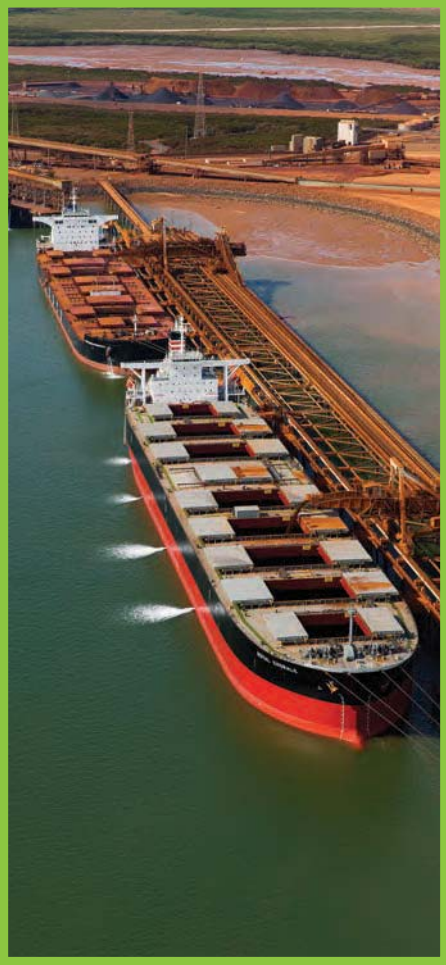
RightShip

Relies on Master Data Maestro to Navigate Vessel Risk Mitigation



Informing risk profiles and predictive analytics with single reliable view of vessel data

RightShip is an independent company that was formed in 2001 to improve global marine safety standards by drawing on the significant ship vetting expertise of founders and global commodity companies, BHP Billiton and Rio Tinto. Coupled with the maritime expertise of their vetting team, RightShip helps their customers manage marine risk by identifying and eliminating substandard ships from their supply chain.

RightShip is focused on helping industry avoid preventable incidents, whilst reducing the carbon dioxide emissions emitted by the world marine fleet. They do this by condensing information, providing rapid and consistent analysis and advice, monitoring and complying with international standards, and bringing expert support and advice within the reach of even the smallest business.

After 14 years of working within the original risk management platform, the Ship Vetting Information System (SVIS™), RightShip has spent the better part of two years developing an augmented risk management platform, RightShip Qi, that harnesses big data, predictive analytics and real-time risk assessments to better target substandard maritime performance.

According to RightShip's Program Manager - Qi, Captain Bryan Guenther, "RightShip provides ship vetting and risk management services for more than 240 customers globally, across all maritime sectors. We vetted just under 3.2 billion tons of cargo and removed over 900 ships from customer supply chains in 2014 alone. The platform we developed in 2001 has served us well, and has undoubtedly helped avoid many preventable maritime incidents; however the data sets we are working with now are too vast and complex to be intelligently analysed using pre-existing

MDM Domain
Vessel Data

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technology. RightShip Qi provides our customers with the opportunity to take better advantage of the data available now, further reducing their risk and improving efficiency."

Business Challenge

The dictionary defines vetting as *"to subject somebody or something to a careful examination or scrutiny, especially when this involves determining suitability for something."* The responsibility for vetting ships to safely carry and deliver billions of tons of cargo in a single year involves collecting and analysing tremendous volumes of data – "big data," by any definition.

"The shipping industry has lagged behind others in its exploitation of big data," Guenther comments. "For example, big data has been analyzed extensively within other industries to provide predictions – think casinos, or a sporting event such as Wimbledon, where player statistics are instantaneously analyzed and a player's preparation is as much about reviewing the opponent's stats to exploit their weaknesses as it is practicing on the court. Or in retail, where data analysis has resulted in superior merchandising, supply chain management and successful multi-channel marketing in order to increase operating margins by more than half. Just as it has for these industries, harnessing big data will provide big benefits to RightShip and our maritime customers."

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>
> **Capt. Bryan Guenther, Program Manager - Qi**

The data that must be analyzed in order to deliver accurate and reliable vessel risk assessment is characteristic of big data in general in that it is high-volume, and comes from a variety of sources in a variety of formats and definitions. For each ship, these include:

- Owner/operator history
- Flag history
- Class history
- Terminal feedback
- Environmental impact
- Incident history
- Port State Control inspection deficiencies & detentions
- Inspection history
- Environmental & emissions measures

"RightShip delivers value to our customers by transforming silos of raw data into useful information," Guenther explains. "They are dealing with existing ERP systems which are inflexible and expensive to change. By being nimble and agile, we are able to pull the gold out of legacy systems at a fraction of the cost, returning our customers' own data and infrastructure to them with added value. Our objective is to refine our capability to predict the likelihood of a vessel having a casualty."

