



IMSF ATHENS
MAY, 2016

BRINGING ANALYTICS TO MARITIME IN AN INTERCONNECTED WORLD

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What is Advanced Analytics?

Analytics is, broadly, the discovery and communication of meaningful patterns in data. These patterns can be used to better understand the past and the present, as well as to predict the future. These patterns can be leveraged to better inform business decisions, to optimize strategy, to manage risk and uncertainty, and to test preconceived notions.

What does that mean?

Advanced Analytics is another methodology to add to our toolbox.

Analytics serves to inform business intelligence. Relationships and patterns in large volumes of data are discovered.

We can understand drivers.

What are the factors that contribute to a behavior or outcome? What factors are observed in concert with others?

We can make predictions.

We can use past events to predict the future.



Why now?

There are two trends that have introduced analytics as a viable and valuable component in our toolbox, improvements in data and improvements in technology.



- More events and elements are tracked.
 - They are measured more accurately.
 - They are recorded more immediately.
- Computer systems are larger, faster, and more flexible.
 - Hardware deployments and software platforms are less expensive and more resilient.



The Relationship between data and technology is a symbiotic one – each requires the other to generate value.

How were things done before?



Remember...

In the recent past analysis was more expensive than it is today. Expense, in this context, should be understood to capture three important and interrelated effects:

Time

Preparation and processing were slow and much more labor intensive. Simplifying assumptions were made to make process timely or, at the extreme, simply possible.

Money

Systems and platforms were more expensive. This led to the adoption of simpler approaches to compensate.

Fidelity

Restrictions on time and money required us to make simplified models those results were highly dependent on the assumptions that were made.

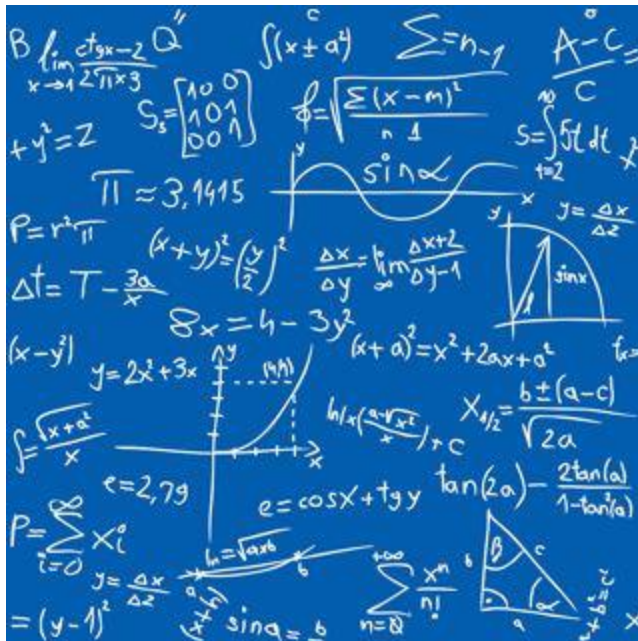
But not all has changed!

We still use models.

A model is a simplification of reality. In every model there are tradeoffs that have to be made.

The benefit today, thanks to improvements in data and in technology, is that our models can be LESS SIMPLE. That means they can be more dynamic, more detailed, and more flexible.

In short, they can serve as BETTER approximations of the world around us.



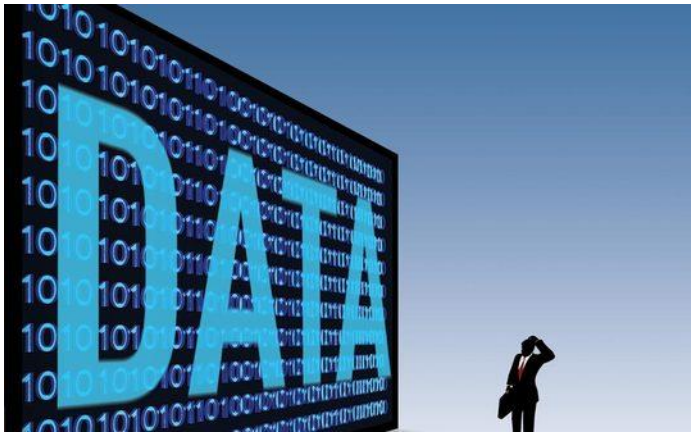
Data is necessary, but not sufficient.

