

WHITE PAPER

Step-by-step guide to new plant design software implementation for EPCs, technology providers, engineering companies, and plant owners.

– 4 phases to successful software implementation that drives digital transformation





Introduction

This white paper contains a guide to best practices and outlines the main phases of successful implementation of plant design software for companies taking on digital transformation and a modernization path. It alleviates concerns regarding the implementation of new design software, and tackles the implications management processes.

The decision to implement new CAD software leads to an implementation project, training, and technical support cooperation with the solution provider. Besides the direct implementation tasks, additional benefits can be gained from knowledge and experience sharing and tapping into a pool of existing software users.

The accelerating pace of digitalization in industry and the use of the latest technologies provide the opportunity for vast efficiency gains. This can be achieved with modern design software and solutions that support the plant lifecycle from design to operation.

At Cadmatic, we understand how important uninterrupted operations are, even when changes are implemented. The duration of training is but one of a wide range of issues that need to be considered in the implementation project. We have a proven track record of assisting clients to transition to Cadmatic and ensuring smooth and fast implementation.

Cadmatic expertise in plant design solutions and industry digitalization

Cadmatic software solutions are currently used in by over 6000 customer organizations in over 60 countries around the globe. Cadmatic is a complete solution for EPCs, technology providers, design and engineering companies, contractors, and plant owners.

Every year, we welcome about 40 new customer organizations and help them to benefit from top-level solutions.

Cadmatic did its first CAD software implementation already in the late 1980s. Since then, the implementation method has evolved from face-to-face training at our customers' premises, to hybrid and online video courses in the Cadmatic Academy supported by implementation specialists and key account managers.

Our experience and project management guidance ensures that implementation runs smoothly, and all possible implications are addressed and resolved early. It focuses on important milestones and on providing help to users while keeping in mind project schedules and performance.

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Plant design solution implementation

– 4 phases to success

The CAD software implementation process typically follows the OODA model – Observe-Orient-Decide-Act. This ensures that best-fit solutions are designed based on the unique situation and internal work processes of each company and organization. The importance of each step in this approach should not be underestimated. Without proper analysis of the existing work processes currently employed, it is unwise to rush new CAD implementation.

Any change offers new opportunities and threats simultaneously, the same applies to CAD software implementation. While opportunities are typically well understood and explored at the bench-marking stage, threats surface later and should be dealt with carefully.

The process of implementation is of critical importance to overall success. It may seem that changing design software is a local design department issue and can be handled within the borders of one or two teams. However, seamless implementation can only be ensured if all other processes in the company are mapped and considered while keeping time schedules reasonable and ensuring that goals are reached.

Most often, the solution provider takes care of the implementation process. It is the most natural choice as software use cases and functionality come directly from the software development, and requests from users can be directed straight to R&D teams for customization and development. Experienced support engineers can effectively foresee and mitigate possible risks and guide the process. It requires deep knowledge of software functionality, best industry practices, project management skills, and soft skills to handle change management and manage expectations.

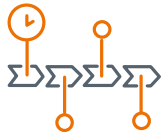
We have collected the best practices and most common pitfalls from Cadmatic’s customer service teams and customers. This guide addresses the most typical process in detail. It is good to keep in mind that one stage can be as little as a one-hour meeting in simple cases or as extensive as a detailed plan agreed with several departments and stakeholders.

The scale of the implementation project can range significantly. Each case is unique and should be tailored to the customer’s needs and targets. It can entail simply taking one software module into use such as eBrowser, which would not require any specific training. Implementing a P&ID module, for example, would only require a few days training in hybrid mode to ensure all functionality is used and users can start producing project documentation. However, most cases include full-scale implementation of plant design and information management solutions – when construction timelines have to be respected, large groups of users trained in different disciplines, legacy data from other software handled, integrations to other systems ensured, and overall performance addressed.

A successful plant design solution implementation project is divided into 4 phases:



Phase 1: Collecting information about work processes and standards



Phase 2: Creation of implementation plan and establishment of main milestones in the timeline



Phase 3: Execution of training and implementation plan



Phase 4: Operational assistance: maintenance, support services, project assistance



Phase 1: Collecting information about work processes and standards

In the first phase of the project, all the relevant information required for successful project implementation is collected. Several meetings are organized to identify the main scope of the implementation plan, the key persons involved, and to scan the current work processes. Depending on the scope of the project and specific needs, this phase can be focused on one particular CAD aspect, or it can be an extensive evaluation of the complete digital landscape in the EPC, technology provider, engineering company, or plant owner.

