MARINE SOFTWARE AND INTEGRATED SYSTEMS SOLUTIONS

EIVA

EIVA a/s, based in Aarhus, Denmark, is an independent software and systems company in design and manufacturing software and integrated, customised systems solutions for marine surveying.

Founded in 1978, EIVA initially provided equipment, sensors and services for the offshore oil & gas industry. In 1982 the company began development of the NaviPac integrated navigation software. Since then it has undergone continual growth to become todayâ€™s recognised high-technology company with a main focus on software and integrated systems solutions for use in hydrographic surveying, seafloor mapping, offshore construction and inspection works, geophysical surveying, oceanographic research, etc. At the beginning of 2003 EIVA acquired Danish company GMI, engineers and consultants with more than twenty years experience in the design and manufacture of products and solutions for process control and measurement techniques. Product applications comprise primarily marine, environmental and oceanographic monitoring, and include the ScanFish series of towed intelligent undulating vehicles.

Company Profile
EIVA headquarters is situated in a suburb of Aarhus, the second largest city in Denmark, and comprises two buildings covering a total of more than 1,000 square meters. A recent refurbishment of the buildings has provided modern, purpose-built facilities housing software development, production line, an electronics workshop, and calibration laboratory. The company employs 23 people, including a highly competent software development team specialised in software for marine applications, from navigation and data acquisition to data post-processing and charting.
The software development personnel all have a solid theoretical education to degree level and thorough experience in programming. They also have close ties with the Danish scientific environment through personnel contacts with Danish universities and institutions, specifically within the area of surveying, positioning, mathematics, and so on. Several employees have been with the company for years and thus possess a wealth of know-how and experience in its software products, applications, and the market.

Software Development
In the software development process EIVA makes use of standard tools for specification and design, implementation, management and documentation.
The company is certified by BVQI (Bureau Veritas Quality Institute) to ISO 9001:2000 quality management-systems requirements, and all development procedures based on object-oriented methods and standard waterfall models form part of the quality certification. The strategy with respect to the software product suite is to be a leading provider of marine survey software in particular applications relating to offshore activities and hydrographic surveying. Past experience has shown that this is in the best possible way ensured through a close interactive process with the end-user. During this, future features as well as layout of the man-machine-interface of the software products are jointly specified and agreed to, resulting in a high degree of satisfaction and user friendliness.

Product Suite
The EIVA software product suite comprises software for all aspects of marine surveying, from integrated navigation and data acquisition, through post-processing of data and production of fair-sheets. It includes the following modules: NaviPac Integrated Navigation, NaviScan Multi-beam and Sonar Data Acquisition, NaviEdit Survey Data Editing, NaviModel Digital Terrain Modeling, and NaviPlot Fair-Sheet Production and Charting. Optional software modules are available for special purposes such as cable laying, barge/tug management and pipeline inspection.
As an integrated software suite, these modules form a seamless software solution allowing easy data transfer from one module to the other. However, their flexible interfacing featuring selectable export and import data formats allows individual software modules to also be used in stand-alone mode interfacing with third-party software. The software product suite is well proven and recognised within the marine survey industry, and it is under continuous development to meet new industry requirements and to facilitate interfacing with new marine survey equipment and instrumentation being introduced onto the market.

Unique Key-points
Some unique key-points of the software are that it is an independent software solution that allows handling of all available sensor data. The MS Windows â€˜look and feelâ€™ makes the software intuitively and easily used, as well as ensuring a high degree of flexibility. The user interface allows user-designed screen layout and storage of operator-preferred settings. The seamless integration of the various software modules secures full data compatibility during export/import of data from one software module

to another. The software is available in a Lite entry-level release which allows for gradual upgrade to full release as and when required. The software further supports networking, and training software comes free of charge. EIVA offers its clients a software maintenance and support agreement securing extensive service on both fronts, with the aim of keeping uptime at its highest possible level. Finally, one software provider capable of offering the full spread of survey software simplifies responsibility, maintainability and support.

ScanFish

The ScanFish is a series of towed undulating vehicles designed for collecting profile data of the water column in oceanographic, bathymetric and environmental monitoring applications. A complete ScanFish system comprises a tow vehicle with controller and sensor package, winch and tow cable, deck unit (PowCom) and control PC for use of ScanFish Flight software. Up until recently the ScanFish was available in tow versions: ScanFish MKI being the smallest requiring active winch control to perform undulation, and ScanFish MKII equipped with flaps to allow undulation without active winch control. In February 2006 EIVA introduced the ScanFish Mini, which features flaps for undulation like ScanFish MKII but is only a quarter of the size of the MKII and thus ideal for deployment from smaller boats.

All ScanFish units are towed from a tow point placed in a cut in the centre line from the leading edge of the fish body. This tow point provides maximum control while ensuring very good pitch stability, resulting in undulation following an excellent symmetrical saw-tooth profile. The PowCom deck unit provides the sub-sea control system with power and handles communication between PC and tow-vehicle controller. The ScanFish Flight software, executed on the control PC as user-system interface, is a full client/server solution with distributed display and control. The software handles all I/O with the ScanFish and winch, and offers MMI for monitoring and control of the vehicle. The software also features data acquisition of integrated sensors, as well as payload sensors interfaces via the PowCom deck unit.

Integrated Systems

Systems design is based on thorough identification of customerâ€™s needs and requirements. Extensive technical and financial system know-how secures cost-effective systems solutions based on Commercial-Off-The-Shelf (COTS) products. Systems experience includes offshore surveying, sub-sea engineering, hydrographic surveying, scientific research, and naval defence. For example, EIVA provides networked navigation command information systems for the NATO Submarine Rescue System (NSRS). The system integrates a multitude of underwater and above-water sensors and communications systems, including catering for navigational information exchange between participating vessels: the Submarine Rescue Vehicle (SRV), the Intervention ROV (IROV), the SRV deployment vessel and a support vessel.

The NATO Submarine Rescue System (NSRS) will undergo sea trials in late 2006 and enter service in 2007. The new rescue system will primarily support the three participating nations of France, Norway and the UK, but will also be on standby to assist any nation anywhere in the world.

Other Activities

Besides software, products and integrated systems, EIVA holds a pool of equipment available on a rental basis to the marine survey industry. The company invests mainly in leading-edge technology and state-of-the-art instrumentation, and has often been among the first companies to invest in new instrumentation utilising the most advanced technology. EIVA also represents manufacturers of equipment and instrumentation, typically within Scandinavia.

Future Expectations

Industrial activities, in particular within the offshore oil & gas industry, finally took off during 2005 after a couple of yearâ€™s stagnation. The growth in exploration and production is expected to lead to an increase in requirements for deepwater and sub-sea activities. Besides skilled personnel, this will require leading-edge technology, and EIVA is committed to pursuing these opportunities through provision of products and advanced software and integrated systems solutions, and thus to continue to belong to world market leaders.