

## Economic Evaluation of International Commercial Law Reform project

### Case Study

#### Economic Evaluation of the hypothetical legislative proposal for *Ships and Maritime Transport Equipment (Maritime Protocol)*<sup>1</sup>

This Case Study was prepared to test and support the implementation of the of the *Economic Evaluation of International Commercial Law Reform: Framework and Guide*, developed as part of the Economic Evaluation of International Commercial Law Reform (EE ICLR) Project under the [Cape Town Convention Academic Project](#).

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## A. EXECUTIVE SUMMARY

### 1. Introduction to the law reform

- **Need and objective(s):** The overarching problem is the lack of legal certainty that currently exists around the creation, effectiveness, priority status, and enforcement of security interests over ships due to diverging rules across jurisdictions. The objective of the Maritime Protocol would be to provide certainty for secured creditors in the shipping sector and increase access to finance at lower costs for shipping companies.
- **Baseline scenario:** The absence of international harmonisation in this area, i.e., different rules and requirements across jurisdictions for the creation, effectiveness, priority status, and enforcement of security interests over ships.
- **Alternative regulatory options:** The Maritime Protocol could have a broad or more limited scope, with different options regarding the types of assets it would cover, the relationship with national registers, the treatment of non-consensual security interests, retention of title and leasing, and available default and insolvency remedies. A soft-law instrument is not considered a valid alternative given that it would not provide for an international registry with global application and could not sufficiently reach the objective of enhancing legal certainty.
- **The Benchmark:** Ideal Benchmark that draws from the Cape Town Convention and its Protocols.

### 2. Background to the economic evaluation

- **Actors:** The UNIDROIT Secretariat could hire an independent consultant.
- **Timing:** *Ex ante* (conceptual phase).
- **Objective(s):** (i) informing UNIDROIT's evaluation of whether to pursue the development of a Maritime Protocol; (ii) enhancing the legitimacy of work on a Maritime Protocol; (iii) examining the impacts of various regulatory options and identification of options with the most significant economic benefits; (iv) increasing states' interest in the Maritime Protocol so they actively participate in the negotiation of the instrument.
- **Scope:** All UN States with shipping industries, Cape Town Convention Contracting States, UNIDROIT's 65 Member States, the top ten ship-owning economies in terms of cargo carrying capacity and/or the most important flag states.
- **Key assumptions and limitations:** Economies in need of reform face financial constraints in purchasing ships and maritime equipment; assumptions concerning loan terms and maturity; real GDP is assumed to increase on average a certain percentage during the assessment period; there are no supply-side constraints in case of an increased demand for ships.

## Framework

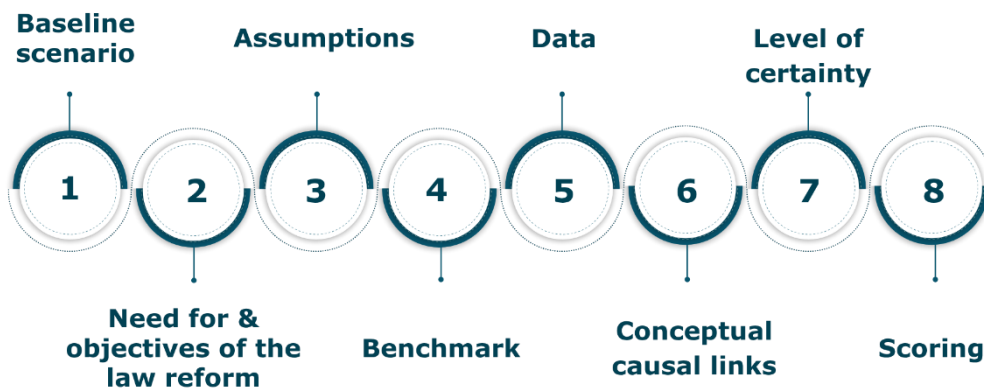
$$ES = \left[ \left[ A + B + C \right] \times D \right] / 3 - E$$

With level of certainty (%)

Where -

- ES** is the Economic Score indicating the expected relative economic variation from a Benchmark [range: - 1 to 10].
- A** is the net, direct gain of the new rules [range: 0 to 10].
- B** is the net gain of the new rules as a network [range: 0 to 10].
- C** is the net systemic (including developmental) impact of the new rules [range: 0 to 10].
- D** is the extent that the new rules will be effectively applied by courts, authorities and private actors [range: 0 to 1].
- E** is the expected total net cost of creating and transitioning to the new rules [range: 0 to 1].
- Level of Certainty** is the qualitative assessment of confidence, or certainty, of the occurrence of the impacts.

