



Marine Software Solutions



Core solutions
for data-driven
shipbuilding

Feel Empowered

A complete and integrated solution for shipbuilding networks

For any scale of complexity in new-build, retrofit and modernization projects.

Empowering designers and shipyards with the best software solutions that promote openness, the use of embedded knowledge and innovation are proven characteristics of CADMATIC solutions.



For commercial shipbuilding, naval and offshore projects of any scale

CADMATIC solutions are suitable for marine projects of any complexity level. The optimized platform and storing mechanisms support shipbuilders with tailor made tools for design and information management. It covers all shipbuilding disciplines, such as hull and structural design, P&IDs, piping and outfitting, HVAC, electrical and production engineering.

The model-centric approach guarantees a concurrent design process focused on the main asset – the future vessel. In-built distributed design support ensures smooth work with all parties and subcontractors involved in the same project in real time, with the required data access control. Large amounts of interconnected data in the project is effectively managed in a digital twin platform, with in-built intelligence for shipbuilding-specific needs and a wide range of possibilities for integration with other data storage platforms.



Software solutions for sustainable shipbuilding

Green solutions require support from design technologies and tools. Decades of in-built shipbuilding practices, close cooperation with customers, efficiently implemented technology, and preparedness for the future are the main pillars of CADMATIC R&D.

At CADMATIC, we aim for continuous resource optimization for shipyards and ship design companies based on the application of modern technology in shipbuilding practices. Shipbuilding is a team sport with high levels of competition. It is a field where innovation meets technology. The creativity of vessel design and ship arrangements must include support for the green future of shipping, reduced emissions, and aim at the highest possible fuel efficiency.

Empowering impact of digitalization on shipbuilding

- Highly flexible and scalable modular solution
- Proven performance and quality of 3D/2D and numerical data for production
- Flexible change management with embedded shipbuilding practices
- Predictability of design process and outcome
- Cyber security and data access control
- Excellent support for remote and distributed environments
- Integration platform approach for the whole life cycle

Data-driven shipbuilding

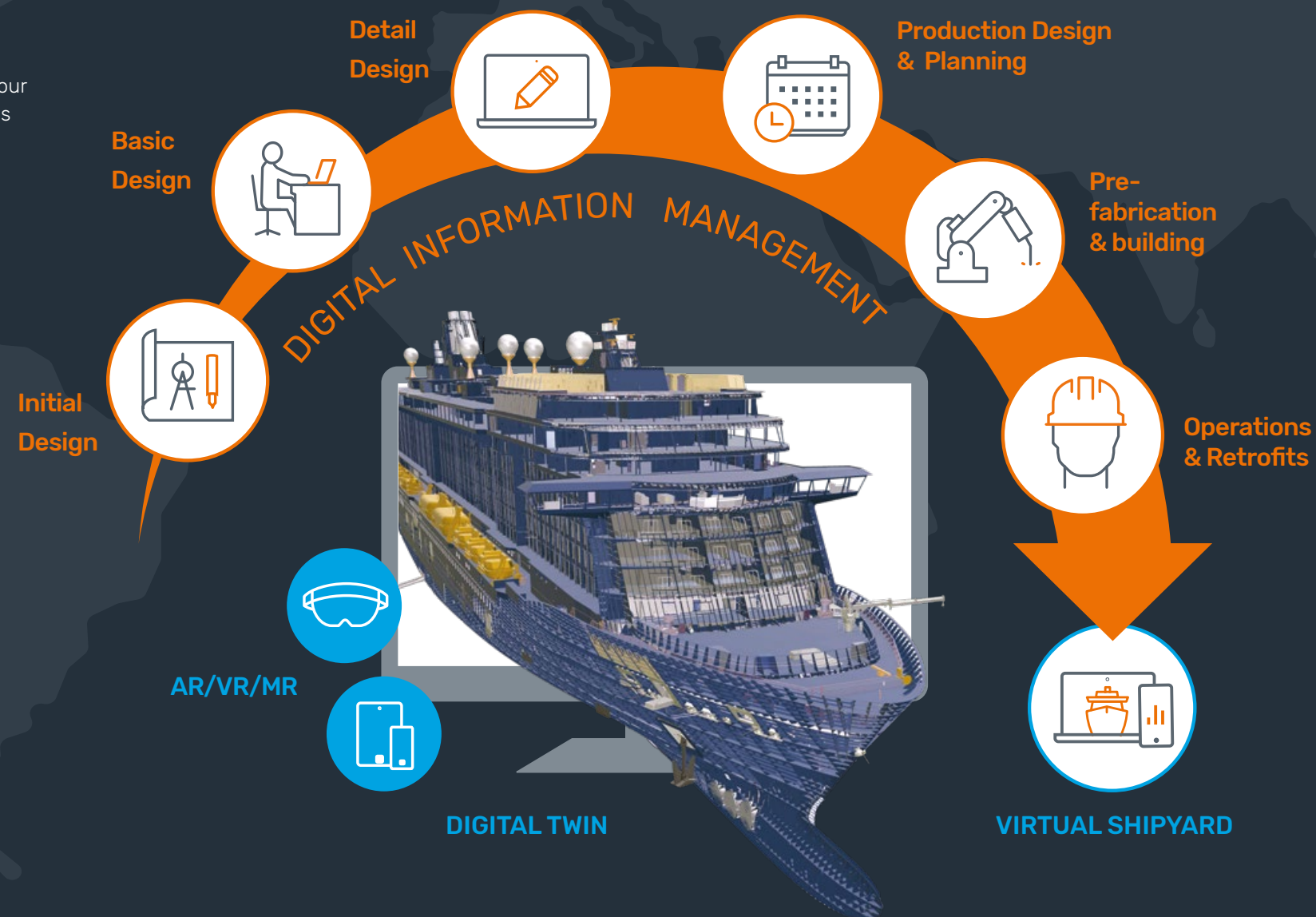
Maximize data quality, while minimizing manual data handling.

