Enterprise intelligence in modern shipping

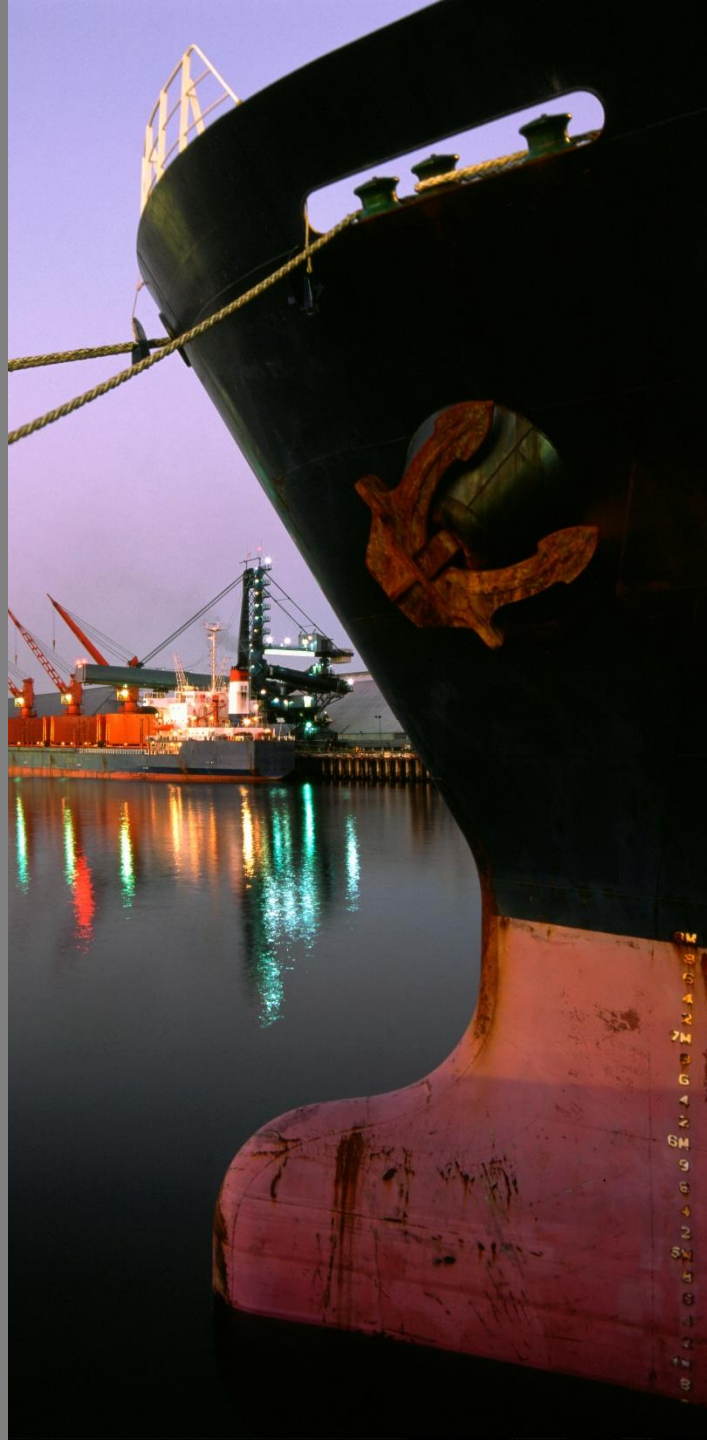
Leveraging commercial and cost performance with data analytics

7th Capital Link Greek Shipping Forum

16 February 2016

Building a better working world

Agenda



EY | Assurance | Tax | Transactions | Advisory

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization and may refer to one or more of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit

www.ey.com

What is Enterprise Intelligence?