Typically, at least the following information is collected:

Processes

A good starting point for the project is a discussion about general operational processes and practices from early design to construction and completion of projects. Will the new CAD software strictly support existing processes, or are improvements expected? How many employees are involved in design work, the type of design work, and other activities that are undertaken.

Cadmatic experts are ready to share their knowledge about alternative methods based on extensive knowledge of project operations. If needed, neighboring disciplines, such as document and information management, and construction planning can be included in the project scope.

Typical schedules for the release of documentation from different disciplines and how this process is linked with subcontractors, project planning, and construction reveal the prioritization of design work and construction planning.

Output documentation

The documentation outputs that are required by the customer play an important role in setting up the CAD solution. What are the formats and schedules of the required documents? Examination of the provided document examples significantly helps to facilitate later stages of the project – examples of arrangement drawings, piping arrangement drawings, and isometric drawings.

Business networks

What subcontractors, turnkey suppliers, and other partners are included in the wider network? Many EPCs, technology providers, engineering companies, and plant owners have extensive collaboration networks and thorough knowledge of all partners, their roles, and requirements are essential.

Project schedules

What is the project schedule for the first project to be done with the new CAD software? What other milestones and impacts can be foreseen: Will it also require implementation at subconsultants and contractors?

Software applications and ICT networks

The landscape of different software solutions that is used for different disciplines and phases. Possible integrations that are needed between the new CAD software and existing systems and prioritization of such integrations. These can include solutions for structural engineering and simulations as well as document and material management systems. Existing infrastructure with servers and networks should be considered to identify installations that will fit best.

By mutual agreement of the parties involved, the process can be focused on practical issues with minimum outcomes defined in the shortest time possible. Alternatively, it can be carried out more extensively and thoroughly documented for internal audit, compliance with ISO management process standards, or progress status tracking needs.





Phase 2: Implementation plan

Once all the necessary information about the planned software use, operations, processes, network, and requirements has been gathered, the implementation plan can be drawn up. Besides the scope of the project, suggestions for best industry practices can be tabled and options discussed.

The implementation plan contains the following:

Delivery and installation schedule

Software applications are delivered online via access to the dedicated customer support portal. For the initial installation, the IT infrastructure requirements should be ensured. The setup itself, virtualization needs, and license server connections can be carried out remotely. [The installation manuals and online documentation](#) contain all the information required and the steps to be performed. After the installation is set up and tested, software administrators receive instructions on how to update to new versions, add users to projects, and set up remote work.

Training plan and schedule

Identification of training courses needed for each discipline and department based on the number of employees and the scope of intended use of the CAD software. Clarification of work process and roles for each team – administrators of the software that will take care of the settings and libraries, key users, and users with special focus areas. The training plan and schedule are planned to support the first design and construction project, or plant owner needs. The target performance levels of designers with the new tools can be defined from training to design work.

Design and engineering support

Optionally, a plan to provide assistance from experienced designers can be drawn up during the first design project. The link between training schedules and project schedules/availability of people, construction requirements, and other aspects are critical to consider for efficient implementation. Extra Cadmatic resources can be used to support users and manage Q&A while at the same time providing a temporary boost to productivity in performing the project work itself. The support resources required, design phases and disciplines needed, as well as the schedule is agreed. Cadmatic draws on a network of experienced designers across the world with access to affordable resources to facilitate this type of assistance.

CAD legacy data

When a CAD system is changed, the need may arise to reuse and maintain legacy data. Cadmatic provides tools that facilitate this process, including data conversion and migration tools. Cadmatic Exchangers can be used to import legacy data into Cadmatic environments and use them as reference models with all metadata included. Alternatively, Cadmatic conversion tools and services are available to convert legacy data into intelligent native Cadmatic models.