The shipbuilding industry is currently undergoing a digital revolution that is creating and transforming business models and value chains. It is increasingly embracing the immense possibilities offered by advanced digitalization in the shipbuilding life cycle.

At CADMATIC, we are leading the charge to assist our customers to optimize the way ship design and shipbuilding is conducted. These efforts are guided by our vision of a transformed shipbuilding industry, one that is driven by data.

CADMATIC software is an important element to streamline the data process from design and engineering to fabrication, production and maintenance & operation:

- Unlocks next-level efficiency
- Seamlessly integrates multiple distributed parties into one project and one database
- Digital twin is created incrementally on CADMATIC Information Management platform
- Integrating systems throughout shipbuilding life cycle
- Bi-directional approach: information flows from the digital asset to the physical world and loops back. The information from the design office and production merges
- Provides users access to all this centralized data using the latest advanced visualization technology and by extracting the required data on demand



Fueling the core of digital transformation in shipbuilding

- Maximized automation of data handling from design to construction, production and operations, paperless operations
- Utilization of model data for scheduling, planning, production, maintenance and operations management (two-way)
- Information management solution serves as platform for digital twin to be created incrementally
- Stores and merges different 3D models and effectively utilizes data from other systems, such as PDM/PLM/ERP/MES to deliver a digital twin that has true value
- Production planning based on real-time situation instead of historic situation
- Embedded use of AR/VR/MR and the possibility to integrate with RFID tracking, IoT and metaverse for the next level of digital transformation in shipbuilding

Optimizing design process and minimizing risk of errors

The model-based approach focuses on the gradual building of the digital twin of the vessel to ensure the accuracy of data and facilitate data use in all stages of the project.

Practical application of newest technology for shipbuilding needs

Continuous development of technology and IT capacity opens more practical applications for CAD/CAM. Focusing on the overall project and shipyard performance, CADMATIC provides our customers with the best-in-class tools to complete the project in time, with controlled costs, and with the highest quality.

Empowering designers with in-built shipbuilding practices and easy-to-use tools

Everyday tasks of engineers and designers in the marine industry require knowledge, expertise, and an innovative approach to meet the ever-growing demands of shipowners, class societies, and building yards. Multi-user, multi-site and multi-disciplinary engineers and designers can effectively work on the same model without compromising performance or the reliability of data.



Intelligent design functionality:

- Automatic labelling and dimensioning
- Automatic bevel and weld generation
- Weld management and traceability
- P&ID – 3D bi-directional integration
- Full integration of electrical discipline with design process and 3D model
- Shipbuilding knowledge and practices embedded in settings and templates
- Accurate and automated production data extraction
- Best-in-class design experience for users

Integrated solution for all disciplines in ship design

A complete and integrated solution for ship design and shipbuilding networks – from initial and basic design to assembly, construction, and beyond.