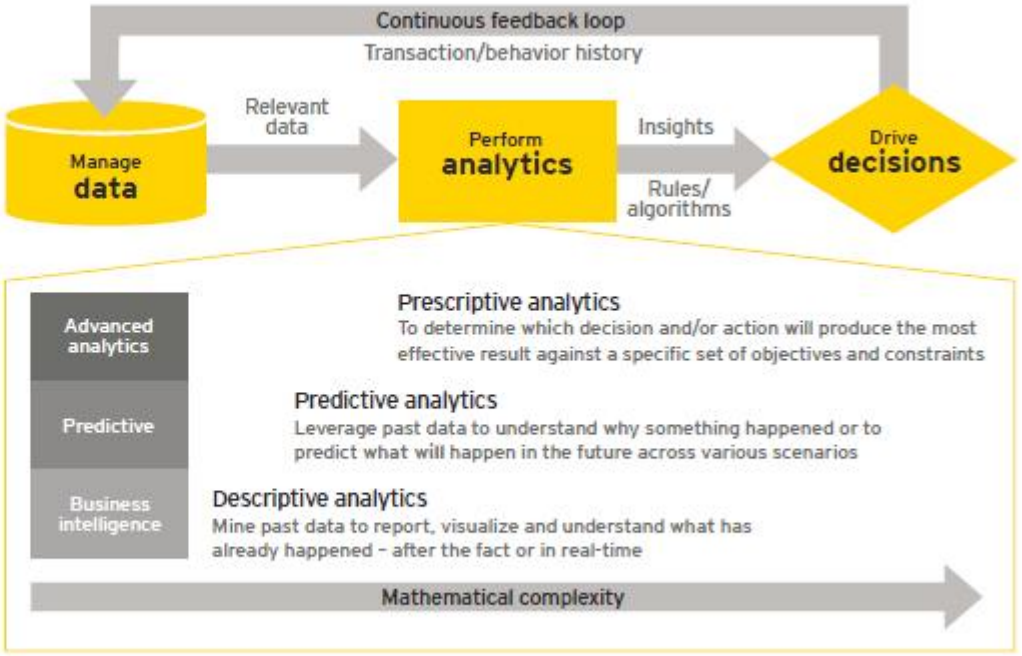
Turning data into actionable insights

To drive better decisions we first ask the right business questions and then seek answers in the data. Therefore, our work moves left to right, but our thinking moves right to left.

EY analytics value chain

The goal is to use analytics to improve the **efficiency** and **effectiveness** of every **decision** and/or **action**.

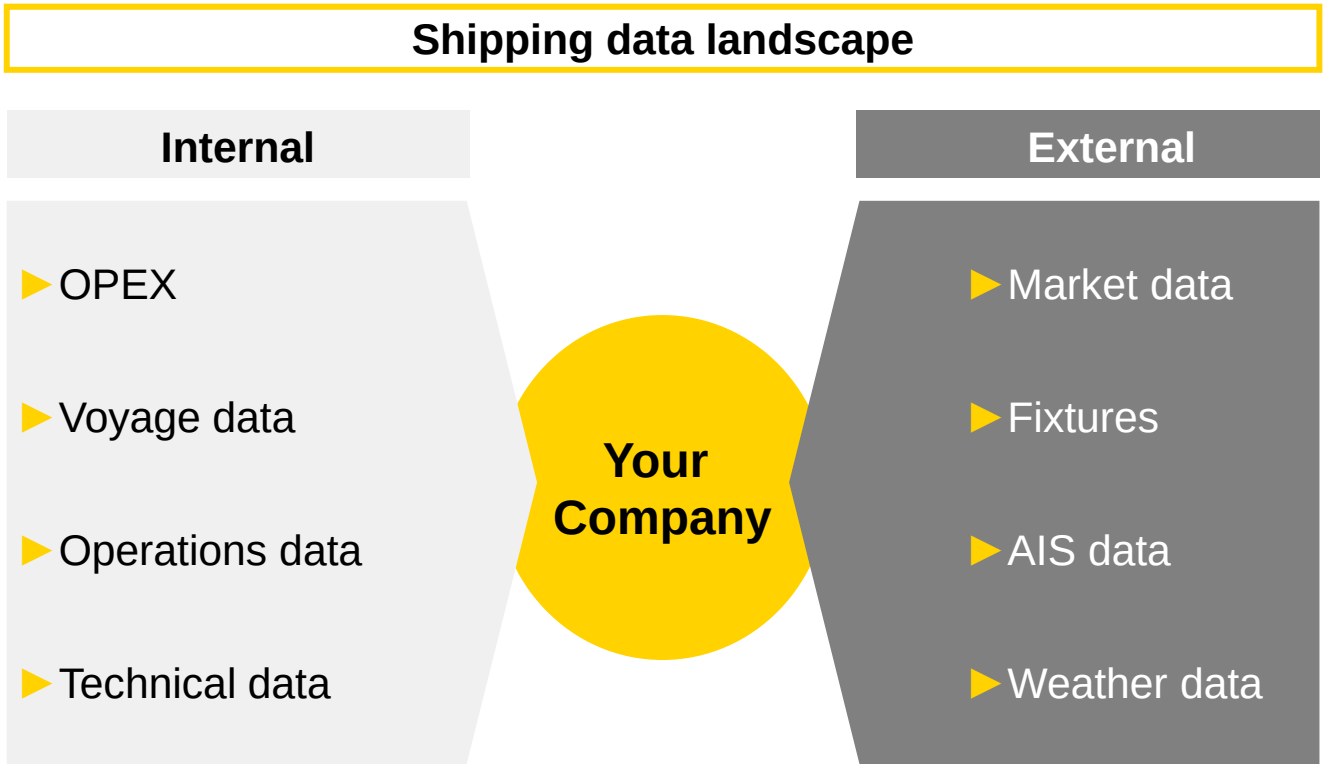
1. Begin with leveraging leading tools and techniques to manage and extract relevant data from big data sources.
2. Applications of analytics can range from historical reporting, through to real-time decision support for organizations based on future predictions.
3. Use the insight generated by the analysis to drive change.



