

Knowing

the Drill

By Rachael Dalton



Kværner Wins Major Contract on the Strength of its IT/IS Strategy for Engineering, Based on PlantSpace and MicroStation

Oseberg is likely the most profitable oil and gas field in the world. Located in the North Sea, the field has a daily production of approximately 700,000 barrels of oil a day and generates approximately \$15 million in revenue per day. Situated only 50 miles west of Bergen, Norway, the field is currently exploited by the Oseberg A, Oseberg B, Brage and Oseberg East platforms. The Oseberg A and B platforms were originally installed as oil-producing platforms, but in 1997, it was decided they had to be converted to gas drilling.

Oseberg's owner, Norsk Hydro ASA, had several requirements for the Oseberg Gas Modification and Hook-Up project (code named Osegas):

- Proven experience from the project's engineers.
- A clear, forward-thinking technological solution for the project.
- Contractually binding electronic information pertaining to the project, which the contractor would create, use and transfer—in an industry-standard format—once construction was complete. This would include not only as-built drawings, but also complete documentation for life cycle management and destruction of the facility.

- Extensive use and interface of Norsk Hydro ASA's own online systems, which should be integrated into the overall information technology and systems (IT/IS) solution/concept.

Kværner, one of the largest and most prestigious engineering, contracting and construction firms in the world, was poised to meet these requirements. The company had recently announced its mission to be the leading worldwide player in its industries by exceeding the expectations of its clients through the use of IT/IS. Kværner realized this was its opportunity to exploit evolving client/server applications, as well as incorporate intranet technologies for engineering, to win this project.

Kværner was awarded the \$70 million contract on the strength of its IT/IS solution specifically designed for the project. Kværner's proposal was chosen for the outstanding score the IT strategy received in the bid—70 out of a possible 75 points. The concept and solution was borne of the IT/IS strategy established in part by Rune A. Larsen, IT/IS Strategy and Bid Manager for Kværner Oil & Gas a.s.-West in Norway (now functioning as the IT/IS Manager of the Osegas project).

“To make a successful strategy, we focused upon the end product—the physical structure being built, what electronic deliverables (drawings, documents, etc.) were required, and what we have to provide to fulfill that strategy,” says Larsen. “You cannot focus upon only the design, because you lose the whole strategic overview. You have to ensure that every software application you use works across the phases in an EPIC

Larsen's team opted for client/server technology using Windows NT and Oracle—as the strategic database—as the basis for the new system. Then they carefully chose standard applications for every part of the planning, design and construction process, including document management and financial control systems.

The Osegas project started in May 1997 and is scheduled for completion in October 1999. Kværner has to complete the conversion of the Oseberg A platform—including the hook-ups and tie-in of the Oseberg D Platform—using new pipework, instrumentation and equipment.

“There is no one, single solution for such a huge project,” Larsen says. “We have to produce so much now and still keep an eye on what is coming up in the near future. We are watching Bentley

company. At the end of the day, the company performs engineering. We will choose the best products for our work.”

Software selection

Larsen and his team had to respond to requirements for the entire project life cycle—through design, installation, management and decommissioning of part of the site. Each part required different software, which had to be easy to use and communicate fully with other applications.

“Each piece of software could not be limited to, say, the specialized side of engineering or accounting,” says Larsen. “The software had to work across departments because we are crossing more and more into mainstream involvement throughout the company, based around the IT/IS in place. Each product had to communicate with the others to ensure the most efficient use of time and personnel, and



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—Rune A. Larsen, IT/IS Strategy & Bid Manager, Kværner Oil & Gas a.s.-West

From left to right: Rune Aschehoug Larsen, Kværner Oil & Gas a.s., Oseberg Gas M&HU IS/IT Manager; Knut Brataas, Norsk Hydro ASA, Oseberg Gas M&HU Site Manager; and Hans Jacob Berge, Kværner Oil & Gas a.s., Oseberg Gas M&HU Project Manager.

[engineering, procurement, installation and construction] project, and is not limited to specific fields—we need ‘open’ solutions to achieve this.”

because it is an innovator and is developing some leading-edge technology. I must stay with the new technology because my charter is to find the most efficient, competitive methods for the

to secure the highest level of quality of the data.”

Kværner had investigated a large number of software products for each aspect of the

Osegas project. They finally chose a number of the PlantSpace products from Jacobus, a Bentley Strategic Affiliate, including the PlantSpace Integration Server, PlantSpace Enterprise Navigator, PlantSpace Schedule Simulator and PlantSpace P&ID; Bentley's MicroStation and MicroStation ReproGraphics products; and ActiveAsset Manager from WorkPlace System Solutions, another Bentley Strategic Affiliate. All of these products were targeted for, but not limited to, the design process of the project.

For example, PlantSpace Integration Server provides for the translation of object-based data both into and out of the system, while PlantSpace Enterprise Navigator allows for simulation of plant design processes for personnel not specifically linked to the design areas. PlantSpace P&ID allows for the production of piping and instrumentation drawings from the 3D models created in Cadcenter's PDMS (software which was already in place for the project). All of the products work successfully on a client/server network and can communicate with the Oracle databases.

Larsen says that in choosing these products, the software developer behind the products also became a factor in the decision.

"It was important to find software vendors that are not only technology leaders, but that can also provide us with complete solutions for the project, meaning software, training, support and integration consultancy," comments Larsen. "It is the technology leaders that create the standards used in the industry. Bentley was one of just

four companies picked by Kværner because it was evident from its entire history that it had technology leadership. These leaders stay in the marketplace and dominate it and therefore answer many of our project requirements."

Minimal customization

A set of interfaces and easy operation for each software product were recognized as considerations for the project. With a massively complex system being implemented, Larsen and his team realized that no time for customization of software could be afforded. The applications had to install directly into the client/server network.

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**—Rune A. Larsen,
IT/IS Strategy & Bid
Manager, Kværner
Oil & Gas a.s-West**



Each application considered had to achieve success in scalability, user friendliness, uniformity of user interface and flexibility. Larsen also had to find applications that would allow up to 1,000 users on the network simultaneously without difficulty.


"You have to create the foundation and then put the IT/IS building blocks on top of it," says Larsen. "If that process is too long and complex, the foundations are either not good, or not being put to good use. Get the foundation right and then build on it, and that starts to give you the competitive edge."

A smooth transition

The Kværner IT/IS team budgeted for training by the software developers throughout the installation to ensure rapid transition to the new system. With a regular training program in place, Larsen is confident that the company will adapt successfully to the new system once it is fully implemented.

"The competitive edge for Kværner was in choosing the right software for the job," says Larsen. "But this choice also involved how quickly personnel could adapt to it with the right training. If they cannot adapt, everything promised in the contract bid is lost and the company is no longer competitive."

Larsen says that information technology's fit into the company's operation is a means to an end and not an end in itself. His focus is on 100 percent efficiency and productivity which, he feels, can only be achieved by careful choice of software and a forward thinking plan.

"What separates the winners from the losers in the long run, aside from company buyouts and so on, is the IT/IS end, which really utilizes what systems and technology can do for you," he says. "Once you have a contract on board, you have a contractual commitment and you have to show the client that you can actually produce. This is where you have to get the working method in place, and that's where we feel we have a competitive edge compared to others." 

Rachael Dalton is managing editor of MicroStation World.