

# Seaworthiness

Demonstrate, Document & Deliver Seaworthiness with Confidence



Achieving Seaworthiness Certification is essential for maritime systems, but traditional methods often rely on disconnected, manual documentation that lacks traceability to engineering analysis. This gap creates risks, rework, and delays in both design and approval processes.

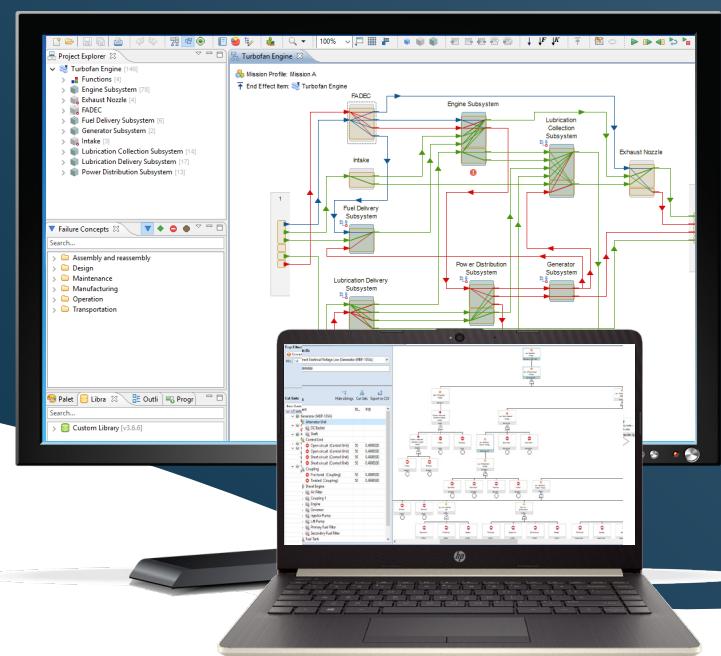
MADE provides a model-based, integrated engineering environment that automates and streamlines the generation of Seaworthiness artefacts. Designed to support design, verification, and certification concurrently, MADE ensures that each analysis is backed by traceable data and decision logic, creating a robust digital engineering foundation for compliance with commercial and military seaworthiness frameworks.

Benefits MADE MBSA approach brings to Seaworthiness:

- **Integrated, model-based simulation**
- **Automated failure identification**
- **Traceable risk & decision capture**
- **Seamless knowledge transfer via a GUI-based interface**
- **On-demand generation of engineering artefacts**



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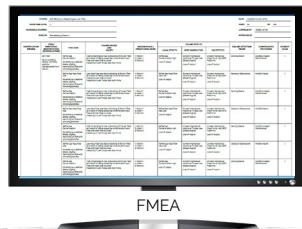
Decisions better made

## Certify with Confidence

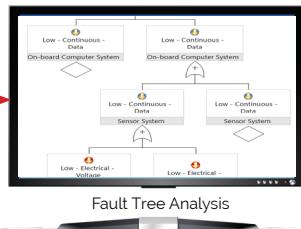


MADE enables early and ongoing assessment of seaworthiness-related risks, using engineering artefacts built directly from the system model. Each artefact is digitally linked to model parameters, providing traceability and quality assurance.

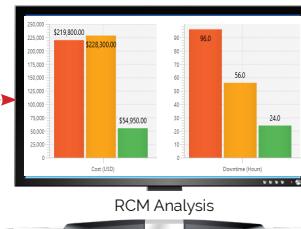
### Engineering Analysis



FMEA  
FMEA is generated based on the model.

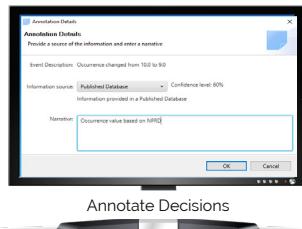


FTA can be generated from the FTA that provides cut-sets of failures

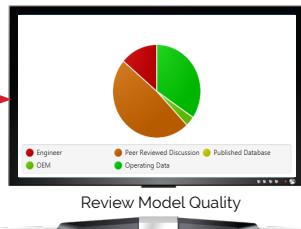


RCM analysis can be used to generate appropriate maintenance plan in response to the system.

### Demonstrate Analysis Quality



Annotate Decisions  
Each parameter decision is tracked and annotated.



Review Model Quality  
Model or Analysis quality assessment (confidence level).



Document Annotations  
Reports generated to document quality of the analyses.

### MADE Ensures Analysis Quality

MADE introduces a Model Quality Index (MQI) and rich annotation framework to reinforce trust in every analysis:

#### Justification

Capture rationale for every design or analysis decision

#### Configuration Management

Capture rationale for every design or analysis decision

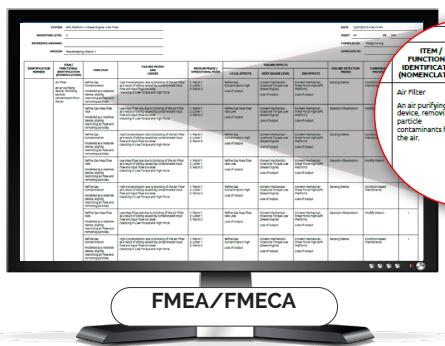
#### Data Integrity

Validate the source and confidence level of every input

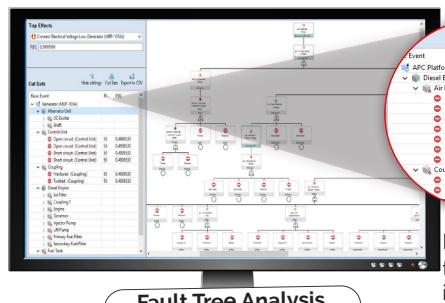
## Digital Risk Twin: The Future of Seaworthiness

MADE enables the creation of a Digital Risk Twin, a dynamic model of failure and risk that evolves with your system throughout its lifecycle and its iterations. Integrated with the PHMT Ecosystem, MADE connects to PLM and SLM systems to close the loop between design, sustainment, and operations.

### Key Seaworthiness Analysis



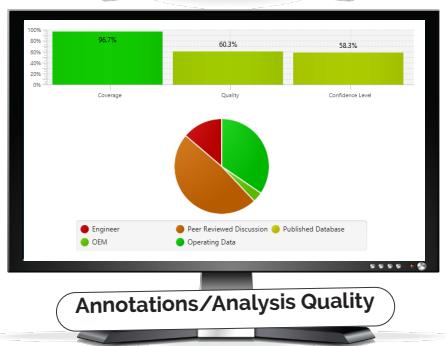
FMEA/FMECA leverage the functional & physical model to track failures.



Root cause analysis from failure cause to end-effect in the FTA.



Classic RCM to provide a maintenance plan in response to system failures.



An Model Quality Index and report to support any generated analyses.