## Evaluation Methodology and Workflow



### 3. Scoring of the Factors

<b>Factors</b>	<b>Score (relative to Benchmark)</b>	<b>Main justification</b>
A	7	The Maritime Protocol is expected to deliver strong direct economic benefits by reducing legal uncertainty, transaction costs, and enforcement risk in secured ship financing, thereby improving loan terms and access to credit, while remaining below the Benchmark due to the continued complexity of maritime liens and enforcement regimes.
B	7	The Maritime Protocol is expected to generate meaningful but gradually materialising network benefits, constrained by phased adoption and the need to coordinate with existing maritime regimes.
C	7.5	The Maritime Protocol is expected to deliver strong systemic gains by improving capital allocation in ship finance, supporting fleet renewal and maritime employment, and generating spillovers to trade, logistics, and development across multiple regions, including non-Contracting States.
D	0.9	Effective application is expected to be high due to strong stakeholder incentives and a proven Cape Town architecture, but moderated by the need for domestic implementation and judicial adaptation to maritime-specific regimes.
E	0.2	Implementation and educational costs are expected to be moderate, largely one-off, and outweighed by the prevention of long-term inefficiencies, justifying a limited cost deduction.
Level of Certainty	85%	The assessment is supported by strong evidence from closely comparable Cape Town instruments and established economic theory, with residual uncertainty limited mainly to adoption speed and implementation quality across jurisdictions.
ES	6.25 (BBB Good economic impact)	With strong direct, network, and systemic benefits and a very high expected level of effective application, the Maritime Protocol delivers a robust positive net economic impact, comfortably outweighing moderate and largely front-loaded transition costs.

#### 4. **Calculation of ES**

The Economic Score (ES) of the law reform is expected to be the following:

$$ES = (A + B + C) \times \frac{D}{3} - E = (7 + 7 + 7.5) \times \frac{0.9}{3} - 0.2 = 21.5 \times 0.3 - 0.2 = 6.45 - 0.2 = 6.25$$

#### 5. **Ex-post quantification**

*Ex-post* quantification of the law reform can be demonstrated as the following:

	<b>Fleet Productivity</b>	<b>ES</b>	<b><i>Ex-post</i> quantification</b>
<b>Bian (2020)</b>	12%	6.25	$12\% \times \frac{6.25}{10} = 7.5\%$

## B. BACKGROUND TO THE ECONOMIC EVALUATION (EE)

### 1. Timing aspects

#### ➤ At what stage and phase does the EE take place?

1. The economic evaluation is conducted on an *ex-ante* basis, during the conceptual phase. One of UNIDROIT'S Member States proposed that UNIDROIT initiate a legislative project to promote law reform on this specific topic. In response, UNIDROIT is conducting a feasibility study to assess the necessity and scope of the project. This economic evaluation is being conducted prior to the establishment of a Working Group.

#### ➤ What is the time horizon, i.e., the length of the evaluation period?

2. The evaluation considers the expected economic effects of the proposed Maritime Protocol over the period during which adoption, implementation, and market adjustment are expected to occur. The precise time horizon should be determined by reference to the assessment period used for the relevant *ex-post* studies and comparable Cape Town instruments.

#### ➤ What was the duration of the EE?

3. The EE was conducted as a preliminary desk-based assessment during the conceptual phase of the proposed law reform. The precise duration of the EE should be inserted once confirmed by the Evaluation team.

### 2. Geographical context

#### ➤ What is the geographical context of the evaluation?

4. The geographical scope of the evaluation is global. The prospective Maritime Protocol would be applicable to all UN Member States and UNIDROIT Member States with maritime and shipping industries, especially the Cape Town Contracting States, major ship-owning economies in terms of cargo carrying capacity, the most important flag states, as well as developing jurisdictions seeking to expand access to ship finance. The evaluation therefore considers the diversity of legal, economic, and institutional environments across jurisdictions, as well as the relevance of the reform for states with emerging registries or high reliance on international ship financing. Various approaches could be considered (listed from broadest to most narrow):

- All UN States with shipping industries or which border the sea.
- Cape Town Convention Contracting States.
- UNIDROIT'S 65 Member States. The estimated impacts would likely be greater if non-Member States with relevant shipping (finance) industries would ratify the Maritime Protocol as well.
- The top 10 ship-owning economies in terms of cargo carrying capacity.
- The most important flag states.