We have more data than ever before.

But that increases the risk that we will be overwhelmed by the sheer amount of data.

With more data comes a sharper focus on technologies and methodologies.

We have more options at our fingertips and some processes have become “easier” through friend user interfaces – this does not mitigate the complexity involved from a modeling perspective.



How do Analytics impact our business decisions?

Analytics can be leveraged to provide actionable insight in response to a wide set of business problems .

The three types of Analytics are all interrelated and draw upon insights gleaned from one another. As one moves along the continuum, the actionable nature of results fundamentally changes.



Descriptive Analytics

- What do the data we do have show us?

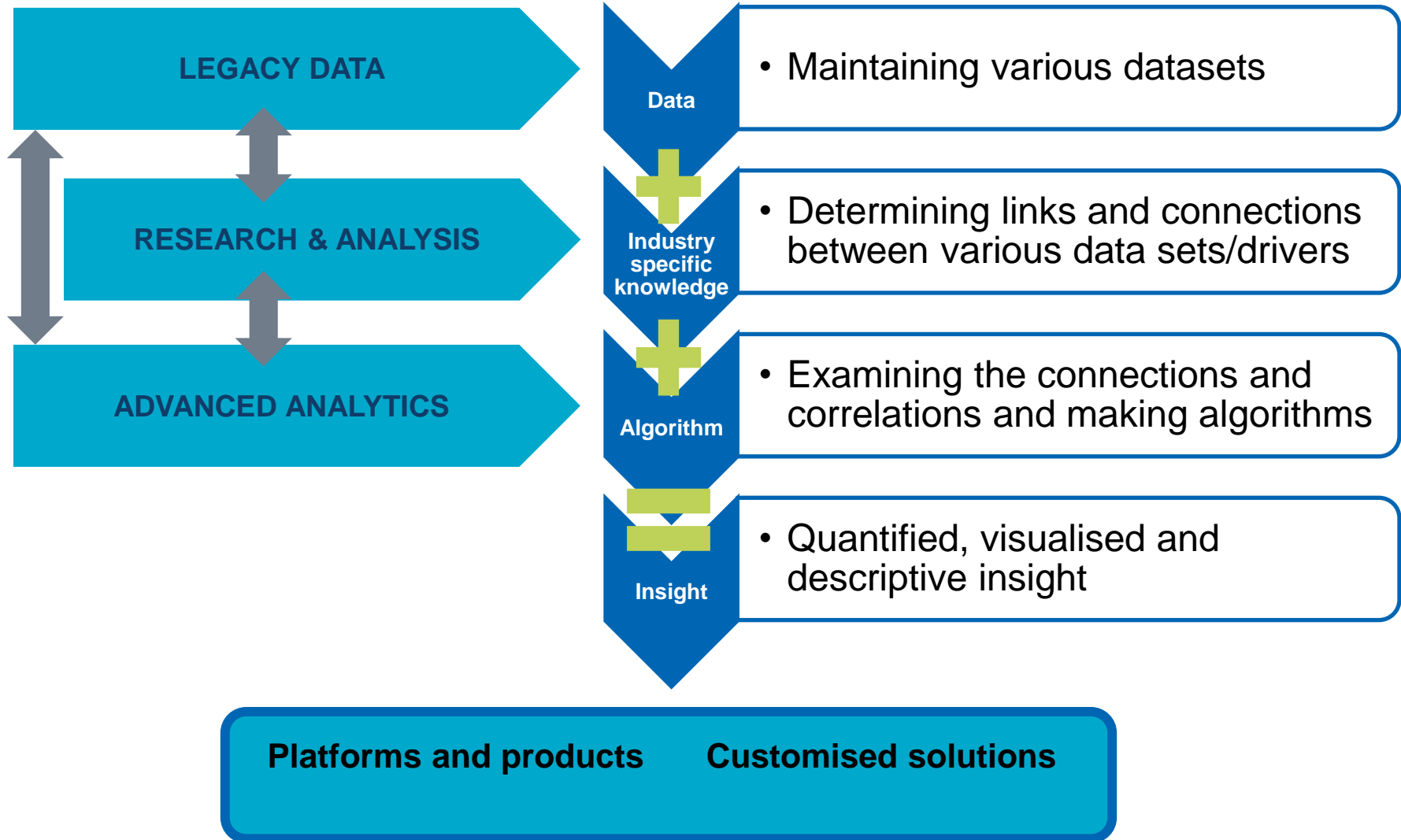
Prescriptive Analytics

- What should we do about it?

