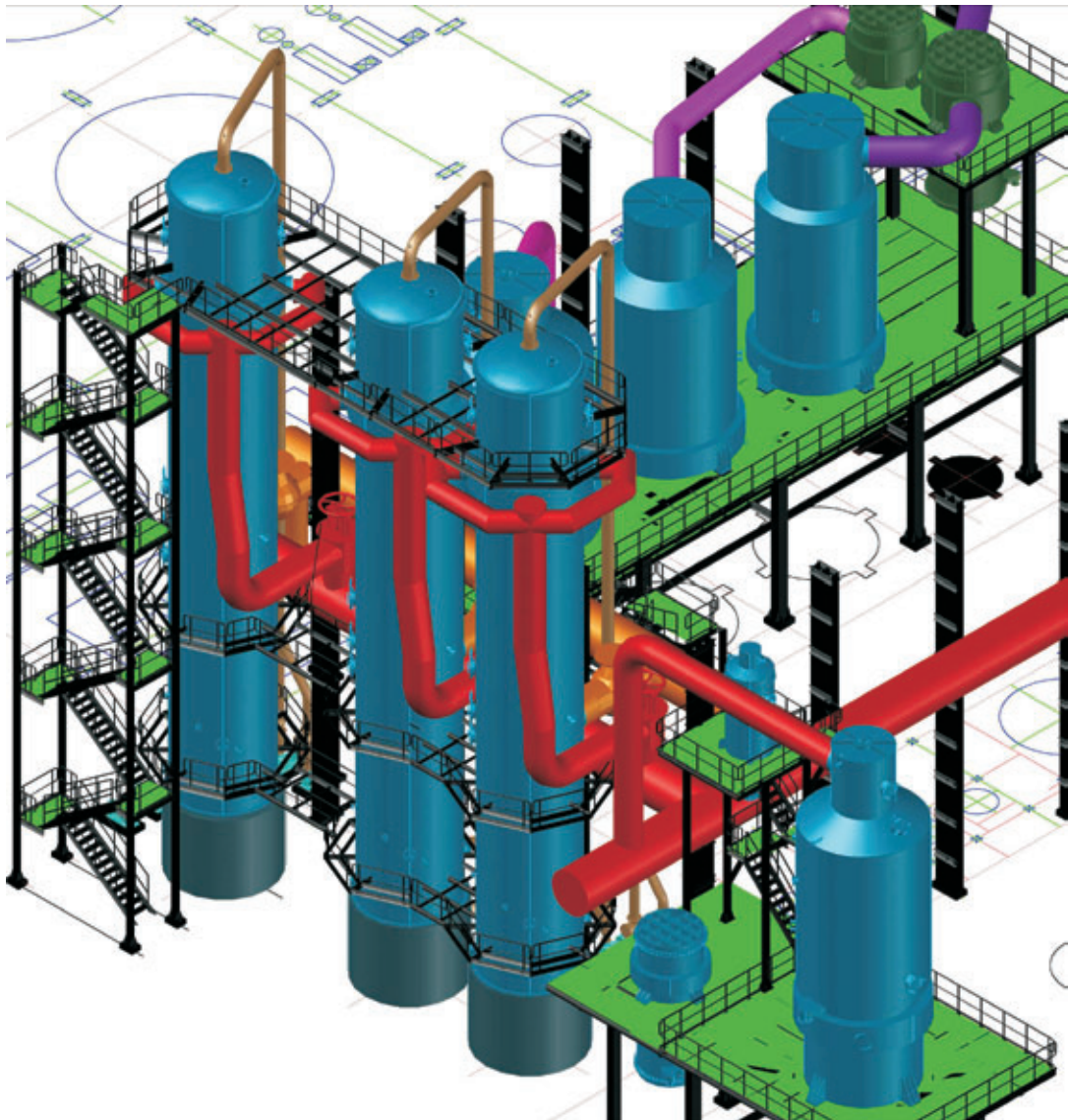
Mr. Manshausen and Mr. Jeß are both very impressed by the performance of the CADISON database and its openness, as the data from other systems can be stored without any effort. The admin area is very user-friendly, and there are a number of easy-to-use tools for data maintenance. ITandFactory as a digitization partner is also cooperative and flexible overall. Questions are dealt with in the shortest possible way to GASCADE's satisfaction. So the success story continues.

