RINA MARITIME INNOVATION COMMITTEE

Theme: Business and Economics

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Business & Economics

This theme includes advances in business models rewarding operational efficiency over Capex investment and re-shape of business models as a consequence of regulations surrounding emission. New business models additionally triggered by transformational innovations in the technology, fuels and data analytics spaces. The models requiring a re-cast of the risk profiles to arrive at more attuned insurance cover.

Objectives

- The key objectives for business and economics as relating to the execution of new-builds, technology retro-fit and provision of OEM technologies:
  - Enable early adoption of technologies that reduce ship emissions (primarily measured in CO_2 terms), delivering business models that span the split incentive and overcome the artificial '*payback*' hurdle that stifles innovation.
  - Business models that place incentive more firmly upon Opex than Capex, rewarding increased efficiency.
  - Early identification of potential disruptive business models that alter the classic Owner, Operator, Charter model releasing equity tied into obsolete and/or inefficient/ineffective tonnage.

Topic Priorities

Financial topics/themes that we believe will have the most significant impact on the marine industry include

Topic	Topic Description
Smarter New-building Contracts	Multiple point optimisation, coordinated between the Build Contract and Acceptance. A number of shipyards (notably DSME/SHI) are claiming multi-point optimisation of designs. Additionally operators/charterers are being somewhat more careful in terms of the point at which performance is defined. Inversion of Capex/Opex priorities with regard to design decisions that underpin new-buildings. Innovative Ownership models with potential pay as go models in respect to large ship components. i.e. availability and/or pay by kWhr (targeted by OEMs)

Topic Priorities

Financial topics/themes that we believe will have the most significant impact on the marine industry

Topic	Topic Description
Re-set of business models based upon reduced ship speeds brought about by EDDI or carbon pricing either through taxation or 'cap and trade' (emission drivers)	A means to significantly reduce emissions is for shipping to slow however it is speculated that post fuel switch the industry would speed up once again to arrive at the most economically advantageous speed however it is unlikely to match previous norms. Whilst speed reduction is viewed as a transient solution based upon cost of fuel (+emissions) and freight rates the EEDI has a potential artifical impact that once removed (carbon emission free fuel) results in system re-balancing to a new economical norm yet unknown. More impactful than EEDI regulations is potentially aligned to the impact of carbon pricing/taxation if/when/how pursued. Impact could be large or negligible depending upon the Carbon pricing built into whichever system prevails. However history tells us that when cost of fuel hits highs for prolonged period change occurs and ships become/or are operated significantly more efficiently/effectively. Action within the business model space would not be unexpected.
Ship Efficiency Indexing/Port Fees (incentivising efficiency/green shipping)	Actions promoting on a regional basis action to improve efficiency through economic incentivisation. Impacts reflected within business planning/modeling.

Topic Priorities

Financial topics/themes that we believe will have the most significant impact on the marine industry