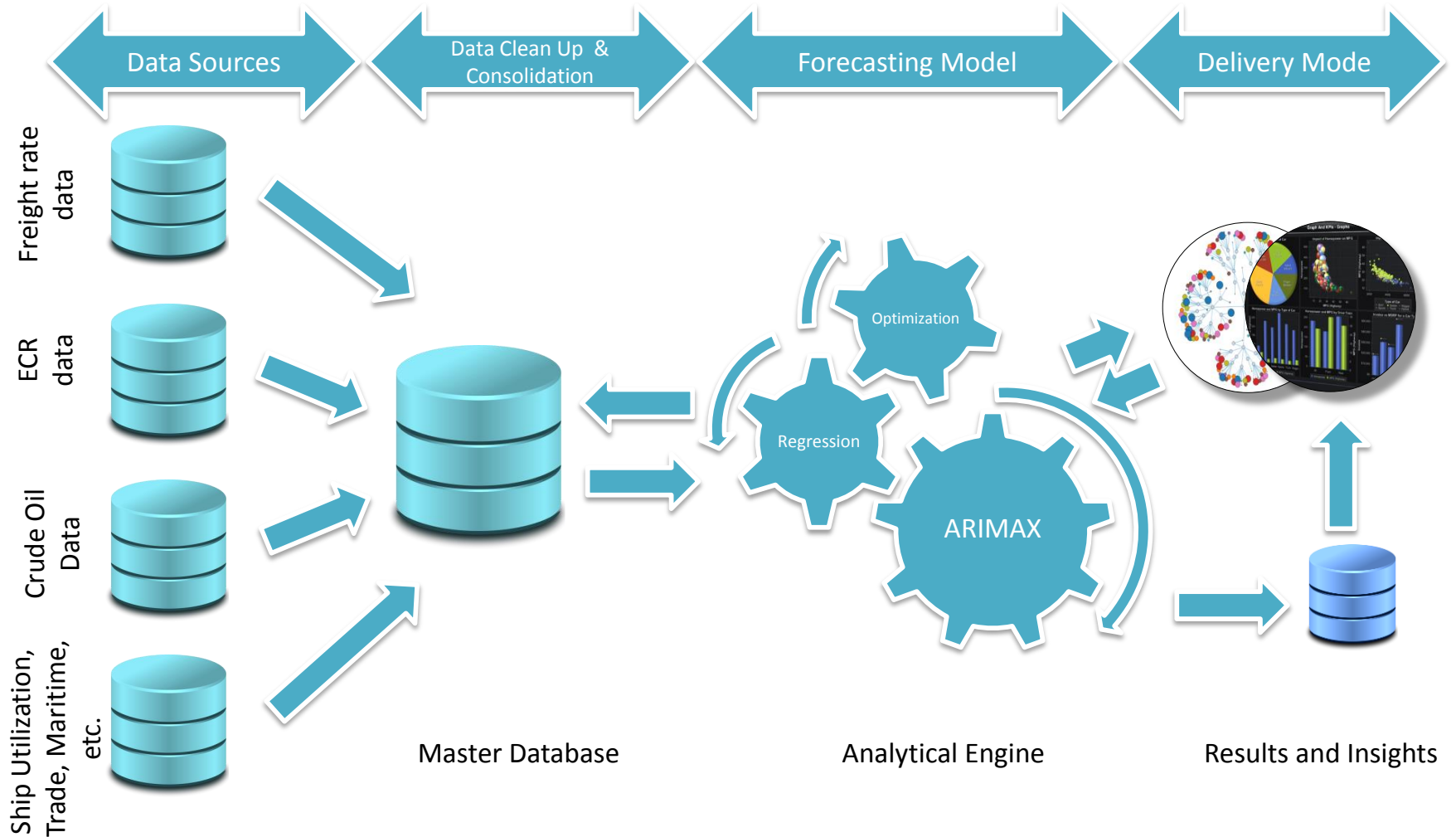
Predictive Analytics

- What might that tell us about the data we don't have?