How data analytics transform shipping

Is shipping too small for “big data”?

Big data is a relatively new buzzword. But the “data” in “big data” is not new. Although data is everywhere in shipping, for most players in the industry, data remains an underused and underappreciated asset.



How data analytics transform shipping

Do data matter in shipping?

Shipping businesses have always wanted to derive insights from information to better the competition. It is this demand for depth of knowledge that fuels the growth of EI and big data tools in shipping.

Indicative areas	Data analytics examples	Benefits
Chartering & commercial strategy	• Analysis of cargo movements and vessel positions using AIS data (in conjunction with fixtures & owners list)	• Improve negotiation tactics and the timing of chartering decisions • Measure regional imbalances & port congestion to aid positional decisions • Calculate world fleet metrics to detect global trends • Track competitor movements, speed profiles and trading patterns
Technical operation & maintenance	• Analysis of historical maintenance & repair records • Analysis of real-time condition data collected from sensors in the engine room	• Create a proactive environment for condition-based maintenance • Extend equipment life cycle and reduce replacement costs • Reduce downtime, off-hires and repair costs • Improve environmental compliance
Portfolio & risk management	• Construction of fair-value TCE curves using freight & bunker forward prices • Simulation of future price scenarios using market volatilities & correlations	• Benchmark vessels against market indices • Improve budgeting & cash flow management • Quantify freight market & credit exposures • Make investment or chartering decisions on a risk-adjusted basis
Voyage management & energy efficiency	• Estimation of port turnaround times and berth availability from AIS data • Analysis of fuel onboard & consumption patterns • Analysis of routing parameters (weather, shallows, distance to the shore, currents, ECA zones, etc.)	• Improve voyage estimation techniques • Optimize scheduling • Optimize bunkering strategy • Estimate optimal speed • Reduce fuel consumption and emissions
Cost management	• Analysis of historical opex data (per spend category)	• Identify and quantify the effect of key cost drivers • Benchmark against peers and industry averages • Verify common pre-conceptions • Identify cost improvement opportunities • Validate the effectiveness of cost initiatives

How data analytics transform shipping

It’s happening already!

Top classification society

Launched a Ship Data Center offering a secured shipping operations database to serve as an information hub for independently managing the utilization of big data in the maritime industry

leading global paints and coatings company

Developed a predictive coating efficiency app that estimates the impact of different coating options on fuel consumption, fuel cost and CO2 emissions

Big data applications by shipping companies

Numerous companies are using telemetry sensors to read engine performance, weather conditions, etc. for preventive maintenance and fuel efficiency purposes.

