Supporting the decision-making process through Reliability, Availability and Maintainability (RAM) analysis

The benefits of supporting the decision-making process by predicting performance of a system are endless. The results from such analysis empower owners to achieve fast, informed and effective decisions by evaluating the influence of equipment reliability and maintenance philosophy on the performance.

Maros Lite provides features to run a precise RAM analysis. It is a cost-effective solution to evaluate basic reliability studies including modelling capabilities to represent real life scenarios.

The performance of a system is predicted using simulation techniques. An “event-driven” algorithm is used to create life-cycle scenarios of the system under investigation, accounting for its reliability and maintainability. Maros Lite allows users to safely and responsibly analyse and improve production efficiency.

Our tools comprise advanced features and capabilities enabling you to predict and understand your plant performance and identify optimal design options and areas for improvement.

By combining your understanding of the system to be modelled and DNV GL’s advanced RAM tools you will be able to quantify the benefits likely to result from adopting particular design, operational and maintenance strategies.
Our solution for RAM analysis

DNV GL provides a range of advanced Reliability, Availability, and Maintainability (RAM) products which go beyond traditional RAM analysis.

Maros Lite is based on the Maros and Taro simulator, DNV GL’s advanced RAM tools, which have been used for over 30 years in industry at the full range of project stages, from design concept screening, through proving detailed design to optimising mature assets.

Maros Lite is a solution aimed at entry level complexity, benefiting from all the background of Maros and Taro, our advanced RAM tool.

THE GOOD REASONS FOR CHOOSING MAROS LITE

Assess return on investment
Maros Lite allows you to include financial factors to perform cost/benefit analysis to investigate different design alternatives.

Optimisation
Identification of critical events in the system and quantification of system constraints help you to optimise the design.

Usability
The Maros Lite interface and reports are designed to be intuitive and useful to industry professionals focusing on representing reality in the most recognisable way.

Extensibility
Maros Lite studies can be imported into Maros and/or Taro when increased complexity of modelling is needed.

Long Experience
Maros Lite is based on Maros and Taro simulator which has been developed for more than 30 years to solve problems faced by our users at major companies worldwide.

Cost-effective solution
Maros Lite is a cost-effective solution for performing an essential RAM analysis.

Main differences between Maros and Maros Lite

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Maros</th>
<th>Maros Lite</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unscheduled events</td>
<td>x</td>
<td>x</td>
<td>Unscheduled events are unplanned and occur at random however, their occurrence usually corresponds to a particular statistical distribution. Example: Equipment failures</td>
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<tr>
<td>Scheduled events</td>
<td>x</td>
<td>x</td>
<td>Scheduled events where the occurrence is known Example: Routine inspections</td>
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<tr>
<td>Conditional events</td>
<td>x</td>
<td></td>
<td>Conditional events that are initiated by the occurrence of other events via a Boolean logic expression. Example: Warm up of an equipment in standby</td>
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<tr>
<td>Complete network flow</td>
<td>x</td>
<td></td>
<td>Multiple products from multiple sources with time varying flow rates Customer demand levels over time and nomination contract periods</td>
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<tr>
<td>Sophisticated maintenance strategy</td>
<td>x</td>
<td>x</td>
<td>In Maros the three typical maintenance strategies have been incorporated: Preventive, intrusive and predictive. Maros Lite has restrictions in regards to the preventive maintenance strategies.</td>
</tr>
<tr>
<td>Operational management</td>
<td>x</td>
<td></td>
<td>Maros includes an extensive range of features covering typical operations in the oil and gas industry such as: Ramping, flaring, parallel boosting, recovering boosting, line packing and shipping</td>
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