### **3. Objectives of the evaluation**

➤ **What goals does the evaluation aim to achieve?**

5. The general objective of this assessment is to identify the ways in which the introduction of a Maritime Protocol to the Cape Town Convention would have an effect on the shipping industry and relevant countries' economies.

6. The assessment specifically aims to:

- Inform UNIDROIT's evaluation of whether to pursue the development of a Maritime Protocol;
- Enhance the legitimacy of potential work on a Maritime Protocol;
- Examine the impacts of various regulatory options and identification of options with the most significant economic benefits;
- Increase states' interest in the Maritime Protocol from so they actively participate in the negotiation of the instrument.

### **4. Evaluation actors**

➤ **Who is carrying out the evaluation? What is the composition of the team(s)?**

7. UNIDROIT is carrying out the evaluation. The evaluation team consists of UNIDROIT staff (lawyers) and an independent economist.

## C. INTRODUCTION TO THE LAW REFORM

### 1. Baseline scenario

#### ➤ **What is the current market context and legal framework?**

8. International ship finance is a large, capital-intensive market dominated by cross-border lenders, lessors and export credit agencies. Ships are financed through mortgage and secured financing structures. Many transactions are cross-border, including with flag states, lenders, registries, and enforcement courts often located in different jurisdictions. Lenders price credit risk taking into account not only macroeconomic and market risk but also legal and enforcement risk, notably: (a) variability in the recognition and ranking of maritime liens and mortgages; (b) inconsistent arrest procedures and timelines; and (c) uncertainty over sale procedures and title obtained at judicial or private sale. Empirical work shows that arrest/immobilisation and fire-sale discounts materially depress recoveries and increase borrowing costs in shipping markets. The legal environment remains fragmented: national ship-mortgage laws continue to serve as the primary mechanism for securing interests, while regional and international instruments, including the Brussels (1967) and Geneva (1993) Conventions on maritime liens and mortgages, the Ship Arrest Conventions of 1952 and 1999, and the Beijing Convention on the Judicial Sale of Ships of 2022 coexist but have achieved only limited international uptake and uneven domestic implementation. This fragmentation creates transaction costs, legal uncertainty, and asymmetric creditor protection across jurisdictions.

#### ➤ **What problem is the law reform seeking to solve? How could the existing situation develop in the absence of the proposed law reform?**

9. The overarching problem is the lack of legal certainty that currently exists around the creation, effectiveness, priority status, and enforcement of security interests regarding ships. This uncertainty is caused by differences in national proprietary security laws applicable to ships.

10. One of the main areas in which differences in national laws exist concerns perfection requirements. Most legal systems agree that to achieve third-party effectiveness of consensual proprietary security interests over ships (i.e., so-called perfection of the security), some form of publicity is required, usually by means of registration. Registration usually takes place in the title register for the ship concerned.

11. However, there are differences in: (i) scope (e.g., exemptions to the registration requirements for smaller ships in certain jurisdictions); and (ii) formal requirements (e.g., some jurisdictions require either notarisation of the security agreement or mortgage deed, or attestation of the shipowner's signature, while others insist on the use of prescribed forms; differences also exist regarding the possibility of effecting a registration outside the territory of the flag state).

- The relationship between registers for ships and general debtor-indexed registers for all types of security of specific debtors, such as a company register

12. There seems to be a trend in favour of precedence of registration in an asset-specific register, for instance on the basis of an exemption of security over ships from the scope of the security interests that are registrable in the general debtor-indexed register.

13. However, some jurisdictions require registration in both registers. In such cases, the effects of both registrations vary. For instance, in some jurisdictions, registration in the general register may determine third-party effectiveness while registration in the shipping register may determine the priority status of the security *vis-à-vis* competing security interests.

- The governing law for the creation and effect of consensual security over ships

14. As a general rule, most legal systems have accepted the principle that the creation and third-party effectiveness of consensual proprietary security over ships is governed by the law of the flag, i.e., the law of the state where ownership of the vessel is registered.

15. However: (i) some jurisdictions do not unreservedly recognise ship mortgages under a foreign law of the flag; and (ii) the scope of the general rule differs (e.g., whether this also includes issues of priority).