CADMATIC Marine Design software solutions improve quality and save time during design, engineering, production and beyond. We offer an unmatched user experience based on an intuitive software and the automation of routine tasks. This reduces costs and boosts profitability.



Connect all project-related data from multiple sources in one digital twin platform

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.

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.

Outfitting and Piping design

A 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.

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.

For all phases of ship design and production

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

CADMATIC Marine Software Solutions are tailored for every design phase of data-driven shipbuilding project life cycles, starting from the initial design up to retrofitting the vessel to meet new requirements.



DESIGN & ENGINEERING

For all design phases – consolidate 3D and 2D engineering documentation and manage project reviews and support changes.

PLANNING & WORK PREPARATION

Planning and engineering are integrated and work on the same model. Planning can create deeper and more detailed plans on the actual model while it is created.

PREFABRICATION

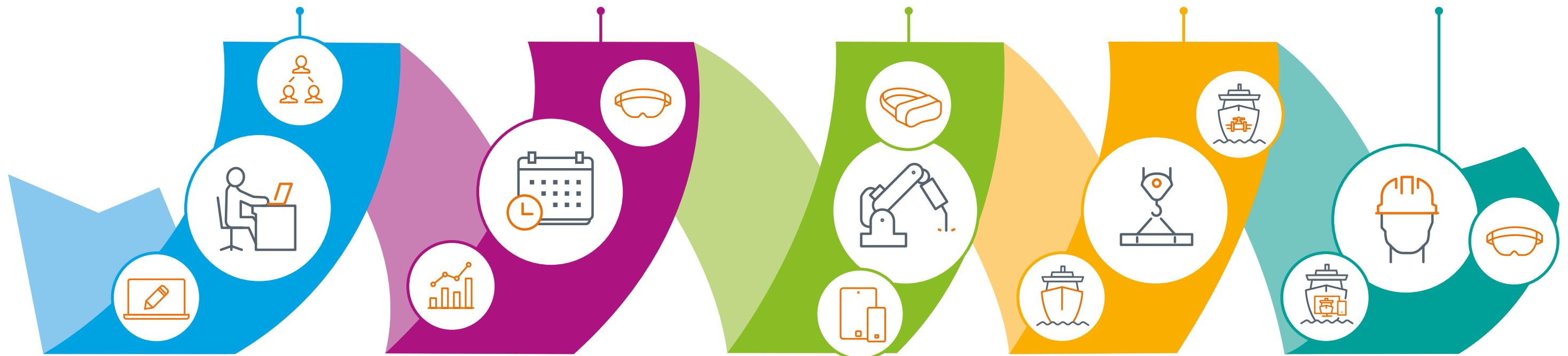
Producing information for fabrication and visualizing it with VR/AR/MR technology

FABRICATION & ASSEMBLY

Visualization of production status and progress in 3D and integration with shipyard warehouse management and deliveries.

ILS, IOT & MRO

Link ship online data and engineering project information. Use of any operational data for visualization in 3D and project handover

