



Digital transformation  
in naval shipbuilding



*Feel Empowered*

# Embrace the power of data-driven shipbuilding

Harnessing the power of data-driven solutions is critical in modern naval shipbuilding to maximize quality and operational efficiency and increase productivity. With Cadmatic's cutting-edge solutions, you can join the digital transformation revolution and unlock next-level quality and efficiency.

## Revolutionize production by embracing 3D Models

Transition from traditional design drawings to drawingless production. Our cutting-edge CAD solutions enable you to visualize and manipulate data on a 3D dashboard, eliminating the need for physical drawings. Integrate data seamlessly with production control systems to improve accuracy and streamline your manufacturing processes.

## Efficiency gains: Reduce workshop hours by at least 15%

Bridge the information flow gap between engineering, design, planning, and production execution. Our integrated planning approach, coupled with 3D data linking, ensures up-to-date, integrated, and accurate data across the shipbuilding process. Experience optimized building strategies and achieve significant reductions in workshop hours.

## Learn from previous projects

Capitalizing on sister projects allows you to leverage existing work and known factors, significantly enhancing efficiency. Our sister project management system supports parallel work, flexible change management, and improved collaboration across projects. Benefit from cost savings, quality improvements, and the agility to adapt to changes efficiently.

## Boost design quality with seamless data flow

Experience the seamless flow of data throughout the shipbuilding lifecycle. Our CAD/CAM system, powered by intelligent technologies, acts as a universal knowledge hub, ensuring design quality and consistency, regulatory compliance, and optimal results. To streamline your shipbuilding processes, use embedded engineering practices, customized settings, and predefined modules.

## Controlled change management

Controlled change management is critical in naval shipbuilding projects that can stretch over many years. In Cadmatic, you can systematically manage project changes, while ensuring meticulous documentation and approval of all modifications. It reduces risks and enhances accountability, and informed decision-making through comprehensive record-keeping, mandatory stakeholder approvals, and impact analysis.

# Ensuring data security

## Protecting your sensitive data in distributed CAD environments

Cadmatic understands that data security in naval ship design and shipbuilding projects is of paramount importance due to the sensitive and strategic nature of the information involved. Effective data security measures ensure the integrity and confidentiality of this information, protecting it from cyber espionage, unauthorized access, and theft. This is crucial not only for safeguarding the technological edge of the navy but also for maintaining the safety of personnel and assets.

Collaboration and remote work are becoming increasingly common in naval shipbuilding, which adds an additional layer of risk where robust data safeguarding is required. Cadmatic empowers naval shipbuilders to ensure data security while leveraging the benefits of distributed design and engineering.

## Enhanced collaboration: safely share design assets

Naval shipbuilders often work with distributed teams and subcontractors, necessitating the secure sharing of 3D models and related data. Cadmatic's distributed design system enables controlled access to design assets, ensuring confidentiality while fostering collaboration. With robust security measures, naval shipbuilders can confidently collaborate with global partners, harnessing expertise without compromising data security.

## Maintaining design control: restricting access to sensitive data

Cadmatic provides granular access control, allowing shipbuilders to define access permissions for different project participants. Through filtered replication, specific areas of the project can be restricted, ensuring the integrity of sensitive design information.

Viewer files can be managed, limiting their content and validity to prevent unauthorized use. Advanced features like drawing mask boxes and expiration dates provide additional layers of data protection. Cadmatic empowers naval shipbuilders to maintain full control over their design assets.



# Integrated solution for all disciplines



## From initial and basic design to assembly, construction and beyond.

Cadmatic software solutions improve quality and save time during design, engineering, production and beyond. We offer an unmatched user experience based on intuitive software and the automation of routine tasks.

## Hull and structural design

A CAD/CAM software solution for hull design, starting from basic design and creating documentation for classification to a complete 3D detailed model and automatic extraction of production data for projects of any complexity.

## Outfitting and piping design

Specification-driven 3D design in distributed, multidisciplinary engineering projects where the tools constantly facilitate, coordinate, and verify the work of individual designers, regardless of where the design teams are located or how big and complex the 3D models are.

## Electrical and automation

Unlock next-level efficiency by connecting electrical and automation design with 3D modelling. CADMATIC Electrical is an excellent choice for the different design and documentation needs of electrical and automation engineering.

## P&I diagrams

Create, manage and modify a wide variety of process flow, schematics, P&IDs, electrical or cabling diagrams. Compare diagrams and the 3D model to detect differences in network topology or changes.

## Unmatched user experience and collaborative design and engineering work

Cadmatic delivers the best user experience possible. The software was designed by engineers, for engineers, resulting in an intuitive package that empowers you to focus on design. Cadmatic automates and does the rest for you.

Cadmatic has the best project distribution system on the market. It ensures seamless internet-based and offline sharing of 3D models regardless of location. New design teams from around the world can be added and start working on a design project in minutes.