- The priority of consensual security rights over ships

16. Registration systems often govern not only the third-party effectiveness of security interests but also determine the order of priority between competing security rights. However, laws may differ with regards to: (i) exceptions to the general rule; (ii) the treatment of security rights registered on the same date; and (iii) the availability and details of forms of provisional or advance registration (intended to ensure that the priority of a proprietary security is not overridden in the period of time before registration is effective). Furthermore, some legal systems have specific priority rules under which foreign consensual security interests over ships are generally treated less favourably than domestic security rights.

- The governing law for issues of priority as between consensual security over ships

17. Many legal systems decide issues of priority according to the law of the flag. However, there are also jurisdictions that apply the law of the forum. The location of the ship (*lex rei sitae*) is another option.

- Available remedies on default

18. Historical differences between common and civil law jurisdictions have resulted in differences in the legal positions conferred by ship mortgages and hypothecs. This includes differences in available remedies on default, which may be either an out-of-court sale of the ship or a judicial sale. The latter has the advantage that the ship can be sold free of encumbrances, without giving warranties to the buyer and without facing liability *vis-à-vis* the original owner in the event of failure to achieve the best possible sales price.

- Maritime liens

19. There are some situations in which there is widespread agreement that a claim against the shipowner deserves to be secured through an *ex lege* security right (e.g., seamen's and masters' wages, salvage and damages caused by the ship).

20. In other cases, however, there is no such unanimity, and the lists of maritime liens differ as between the various legal systems, a main area of dispute being claims for necessaries, i.e., bunkers, supplies, repairs, and towage, as well as claims for cargo damage.

- The priority as between maritime liens and consensual security rights

21. While maritime liens often take precedence over earlier proprietary interests, rules differ on which types of maritime lien and privilege should override consensual proprietary security rights over ships.

- The governing law for the creation, effect and priority of maritime liens

22. In some legal systems, the law of the forum governs the existence and priority of maritime liens. In others, the law governing the secured claim (*lex causae*) governs the existence of a maritime lien, while the law of the forum or the law of the place where the ship is located at the moment of the proceedings determines the priority status of maritime liens *vis-à-vis* conflicting security interests. A third option is the application of the law of the flag.

23. Given the legal, proprietary or procedural nature of the issues, there is little room for market participants to develop their own solutions to bridge the differences between the relevant legal orders.

24. The potential negative consequences of the existing situation are that:

- Market participants incur costs for ascertaining the applicable requirements for the registration of security interests over ships under a foreign law (i.e., they may need to seek legal advice for each different registration process);
- Market participants incur costs for complying with different registration requirements in different jurisdictions and risk inadvertently failing to comply with registration formalities;
- Market participants incur costs for understanding the effects of registration in an asset-specific register, especially where priority security rights must also be registered in a general debtor-indexed register in the foreign jurisdiction;
- Persons wishing to access the content of national shipping registers may incur additional costs and delays, particularly where such registers are not yet accessible electronically;
- Market participants face uncertainty concerning the status of their consensual proprietary security interests *vis-à-vis* other ship mortgages or hypothecations;
- The applicable remedy on default may be unclear to market participants.

25. Overall, the current situation is expected to raise the cost of securing credit and may adversely affect the availability of ships as collateral for secured transactions.

26. The law reform seeks to resolve the absence of a consistent, internationally recognised secured-transactions framework for ships and maritime transport equipment. Specifically, it aims to establish a clear international interest, provide a reliable public registry, and harmonise remedies and priority rules with existing lien, arrest, and judicial sale regimes. Without such harmonisation, lenders would continue to face higher expected losses in the event of default and longer enforcement periods, resulting in elevated borrowing costs, constrained credit availability, and suboptimal investment in shipping capacity. Consequently, the growth and efficiency of the international shipping sector would remain constrained, and financing for maritime operators would be less accessible and more costly.

➤ **What is the size and scale of the problem and what actors are affected (stakeholder mapping)?**

27. It would be necessary to explore which data or analytical method could be used to estimate the economic significance of consensual security over ships and maritime equipment (e.g., trade and production data).

