

Data vs Information in the Maritime Industry

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The advent of digitalization and the leaps of communications technology has changed Shipping in more ways than one could imagine not so many years ago. Many believe that the rate of change in the coming years will be even faster and that unmanned and hopefully non-polluting Ships will be sailing the Oceans soon enough. This change, in whatever form, will result in much more data traveling the airwaves and being exchanged between the vessel and the office, be that a real or a virtual office.

We are therefore witnessing a transformation that has happened over the past 60 years, from the era that the Master was a real Owner's representative since the Owner was not readily or easily contactable, to a possibly Virtual Master in the years to come.

This transformation has not happened overnight; it started off with Radio Comms, then Inmarsat from 1979 enabled telex and then voice and finally data comms over satellite links thus laying the foundations for today's possibilities. The speed of these links is increasing exponentially, thus enabling ever larger quantities of data to crisscross the airwaves as time goes by.

The issue in hand is that humans want to deal with information and do not really enjoy pure data.

Anyone that goes to a Maritime Exhibition or a Conference like today will witness the presence of tens or hundreds of companies talking about digitalization, cyber and many other grandiose and well-intended promises. They are not lying and their promises, as I said before, are well-intended. The catch is that, in their majority, their products or services mainly deliver data and not information.

I will demonstrate the difference with a very simple example, i.e., the speed of the vessel which in the form of data is a number, but when transformed into information it has different meanings

- for the Operator whether it is in compliance with the C/P depending on weather
- for the Technical whether Main Engine is performing well
- for the Crew department, the ETA to a next port
- for the Supply department, the ETA to a next port

Therefore, by ensuring validated entry for every piece of data, diverse users of various disciplines, either at office departments or on-board the vessel, could be provided with a multitude of processed information, enabling informed decisions and accurate reporting.

Having described the above, and looking at the big picture from the Ship Owner's or Manager's perspective the picture is quite different and not so rosy.

Starting from the Vessels, one cannot help but notice the tens or hundreds or different User interfaces, data structures and lack of mandatory protocols.

One would expect that one of the latest mandatory enhancements to the Vessels' Bridge equipment, the ECDIS would have had features that would point to a better future.

ALAS NO!

No two ECDIS models, even Models from the same Maker have the same User interface. As a result, the Bridge Team have to study and get certification for each and every ECDIS each ship has, before boarding the Vessel.

Can you imagine sitting for exams for every car model that you drive?!!!

I believe that you can appreciate the overhead cost and complexity for ensuring compliance for just one item of the e-agenda. And there are hundreds of those per vessel.

One to charge them all:

EU demands single plug for phones. The push by the EU will certainly be cheered by the millions of people who have searched through a jumble of snarled cables for the one that fits their phone. But the EU also wants to cut down on the 11,000 metric tons of electronic waste thrown out every year by Europeans.

EU cares a lot about phone plugs because there are hundreds of millions of them. Shipping on the other hand is an industry that very few people know about. It works silently 365/24 to serve the majority of global goods transportation needs and will only make headlines in case of a rare accident, or when rates have spiked and people make a lot of money for a period of time.

People In Government usually do not know or do not understand shipping, they see the Aviation Industry and they believe that they can make Shipping “something like that” as well.

Whereas the Aviation Industry is dominated by very few Aircraft Makers like BOEING and AIRBUS and equally few Engine Makers like Rolls Royce and Pratt and Whitney, Shipping has hundreds of Shipyards spread all over the Globe which in theory build Ships according to unified Rules. Anybody who is somebody in Shipping knows that this is not true, but it is a commonly accepted lie, the Rules are the same but the actual implementation will be greatly different between a well-established Japanese Yard and a start-up private Chinese Yard that was built with the down-payments of the orderbook.

The Cockpit Design of a modern aircraft is a job that consumes a great part of the aircraft design time. Currently the main trends of cockpit evolution can be identified as follows:

- rationalization of cockpits equipment by reducing the number of dedicated input media / output devices and processing platforms;
- optimizing the usage of the available input media / output devices;
- improving system availability and fault tolerance;
- increasing the size of displays / reducing their number (current standards);
- towards paperless cockpits, as 'zero paper' in offices: electronic flight bag (EFB) is a consequence of this new concept.

In contrast if one is to address the design aspects of the Navigation Bridge of a commercial vessel, none of the above parameters ever play an important role in the design process. Almost all Shipyards do not even cool or heat the Navigation Bridge sufficiently, providing only “spot cooling” for humans and equipment which do not perform well in very hot or cold conditions.