Shipping arm of mining giant is using AIS data to increase visibility of available tonnage in the region

Shipping companies are combining AIS data with fixtures lists to monitor competition performance

New professions in shipping

“Data Scientist” Greek shipping company

“Analyst for Business Analytics” Danish shipping company

“BI Information Architect” Dutch company, part of large shipping group

“Performance Manager” Danish shipping company

Other evidence

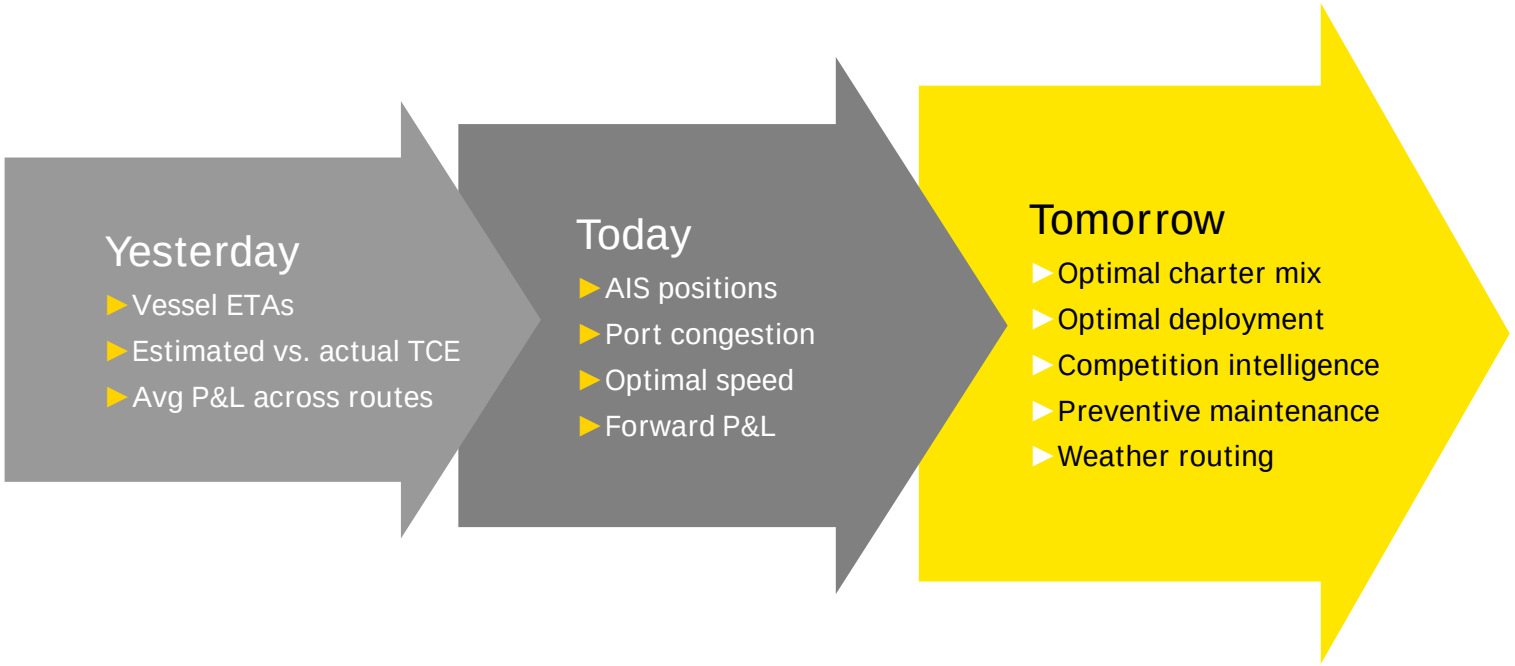
New start-ups emerging with shipping big data offerings

