

# Deltamarin

Marine & Offshore Case Study



## Challenge

Deltamarin wanted to differentiate itself from its competitors by offering innovative designs that are both cost effective and sustainable.

## Solution

The company uses Dassault Systèmes **3DEXPERIENCE** technology, including CATIA for virtual product design and 3DVIA for 3D documentation creation.

## Benefits

With the **3DEXPERIENCE** Platform, Deltamarin develops cost-efficient and sustainable vessels, has improved communication and collaboration with customers, and generates clearer documentation that helps customers to meet new maritime regulations such as the *Safe Return to Port* rules.

## Deltamarin – setting new standards with 3DEXPERIENCE technology

Deltamarin is a company of firsts. In 1986, the first 3D model for an engine room and piping was created in the naval design business. In 1994, it developed the first 3D model for an entire ship. In 2005 Deltamarin developed the first 3D integrated model for a floating production, storage and offloading (FPSO) unit. And in 2012 Deltamarin, along with shipowner P&O Ferries and the shipyard STX Finland, won the ShipPax award for their implementation of the safe return to port (SRTP) procedures in two sister ferries – the Spirit of Britain and the Spirit of France. A world first.

“We were the naval architects for these two vessels,” Leif Baarman, Safety Engineer at Deltamarin Concept Development Department, explained. “From the very beginning of the design process, we incorporated the SRTP rules, as specified by the International Maritime Organization (IMO). Our role was to coordinate the SRTP implementation with the shipyard responsible for building the vessel, and to develop the training scenarios and safety reference manuals for the ship’s crew. We relied on 3DVIA Composer, part of Dassault Systèmes’ (3DS) **3DEXPERIENCE** Platform, to develop a training application that walks the crew through the safety procedures so that they are prepared if and when a crisis situation occurs.”

## Keeping the vessel operational

SRTP rules require that certain systems remain operational for a safe return to port with basic services provided in the event a ship runs into problems. “Systems should be designed and installed in such a way that even if the ship loses certain compartments or spaces it will

still have the most important or essential systems available with propulsion, navigation, electrical production, and some of the passenger accommodations and comfort systems operational until the ship safely returns to port,” Baarman said. “It is a question of always keeping an alternative solution available.”

The IMO requires that a SRTP assessment be made during the design phase and that the resulting report be submitted to the authorities. Based on a 3D ship model designed in CATIA, the 3DS application for virtual product design and part of the **3DEXPERIENCE** Platform, Deltamarin performs this assessment by rendering out of order one system at a time, for example, a pipe route, and checking to see if the counterpart system still works.

“We used 3DVIA Composer to represent the results of each assessment and the resulting presentations form the framework for the support documentation that was submitted to the ship’s owner – P&O Ferries – for use by the crew,” Baarman explained. “The ship’s crew can easily understand 3DVIA documentation, which is in 3D. This is essential in emergency situations when they need to quickly find what valve to close or what pumps to start,” Baarman said.

## 3D – a competitive advantage

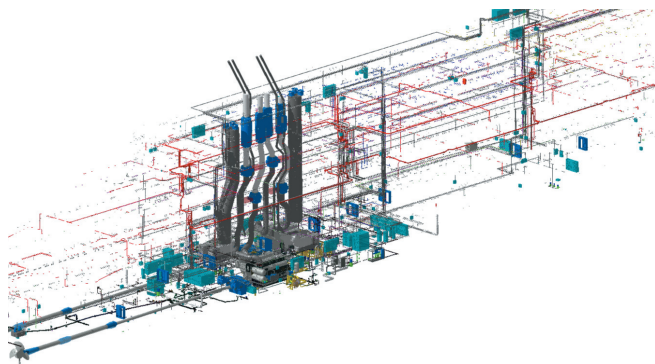
3DVIA gives Deltamarin an opportunity to differentiate its offering from that of its competitors. A flexible content authoring platform, 3DVIA Composer is capable of providing a complete package for Deltamarin customers that is comprised of 2D drawings, 3D models and all associated documentation. “Most customers expect 2D drawings because that is what they are used to,” Esa Jokioinen, Manager, Concept and Development at Deltamarin, said. “While 2D drawings are still mandatory, we have already had feedback from our customers saying that they appreciate the 3D aspect as well,” Jokioinen said.