CADISON helps Shrijee group, achieve improved accuracy and efficiency

Shrijee Group is one of the world's leading suppliers of turnkey sugar factories, turnkey sugar refineries and sugar-based ethanol plants. Established in the sector since 1976, they have been constantly evolving to newer designs, diversifying their activities to meet the needs of changing times and expanding their technology base. The creative vision of management and the people have helped them to stay in the forefront of technological developments in the sugar industry.

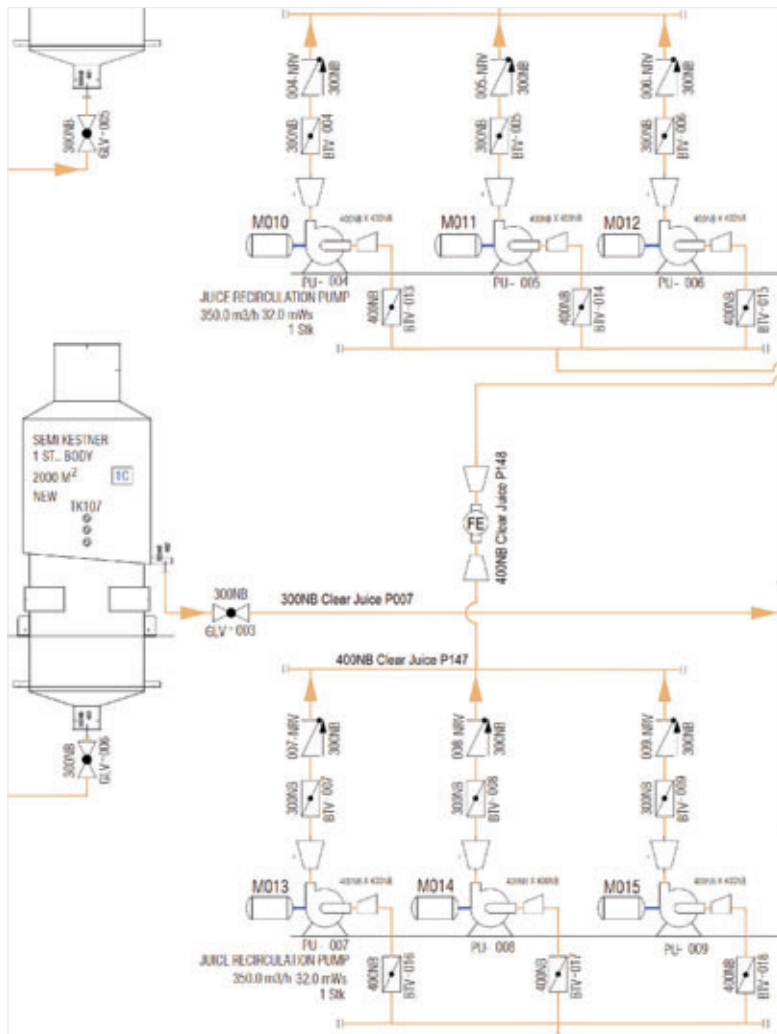
Earlier Shrijee's Design Team was working with conventional methods and basic CAD tools for the creation of P&IDs, Layout Drawings and Piping Drawings which generated Non-Intelligent output. Moreover, it was a tiresome and time-consuming task.

To overcome the challenges, Shrijee team were looking for a Plant design solution with intelligent and smart features, which generates intelligent output, saves time and yet is cost-effective.



CADISON – Intelligent & Easy to learn

Among the several evaluation parameters; intelligent tool, quality of output, ease of learning, cost of product and ability to reuse existing CAD setup to avoid large investment in infrastructure were deciding factors for selection. It was very important to consider the existing engineering environment, available skill sets and maintain fine balance between new investment and the desired returns.



CADISON has a perfect blend of intelligent functionality, engineering workflows and alignment to Shrijee's existing engineering environment. Its object-based technology based on AutoCAD platform allowed the users to learn and adopt it quickly and easily.

As existing users had expertise in working with AutoCAD, they were trained to become proficient with CADISON P&ID and 3D Designer, MATPIPE catalogs and other modules. This enabled the company to save huge cost on new employment, without delaying any of the ongoing projects.

With CADISON Designer, Shrijee Group was able to create 3D Plant model and allow the users to generate Isometrics drawings and all required documentations for Piping and structural designs and BOM Reports automatically.