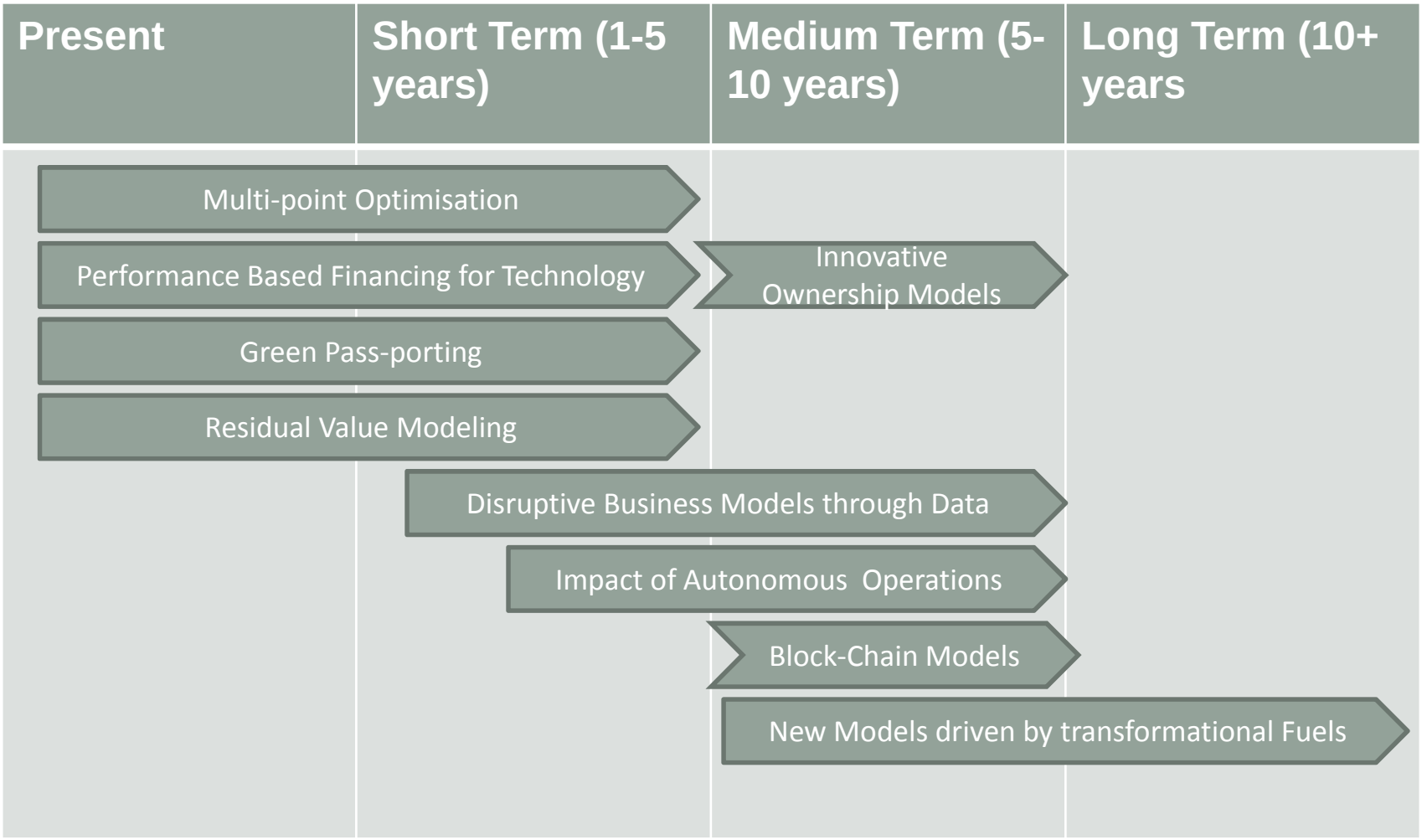
Topic	Technology Description
Re-shape of the Charter Party to encourage adoption of efficiency/innovation/technology (tackling the split incentive)	Charter models are attempting to place greater emphasis on performance especially where new digital tools permit greater insight. However stimulus for change is weak with a significant 'push-back' within conventional ranks amongst Charterers. However attitudes are changing and it is anticipated that the tide of change will accelerate as external stimuli increases.
Transformational business models	Significant potential exists for a disruptive business model to materialise turning the existing Chartering model 'on its head'. The disruption could be driven by; • Impact of transformational Fuels (eg. Hydrogen) and/or combining with Carbon Capture and storage. • Impact of automation • Radical/disruptive shift in Ownership/Chartering models through data analytics and data application ('Uber')

Technology Priorities

Technologies that we believe will have the most significant impact on the marine industry

Technology	Technology Description
Financing Models	Financing of technology application through performance share (tackling the split incentive) and/or Green Passporting Block Chain Modeling - Offers differing methods to ship financing potentially lifting importance of Opex costs over Capex. Financing is waking up to the importance of energy efficiency and fuel(s) debate and its role in protecting their future investment(s). Expectation is thus that smarter business models will result. Residual Value modeling and valuation of efficiency technology delivering an Uplift in ship residual value as a consequence of adopting ESD technologies (not currently seen).
Insurance Models	Transformational Fuels and technology as currently being discussed raise a number of interesting questions as to risk profile and thus insurance. Quantifying the Risks will be an interesting outcome. Automation - Legal and risk implications have similar issues to address and will likely require insurance solutions not currently available

Exploitation Timescales



Challenges & Risks

- As technology advances to aid the sector to decarbonise, new business models will be required. Creation of new business models will enable early adoption of the benefits associated with technology advancement delivering potentially high rewards (or penalty) to the early movers. The sector becoming ripe to experience disruption.
- Embedded in improving operational performance greater emphasis will be placed upon operational data. Combining advanced data analytics with new business models as coupled to de-carbonising will increase the potential for a transformational business model to arrive
- Short term focus on Capex will likely shift to broader appreciation of Opex, with business models better geared to latter goal, placing residual value against ESTs

Challenges & Risks

- How the sector measures/quantifies risk especially in light of adoption of transformational fuels and/or autonomous systems will be key to unlocking new business models. The challenge of the new risk profiles associated with these aspects are such that there exists potential for significant early negatives with a temporary stall to progress; i.e. there will likely be business casualties on the journey.

Conclusions

- The status quo as it exists today in terms of the business model that drives the sector is unlikely to remain unaltered as the Sector seeks to de-carbonise. With the combination of technology advances, data analytics and pressure to decarbonise the sector becomes ripe for the arrival of a transformational business model that propels the prepared and drags the unaware into a new paradigm.