

## INTERVIEW WITH DR GIUSEPPE CARNEVALI

# HOs Block Accessibility of Electronic Charts for the Masses™

The world is turning more to electronics, which in marine technology is visible when considering the change from paper charts to electronic charts. Dr Giuseppe Carnevali was early in adopting the display of electronic navigational data. Hydro International interviewed him about this trend, certifications, and the availability of digital navigation techniques, also for leisure mariners and the industry.

*Dr Carnevali, can you please tell us more about yourself? We know that you successfully followed Naval Academy courses and physics courses at the University of Genova; and we would like to know how you became an entrepreneur and what made you so interested in navigation.*

Following in the footsteps of my father and grandfather, I am a naval architect and mechanical engineer by training, but I have always been very interested in all kinds of navigation: I have been a national champion sailing on small dinghies, I have done several long-haul sailing races, I have cruised extensively on powerboats, I held an airplane pilot's license for 20 years, I have been a shipbuilder and an Officer with the Italian Navy with a license to skipper powerboats and sailboats up to 20 tons, etc., so I can claim that I have a fairly extensive experience of what it means to look for the best way of going places.

During the oil crisis of the early 1980s, the shipping industry was a shambles: shipyards foreclosed, ships were laid up and I found myself jobless with a family of five to support. So I decided to pool all my resources, including my navigation and engineering experience, to find an innovative way forward in life and co-founded Navionics to make the first electronic chart product ever put on the market.

*Navionics entered the electronic chart business many years ago. Can you summarise the story of the enterprise? Were Italians the first to have the brilliant idea to digitise navigational charts in order to make positioning crafts at sea much faster?*

We owe the idea to James Bond: when he was chasing Goldfinger, he was using an electronic chart. A famous magnate of the time asked me to come up with "something very innovative" for his yacht. In the salon of his private jet, he had a numerical display that indicated speed over ground and ETA, so putting all these things together we proposed the electronic chart, which is now commonplace in all airliners but at the time belonged only in fiction films.

The magnate eventually fell and his new yacht was never built, but our electronic chart was produced anyway using the last of our savings.

Later, we found that others had had the same idea and had built prototypes, but nobody else had an actual real product on the market before us.

*Do you think that cartographic products of private enterprises can be certified as was done in Italy by the Italian Ministry of Infrastructures and Transports for the electronic chart system?*

Certification has always been a controversial subject: hydrographic offices (HOs) do not want to certify industry products and safety authorities are reluctant to accept self-certification.

In the many years wasted arguing over this subject, the issue has become largely obsolete, at least in the recreational and consumer markets. The ever-unforgiving market forces demanding quality, and the competition to create the best product have pushed the quality way above what could be achieved through a bureaucratic certification process. We have achieved quality in the substance, even if we do not have it in the form of certification.

All that being said, however, we must remember that "no chart is error-free" as the Australian Federal Court found in the lawsuit brought against Navionics by the AHO. This applies to the industry product as well as to the HO product, so caution must always be applied when relying on charts.

*The survival of every enterprise largely depends on its capability to find new ways to satisfy customers (I mean, to make it easier to use the products) and to enlarge its product spectrum. What is your opinion on new types of products regarding whether they meet user expectations?*

I totally agree that one of the biggest challenges before us is to make electronic charts accessible to the masses, which includes improving the user-friendliness.

It is unfortunate that ECDIS is so heavily regulated, which does not allow much room for technical evolution. In all these years, the unregulated products have made giant steps forward and innovation is proceeding at an ever-accelerating pace.

*Do you think that the present position of government HOs on the copyright issue may hamper suitable development of the private enterprises? What are your suggestions for making it easier regarding copyright agreements with the national HOs?*

The issue is not about stifling private industry as much as denying access to electronic charts by large numbers of mariners.

Unfortunately, I have to note that the new licensing policies of some HOs are making things worse than ever and, de facto, excluding the majority of small boaters from access to the safety of electronic charts.

It is unfortunate that as technology evolves and becomes ever-more accessible to the masses, HOs introduce new obstacles to prevent that from happening.