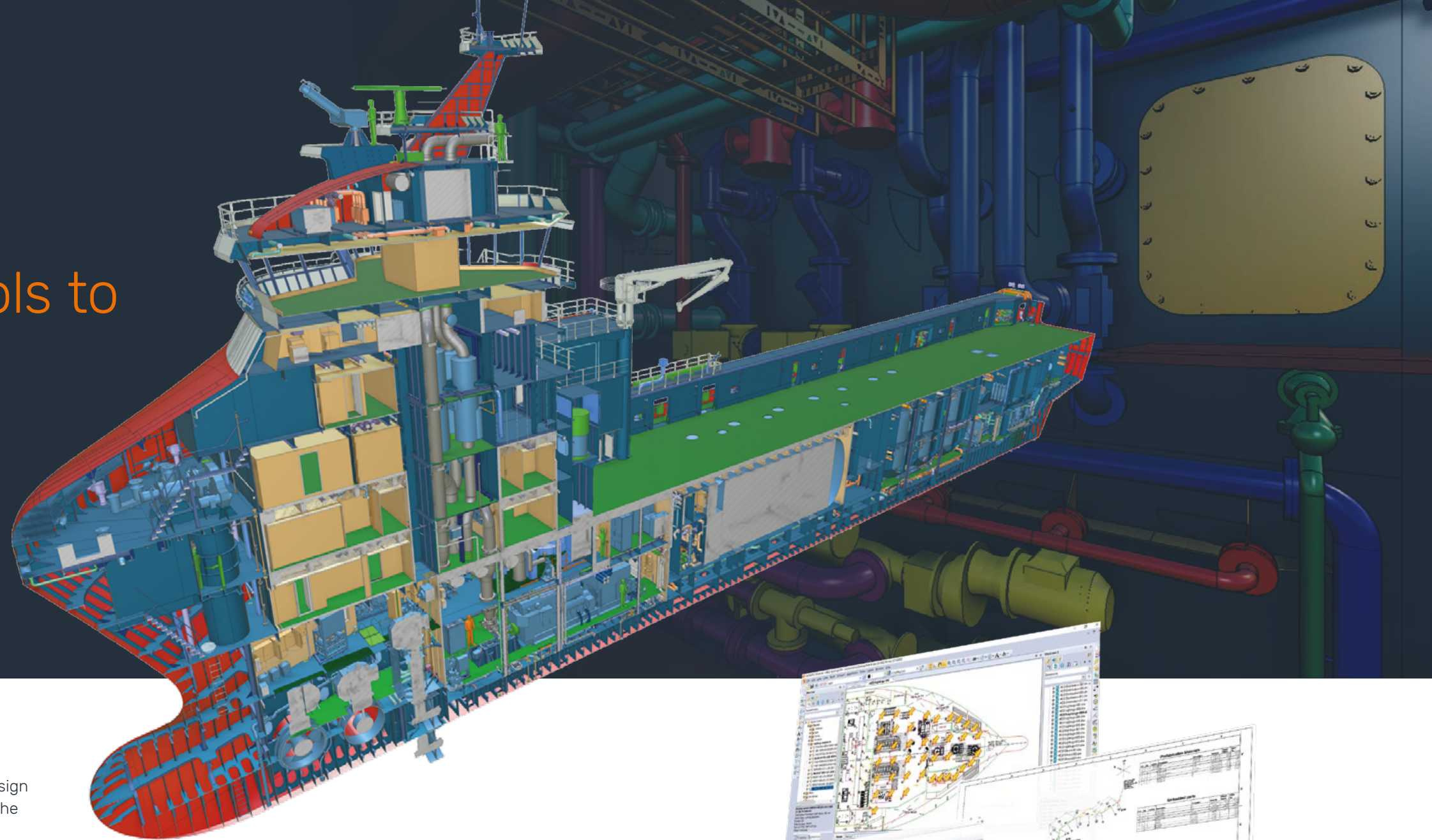


3D ship design with state-of-the-art tools to manage complexity

Shipbuilding-specific design environment with embedded best practices and high flexibility lets designers focus on their innovative work and creativity while routine tasks are automated and the UX is focused on the designer's needs.

Dedicated CAD/CAM solution for all disciplines and stages of ship design made with marine projects in mind of any scale of complexity: from the smallest boats to the largest cruise liners and offshore platforms.

- Flexibility from automated structural topology
- Specification-driven and rule-based design functions for 3D design
- 3D hull and outfitting library system with preservation of structural topology and easy reuse of modules and units in 3D
- Intelligent P&I Diagrams make it easy to create diagrams and listings for required components
- Bi-directional integration between P&IDs, electrical schematics, and 3D model
- Advanced weld manager, automatic creation of bevels and weld information traceability
- Comprehensive management of pipe penetrations in structural components
- Versatile analysis of the model to check for inconsistencies: collisions, space reservation, rule-based engineering
- Automatic and optimized drawing generation
- Drawings are dynamically connected to the 3D model, changes in the 3D model are immediately reflected in documents
- Very accurate shell plate development calculation including production templates and elongation data
- Automatic creation of production information for part manufacture and assembly
- Use of laser scans in design environment for capturing as-is 3D, remodeling and comparison



CADMATIC's accurate production information reduces costs and shortens production times while minimizing waste material and scrap metal. In addition to drawings and part lists, the software outputs detailed and ready-to-use digital production information for CNC and robotic workshop devices such as cutting, bending and welding machines.