28. Example 1, see [UNIDROIT 2016 – C.D. \(95\) Add. 4 rev.](#): “The value of consensual security over ships remains economically significant. Seaborne trade has increased by 3.8 per cent in 2013 and by 3.4 per cent in 2014 to a total of 9.84 billion tonnes in 2014, and the world’s commercial fleet grew by 3.5 per cent in 2014 to 89,464 vessels representing a total tonnage of 1.75 billion deadweight tonnes. Even though the average age of the world fleet increased in 2014, ship finance is still reported to have had a global volume of between 80 and 90 billion USD in 2014.”

29. Example 2, see Delgado (2018), p. 281-82: “In total, the world commercial fleet on 1 January 2017 consisted of 93,161 vessels, with a combined tonnage of 1.86 billion deadweight (dwt), 2,500 more vessels than in the previous year. The top 5 ship-owning economies in terms of cargo carrying capacity (dwt) were (in order): Greece, Japan, China, Germany and Singapore; together, these five countries had a market share of 49.5% of dwt in 2017. However, a very different picture emerges if the dwt is allocated by reference to the flag state, demonstrating the extent to which the world fleet is now dominated by open registers (in order): Panama, Liberia, the Marshall Islands, Hong Kong (China) and Singapore. Together, these five countries control almost half of the world’s tonnage (40%) (UNCTAD Review of Maritime Transport, 2017).” See also Delgado (2018), fn. 73: “In 2017, in terms of deadweight tonnage, Panama and Liberia remained at the top of the global ranking. The top 10 nations (Panama, Liberia, Marshall Islands, Hong Kong, Singapore, Malta, Bahamas, China, Greece and United Kingdom) held 77% of total deadweight tonnage.”

30. The absence of a harmonised, internationally recognised secured-transactions regime for ships and maritime transport equipment creates significant legal and financial uncertainty in global shipping markets. Ship finance depends on predictable priority rules, efficient enforcement mechanisms, and a transparent system for registering security interests. In practice, however, maritime liens arising by operation of law frequently override consensual security interests, and arrest and judicial sale procedures vary substantially across jurisdictions. This fragmentation increases the cost of credit, raises enforcement risk, and reduces access to finance, particularly for smaller shipowners, operators in developing economies, and financial institutions active in cross-border lending.

31. Stakeholders affected include shipowners and operators, financial institutions, ship registries, courts and maritime authorities, port authorities, and purchasers of vessels at judicial sale. The uncertainty surrounding title, priority, and enforcement produces economy-wide consequences: higher capital costs, reduced liquidity in secondary markets, and diminished investment in fleet renewal and greener vessels.

**2. Objectives of law reform**

➤ **What is the expected outcome, including the nature and geographical scope of the instrument?**

32. The main objectives of the Maritime Protocol would be enhancing certainty in cross-border secured transactions in the maritime sector and providing a stronger and more reliable position for the secured creditor. This is expected to lead to a reduction in borrowing costs for

shipowners which, in turn, could lead to an increase in the availability of financing for the shipping industry.

33. As is currently the case for airlines, banks in particular are expected to offer a discount on exposure fee as well as longer and more favourable terms for finance when financing debtors are located in Maritime Protocol Contracting States.

34. The advantages of an efficient system of consensual non-possessory security over ships are of particular importance for the maritime industry in emerging markets, where credit may be scarce and where the market participants may lack access to funding other than the use of the ships themselves as collateral. The Maritime Protocol could facilitate access to the market for smaller shipping companies, which could lead to increased competition and more opportunities for emerging countries. In addition, the Maritime Protocol may contribute to enhancing ships from a sustainability perspective (considering the increasing role of environmental, social and governance (ESG) criteria in the investment context).

35. Without the adoption of a Maritime Protocol, fragmentation in mortgage, lien, arrest and judicial sale regimes will persist. Ship finance spreads will remain higher in jurisdictions with weak enforcement rules, limiting access to credit and deterring international lessors from entering high-risk markets. Operational losses associated with immobilisation and arrest, often followed by fire-sale auctions, will continue to depress asset values and exacerbate financial instability, particularly for smaller shipowners. Purchasers will remain reluctant to acquire arrested vessels given the lack of uniform rules on clean title after judicial sale. These dynamics are likely to inhibit investment in shipping capacity and delay the transition to cleaner fleets.

36. Empirical analogues from the Aircraft and MAC Protocol economic assessments demonstrate that harmonised secured-transactions frameworks reduce financing costs, improve asset liquidity, and shorten enforcement timelines, benefits the maritime sector would continue to forego in the absence of a reform.

