Mandated ecdis impacts

Changes in the supply chain and issues with ecdis implementation are influencing how suppliers deliver their services

by Michael Herson*

This year represents the time when shipowners begin to tackle the challenges of implementing an ecdis strategy. The actual implementation date depends on type and tonnage of ship, with further distinctions between installation on newbuildings and the retrofitting of existing ships. From a supplier's perspective, there are opportunities but also challenges in the provision of an optimum service for their clients.

The supply chain includes ecdis hardware vendors, original equipment manufacturers (OEM) and distributors of electronic navigational charts (ENCs). Some vendors do all three, while others are more specialised. Long before there was an agreed ENC data standard, companies such as Jeppesen and Transas developed their own proprietary data formats to plot their own electronic data from paper charts. Today that is widely referred to as 'unofficial' data to distinguish it from the official ENC data generated by hydrographic offices.

The introduction of ecdis is now changing the dynamics of chart distribution. The supply chain has

Jeppesen provides value-added services such as route planning with its ecdis service

become more complex, with specialist distributors known as value-added resellers (VARs) offering a range of services that bring together not only ENCs but other complementary navigational products into one package. Some leading distributors have become one-stop-shops offering a combination of ecdis hardware and data, together with paper charts, all supported by consultancy services to advise on data licensing and new products such as pay as you sail (PAYS).

The route to market is complicated by system electronic navigational chart (SENC) data delivery. Each ecdis contains a proprietary software kernel which converts the standard S-57 ENC data into an SENC, which suits the manufacturer's own internal display format. Hydrographic offices have agreed that ENC data can be supplied directly in proprietary SENC format rather than in its original S-57 format. This offers faster data download speeds and has allowed some chart distributors to maintain data products more specific to their own hardware. To be able to respond to these market changes, some companies have repositioned themselves or formed relationships with other suppliers to fill gaps in their own portfolio.

Ecdis systems are not new. They have been around for some 15 years, and this has created a legacy problem, with some of the earlier manufacturers exiting the market and leaving their systems unsupported, says Japan Radio Co's compliance manager, James Moon. Since the start of ecdis, seven manufacturers have disappeared, leaving a support problem. "They cannot be upgraded, there is no service, there is no back-up, so if operators are trying to get a new presentation library it just does not work. If there is a software anomaly in their ecdis, they are stuck with it."

Mr Moon believes supply chain consolidation is the next step. "There are probably five major manufacturers that have taken the major share of the market and then the rest are smaller manufacturers."

But since the world economic recession, the emphasis within the industry has switched from building new ships to retrofitting existing ones. Most ecdis suppliers are now focused on products
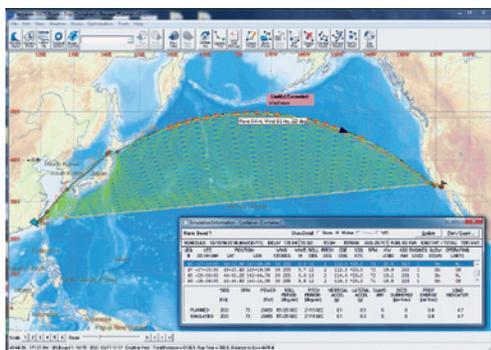
the chart value chain

for ships that are already on the ocean. An example is the FMD 3200 ecdis, which Furuno launched in 2012, especially for the retrofit market.

This move towards a stand-alone retrofit solution is confirmed by Raytheon Anschütz's marketing manager, Martin Richter. "Retrofittings are starting now to really boost our business," he says. Mr Richter also emphasises the support issue: "We see a lot of companies who have supplied a system but were not able to support it. We have 200 service stations and 25 large spare-part depots and an after-sales management department who do all the support and upgrade or retrofit programmes." There are also instances in which ecdis providers add value by teaming with businesses such as weather providers, so the mariner can determine whether they are sailing with or against a current in order to save fuel," says Mr Richter.

Many ships continue to use unofficial ENC data alongside paper charts. Companies like Jeppesen and Transas now sell their own unofficial data alongside official ENCs. There is still widespread use of unofficial data and the belief in the industry is that little more than around 15 per cent of fleets are using official ENC data.

This is explained by KH Charts' managing director in the UK, Martin Taylor. He says that the first question to customers when making their data decision is: "Do you want to go with official data or unofficial data? There are some cost and licensing benefits from going with unofficial data." He adds, "We have a big fleet, which has just renewed on unofficial data despite fully understanding the difference between the two data types. The unofficial data is cheaper than the official data, and their vessels may not be mandated for another two or three years." Mr Taylor sees unofficial data and Admiralty Raster Chart Service (ARCS) as practical solutions for some vessels, not least because of their user-friendliness.