Optimizing production information to reduce costs and shorten production times

Information can be defined and extracted from the 3D model at the latest possible stage to include all the required data in a suitable format, as well as the traceability of changes. The high quality engineering information enables a high degree of prefabrication and pre-outfitting of blocks.

CADMATIC's production information output can be customized to suit shipyards' building methods. Significant efficiency gains are achieved by aligning production documentation to the build strategy of yards and product life cycle management.

Production in data-driven shipbuilding

- Optimized production phase to obtain remarkable savings, reduce costs and shorten production time
- Reduce building time by increasing the level of prefabrication and pre-outfitting supported by central digital model
- Production data is automatically extracted from the 3D model at the latest possible stage to include all required construction data and traceability of changes
- Production information is easily adapted to the shipyard's building methods and work processes
- Generate assembly documents according to the desired build strategy of the yard
- Reduce costs by minimizing waste material and scrap metal efficiencies, boosts communication, increases productivity, and secures profitability via data-driven processes and decision-making.

Production output for error free building process

- Highly accurate and elaborate shell plate production data
- Automatically-annotated isometric pipeline and/or spool drawings and manufacturing information
- Automatic nesting of plates and profiles, including bevel details
- Supports panel lines and various CNC plate, profile, pipe cutting and bending machines



Information management in marine projects

Extend the use of engineering and design data to production, construction and shop floor to cover the complete life cycle of the vessel.

Link, visualize, and share ship design, engineering, planning, production, inspection, and operation information in a web-based platform.

CADMATIC eShare is revolutionizing how shipyards, design companies, shipowners and other project participants think about and use design, production and operational ship information. eShare's powerful information linking, visualization and sharing leads to faster and more accurate decision-making.

Link

Access all project data in one place

eShare seamlessly links design, engineering & planning data, procurement and production data as well as inspection, operational and maintenance data of a ship. All project data is accessible in one place via the 3D model hosted in the eShare web portal.

Visualize

Speed up and enhance understanding

Having access to information is important, but the ability to visualize information provides additional benefits. In eShare, you can visualize any data available in the 3D model, external databases, linked management systems, or information that was added by users.

Share

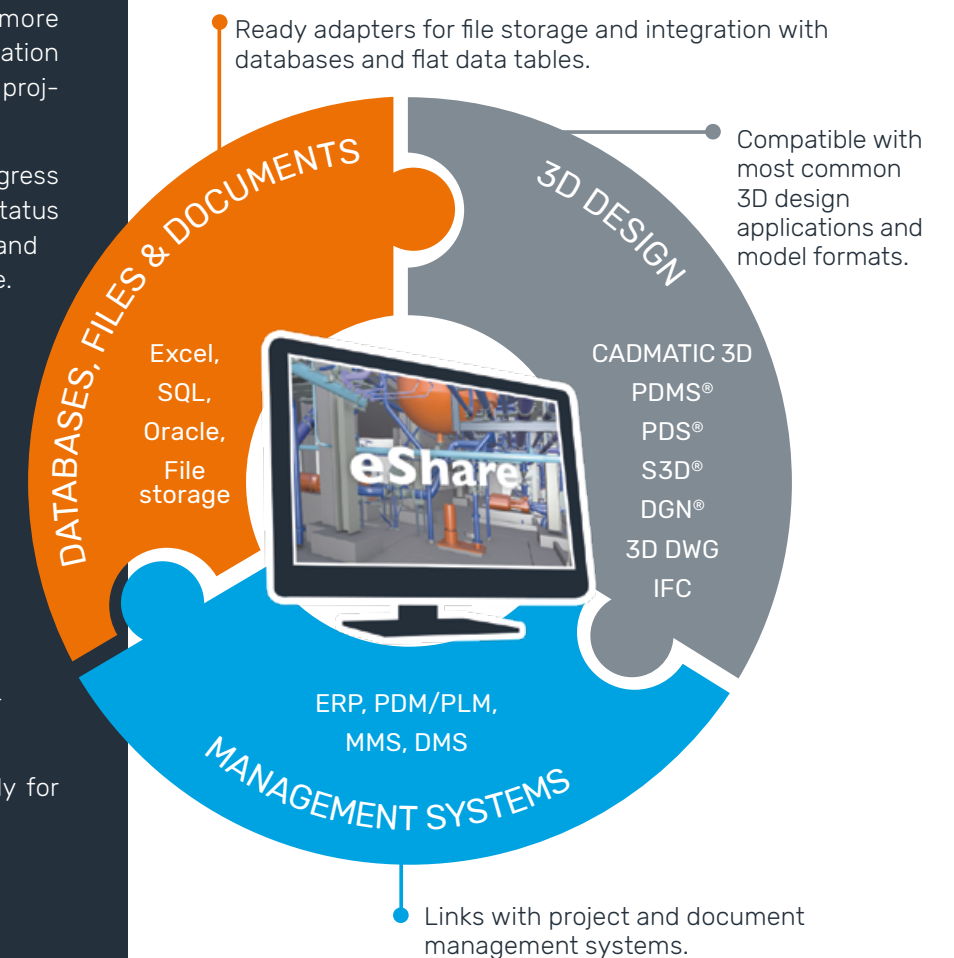
Bridging information gap & easing communication

