## TSC Category
Research and Development

## TSC
Big Data Analytics

## TSC Description
Analyse and validate significant volumes of data to discover and quantify patterns and trends to improve ship, rig, conversion and/or marine equipment design and refine condition-based maintenance schedules

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<thead>
<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
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<tr>
<td>MAR-RND-3001-1.1</td>
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<td>Conduct predictive modelling, regression analysis, scenario modelling and other types of complex data analyses with large datasets in a marine context</td>
<td>MAR-RND-4001-1.1</td>
<td>Develop hypotheses to be tested with advanced analytical methods and large datasets around ship, rig, conversion or marine equipment design, and predicting optimum maintenance schedules</td>
<td>MAR-RND-5001-1.1</td>
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<td>MAR-RND-6001-1.1</td>
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<td>Explore wider applications of advanced analytical methods in the organisation by using expertise within the field to transform how marine data is used</td>
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### Knowledge
- Types of datasets applicable to the marine context
- Methods of data gathering
- Methods of using sensors to measure performance parameters
- Methods of data modelling and visualisation
- Methods of working with large datasets and filtering noise data
- Methods of creating reports of findings from advanced analytical work
- Applications of advanced analytical methods in a marine context
- Methods of formulating business critical hypotheses for testing
- Design factors affecting performance of ships, rigs, conversions or marine equipment
- Methods of reviewing advanced analytical models
- Functions and limitations of different analytical tools
- Types of data presentation techniques
- Organisation's vision and strategy
- Methods of creating and evaluating advanced analytical models
- Methods of incorporating big data and advanced analytics findings into research and development (R&D), design and production processes
- Methods of using results from advanced analytics investigations in a business development context
- Applications of emerging advanced analytical methods in a marine context
- Methods of identifying new datasets that can be used for advanced analytics
- Methods of ensuring long-term sustainability of advanced analytical methods
- Advanced negotiation skills

### Abilities
- Implement a variety of advanced analytical and visualisation techniques, in consultation with experts, to interpret large quantities of data
- Identify data quality problems
- Segregate noise data from a large dataset
- Specify hypotheses to be tested by use of advanced analytical methods and exploration of large datasets
- Specify appropriate analytical techniques to create information which supports business decision-making
- Conceptualise new data models and evaluate existing models for suitability in a marine context
- Define areas of focus that can be analysed using advanced methods to support R&D, design
- Be responsible for the organisation's commitment to efficient and effective analyses of large datasets
- Lead innovation in advanced analytics through adoption of new methodologies and techniques
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<td>Contribute to creating technical and business reports with analytical findings.</td>
<td>Evaluate results to extract commercial impacts that may affect business objectives.</td>
<td>and production processes.</td>
<td>Provide leadership and guidance for analysis of both internal and external data.</td>
<td>Motivate departments to utilise data analytics in making strategic decisions.</td>
<td>Devise ways of incorporating advanced analytical findings into business development opportunities.</td>
<td>Evaluate the benefits and trade-offs of implementing advanced analytics into strategic decision-making in new areas.</td>
<td>Investigate how advanced analytics and big data is being used by other organisations and educational institutions in a marine context.</td>
<td>Prepare a business case for implementing advanced analytical methods in new areas.</td>
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