37. The reform should take place at an international level. The shipping financing industry has an international component, because the financing of large ships is required by large cargo-carrier companies and undertaken by the most important banks around the globe. For instance, it may involve a Japanese bank, acting through its New York office, lending, in U.S. dollars, to a Greek-controlled owning company, by means of a mortgage with a Singapore arbitration clause, and securing itself on a Liberian-registered ship, insured by a London-based P&I Club.<sup>6</sup>

38. Even if a shipping financing transaction involves only parties from one jurisdiction, the ship itself is likely to move from one jurisdiction to another in the course of its operation. Therefore, it could become necessary to enforce a proprietary security right over the ship while the ship is within the jurisdiction of foreign courts. Due to the cross-border nature of the industry, the legal aspects of security rights over ships cannot be adequately addressed by domestic legislation alone. Indeed, the divergencies in national legislation currently lead to legal uncertainty. The creation of an international interest and the unification of the registration system for security interests over ships, as well as the harmonisation of remedies, would thus be advantages that can only be achieved through a new international instrument.

39. The objectives of the proposed Maritime Protocol are to establish an internationally recognised “international interest” in ships and maritime transport equipment within the Cape Town Convention framework; to create an interoperable International Registry aligned with existing IMO identification systems to enhance transparency and reduce search costs; to harmonise priority rules and clarify the interaction between consensual security interests and

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<sup>6</sup> Delgado (2018), p. 276.

maritime liens so as to minimise enforcement uncertainty while preserving necessary protection for certain non-consensual creditors; to standardise remedies and enforcement mechanisms, including private sale, judicial sale, interim relief, and immobilisation, in coherence with the Arrest Conventions and UNCITRAL's work on the Judicial Sale of Ships; and to generate measurable economic benefits such as reduced financing spreads, improved credit availability, lower fire-sale discounts, and increased cross-border investment in maritime assets. Beneficiaries of the reform include shipowners through reduced financing costs, lenders and lessors through enhanced recovery expectations, registries and courts through simplified and harmonised procedures, and purchasers through strengthened certainty of title, while the broader shipping market, including developing jurisdictions, stands to gain from increased liquidity and expanded access to capital.

40. The resulting instrument could have a broader or more limited scope. For instance:

➤ **Broad scope**

- *Scope of application*: The Maritime Protocol would cover security interests over ships and maritime equipment (e.g., mobile offshore platforms). Regarding "ships", the Maritime Protocol would include an international definition.
- *Relationship with national registers*: The Protocol would clarify the legal effects of registration in the International Register *vis-à-vis* registration in a national register (e.g., company register).
- *Non-consensual security*: The Protocol would focus on consensual security interests. However, provisions in the Convention limiting and clarifying the operation of non-consensual security interests remain applicable.
  - Non-consensual security interests (maritime liens) would only have priority over registered international interests to the extent that they were subject to a declaration made by a Contracting State pursuant to Article 39<sup>7</sup> or Article 40<sup>8</sup> of the Cape Town Convention and complied with the requirements of those Articles.
- *Retention of title and leasing*: In line with the Convention, the Maritime Protocol would cover retention of title and leasing agreements as alternative agreements on which to base proprietary security.
  - Retention of title agreements concerning ships are unusual in secured transactions in relation to ships (as opposed to cargo, equipment and freight), but the possible advantages of such contracts in the shipping context could be explored. Leasing agreements are commonly and increasingly used in shipping finance (e.g., "bareboat charter" or "demise charter" contracts) but are usually not regarded as secured transactions.
- *Available remedies*: The Maritime Protocol would harmonise the available remedies for mortgage and hypothecation of ships (i.e., no longer distinguishing between the traditional options of effecting a private sale or judicial sale).

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<sup>7</sup> Art. 39(1)(a) of the Cape Town Convention allows each Contracting State to deposit with the Depositary a list of categories of non-consensual rights or interests that have priority over an interest equivalent to a registered international interest under the national law of the Contracting State and which are to have priority over registered international interests under the Convention.

<sup>8</sup> According to Art. 40 of the Cape Town Convention, each Contracting State may deposit with the Depositary a list of non-consensual security interests which will be registrable under the Convention as if they were registrable international interests and which will be regulated accordingly. This includes the determination of the priority status according to the order of registration.

