

# Building the world's largest cruise ships under Safran's navigation

**Pertti Rinta-Panttila**

Planning manager, Aker Finnyards

**Many of the world's finest luxury cruise ships originate from Aker Finnyards' shipyards. Recently, Aker Finnyards was awarded the contract to build the third ship in the Freedom class, the world's largest cruise ship, to be completed in the spring 2008. Aker Finnyards have two of these record breaking cruise ships under construction at its yard in Turku. The first cruise ship in this class – Freedom of the Seas – is ordered by the Royal Caribbean International, and will be ready for delivery in April 2006, while the second ship will be delivered in the spring of 2007. For planning manager Pertti Rinta-Panttila, these projects would have been almost impossible to manage without the project management software from Safran. As he explains: "A system like Safran is a must for us. Without it there will be no ships – not on time at least."**

In 2004, Finland's three largest shipyards, located in Helsinki, Rauma and Turku, merged to form the new Aker Finnyards, the Finnish yards within the Aker Yards Group. Since January 1, 2005 the three yards have been working as one company.

Aker Yards is an international shipbuilding group focusing on complex and sophisticated vessels, and is by far Europe's largest and one of the world's five largest shipbuilders. Aker Finnyards is now considered to be one of the world's leading designers and builders of cruise vessels and ferries as well as other technically complex vessels.

During the last ten years, over 25% of the world's cruise ships have come from the company's shipyards, the major customers within this vessel segment being the globally leading cruise operators. In addition, Aker Finnyards' knowledge in ice technology is beyond comparison. 60% of the world's ice breakers have been built by the company. The most advanced ship designs, such as the multipurpose icebreaker and the double acting icebreaker supply vessel, originate from the yards.

Since the beginning of 2003, the Helsinki and Turku shipyards have been using project management software from Safran to schedule their operations and manage the resources for their construction projects. So far, Safran software has been utilized to manage the successful construction of 4 cruise ships. Project management, resource management and sales project simulations for all three yards are now

being consolidated in Safran.

In addition to the three Freedom class ships already mentioned, the 2.4 billion EUR order book currently includes one cruise ferry for Tallink, a cruise vessel for Color Line, three container vessels for Baltic Container Shipping, an ice breaking supply vessel for Fesco, an arctic container vessel for Norilsk Nickel, one missile boat and a conversion for the Finnish Navy and lengthening of a cruise vessel. In addition a letter of intent has been signed for a cruise vessel for Color Line. The future looks promising.

**Long-term projects.** The cruise ships currently under construction in Turku are some of the world's most spectacular and most innovative ever. The new Freedom class vessels will be 126 feet by 1,112 feet (38.6 meters by 339 meters), and will stand 18 decks high. Their gross tonnage is 158,000. "The ships can carry 4,400 guests and 1,400 crew members," says Pertti Rinta-Panttila, Planning Manager of Aker Finnyards, Turku, and continues: "These new ships are some 15% larger in space and passenger capacity than the earlier Voyager-class vessels."

Being the world's largest ships, the Freedom class ships will offer even more room for passenger facilities and astounding onboard activities. By the looks of it, passengers will certainly have no time to get bored; the ships have numerous luxurious restaurants, shops, recreational facilities, a Royal Promenade, rock-climbing wall and even a skating rink!





“Building ships in this class is a long-term project that takes several years from design to finish. The construction and assembly phase in the shipyard is 1-2 years long depending on the size of the ship. Both planning and construction include numerous phases and the project involves thousands of people, including the external suppliers and subcontractors,” says Pertti Rintapanttila.

**Tight schedule.** The company’s vast experience is based on the history of 3,500 ships built – both long series and extremely demanding one-offs.

Precise design planning and innovative development are crucial to reach the design and construction solutions requested by customers. “Typically, clients present the requirements, challenging our design department’s ability



to identify and solve the client's problems. Client involvement and joint work on building specifications, along with concurrent engineering to optimise designs, lead to solutions that are well-tailored to customers' needs.

Unconventional and innovative thinking and a wealth of experience along with tight focus on modern project planning and control ensure completion on schedule," Pertti Rinta-Panttila explains.

Freedom of the Seas, the first of the three new cruise ships, is to be delivered to the Royal Caribbean International in May 2006. Booking is already open for its first weekly cruise in the Western Caribbean starting June 7, 2006. There certainly isn't much room for project slippage.

#### **Project management is a key success factor.**

Working on projects with fixed timeframes and high customer expectations requires good planning and project management in general. At Aker Finnyards, Project Management is defined as a key area of expertise required for continued and future success. "Project management plays a decisive role in ship building with its long yet tightly phased projects, large amounts of work and great number of people – both company personnel and partners," according to Rinta-Panttila.

At Aker Finnyards engineering and design, procurement and block fabrication have been centralized as a service offered to all the three yards. Block fabrication includes cutting of steel plates and profiles, fabrication of stiffened panels, T-beams etc., fabrication of sub-blocks and blocks, fabrication, hot-outfitting and painting of grand blocks. Grand blocks are the units to be mounted or assembled in the docks. The maximum size of the grand blocks differs between the three yards, constrained by the maximum lifting capacity at the yard. Aker Finnyards operates two block factories, one in Turku and one in Rauma.