“By using CADISON, we achieved improved accuracy of drawings and data through standardization of Specifications and Catalogs”

Advantages of Adopting CADISON:

- Reuse of Projects and designs: drawings data for upcoming projects
- Availability of Standard Piping and fitting catalogs and wizards for equipment and vessels
- Graphical Synchronization of objects for consistency between P&ID and 3D models
- Easier placement of standard Steel Structure for quick layout creation
- Automatic change management and Revision control, Pipeline and equipment Tagging and Logical checks and Pipeline route consistency checks during the design phase helped to eliminate common errors
- Interface with existing tools like Autodesk Inventor and other CAD tools with CAD import in DWG format
- Detection of clashes and space issues during design stage itself
- Significant reduction in time for generation of reports and equipment lists. Most of the reports are prepared accurately in just few clicks leading to huge time saving

The technical support services from Neilsoft & ITandFactory also played a significant role in selecting CADISON. The training and adoption process took little more time due to pandemic situation, but with full support from Neilsoft, Shrijee Group has implemented CADISON efficiently.



Mr. Sudeep Agarwal,
Director, Shrijee Group

Dairy industry benefits from seamlessly integrated Plant design with CADISON

ALPMA from the German state of Bavaria has been developing and building sophisticated process engineering facilities for the dairy industry in close cooperation with its subsidiary LTH Dresden. Thanks to CADISON, cost pressure, tight delivery deadlines, and demand for sophisticated design have been mastered by the world market leader.

The Bavarian family-owned company ALPMA Alpenland Maschinenbau GmbH ('ALPMA') makes a significant contribution to a successful dairy industry. As a world market leader, the line manufacturer builds complete cheese-making plants - starting with the processing of raw milk right through to the ripened, portioned and packaged cheese.



Mr. Gerhard Schier,
Business Unit Manager



Mr. Andreas Hiegelsberger,
Sales and Application
Consultant

Mr. Gerhard Schier, Business Unit Manager for Process Technology with ALPMA, and Mr. Andreas Hiegelsberger, Sales and Application Consultant for Process Technology, are certain: **“With CADISON, the project teams always maintain an overview in complex project processing, with the customer-specific component catalogs. Thus, they are perfectly supported in their daily work.”** At the push of a button, the client's specifications stored in the tool can be taken into account with their specific component specifications and preferred assemblies as early as the bidding phase.

P&ID as a master - also for cost calculation

Over the years, CADISON has been enriched with data and has thus become the knowledge source par excellence within ALPMA. Intelligent P&IDs and quantity statements in the form of bills of materials (BOMs) are the essential tools for costing and communication with customers.

“The P&ID acts as a central master for us. This allows our clients and us to access ALPMA Apsis 4.0 remotely via mobile devices and therefore also access to all important plant information via the P&ID at any time — and from anywhere in the world. The link to the CADISON database is established via an intelligent interface of the ERP system implemented by us,” Mr. Hiegelsberger continues.

The importance of CADISON for ALPMA Prozesstechnik became apparent in 2017 when Infor M3 was introduced as the new ERP system for the entire company. The CADISON interface to the ERP system had to be extensively configured for this purpose: “We had initially underestimated the scope of processes we had already mapped with CADISON,” emphasizes Mr. Hiegelsberger. In the end, the coordination work more than paid off, because everyone is very satisfied with the design of the ERP interface customized by ITandFactory. In the meantime, the business processes at ALPMA are completely mapped by Infor M3, and a bidirectional reconciliation of engineering data takes place with CADISON.

ALPMA drives digitalization and standardization forward with CADISON

The digitalization of all processes, including those in the supply chain, is an important building block for maintaining and increasing competitiveness. ALPMA has also recognized this. The company has therefore

approached its most important suppliers and asked them to make their product data available in digital form. In addition, many business partners have discovered digitalization as part of their expansion strategy and they offer their own digital services. Mr. Schier sees a need for further coordination with suppliers in this respect in order to be able to offer plant operators a 'coherent overall package'. No doubt, standardization and digitalization of processes in plant planning offer many new business opportunities. However, in order to benefit from the corresponding approaches, all stakeholders must be taken into account and coordinated.

The fact is that at ALPMA, product configuration is strategically set. This means that only a selected group of users is allowed to enter data in the CADISON catalog. Being able to access object data on a large scale is one thing, getting structure into data through standardization is another. Together with the project managers, they are currently in the process of developing functional standards and completely modeling the plants.