# CADMATIC Wave

## Shipbuilding process & data management solution

CADMATIC Wave enhances every facet of naval shipyard operations. It offers agile and reliable project management, seamless access to product data and documents, enhanced communication and collaboration, comprehensive planning functions, and easy integration with shipyard IT systems.



## Unified Engineering Data

At the heart of CADMATIC Wave is the principle of unified engineering data. This core feature combines data from diverse sources within the organization – including Cadmatic design applications and other data sources such as NAPA – into a singular, centralized system. This ensures data consistency, improves efficiency, and leads to better decision-making.

## Efficient workflow management

Efficient workflow management includes the automation of processes and supports seamless collaboration across departments, creating a streamlined and efficient work environment. It reduces manual effort and the risk of human error, not only accelerating shipyard processes but also liberating staff to concentrate on more complex, value-added tasks.

## Smart document management

The document tool in CADMATIC Wave serves as the single source of truth on shipbuilding projects, providing teams, projects, and departments with consistent, reliable access to the necessary information. All documents produced during the shipbuilding process from CAD models to customer emails are contained in the robust system.

## Controlled change management

CADMATIC Wave offers a systematic, traceable, and controlled approach to implementing changes. It ensures that all modifications to the design or project plans are meticulously documented and approved. This reduces the risk of mistakes and ensures that every change is properly implemented. It provides a safety net and ensures the integrity of the project at all stages.

## Advanced data visualization

CADMATIC eShare's advanced visualization capabilities are embedded in CADMATIC Wave. This delivers high-quality, context-specific visualizations, providing a comprehensive and intuitive understanding of the entire shipbuilding process. Users can interactively explore the shipbuilding design and process, significantly enhancing communication and improving decision-making.

# Streamline data management with CADMATIC eShare



## Transforming shipbuilding through streamlined data management and enhanced teamwork

CADMATIC eShare is the ultimate solution for efficient data management in naval shipbuilding. Specifically designed for the unique needs of naval shipbuilders, eShare enables seamless information flow, collaboration, and decision-making throughout the entire shipbuilding process.

### Key Benefits of CADMATIC eShare

- Link, search for, and visualize any data from any database.
- Monitor project progress and boost efficiency in naval shipbuilding projects.
- An independent industry-specific solution for naval design needs.
- Fast and accurate decision-making with comprehensive data sharing.
- Full control over sensitive information – no cloud storage or data relocation.

## eShare for HoloLens: Explore the power of Augmented Reality

Experience a new level of interactivity and visualization with eShare for HoloLens. This cutting-edge app allows naval shipbuilders to interface Microsoft HoloLens with Cadmatic eShare, bringing digital 3D models to life in the real-world environment.



## Key Benefits of eShare for HoloLens:

- Load models from the eShare server and use them offline for naval shipbuilding projects.
- Align 3D models with the existing naval environment for enhanced visualization
- Visualize object data from eShare or any connected system for naval shipbuilding projects.
- Measure distances between digital and real items for precise naval shipbuilding requirements.
- Shared experience for collaboration in a multi-user environment, ideal for naval shipbuilding teams.

# Augmented Reality: Expanding Possibilities

# AR

## Revolutionizing design reviews and production supervision

Augmented Reality (AR) technology is reshaping the naval shipbuilding industry, pushing the boundaries of traditional design practices. Cadmatic has embraced this technology and developed eShare for HoloLens, an innovative application that revolutionizes design reviews, production supervision, and collaboration for naval shipbuilders.

## Behind the scenes: AR technology application in naval shipbuilding

At Cadmatic, we understand the unique challenges faced by naval shipbuilders. The development of eShare for HoloLens was driven by our commitment to providing naval shipbuilders with cutting-edge tools that enhance their design, production, and operational capabilities.

## Benefits of using AR technology

- Envision future naval project designs in Augmented Reality for effective discussions with naval authorities and operators.
- Enhance production status supervision and compare design projects with as-built situations in naval shipbuilding.
- Ensure good ergonomics and train maintenance and operational staff during the design phase for naval vessels.
- Realize faster and more accurate decision-making with immersive visualization for naval shipbuilding projects.





# Optimize shipbuilding processes with data integration

## Enhancing control, collaboration, and efficiency

Data integration plays a crucial role in driving efficiency and innovation in naval shipbuilding. However, the challenge lies in harnessing and integrating data from multiple sources. Cadmatic's advanced data integration capabilities provide seamless connectivity between Cadmatic applications and other critical systems, such as shipbuilding process & data management systems.

## Introducing Cadmatic Web API

The Cadmatic Web API is a key tool to enable data integration. This powerful REST API acts as a bridge between Cadmatic applications and external systems, allowing the transfer of project data. With Cadmatic Web API, naval shipbuilders can eliminate information gaps, enhance data coherence, and reduce repetitive work.