The assembly operations at the yards include work by Aker Finnyards and several suppliers and sub-contractors. Each one selected according to competence, competitiveness and capacity. An example of a sub-contractor is a company specialized in assembly of modular cabins and bathrooms. All companies involved in the assembly operation and the final outfitting, powering up and commissioning of the ship,

focus on their key area of responsibility and expertise. Together, they are all working towards a common goal – completing the ship within budget and on schedule.

Approximately 4000 people work for the yards and about the same number are employed by subcontractors and still more for suppliers of material and components. The Aker Finnyards operation is a major economic booster for the surrounding regions.

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At Aker Finnyards some 20 people use Safran's project management software in their daily work and all together some 150-200 people enter data in the system. "When carrying out a large project, resource management is the key to everything. We have to find the best possible way to utilize available resources. Everything has to be well planned and when things get rolling everything has to be kept tightly under control. At the development stage, mismatches have to be identified rapidly, and then we move things around to achieve the best fit within available timeframes. We aim high at our project management activities, and a system like Safran is a must for us. Without it there will be no ships – not in time at least," says Pertti Rinta-Panttila.

#### **Features and flexible capacity as main criteria.**

Project management software from Safran is being used to plan and manage projects, resources and production for both own and subcontractor work. According to Rinta-Panttila, Safran's flexibility and capacity were important factors in the purchase decision. Both the project schedule and the resource plan are presented graphically in Safran. Good graphical reports and views are very important because they provide essential information in a concise and easy to read manner. The interactive Gantt editor in Safran, which both Rinta-Panttila and AFY's key Safran user Timo Tommila regard as a major plus, help visualize the schedule and resource situation, and it is easy to work out the best schedule and resource plan to speed up work. The Gantt view contains a resource

→ histogram and we can move tasks around on the screen to assess different alternatives or to solve any resource conflict or snag. Safran allows us to make more efficient and effective use our resources,” explains Tommila.

According to Pertti Rinta-Panttila and Timo Tommila one of the great attractions of Safran is the ability to arrange and group the tasks as a multilevel outline according to whatever logic makes sense to the user, and expand or collapse data to show or hide detailed information. “Combined with the possibility to group and filter tasks and resources according to user defined codes it allows us to view plan and resource information from numerous perspectives. With other systems you often find yourself stuck with a single fixed hierarchy,” says Tommila.

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Rinta-Panttila continues: “For example we can look at the schedule from an overall perspective focusing on the Aker Finnyards’ main project structure, and we can view the entire schedule by sub-contractors and partners or by responsibility. Also, the resource requirements and utilization can be viewed by means of a product breakdown structure by sector, area, team or job location.”

“At first, understanding this new feature took us some time, but once we saw the flexibility it offered, we realized the power and the potential of this single feature,” says Tommila. “Should a problem arise, we are immediately able to focus on any area of concern.”

**Keeping fingers at the pulse of progress.**  
Working towards definite targets, the company

simply cannot afford to second-guess its progress. Fortunately it doesn’t have to: Safran simplifies the statusing of the work, freeing up time to evaluate the true progress made against the project.

One of the features in Safran that both Rinta-Panttila and Tommila praise is the so-called live plan. It is a feature designed for the work management which is used to update operative scheduling and resource management. These plans can now be compared with the original budget created by the production planning and with the project target baseline. “With proper understanding this live feature gives new possibilities for the daily management. The target schedule remains fixed and along with it, plans for catching up and work in the pipeline can be shown. It’s a matter of seeing things in a “this is how it was supposed to go, and this is how it seems to be going” perspective,” Rinta-Panttila describes.

Rinta-Panttila is delighted with the control now afforded through Safran. “The live plan feature gives us a clear understanding of the project development and how slippage and changes affect the schedule. It also gives everyone involved a clear picture of where they are. Being able to compare the current state of a project to a target baseline enables the planner to gain control of the information, make any corrections necessary and improve decision making.”

**Way of use formed between users.** The project management software does not act in isolation. At Aker Finnyards Safran has been set up to interface with systems for job orders, document control and time registration. According to Timo Tommila, implementing Safran has been a work intensive project run in parallel with management of all shipbuilding projects. The greatest challenge for the project team has been to find a common, practical terminology.

“We are continuously dedicated to exploring how our Safran software can be used to our greatest advantage”, says Tommila. “Safran offers an enormous variety of fields, plans and other data elements. It is important to us that we define a common way of use that can be shared for all three yards. Building on the experience gained from using Safran since 2003 we are now



able to focus on best practices throughout the organization. We've specifically defined how we can harmonize the use of the software."

Pertti Rinta-Panttila points out that in the oil and gas industry, the operational environment differs from the shipbuilding industry. "Since first introduced at Aker Finnyards in 2003, Safran has been tried, tested, implemented to the full and has proven to be a tremendous tool for project management. In a way we have been pioneer users and with that in mind we have influenced and will be influencing the development of the software," he says.

Because Safran Software Solutions has attracted more and more clients from other industries in addition to the oil and gas industry, client feedback is a critical element contributing to the development of both software and support.

***"It is evident to us that the people at Safran respond to their clients' requests with one goal in mind – to ensure client satisfaction on all levels," Rinta-Pantilla concludes. ♦***