ALPMA plans increased use of assembly functionality to push standardization

Mr. Hiegelsberger explains: "We are considering what went well in the plant projects and what can be used again. We want to increasingly use the assembly functionality of CADISON in order to be able to store assemblies completely parameterized, also as 3D models, in the future. Such modules with all their descriptive texts can be reused very effectively in a project, and it can be adapted if necessary. For example, if the measuring device of one manufacturer is to be replaced by that of another."

This not only helps to become even faster in the design process. This approach also enables the plant designer to prefabricate assemblies or entire modules and thus significantly reduce on-site assembly and commissioning times at the end. Mr. Hiegelsberger is certain that if something has worked particularly well, it should be standardized by copying it from an existing project and generalizing it. This way, the information



Dynamic, flexible and increasingly digital: Plant engineering in transition

As a Swiss SME, ASSCO Engineering AG moves with the times - and relies on CADISON

The classic engineering company plans factory and industrial plants in Switzerland. The range of customers is wide: from small enterprises to global players in the chemical, pharmaceutical, life science, environmental and energy technology or food industries. Among them are well-known companies such as Roche, Sika, Siegfried or Lindt Sprüngli. ASSCO has been using the CADISON Engineering Suite for almost 20 years.

Dynamic planning is standard

The demands of the customers - often world market leaders in their field - are correspondingly high in view of global cost and competitive pressures. In addition, the dovetailing of the various process phases is becoming ever more intensive. At the same time, the pace at which projects have to be completed is becoming ever higher.

"Projects are now increasingly planned on a rolling or dynamic basis," explains Mr. Marco Bascio, VDC Manager at ASSCO.

"The days of first creating the P&ID and then doing a freeze to start 3D planning are definitely over. As a result, conceptual or basic engineering and detail engineering merge seamlessly. Schematics are constantly evolving – sometimes even on site or when production is already starting."

As a result, 3D planning is already in full swing while P&IDs and reports are being created in parallel. One main reason for this dynamic way of working: The processing time windows for the customers are getting narrower. In addition, quality requirements are increasing to remain internationally competitive.

In order to constantly meet these increasing demands, planning with a data-based and object-oriented engineering solution is fundamental for ASSCO: **"The interaction between P&ID and 3D planning is of enormous importance for us. CADISON allows us to work in parallel with several colleagues from different disciplines on the same project. And this largely without loss, since the data is stored centrally and everyone involved has access to it."**



Mr. Marco Bascio,
VDC Manager at ASSCO

Central data management, the flexible usage of modules and the parallel mode of operation: all this has led to minimized sources of error and shortened planning processes tremendously. For Mr. Marco Bascio, this is an essential aspect. Because as a service provider, it is crucial to react to the customer's ever changing requirements quickly and, if possible, without frictional losses. "Working with CADISON enables us to master individual unforeseen challenges flexibly and at short notice. The structured way of working, the standardized document templates, the libraries and catalogs in CADISON make it easy for all project participants to maintain an overview during all stages of the project."

Digitalization in plant design is gaining momentum

The digital transformation in the industry by no means stops at an SME like ASSCO. On the contrary, the pandemic has even accelerated the development. Literally overnight, the engineers had to adapt their

working methods. In the meantime, acceptance of the new working methods is very high throughout the team. "In our industry, we are also moving more and more in the direction of a digitized and networked world," Mr. Bascio sums it up. "Complete factories are now mapped with a digital twin via the web and analog processes are being completely replaced. New factories in Switzerland are often planned and executed according to BIM standards. Existing plants are digitally recorded and the resulting data is used for further operations."

As the BIM method gains importance in Switzerland, ASSCO benefits from the IFC interface in CADISON. This allows the exchange of the models as well as the associated metadata with other systems easily. Both the import and export of IFC data supports the engineering service provider in reconciling models with customers, specialist planners and architects as efficiently and loss-free as possible.

CADISON facilitates the management of the digital data flood

According to Mr. Bascio, CADISON supports planners in organizing and graphically displaying the immense flood of digital data in the planning process. And there is so much more in it: "Through the possibility of various interfaces, we are able to exchange graphics and metadata with our customers and partners. Here, CADISON makes an important contribution to shaping digitized plant planning in the future," Mr. Bascio continues.

