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					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
			MAR-RND-3001-1.1	**MAR-RND-4001-1.1**	**MAR-RND-5001-1.1**	**MAR-RND-6001-1.1**
			Conduct predictive modelling, regression analysis, scenario modelling and other types of complex data analyses with large datasets in a marine context	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	Drive the use of advanced analytics and big data in strategic decision making across the organisation and incorporate advanced analytics findings into business development opportunities	Explore wider applications of advanced analytical methods in the organisation by using expertise within the field to transform how marine data is used
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

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			• Contribute to creating technical and business reports with analytical findings	• Evaluate results to extract commercial impacts that may affect business objectives	and production processes • Provide leadership and guidance for analysis of both internal and external data • Motivate departments to utilise data analytics in making strategic decisions • Devise ways of incorporating advanced analytical findings into business development opportunities	identification of new datasets • Evaluate the benefits and trade-offs of implementing advanced analytics into strategic decision-making in new areas • Investigate how advanced analytics and big data is being used by other organisations and educational institutions in a marine context • Develop organisational advanced analytics application strategy • Prepare a business case for implementing advanced analytical methods in new areas