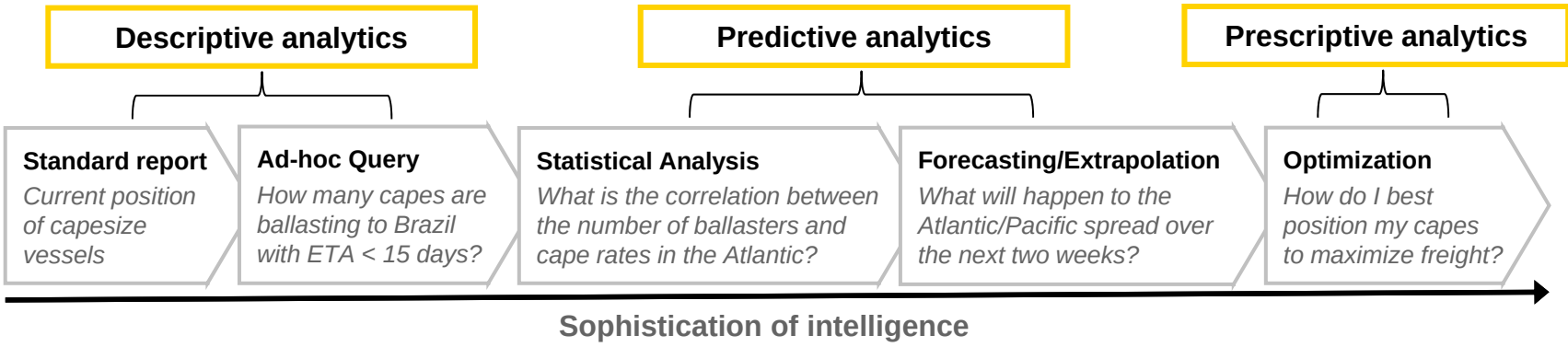
Early big data vendors experiencing strong growth

Rates for shipping data subscriptions on the rise

How do we see the future?

“Smart ships”, smarter decisions





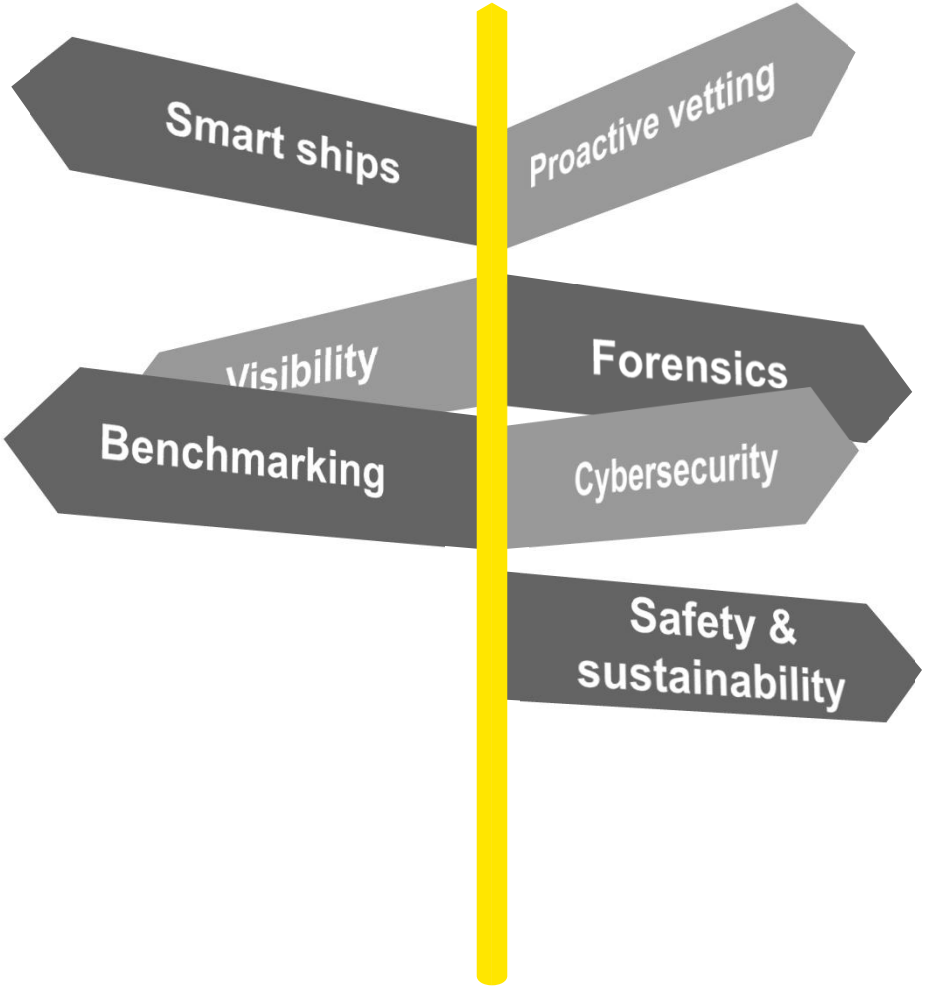
How do we see the future?
Opportunities and threats