For Mr. Bascio, it is clear that the digital transformation in plant planning and operation are gaining momentum: "In addition to the innovative technology, the price-performance ratio was an important factor in favor of CADISON for us as an engineering service provider 20 years ago. In the meantime, the flexibility, working on basis of consistent data and the system-open structure have become indispensable for us in everyday planning. With CADISON, we see ourselves very well positioned for the continuing digital transformation – and we are convinced of the benefits of this development."



Towards Intelligent Digitalization and Transformation in Plant design and engineering

For today's Process industry, modification of the plants to increase the productivity and the profitability is an ongoing phenomenon. The companies are always looking into the new and cost-effective methods yielding to higher productivity with lesser efforts and resources.

Digitization Vs Digitalization in Intelligent way

For most of the plants commissioned in early 60s or 70s and even decades later, the design data were created on drafting boards using pencils and papers and then multiple blueprints were created using Ammonia prints. Very soon, it was realized that changing the design for any modification was not an easy task and it used to take time and efforts, and multiple iterations were required to do the job. The introduction of CAD based designs were much easy to create and edit them, then editing the paper-based design and drawings.

The process of Digitization methods was adopted to bring in those paper drawings to CAD systems by scanning them, but this process required cleaning and processing of scanned images and use of tools for Raster-To-Vector (R2V) conversions or even redrawing them using CAD to convert them to geometrical objects like lines, circles, dimensions and similar objects. Each object was independent from the other object and non-intelligent.

And this often resulted in not only the design data in different CAD and drawings formats, but there was also the enormous amount of data to be managed: the production data, the Safety data sheets, various specifications for each process and product – either the raw material or the finished product and documentations about the regulatory compliances and certifications of products are also required to be created and maintained. The process of converting all such information into the intelligent digital formats got the term as Digitalization of data, enhanced further with several new tools and technologies, even scanning the plant in 3D as Point cloud data to reconstruct the plants for new process and product lines, also known as the Brownfield projects. The management of information is also used for maintenance and the systems of records formed the backbone of information and data management, systems of engagement and the last mile of the information process.

Digitalization is important: Consider monitoring a Plant's operating conditions by a technician who must walk along the line to all the equipments and devices to note down the operating conditions by checking dials and readouts, making it nearly impossible to cover large floor area having hundreds of equipments. By the time he completes the work at one end of the plant, something at the other end may have already changed, requiring immediate attention of the operator.

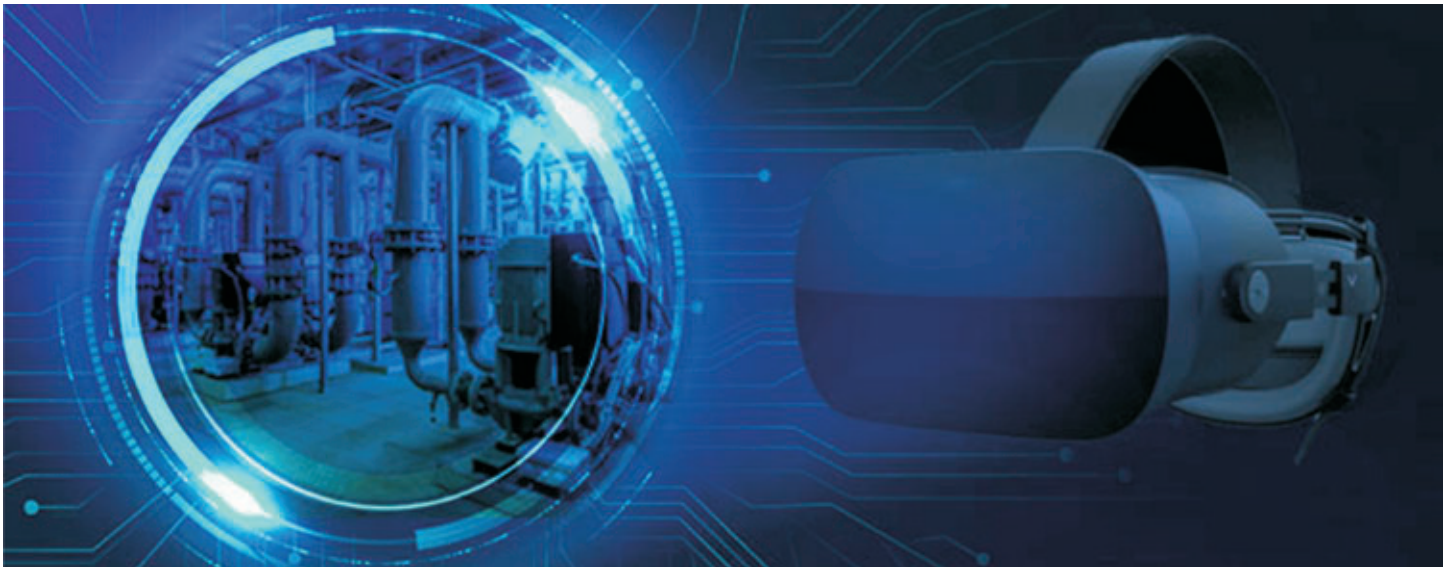
The digitalization and the system network in plant, interconnected sensors and controllers have made it possible to bring the information from every part of the floor to the control rooms. A number of plants, in response to huge amounts of area to cover and control, are even using indoor positioning systems with wireless infrastructure to track the moving equipment on the factory floor. The digitalization process has made the plant operator and managers to utilize the at-a-glance information environment in which every part of the plant is monitored, controlled, and even simulated digitally with corrective and preventive actions are defined and actions taken on the fly.