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In order to accomplish these goals, RightShip uses a number of new tools, or technology "enablers." These include a predictive modeling application which provides enhanced risk modeling capabilities, rules management functionality for decision support, and data collection forms. RightShip also uses dashboards and event-driven reports that help enhance their Business Intelligence (BI) capabilities.

These tools require data from a variety of third party data sources, but it is necessary to match and master the data to ensure that the predictive analytics and BI tools are working from a complete and consolidated view of each vessel, in order to produce accurate and reliable risk analyses. That's where Master Data Maestro™ comes in.

Maestro Solution

Anchoring MDM Vessel Data

RightShip began their master data management implementation with vessel data, much of which is brought in from around a dozen third-party sources of data, including such disparate sources as ship owners and managers, Intercargo (The International Association of Dry Cargo Ship Owners), IHS, Lloyd's Register, US Coast Guard, Green Award, and the Liberian Registry.

"Vessel data is very complex," Guenther says. "Of course, it includes information about the physical vessel, including details about size, construction, engines, load, fuel consumption, etc. But it also includes information about the various companies involved in owning and operating the vessel – commercial manager, commercial operator, registered owner, beneficial owner, and so on. The data is also supplemented by data entered manually by vessel owners through the RightShip website and questionnaires, as well as updates and corrections performed by our data stewards."

Matching and mastering the vessel data through Maestro provides a more accurate and complete picture of the vessels being monitored, particularly if information from the various sources is not always complete. Ultimately, Maestro uses the data to create "golden records" that can be used downstream in the RightShip Qi database and associated web application.

Completing the Risk Profile

There are many factors which determine a vessel's associated risk. Perhaps the most influential of these are vessel incidents and PSC (Port State Control) inspection deficiencies.

Incidents are recorded in detail against a vessel for events such as collisions, fires, engine failures, spillages, etc. PSC inspection deficiencies are recorded during a formal PSC inspection while a vessel is in port. A deficiency is noted when a vessel does not have valid certificates and documentation or when the condition of the ship and its equipment does not comply with the requirements of international conventions.

Guenther notes, "As with vessel information, we need to match incident and inspection data coming in from a variety of sources in order for us to get a complete picture of each. The Maestro matching and mastering process provides us with golden records for each data type."

Using these golden records, RightShip feeds the combination of vessel, inspection and incident data into a web application for online access by both in-house users, as well as RightShip customers. The mastered data goes into the data mining and predictive analytics tools with which RightShip Qi determines risk ratings for each vessel; that is, to predict the likelihood of a vessel having a casualty in the future, based on known data. For example, linking a track record of poor inspection results to specific operators or vessel characteristics; or, alternatively, rating a vessel highly if it gets awards for 'green' operation and has very few incidents and a good inspection record.

Risk Profile: new User Interface from RightShip Qi – Vessel data snapshot: Using data to drive decisions

Results

"We have benefited significantly from having a primary master – 'golden' – record, in being able to inform our risk profiles and predictive analytics with a single, reliable version of integrated vessel data," says Guenther. "And Maestro has helped us expose potentially costly quality issues with the data coming in, which has enabled us to negotiate better rates with providers, and ensure we are informing our risk profiles with high quality, clean data. Good data quality isn't easy, but it's a key advantage, yielding more accurate and reliable risk rating, which produces greater customer satisfaction and more competitive differentiation for RightShip. Maestro's matching and survivorship capabilities then help ensure that our master data reflects the latest, most accurate information available, on an ongoing basis."

Maestro uses RightShip's business rules to check new data as it comes in, and flags any that require attention from the data stewards, based on the business rule. Maestro has enabled RightShip to standardize their lookup and reference data, and automatically generates a full audit log of all data operations, to ensure accuracy and compliance.

Guenther comments, "Maestro's built-in front end makes it easy to take advantage of the full MDM functionality it offers, helping us to work at the level of business data, not application data. This is an important aspect of the value of the solution for RightShip and our customers."

Looking Ahead

RightShip's significant investment in developing good, clean data has taken a considerable amount of time, however according to Guenther "in the end we have the most accurate set of vessel and industry data out there, and this is something we can market in the future. The potential business we can develop from this base is significant".

Building on RightShip's development of a 'golden record' for vessel and maritime organisations, Guenther also sees the potential to extend this to mastering and managing data based on location – for example at ports, terminals and berths.

However the major benefit to RightShip's core business is undoubtedly the development of more accurate risk models that will improve their ability to identify sub-standard vessels. This enhanced accuracy leads to providing more sophisticated insights and reporting capabilities for customers. It has also provided the basis for RightShip's predictive analytics tool, which is being rolled out to customers over the coming months.

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Guenther concludes "The solid foundation that MDM has provided us enables us to cement our role as leaders and innovators in the maritime industry. Ultimately, it helps us in our mission to ensure that more sailors, ships and cargo arrive safely at their destination."

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