Opportunities

- Transparency
  - Forensics (accidents, claims)
  - Commercial benchmarking
- Innovation
  - “Smart ships”
  - Insurance optimization
- Safety & sustainability

Threats

- Transparency
  - Proactive vetting
  - Proactive surveys
  - Commercial visibility
- Cybersecurity



What should you do?

From “so what?” to “now what?”

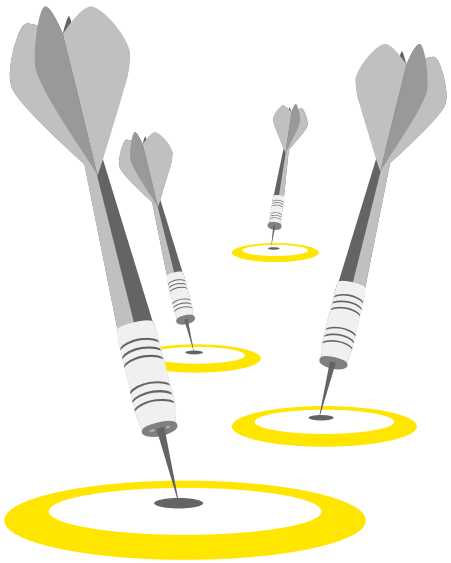
	Self-diagnostic of Analytical Maturity				
	Basic	**Developing**	**Established**	**Advanced**	**Leading**
People	Limited analytical skills	Analysts exist in isolated areas (maybe in Finance, Commercial or Technical)	Analysts exist in many areas, but with limited interaction and coordination	Skills exist, but not aligned to the same level across the business	High analytical skills across the business with additional outsourced capabilities
Process	Analytics process does not exist. Ad-hoc analysis performed sporadically	Analytics process exists, but is narrowly focused and disconnected from core functions	Analytics processes run separately with varying degrees of integration	Analytics process is fully developed with some analytics embedded to core business functions	Fully integrated analytics process driving key business decisions
Technology	Missing or poor quality data. Non-integrated systems	Data exist but key information is still missing. Isolated BI/ analytics efforts	Proliferation of dedicated BI tools and data warehouse solutions	High quality data. BI plan, data strategy and IT processes in place	Enterprise-wide BI architecture fully implemented

What should you do?

Getting your data strategy right

Exploiting data and analytics requires three mutually supportive capabilities:

1	First, companies must be able to identify, combine, and manage multiple sources of data
2	Secondly, they need the capability to build advanced-analytics models for predicting and optimizing outcomes
3	Third, and most critical, management must possess the muscle to transform the organization so that the data and models actually yield better decisions



Critical Success Factor: The deployment of the right technology architecture and capabilities

	DATA	ANALYSIS
Challenges to be addressed	• Unstructured • Duplicate • Inconsistent • Incomplete	• Insufficient scope • No benchmarks • Lack of visualization • Antiquated tools

What should you do?
Embracing the change

- Formalize EI initiative
- Obtain top management support
- Learn from best practices across shipping and other industries
- Articulate and socialize EI benefits within your organization
- Perform extensive training
- Focus on quick wins

Steps to consider

- Upgrade IT systems
- Improve data collection process
- Educate management on the use of data in decision making
- Recruit and provide training for analysts / data scientists
- Redesign decision making processes
- Place emphasis on communicating / visualizing insights more effectively
- Recruit an enterprise solution architect
- Hire outside consultants / vendors

Thank You!