Standards and libraries

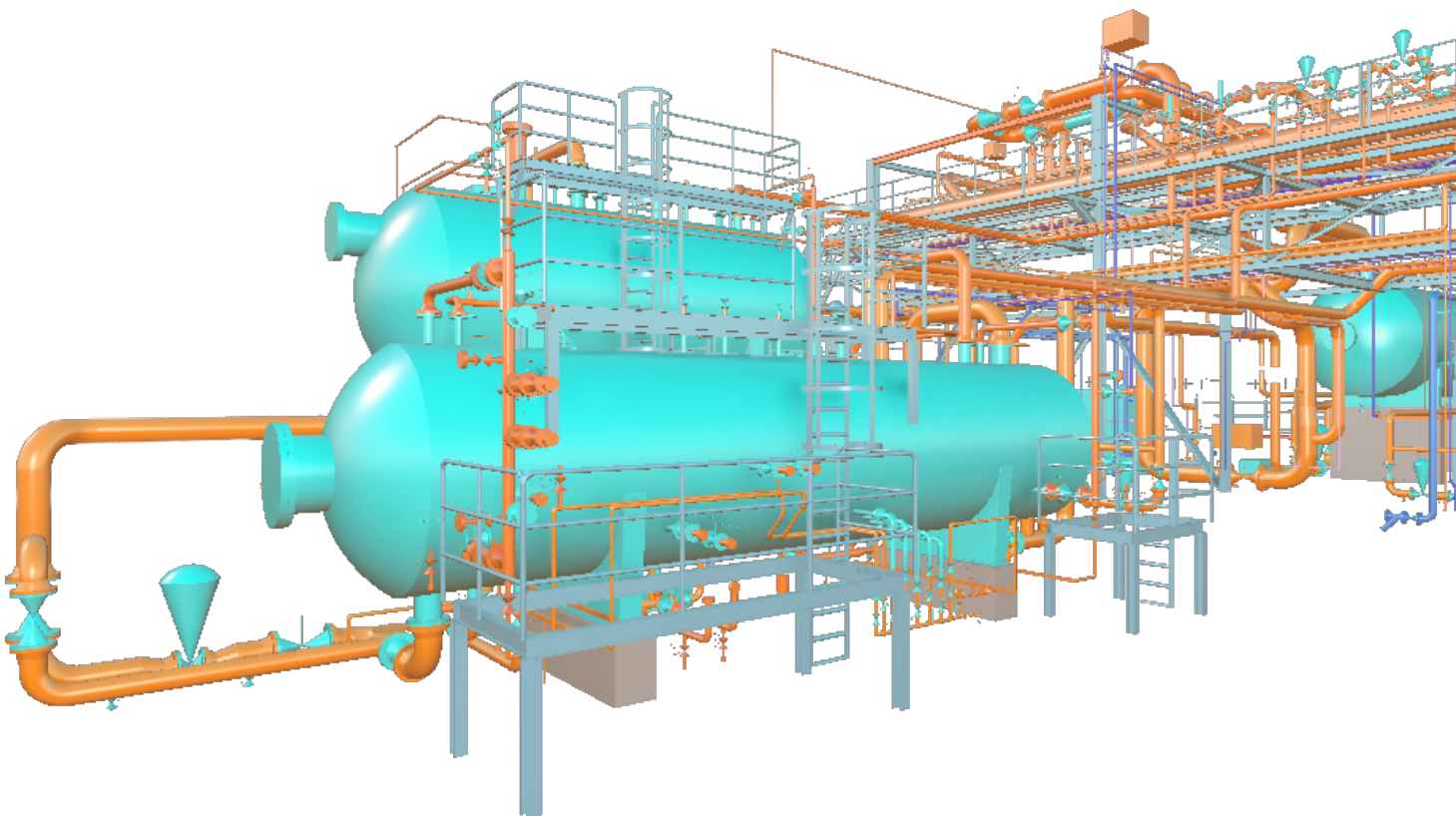
A plan is drawn up depending on whether existing Cadmatic libraries will be used, or whether new libraries will be created. If new libraries are created, it is agreed whether the customer will create the libraries or make use of Cadmatic's services to model the libraries and set up the standards. Cadmatic tools are available to transfer libraries and standards from other systems to Cadmatic.

Documentation and digital output

Agreement needs to be reached on the style of documentation required by the EPC, technology provider or engineering company, or plant owner and what data is contained in different documents, if they are different to Cadmatic's standard documentation, as well as the schedule for implementation.

Possible interfaces and integrations

Integration of DMS, ERP, and other systems with Cadmatic might be included based on the needs and IT landscape of the plant owner or engineering company. The customer needs to ensure that the required data sources are accessible.





Phase 3: Execution of training and implementation

Once the implementation plan has been drawn up and agreed, the implementation project is started. Project management at this stage ensures that the implementation project stays on track and that any deviations are identified immediately and rectified.

