



Guiding Vessels

The phenomenal growth in world trade over the decades has induced more ships to venture into international waters and increase the number of calls at each of the world's ports. With such growth in vessel traffic, it has become a basic necessity for every port to have an advanced and robust vessel traffic management system.

by *Cormac Gebruers and Ruslan Kravchenko*

A vessel traffic management and information system (VTMIS) is a comprehensive network of sensors, information processing technologies, display systems and trained operators that together provide support to ships navigating in busy or dangerous waters. VTMIS is a bit like air traffic control, but

does not stretch the analogy too far. There are many important differences.

A typical VTMIS consists of radars, AIS transponders (a black box vessel tracking system), meteorology sensors, CCTV and so on, that are connected (often via a complex IT network that can include fibre, wireless and satellite connections) to

an information processing and distribution system. At the heart of the system is powerful and sophisticated VTMIS software, for instance the Navi-Harbour VTMIS software written by Transas. This 'software brain' controls, manages, interprets and processes the sensor data. It provides a visual representation of the maritime

navigation situation to VT-MIS operators – either locally or remotely. The operators are situated in VT-MIS centres where they monitor the movement of vessels and advise or instruct those vessels about the navigation situation such as the proximity of other ships or dangers, the weather situation and so on. These systems can range from single sensor, single centre systems to large-scale multi-sensor multi-site systems like Cochin VT-MIS.

VT-MIS systems have evolved over the years and there is a bewildering array of different configurations possible depending on the area, the functional requirements and so on. There are three general categories of VT-MIS that are officially defined by the international maritime community. These systems are described in a series of documents produced by IALA – the International Association of Lighthouse Authorities, for example IALA v-128 ‘Operational and Technical Performance Requirements for VTS Equipment’. The systems are categorised in terms of the services they deliver to shipping and are named ‘Information Service’, ‘Traffic Organisation Service’ and ‘Navigation Assistance Service’. Transas supplies all of these categories of VT-MIS.

“A VT-MIS provides three principal advantages to a port: enhances safety, provides additional security and brings operational efficiencies. An effective VT-MIS gives the port a complete overview of what is happening in the port.”

Benefits to a port

A VT-MIS provides three principal advantages to a port: enhances safety, provides additional security and brings operational efficiencies. A VT-MIS system will regularly prevent potentially dangerous situations developing in or near a port. For example, if a ship is drifting too close to a danger such as a submerged rock, the VT-MIS system will alert the VTS operator who will then advise the vessel of the developing situation. In poor visibility or at night, a VT-MIS ensures order and that a safe situation exists between all vessels navigating in or near the port.

An effective VT-MIS gives the port a complete overview of what is happening in the premises. It can be

used to detect and track unusual activity, to monitor remote areas and to track assets and personnel. It provides the port with the information needed to undertake powerful forward planning. For example, vessel arrivals can be scheduled (because they are tracked from significant distance out from the port) thus avoiding waiting or delays, pilots and tugs can be effectively fostered, berths allocated and so on. Increasingly VT-MIS systems include tight integration to port finance and accounting systems. Automated invoicing etc. can therefore be carried out.

The Cochin experience

Delivery of a tool to increase efficiency, safety of navigation and traffic management was the next step on the way to achieving excellence by the management of Cochin Port Trust. The project is the result of a recent initiative to implement an Enterprise Resource Planning (ERP) programme known as ‘E-Thuramukham’. During the tendering process, Transas was able to offer a turnkey VTMS solution that was in full and complete compliance with the terms of the tender and international guidelines for port VTMS. The solution offered had functionality beyond the requirements of the original tender and more significantly, was designed to facilitate future expansion and fully upgradable to meet future port requirements.

A unique type of coastal radar with a 19-foot antenna was installed on top



Software brain: VT-MIS controls, manages, interprets and processes sensor data.