Maersk Supply Service uses a mixture of navigational data sources. According to marine superintendent Gustav Wain Bretton-Meyer, in areas where there is ENC coverage, the company's ships use UK Hydrographic Office (UKHO) as their
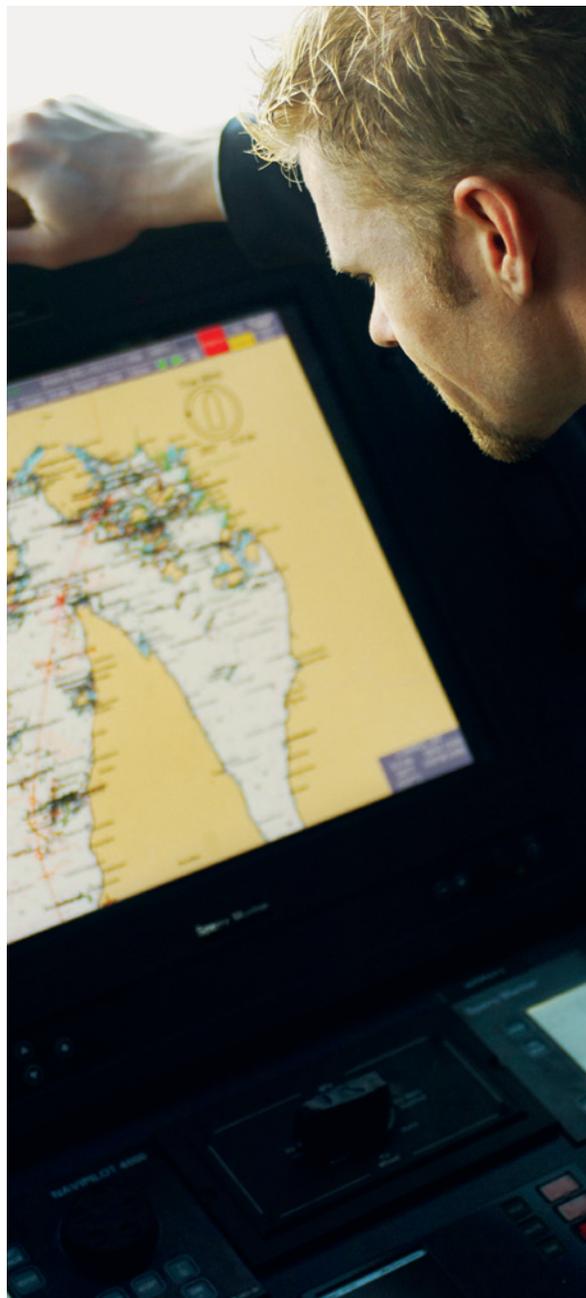
With the proper ENCs, ecdis can be a reliable tool for safer navigation

primary source, with ARCS kept as a back-up. For ecdis that cannot use ARCS, they use C-Map or Transas data backed up by paper charts.

One of the widest ENC coverages is from the Admiralty Vector Chart Service (AVCS), according to Stephen Wong at chart supplier Lilley & Gillie. "There are several areas of the world where there are no ENCs from anyone else. For example, if you go through the Panama Canal, and you do not have AVCS, once you hit the South Atlantic there are no ENCs. Admiralty has got additional benefits. For example, they check the data against the paper charts."

Paper charts still remain key to navigation for many ships. Some shipowners say the main reason for using paper charts is legislative because they are sailing with unofficial ENCs. Safety concerns are another reason according to MOL LNG (Europe) health and safety manager, Kaushik Roy. "We have safety concerns because of problems with ecdis. Paper charts will continue to be used in parallel with ecdis prior to the full implementation to ensure there is additional navigational safety."

This is confirmed by Stephan Dimke, service sales director at ChartWorld International. "Some vessels use unofficial ENCs in addition to paper charts because the crew feel they improve safety and make navigation easier," he explains. "Some crews do not feel confident using official ENC data. The reason is insufficient training and lack of procedures

Bob Ball (BP): There are potential cost savings from using specialised PAYS services

for using ENCs. As a result, a lot of vessels still use paper charts."

PAYS provides another method of using ENCs: the concept involves paying for only those ENCs actually used during navigation. Bob Ball of BP is interested in PAYS as a potential cost saving. However not everyone is convinced, and Mr Bretton-Meyer at Maersk Supply Service believes it will work out to be more expensive "We believe that PAYS is more expensive than normal subscription if it is not handled correctly." Five out of the eight ENC providers interviewed provide a PAYS option.