eShare bridges the flow gap between information created in design applications and information produced during the production, installation, operation, and maintenance of a ship. Enhanced information transparency translates into greater project efficiency.



eShare – Key benefits

- Access all project data in one place. Any data in any database can be linked, searched for and visualized
- Make decisions faster & more accurately – the right information is available, all the time, for all project participants
- Boost efficiency of project progress monitoring by visualizing status based on several variables and using 3D as a natural interface.
- Retain full control over sensitive information: No data relocation or cloud storage. Access right control and selection of on-premise or cloud-based solutions
- Independent solution means no reliance on single vendor. Easy participation by several project parties using different design and engineering systems
- Solution developed specifically for marine industry needs



Digital transformation in shipbuilding

Model-based development for marine projects and digital continuity of processes along data flow, resources, and materials.

Gains in quality and optimization in data-driven shipbuilding start with the core of the digital model and expand to cover the complete life cycle of vessels and the digital thread of data in shipyard management.



Supporting innovations in design and practical needs of shipyard production

The shipbuilding process is distinctively different from automotive or aerospace. It covers the full scope of shipyard activities and must take into account the significant size of 3D models, large amount of people with various functions involved, complex procurement processes, and production design to ensure the designed project can be built at a particular shipyard with its specific infrastructure.

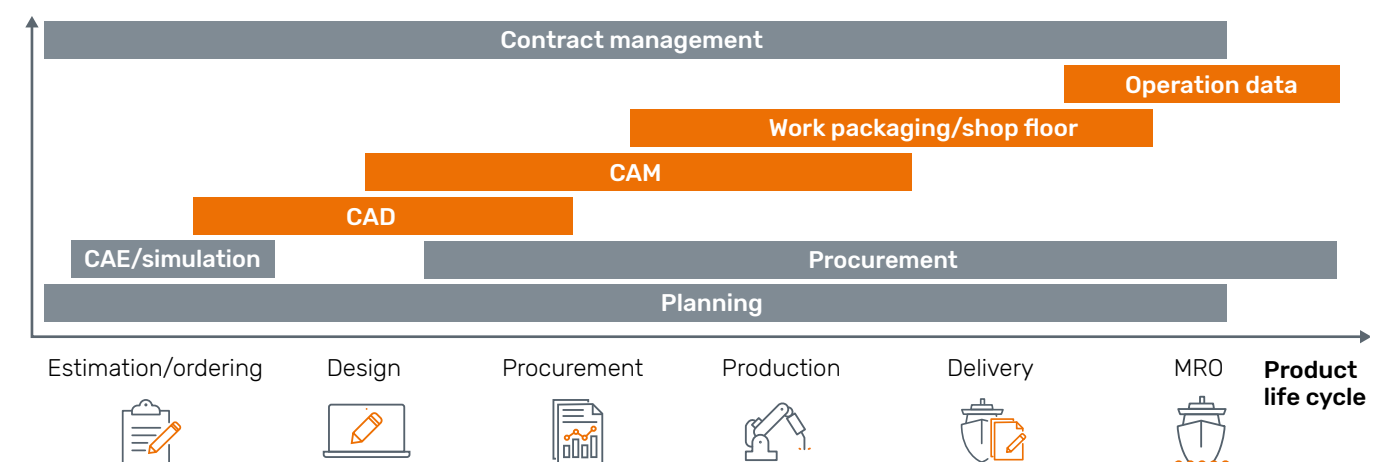
Besides providing a solution for the needs of today, the CADMATIC ensures the future development of the shipyard.