Application of Advanced Analytics in IHS Maritime & Trade business line



Data Flow & Forecasting Model Framework



Practical Example

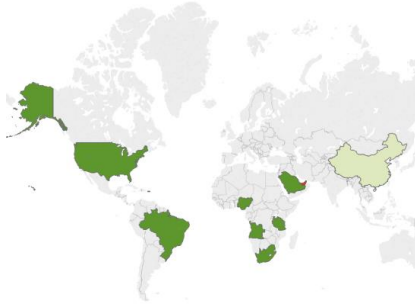
– Automated Information System

AIS was developed in the 1990s and was intended to allow ships to see traffic in the area and to be seen by that traffic.

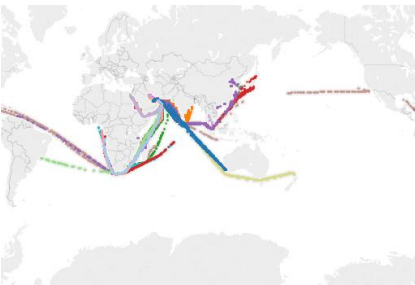
Over time firms have leveraged that data for other descriptive purposes – AISLive at IHS is a great example. One can see every vessel and connect that movement information to a variety of assets including our ships database and our ports database.

But can one do more? Is there additional value in the AIS messages as broadcast and received?

What Do We Know?



Individual journey level information such as journey number, prior port, origin port, prior country, and country of origin.



Movement information from the terrestrial AIS network and from satellite coverage throughout the journey.



Vessel related information such as ship number, owner, operator, size class, draught, and DWT.

What Information Can We Leverage?

Where have the vessels been?



Looking at a vessel's historical destinations may help determine their future ones.

Where do the vessels say they are going?



Some vessels broadcast their final charter destination.

Where are the vessels now?

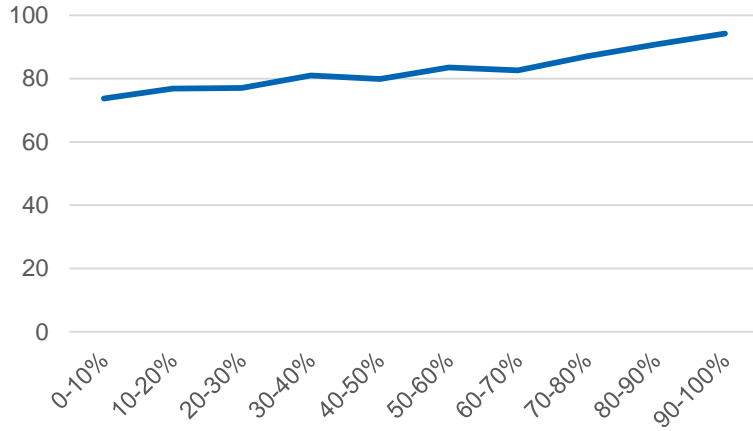


Using AIS movement information may help identify a vessel's trade route and therefore final destination.