Digitalization for Smart plants: The advancement and evolution of digital technologies has resulted in flexible, integrated & scalable plant solutions for Smart plants. Plant digitalization makes it possible to

create, maintain and retrieve all technical information essential for safe and efficient running of plants. Also, the secure and central management of the plant data enables informed decision making. It can help you to:

- **Manage Assets Effectively:** Central repository of equipment data, maintenance scheduling and instructions as Process documentation, history, cause & effects and increased capability of Operations and Maintenance teams to handle equipment efficiently.
- **Improve team Effectiveness:** Availability of all data including experience at fingertips in an integrated environment improves the contribution of Operations and Maintenance teams
- **High data quality:** Improved accuracy comes with automation and customization of tasks.
- **Lower cost with faster time-to-market:** Automation reduces cost and improves the speed of digitalization, in more competitive environment.
- **Lower project risk:** Projects become more likely to be delivered on-time, in-budget, and within specifications with high quality digitalization.
- **Increase safety preparedness:** The concepts of Virtual plants and digital twins greatly aid in training of Operation, Maintenance and safety procedures.

While digital transformation may look complicated and time consuming in the beginning, the industry



leaders still need to think and drive forward for it. You may face different challenges and may come up with different answers, transformational business practices are necessary to compete globally. These practices will drive the innovation and speed required to help companies outpace their competitors.

One of the good points as you start on the transformation is about the availability of data, which would already exist and resides in your plant. Harnessing it and using it to transform the business is the key for a successful transformation. Success can be realized by taking one step at a time, starting with the most pressing problems and solving it.

Most of the plants and facilities have implemented automation programs, and they may have produced a wealth of data available for driving digital transformation, created opportunities to use data to first address immediate and pressing needs. Moving forward with latest tools and technologies allows digital transformation efforts to start small and scale up, and greatly increasing the odds for success.

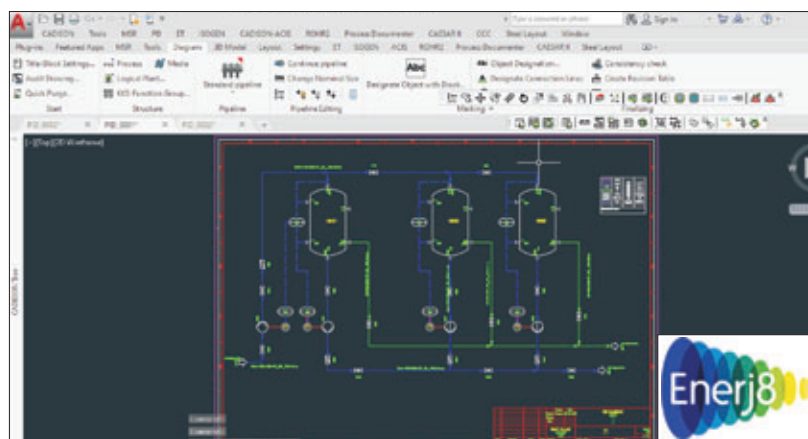
Enerj8 implements CADISON to ease their P&ID creation and Revision management

Enerj8 has over 25 years of experience in engineering, waste treatment and disposal, Enerj8 is based out of the United Kingdom and has provided a multitude of waste management solutions that benefit the local geographical area, economy and community, both in the UK and wider international market. They have developed a decentralized 'Waste to Product' solution, enabling them to have plants strategically placed at locations across the country to reduce transport cost, carbon footprint and thus the waste sectors impact on the environment. The system removes the need to send waste to landfill and the residual heat from this process can be used for additional process treatments of further waste types or to generate power. The main aim when developing their waste treatment system was to help create a more sustainable world for future generations.

