



## Quantar CyCalc<sup>®</sup> Marine Cyber Risk Predictive Analytics

### Making Sense of Cyber Threat Modelling for Marine Operators

Unlike others, cyber risks pose unique challenges to marine operators due to their constant evolution and the lack of historic data relating to their impact upon operations. Cyber threats require a different approach to understanding the impairment caused by a successful attack:

- Today's threats do not necessarily represent those of tomorrow
- Asymmetry of data between shore-based and sea-based units
- Aggregated risk may lead to catastrophic loss for an operator
- Every vessel and business has proprietary processes and systems

Understanding marine risks requires a wealth of data from which to model and risk-manage. In its absence, judgement and qualitative assessment leaves shipping and port operators limited in their ability to meet cyber risk controls and for current and future regulatory compliance requirements.

### Quantar CyCalc<sup>®</sup> Marine Cyber Risk Predictive Analytics

Our unique, patented cyber threat assessment and quantification platform gives marine operators the ability to understand the operational impact of a successful marine cyber attack for individual vessels, fleets or on-shore operations. Since 2005, Quantar CyCalc<sup>®</sup> has been delivering cyber risk management capability with its cyber threat predictive analytics solutions. Through combining multiple sources of data with risk and scenario modelling, adverse selection, setting of risk ceiling limits can be attained with deep insight. Data aggregation facilitates overall cyber portfolio risk management capability and development of new products and services.

### Our Methodology

Our systems collect data from multiple sources to extrapolate into future periods, to avoid traditional autopsy risk assessments, providing meaningful historic and current versus future trend analysis. Acquiring proprietary network threat data from vessels plus shore operations and combining this with unique OT/IT systems independency information, delivers the insight marine operators need, to control and manage their marine cyber risk exposures. We give operators the capability to operate data-driven cyber risk management and regulatory compliance programmes.

### CyCalc<sup>®</sup> Highlights

#### Threat Data Engine

- Continuous vessel/port threat data acquisition for analysis & extrapolation of future events

#### Multi-Model Approach

- Both stochastic & linear modelling of data providing enhanced marine cyber threat visibility & understanding

#### What-if Scenarios

- Ability to create multiple scenarios and measure against baseline vessel & onshore operating risk exposures

#### Mitigation Cost-Benefit

- Test mitigation actions on a cost-effective basis to target capital spending for enhanced marine cyber resilience & continuous improvement

#### Secure Data Use

- Local installation & acquisition of threat data only, excluding packet content removes an additional security & compliance burden that comes with cloud-based solutions

## CyCalc<sup>®</sup> for Effective Marine Cyber Risk Control

Whilst there are a number of tools available to assess an enterprises' cyber security, these tend to ignore key contributors to overall cyber exposure and as such are not true indicators for marine operators, nor for overall marine corporate risk management and compliance.

Quantar's CyCalc<sup>®</sup> Predictive Cyber Risk Analytics utilises multiple data sources and loss models developed specifically for the marine industry. Whilst our models provide a quantified values for marine cyber risks, our technology also:

- Accounts for outsourced operations in various time zones
- Enables models to include insider threats, physical attacks on infrastructure and catastrophes, natural or otherwise
- Extrapolates actual threat growth, delivering insight into future marine risk exposure levels and not simply a current scenario

### Example Case Usage

We provide marine operators with deep insight into the true cyber risk exposure arising from single vessels, an onshore location or an aggregated marine cyber risk portfolio. By using CyCalc<sup>®</sup> predictive cyber risk analytics, the following advantages can be realised:

- Marine operators no longer rely upon qualitative judgement; assessment, quantification and evaluation is achieved through current and ongoing data capture.
- Marine cyber risk management teams and cyber risk valuations can be created from deterministic models based upon the proprietary data per vessel, fleet or on-shore location and aggregated for longitudinal accuracy in analysis and mitigation.
- Operator risk managers use their own data and combined with ours, are able to evaluate overall operator risk and deliver auditable proof for regulatory compliance and certification.
- Easy to understand graphical outputs and what-if scenario modelling facilitates enhanced capital allocation to those areas of highest marine cyber risk exposure requiring additional security, reducing risk transfer costs.
- Marine reinsurers can ascertain the total portfolio risk in a data-driven manner, with a greater symmetry of data held between carrier and marine operator for the benefit of both.



About Quantar

Quantar creates software to support the marine market in understanding the individual & aggregated risks associated with marine-specific cyber risks, both sea-borne & land-based. We utilise multiple data sources for our cyber threat valuation platform, to provide marine operators the critical data they need for informed cyber risk management & regulatory compliance decisions. For more information, please visit [www.quantar.tech](http://www.quantar.tech).

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## CyCalc<sup>®</sup> Benefits

### Aggregated Risks

- Supplements alternative cyber risk information with the ability to combine multiple data sets according to need, providing an aggregation of risk factors for a 360 view of digital risks

### Profiling

- Creates the ability to establish profiles according to cyber risk data & vessel/onshore characteristics, delivering uplift of quantification accuracy & aligning to real marine risk exposure

### Cyber Maturity

- Enables your teams to develop critical cyber risk management programmes better aligned to the needs your company
- Delivers the information needed to create historic & current auditable proof of cyber risk assessment for regulatory compliance
- Facilitates collaborative working between cyber risk managers onshore & sea-based to reduce cyber risk exposure, benefitting your marine operational resilience