So where do we stand?? Is it all doom and gloom??

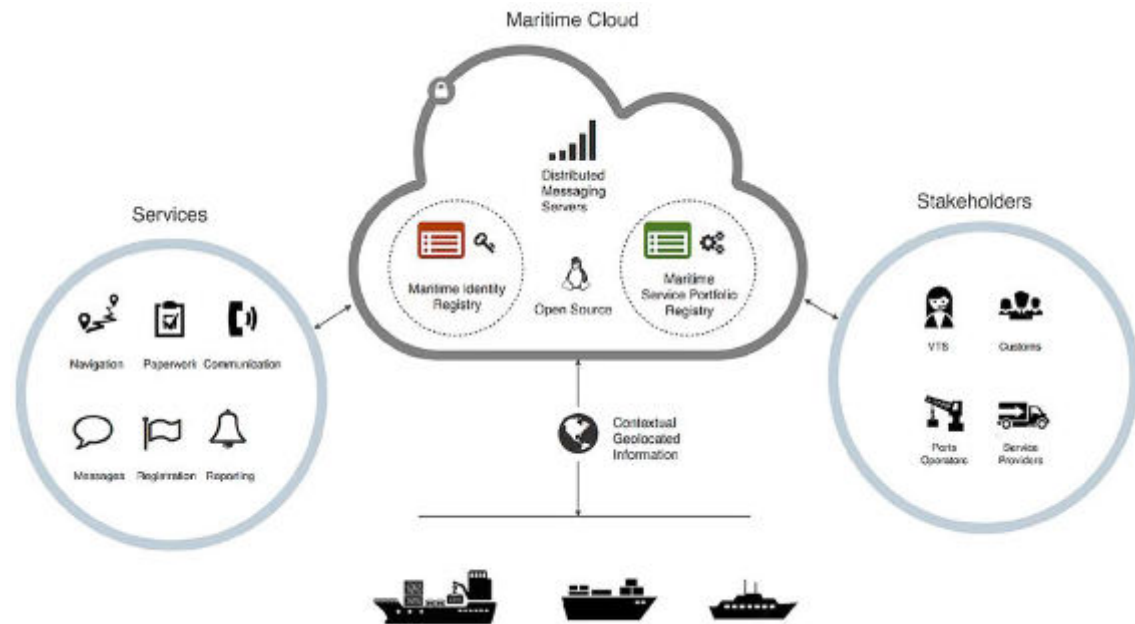
Well, not quite.

I have started noticing a few companies that have recognized at least some of the issues in hand.

They are using technology to take care of deficient software or hardware designs and have started collecting data and information that may be available in other software systems, connecting such systems with a simple to use anthropocentric interface continually ensuring that vessels always have the up-to-date data they need. We, at Almi Marine, are constantly trying to identify and use such systems.

Shipping needs Specifications for connectivity, Protocols for data, all of the equipment should be connected to a much more robust and sophisticated and reliable Ship's LAN.

The Danish Maritime Authority (DMA) proposed the Maritime Cloud as a digital IT-framework of standards, infrastructure, and governance to facilitate secure interoperable information exchange between stakeholders in the maritime community. The Maritime Cloud consists of components such as the "Maritime Service Portfolio Registry" that holds information about service capabilities and associated providers and subscriptions, and the "Maritime Identity Registry" that holds maritime identities and provides basic methods for authentication, integrity, and confidentiality. A Maritime Messaging Service has also been defined to provide seamless and communication carrier agnostic messaging capability between ships, and between ships and shore.



In order to realize the potential benefits to be obtained from ship connectivity some important challenges must be tackled.

Regulators and standard setters should define requirements and standards to ensure that availability and reliability are sufficient, and define service architectures and interfaces to allow quality verifications and to stimulate a competitive vendor market.

Ship connectivity will enable a range of new applications. As applications rely progressively on communication, it is clear that the criticality of communications equipment will increase. This elevated criticality will, in turn, call for tougher requirements regarding the availability and reliability of the communication systems used for the new applications. IMO has not laid down stringent technical and performance requirements for the so-called voluntary communication systems, such as VSAT.

Until IMO, flag states, or classification societies decide to fill this “vacuum” by defining regulations and standards for new communication systems, shipowners, yards, and vendors are left to set their own requirements prior to purchase of communications systems.

Summarizing, what we are witnessing is an explosion of shipboard data creation and the possibility for these data to travel the airwaves. We need to harness these data and convert them into actionable information that can be digested by humans. Maybe the process of creating unmanned vessels will push towards this direction.

Thank you