Enerj8's journey with CADISON

Enerj8 have a small, tight-knit team who work together to produce high caliber work in an efficient manner and were interested in adopting an intelligent P&ID software that would allow them to extract database generated reports – BOM, lists and schedules alongside the construction of P&IDs.

CADISON proved itself to be the best suitable solution with high-performance tools for the design of process-intensive projects, covering all design phases and deliverables, which would allow them to work efficiently with the added benefit of a dedicated support team in the background. CADISON's intelligent P&ID solution allows Enerj8's team to simultaneously complete multiple tasks, improving the overall efficiency and allowing the users to output work in a timely manner.



In comparison to other intelligent solutions that Enerj8 had looked at, CADISON offered a complete package with a wide range of features and add-ons at a reasonable price within the budget.

“The quick and informative responses and demonstrations provided by the CADISON team were also instrumental in our decision to use their software as we could see that the team behind the software was dedicated to providing an exceptional experience when using their product.”

Mr. Max Hutchinson
Process Engineer, Enerj8

CADISON P&ID Designer has allowed Enerj8 to create custom intelligent objects for their project that reflect their own innovative plant machinery without sacrificing any of CADISON's built in intelligence for its own preset symbols & objects. CADISON Implementation Team also provided them with a custom, intelligent title block that fits with their company standard as well as report & schedule templates that display the Enerj8 Logo.

The efficiency of Enerj8's team has been increased due to the ability to simultaneously complete multiple tasks, as well as increasing the ease with which their P&IDs can be generated, managed and checked after each revision is made and designs are finalized.



Our speakers : We are especially looking forward to the presentations of our customers and partners!



Virtual Events

The importance of digital working has taken on a new dimension over the past year. With this in mind, ITandFactory GmbH held its first ever virtual **CADISON International Conference, CIC 2020** under the motto "Engineering the New Normal - Socially Distant, Digitally Closer".

ITandFactory GmbH participated in **ACHEMA Pulse**, the new age digital event for the entire Process industry. Participants had chance to get information on latest products and exchange ideas one on one with ITandFactory team via exclusively designed Virtual booth.

2020-2021



ITandFactory GmbH

Auf der Krautweide 32
65812 Bad Soden
Germany
Tel: +49 6196 93490-0
Fax: +49 6196 93490-49
E-mail: info@ITandFactory.com

ITandFactory AG

Quellenstrasse 37
4310 Rheinfelden
Switzerland
Tel: +41 61 833 30 50
Fax: +41 61 833 30 51
E-Mail: info@ITandFactory.com

Detroit

6830, N. Haggerty Road
Canton, MI 48187
Tel: +1 734 459 1100
E-mail: info@ITandFactory.com

UK

6-8 AW House, Stuart Street
Luton, LU1 2SJ, UK
Tel: +44 1582 455 559
E-mail: info@ITandFactory.com

Pune

Pride Parmar Galaxy, 8th Floor
10/10 + A Sadhu Vaswani chowk
Pune 411001, India
Tel: +91 20 6706 2200
Tel: +91 20 2605 3003
E-mail: info.cadison@neilsoft.com

Bangalore

406, Embassy Centre
11 Crescent Road
Kumara Park (E)
Bangalore 560001, India
Tel: +91 80 2226 7786
E-mail: info.cadison@neilsoft.com

New Delhi

605, Chiranjiv Tower
43, Nehru Place
New Delhi 110019
Tel: +91 11 4108 6157
Tel: +91 11 4108 6158
E-mail: info.cadison@neilsoft.com

Mumbai

411, Rupa Solitaire, Building A1, Sector 1
Millennium Business Park
Mahape, Navi Mumbai 400710
Tel: +91 22 27780373
Tel: +91 22 27780370 / 71
E-mail: info.cadison@neilsoft.com