This goes against the safety of mariners and the environment, and against the promotion of commerce; basically, it goes against the very mission of HOs. It also goes in the direction of reducing instead of increasing government revenues and, therefore, also goes against the interest of the tax-paying population.

Because of the International Convention for the Safety of Life at Sea, certain things can be forced down the throat of ship owners whether they want them or not, but in the free market the consumer will simply choose not to buy an electronic chart that is too expensive or not appealing enough, thus reducing both safety and revenues: double damage to our society.

*Do you consider standards such as S-57, S-100 and S-101 that the International Hydrographic Organisation (IHO) creates as useful? Do they guide private enterprises' chart production? Moreover, do you think that an IHO standard for the digital production of the Sailing Directions would be beneficial?*

Standards are always a good thing when they are written in such a way that specifies the result to be achieved, but without mandating the way to achieve them: this is the only way to avoid stifling innovation and progress. When a standard regulates a solution, it automatically freezes improvement.

I think that S-57 has given a tremendous contribution to electronic chart making; of course, if we were to do it again today we would do better, but at the time it was a brilliant achievement. Other complementary standards, if done properly, can be a very good thing.

*On your website, you announced that Navionics established an arrangement in 2001 with the German enterprise SevenCs (more recently bought by the UKHO). Does that arrangement work? Have you established any other similar agreements?*

We have scores of partnerships with other companies, ranging from the development of content to software, surveys, user interfacing, etc.

These days, nobody can be all things to all people, and partnerships such as the one we have with SevenCs are the only way to achieve breakthroughs.

*A number of manufacturers of digital products have located part of their production in developing countries. Do you see this as merely a strategic choice or as a measure of technical co-operation with those nations?*

If you look at our planet from above, you will not be able to see boundaries between nations and cultures. The artificial boundaries that have been created in the past have prevented the world population from enjoying an enormous wealth of human resources that could have made our lives much better much sooner. I believe that thinking in terms of national or cultural boundaries is just archaic and I work to overcome that.

*The production of hardware to display digital cartography is generally done by other enterprises. In which way can that production be influenced by chart manufacturers in order to satisfy user requirements? Moreover, do you think that it is essential to give the user the possibility to read charts on their PC?*

Hardware and software manufacturers can be compared to the brain and body of man: one cannot survive without the other.

We work as a team with our partners who make hardware and I cannot see any alternative to that. Together – and only together – we can achieve the breakthroughs that we see on the market every day.

PCs are the best possible instrument in an office environment and using them to plan at home or on a large vessel is always a good thing; but for every boat that can host a PC there are 100 that cannot, therefore dedicated instruments are a must.

*Do you think that specific training is necessary to make the best use of digital cartographic products? If yes, what do you recommend to producers in order to market 'user-friendly' cartography, thus minimising training needs?*

A product that requires training for its use belongs in the past.

Nobody reads a manual or requires training to use Windows, an iPhone or a Kindle. The challenge is to make products that are so easy to use that they require no manual and no training at all.

*Do you think that nowadays careers in hydrographic surveying and chart-making are still attractive for those approaching the job market? Do you think that the present IHO Standards of Competence for hydrographic surveyors and cartographers are adequate?*

I honestly am not familiar with the IHO Standards of Competence, so I am not qualified to comment on them, but I do think that modern technology makes a completely new level of surveys possible and consequently provides very interesting job and career opportunities. I would definitely encourage younger generations to pursue such opportunities.

*In which way do you think that electronic charts contribute to the protection of the marine environment? Do private chart manufacturers take into account IMO Conventions regarding this?*

Safety of navigation, by definition, contributes to the protection of the environment.

Efficient navigation, by definition, contributes to the protection of the environment. So there is no doubt that electronic charts are changing the way mariners navigate and changing for the better protection of the people, merchandise and the environment. In order to capture sales, private industry is forever competing to make better and more appealing products by including any content that has any value to the mariner, including any content that goes in the direction of protecting the environment.

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