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**Esa Jokioinen, Manager, Concept and Development, Deltamarin**





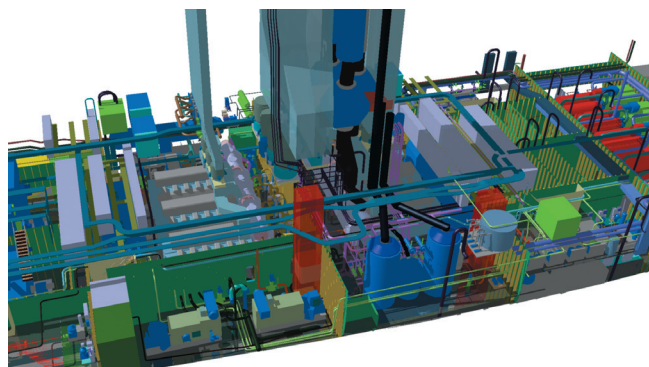
Systems and routings for Safe Return to Port analysis

With over 20 years of marine design experience, Deltamarin is widely recognized for its ability to overcome complex design challenges. "Customers come to us when they have a challenging design task and they need our expertise," Jokioinen said. "In fact, if it floats, we know Deltamarin can design it." A longtime user of CATIA, Deltamarin is especially good at designing fuel-efficient vessels that enable shipowners to sustainably cut operating costs. "This is illustrated with our new set of state of the art standard bulker designs, which we designed using CATIA," he said.

"As a matter of fact, a vast majority of our design work, already in the conceptual phase, is done in 3D, which is something no one else on the market is doing today," Jokioinen said. "This difference is a definite competitive advantage for us. For example, working in 3D is a big help when the geometry is complex or when we need to optimize the way we position the engine or various systems in the compartment of the vessel. Interferences are eliminated upstream and feasibility is verified before the ship contract is placed," he said. "This considerably reduces risks both for the shipowner as well as for the shipyard."

### Collaboration leads to better designs and satisfied customers

Deltamarin places a great deal of importance on building close working relationships with its customers when developing a vessel. Good communication ensures that the result is perfectly aligned with customer expectations. "Our customers not only appreciate being an integral part of the design process, but also that their participation is valued and a necessary part of the product," Jokioinen said. "And we feel that we get the best feedback this way. It is a win-win situation." 3D is an integral part of Deltamarin's effort to facilitate communication with customers. "The quality of our deliverables is improved. By presenting our designs to our customers in 3D, the



Cruise ship engine room coordination model

product is better illustrated than if we were to use conventional 2D drawings only. It promotes and facilitates cooperation," Jokioinen said. "To be competitive, we not only need to do old things in a new way, but also to find completely new ways of approaching the earliest stages of a ship's design process using the advanced design tools we have."

Using the latest technologies for sophisticated 3D modeling and documentation from the 3DEXPERIENCE Platform has helped Deltamarin provide its customers with designs optimized for cost efficiency and sustainability. "Whether in design or documentation, 3DS technology has enabled us to be more efficient and innovative, and to bring added value to our customers. Through innovation, we hope to set new standards," Jokioinen concluded. And to continue to be a company of firsts.

### Focus on Deltamarin

Deltamarin is a naval architecture and engineering firm that specializes in consulting, design and engineering of vessels and other floating structures for the marine and offshore industry worldwide.

<b>Products:</b>	Services such as concept, basic and detailed design and workshop drawings for newbuilding and conversion projects. Contracting services including project management and procurement.
<b>Revenue:</b>	€ 30 Million
<b>Employees:</b>	400
<b>Headquarters:</b>	Raisio, Finland

**For more information**  
[www.deltamarin.com](http://www.deltamarin.com)



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