Training

Based on the prepared plan, training may be as short as one course for a selected group of users, or it may include several stages and levels for different groups. The main types of training and ways of arranging training are as follows:

- All users are trained for selected applications. The recommended size of a training group should be a maximum of 8 persons, and the training can be arranged on site, at a Cadmatic office, or remotely online. For remote online training, the agreed timetable will be followed, and extra resources will be reserved to assist with personal questions. This is usually needed as not everyone in the group follows the training at the same pace.
- Online training via the Cadmatic Academy offers self-study that can optimize the process for new users and serve as a self-study environment. It can reduce the need for face-to-face training by more than 50%.
- If large numbers of new users need training, training can be arranged only for selected key users that receive support from Cadmatic, while they conduct further training for their colleagues.
- Advanced training for software administrators includes topics such as setting up of specifications and norms, customization of documentation output, project administration, and other related topics.
- If needed, advanced training for scripting and API use to make further customizations can be arranged in the final stages of training.

On-site assistance and engineering support

On-site assistance and engineering support as defined by the implementation plan can be started in parallel with the first training. A mix of newly trained people and experienced users from Cadmatic's staff or subcontractors can support the customer in the first design and production project or longer. This has produced good results from both perspectives – ensuring project schedules are met and that there are no delays caused by implementation of the new software, and at the same time, sharing of knowledge and skills happen in a practical work environment.

Implementation follow-up

A key account manager or managers take care of project follow-up to ensure smooth implementation. The key account management is supported by an implementation group that includes customer representatives to monitor progress and to address any issues in a timely fashion.

The typical duration of this phase ranges from 1-3 months, depending on the size of the plant/project, the scope of training, the scale of CAD use for different disciplines, and the number of designers that need to be trained.

Hybrid training mode – a combination of self-study and on-site training

Hybrid training consists of parts done as self-learning courses using study materials, and online courses and assisted training sessions with support from experienced implementation specialists. The combination of online self-study and on-site training is the most efficient way to ensure users are comfortable with new tools and operations.





Phase 4: Post training and extended support

Once the training and the first project with Cadmatic software has been completed, the need for assistance services is significantly reduced or eliminated. At this stage, a range of support services are still available to keep operation at optimal levels.

Cadmatic Customer Services

Cadmatic Customer Services handles day-to-day requests and assists users and administrators with tips for optimal use of all software features. All users have access to the [Cadmatic Academy](#) with video training courses and other materials. If urgent assistance is needed, there are dedicated phone lines for different regions. Local partners are often included in the support network to ensure fast response times.

[The customer support portal](#) offers the incident management system and also contains software installer packages, software updates for new versions, links to [the documentation portal](#), and additional information.

Technical account manager

For large clients, a dedicated technical account manager can be appointed to provide regular updates, discuss users' needs, and monitor the use of the software.

Remote project assistance

Remote project assistance can be provided for complex project setups and troubleshooting. The support personnel can set up a replica connection with Cadmatic remote replication technology after completing an NDA agreement. This way, support can be provided remotely without the need to describe the problem and causes. Specialists can remotely connect to the live project/plant environment and quickly identify and resolve problems. A replica of the project is available to Cadmatic to gain insights into any challenges faced and to quickly and securely resolve any issues.

User community

Users are invited to follow Cadmatic [LinkedIn pages](#) and other social media accounts, and also to [subscribe to our newsletter](#) to get the latest news about the software solutions, customer use cases, and other updates. The bi-annual Users' Meeting allows users to share software use experiences and learn from other user organizations. There are also other events, webinars, and customer surveys to identify software development needs.



Conclusion

Cadmatic has over 35 years of experience in implementing design software for plants and projects. We have well-developed strategies to meet diverse needs and deal with any potential situations. Having an implementation plan and strategy that can be adapted to unique circumstances and the selected use of design and Information management software, gives our customers a clear idea of how the implementation process will unfold and how it can be customized and monitored.

Often, the implementation phase is only the first step in long and fruitful cooperation, as we value long-term relationships with our customers and aim to provide not only software and services, but cooperation in the future.

Want to know more? See our [implementation project success stories](#) and how leading plant owners and design companies use Cadmatic solutions in their digitalization journeys or [contact us](#) directly so we can identify what software implementation solution suits your particular needs.



Cadmatic is a leading 3D design and information management solution developer and supplier for the marine, process, energy and construction industries.

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