Holistic approach to digitalization in shipbuilding

The physical flow of materials and resources should be matched with information flows that include customer orders, regulations, standards and workstation instructions. Therefore, it is critical to have in-built shipbuilding knowledge in the solution and to engage the whole shipyard process to provide a competitive advantage for the shipyard using an industry 4.0 approach.

CADMATIC provides the needed flexibility and expertise in shipbuilding to facilitate the identification of business processes and the implementation of advanced solutions in a practical way.

Product life cycle process in shipbuilding

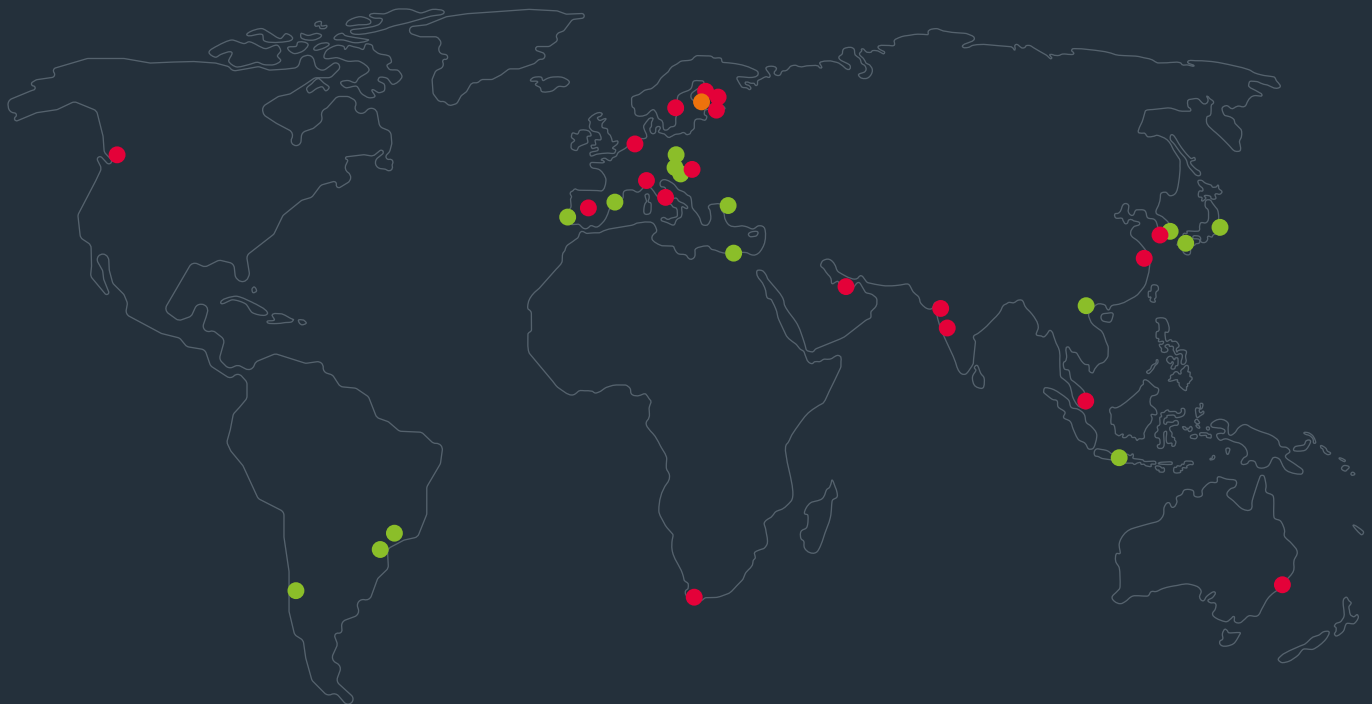


Complexity of product life cycle interconnections: solutions used at various stages of the project, different disciplines and suppliers all rely on the CAD/CAM 3D model as an integration platform for information management.

Marine Software Solutions

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.



CADMATIC in numbers



No. 1

Market leader in the number of new Marine customers



No. 2

Globally in turnover for Marine software



40%

of active shipyards with commercial ship orders use CADMATIC



+25%

Average performance improvements in customer projects

CADMATIC

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