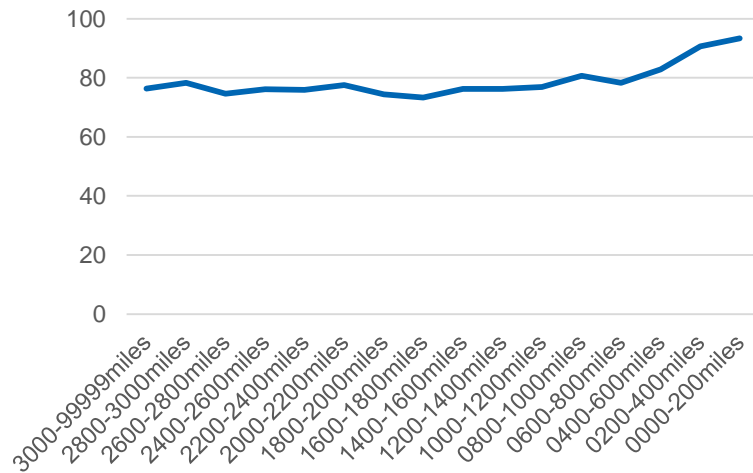


UAE (Crude) - 82.2%

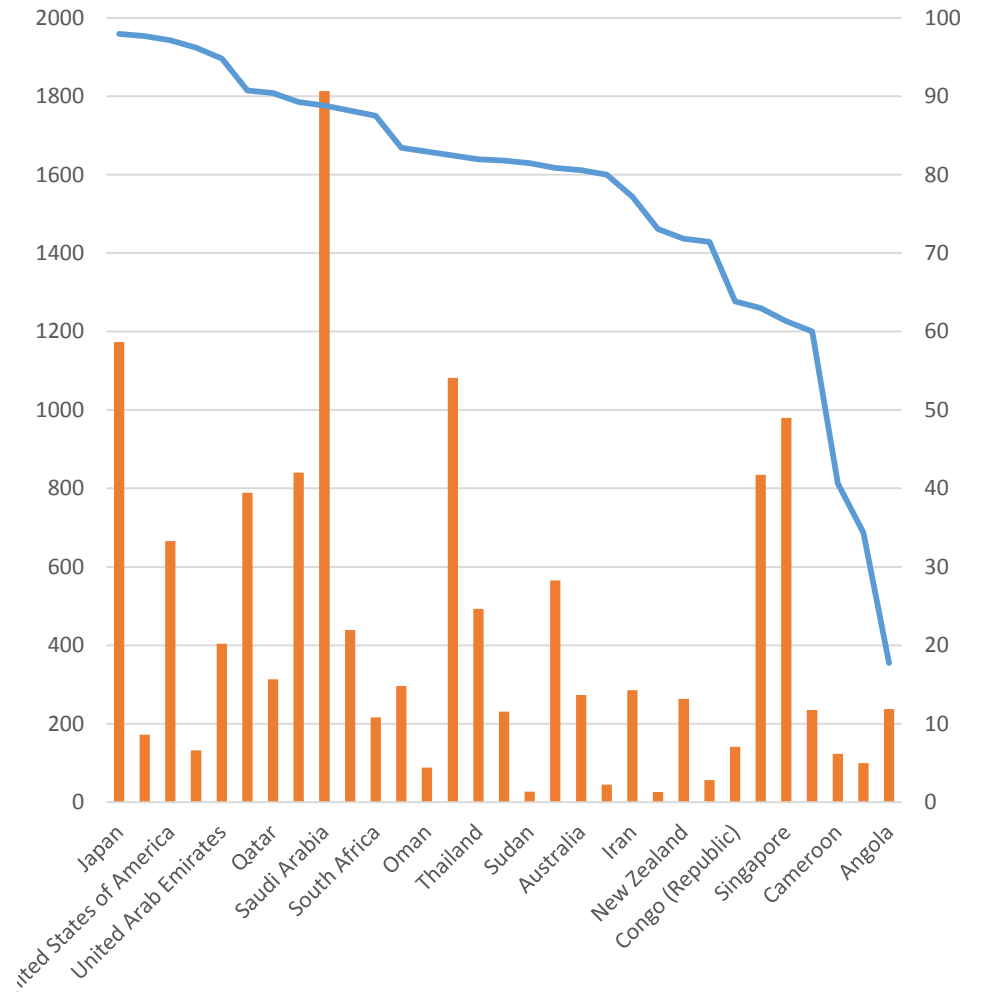
Accuracy by Journey Percentage



Accuracy by Journey Remaining



Accuracy by Destination and Journey Count



Practical Example

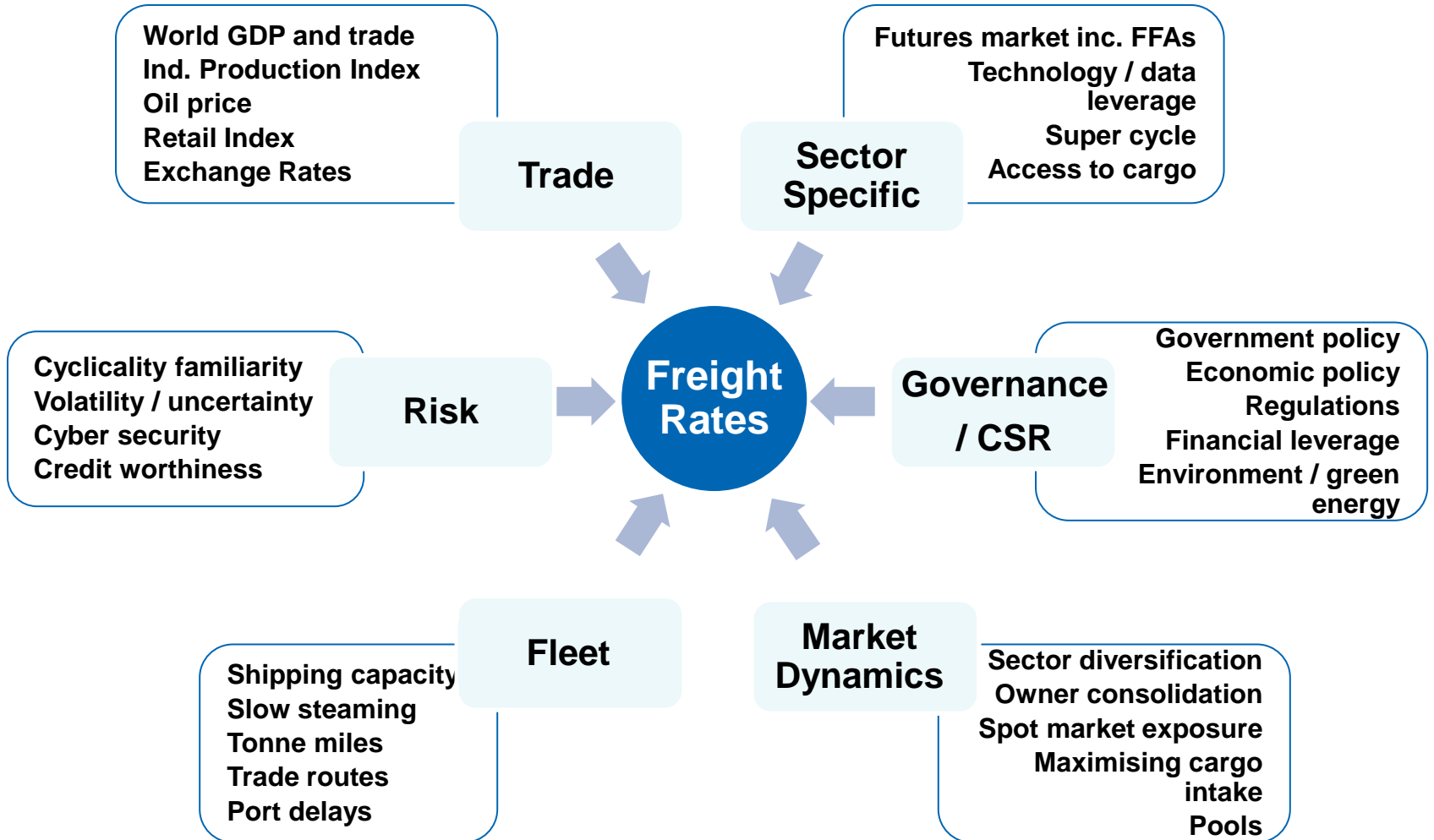
– Forecasting trends in Freight Rates

Freight rates are incredibly volatile and almost impossible to predict in long term due to the industry and trade cyclicalities.

There are many factors influencing freight rates; from industry related ones to macro economical factors.

But can we do more? Do we have to wait for usual boom and bust cycles?

Complexity of the freight markets





Conclusions

Analytics is a spectrum – descriptive, predictive, and prescriptive.

There is a tremendous amount of value still trapped in the data sources that are already being used.

There are yet more data sources that have not been tapped. They can be connected to one another to bring even better and more timely decision making.

Still remember it is just another tool in the toolbox of business intelligence. Market cyclicity and “black swan” events are still big issue.



Thank you!