Mr Taylor is not convinced by the cost savings argument: "If you buy data for PAYS, you generally pay another 25 per cent on top of the cost of each cell of data than if you bought it as standard use." But Mr Taylor also sees an upside. "The advantage is that you have the permits for the whole world on board the vessel (except where hydrographic offices do not support PAYS). If you have a problem and you have to get someone to shore quickly and you need to change your route, you have the data with you and you do not have to use any expensive communications to open that data."

The emergence of a growing ENC and ecdis market has led to partnerships between different suppliers to create a one-stop-shop approach. One such relationship is between Jeppesen and KH Charts, covering data and paper charts but not the hardware. "The one-stop-shop offers the product that is most suitable and cost effective for every customer's fleet, as one product does not suit all," says Mr Taylor. Another similar partnership is between Transas and Thomas Gunn (now part of Global Navigation Solutions). ChartWorld, which does not offer paper charts, has built a logistics relationship with DHL for ecdis stockholding and delivery.

All the five original equipment manufacturers (OEMs) interviewed by The Strategy Works produce equipment that is compatible with the Jeppesen CM93 kernel. This also applies to the products manufactured by Kelvin Hughes and Lilley & Gillie. In addition, Northrop Grumman Sperry Marine, Kelvin Hughes and ChartWorld produce ecdis that are compatible with the SevenC's EC2007 kernel. Only Transas have their own kernel, unique to them, that is also used for its unofficial data.

Despite the availability of system electronic navigational chart (SENC) data, most ecdis suppliers

SUPPLY CHAIN COMPLEXITY														
Company	Thomas Gunn	Datema	Elcome	Navtor	Jeppesen	Furuno	JRC	SAM	Raytheon	Northrop Grumman Sperry	Kelvin Hughes	Lilley & Gillie	Chartworld	Transas
Ecdis OEM						red	red	red	red	red	red	red	red	red
ENC data distributor	yellow	yellow	yellow	yellow	yellow						yellow	yellow	yellow	yellow
Paper charts distributor	blue	blue	blue								blue	blue		
Originates unofficial data					green									green

Vendors of ecdis hardware and data are divided into categories. Ecdis OEMs (red), paper chart distributors (blue), unofficial data (green), official ENC data (yellow)

are data agnostic, says Furuno's product manager, Bill Haynes. "We are highly neutral when it comes to charts." SAM Electronics' head of product management, Erik Petersen, comments: "Ships can use any type of approved ENC on our system. You can buy a system from one company and data from another."

Navtor is developing its own kernel to work alongside its PAYS service. Anders Rydlinger at Transas claims its products have download advantages. "When we have converted the data into our SENC format, then installation of the chart is 10 times faster," he says.

Of course, wherever there is complexity for the customer, there is a commercial opportunity for those with the imagination to tap into the solution. One example is from Martek Marine, which will be offering its iEcdis in 2013. Its chief executive, Paul Luen, says the intelligent chart innovation will benefit from a unique SENC format, allowing chart updates to be done automatically, and reducing data costs.

One of the most frequent problems mentioned during The Strategy Works interviews was not an issue of navigation, but of communications. The slow data rates currently available at sea are perceived as a serious hindrance to the further development of e-navigation and as a major frustration to mariners, contrasting with the virtually instant downloads they experience on shore.

Inmarsat Maritime's market development manager, Michiel Meijer, recognises the importance of improving at-sea communications: "Over 30,000 vessels are equipped with FleetBroadband and shipping companies have the opportunity to update their ecdis automatically via a reliable global satellite communication service. We have also launched an unlimited data plan and double the data allowance on our current 1GB and 3GB packages."

Looking ahead, some suppliers recognise that today's ecdis specification requirements are limited by being framed around the relatively primitive PC graphics displays of the 1990s – the small monitor providing only a narrow window on the more familiar expanse of the paper chart. Some suggest that rethinking ecdis, taking into account today's advanced display technology, would yield a better and safer product. ENC licensing, with its typical myriad of expiry dates presents an administrative burden for the mariner, which is a commercial opportunity for the imaginative chart data distributor.

The future for the ecdis supply chain involves constant evolution to meet the challenges from new projects researching the next generation of navigation concepts, such as the EU MonaLisa project, and further development of e-navigation to achieve safer and more environmentally friendly 'motorways of the sea'. *ECDIS*

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