It empowers shipbuilders to link Cadmatic design solutions with third-party systems, such as ERP, PLM, and PDM. By seamlessly exchanging data, shipbuilders can ensure the highest design quality, easy data accessibility, and efficient cost estimation for changes.

## Unleashing interoperability and interface capabilities

We believe in the power of collaboration and open systems. Cadmatic software is designed to integrate and interface smoothly with other technology suppliers and software systems, ensuring seamless data exchange. We offer a range of interoperability functions and interfaces to facilitate easy transfer of data between different software programs.

Naval shipbuilders can leverage Cadmatic's interoperability features to import and export 2D views, drawings, and 3D models from various drafting systems, including AutoCAD®, NAPA Steel, and more. Cadmatic eXchangers enable conversion of solid models and reference models, allowing users to incorporate their existing 3D models seamlessly into Cadmatic design projects.

## Delivering results in your preferred format

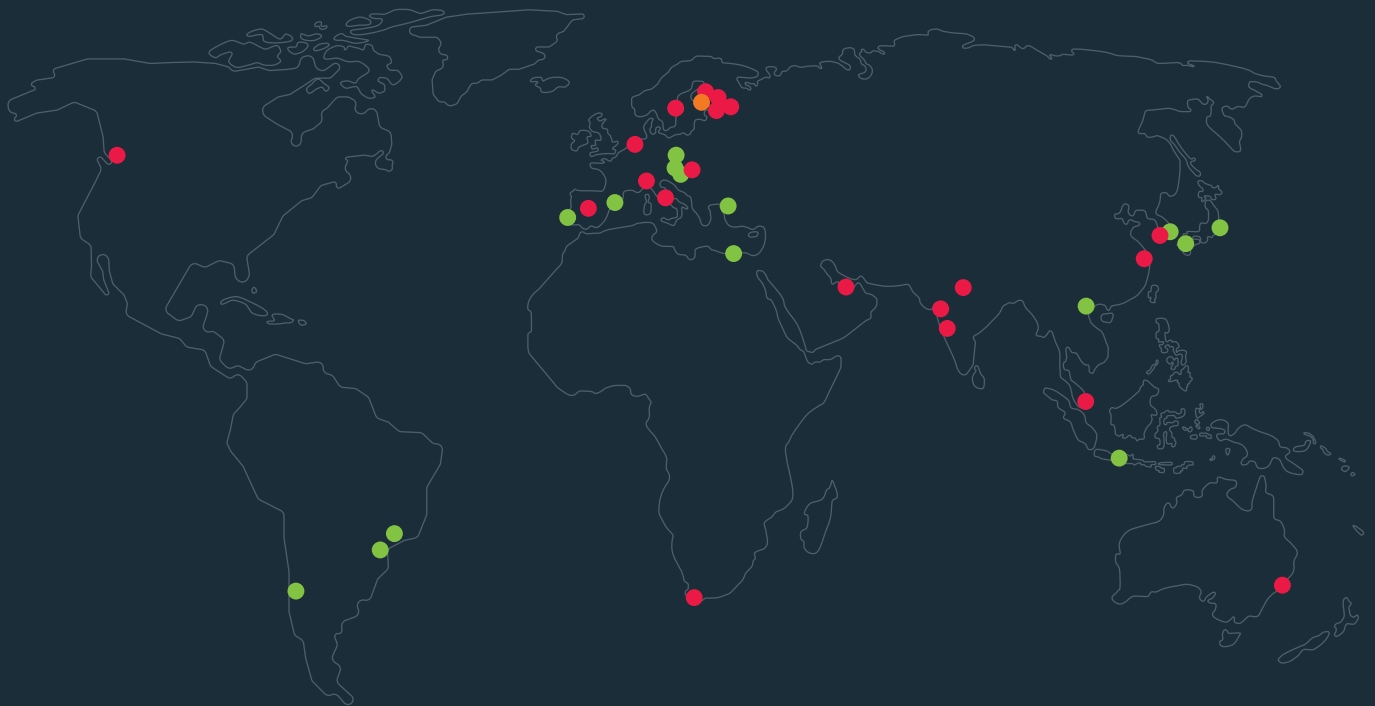
We understand that you want to deliver production documentation in the manner and format of your choice. Our software supports a wide range of file formats, including DWG, DXF, DWF, PDF, and SVG, ensuring compatibility with industry standards. You can output documents for construction, including 2D drawings, in the most common formats to meet your project requirements.

Cadmatic also enables the import of files from 3D laser scanning systems into CADMATIC Outfitting, enhancing accuracy.



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

- CADMATIC's headquarters are located in Turku, Finland.
- We have staff in Australia, Canada, China, Estonia, Hungary, India, Italy, the Netherlands, Singapore, South Africa, South Korea, Spain, Sweden and the UAE.
- We have certified resellers and support partners in 15 countries in Europe, Asia, America and Africa. Our growing customer base includes over 6000 customer organizations in 60 countries.



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