- *Jurisdiction*: In line with the Cape Town Convention, jurisdiction clauses<sup>9</sup> would be upheld and enforced in respect of all the issues governed by the Maritime Protocol.<sup>10</sup>

➤ **Limited scope:**

- *Scope of application*: The Maritime Protocol would cover only security interests over ships.
- With regard to “ships”, the exact scope of application of the Maritime Protocol would be defined by reference to the scope of the registration requirement under the applicable national shipping registers.
- *Relationship with national registers*: The Protocol would not address possible double registration requirements (i.e., in the International Register and in a national debtor-indexed register).
- *Non-consensual security*: The Protocol would focus on consensual security interests. Articles 39 and 40 of the Convention would not be applicable.
- *Retention of title and leasing*: The Maritime Protocol would exclude retention of title and leasing agreements from its scope.
- *Available remedies*: The Maritime Protocol would uphold the traditional distinction in available remedies for mortgage and hypothecation of ships (i.e., private sale or judicial sale). This would require specific rules in the Protocol, since the Cape Town Convention generally refers to the remedy of “sale” of the collateral,<sup>11</sup> which should be understood as referring to a private sale.
- *Jurisdiction*: The rules on the protection of jurisdiction clauses in the Cape Town Convention would be excluded from the scope of the Maritime Protocol or restricted to specific issues.<sup>12</sup>

➤ **What is the expected implementation (e.g., number of ratifications, degree of adoption, etc.)?**

41. Implementation is expected to occur through ratification or accession by states, followed by domestic implementing legislation and practical adaptation by courts, registries, financiers and maritime authorities. Initial adoption may be expected among states with significant shipping registries, active ship-finance markets, or strong reliance on maritime trade. A plausible initial uptake could involve approximately 30-50 states, including Contracting States to the Cape Town Convention, UNIDROIT’s 65 Member States and the top ten ship-owning economies in terms of cargo carrying capacity and/or the most important flag states, with broader participation developing over time as network benefits become more visible.

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<sup>9</sup> Clauses of the parties concerning the choice of the forum for disputes arising under their contract.

<sup>10</sup> See Art. 42 of the Cape Town Convention, according to which the courts of a Contracting State chosen by the parties to a transaction have exclusive jurisdiction, unless otherwise agreed between the parties, in respect of any claim brought under the Convention, whether or not the chosen forum has a connection with the parties or the transaction.

<sup>11</sup> See Art. 8(1)(b).

<sup>12</sup> E.g., the 1952 and 1999 Conventions already provide for the enforceability of jurisdiction clauses with regard to the specific issue of whether a court at the place where a ship has been arrested may exercise jurisdiction for a decision on the merits of the case.

➤ **What are the possible alternative legislative options considered, and what is the foreseen nature of the instrument (soft law or hard law)?**

42. Possible alternatives include a broad Maritime Protocol, a more limited Maritime Protocol, or a non-binding soft law instrument. A soft law instrument is not considered a valid alternative given that it would not provide for an international registry with global application and could not sufficiently reach the objective of enhancing legal certainty. The preferred option is therefore a legally binding hard law instrument in the form of a Protocol to the Cape Town Convention, with the precise scope depending on whether the reform adopts a broad or limited model.

**3. Key assumptions**

➤ **What are the main assumptions for this evaluation?**

43. The main assumptions in this economic evaluation are that shipowners and operators, particularly small and medium-sized enterprises, face significant difficulties navigating fragmented mortgage, arrest, and judicial sale procedures, which increase transaction costs and discourage cross-border operations; that enforcement delays and immobilisation periods materially erode vessel value, producing measurable losses exacerbated by procedural inconsistencies across jurisdictions; that existing maritime lien regimes, though essential for protecting certain creditor classes, introduce uncertainty for secured lenders due to variations in scope and priority; that current ship registries lack interoperability and do not offer a global, searchable system comparable to the Aircraft or Rail International Registries; and that a harmonised secured-transactions regime would materially reduce legal risk and transaction costs, consistent with economic outcomes observed under the Aircraft and MAC Protocols. The reform is assumed to operate in coherence with existing maritime instruments, including the Cape Town Convention.

44. Main assumptions in this EE are the following:

- Economies in need of reform face financial constraints in purchasing ships or maritime equipment;
- Loan terms and maturities are assumed to reflect prevailing market practice in ship finance and are not independently altered by macroeconomic shocks during the assessment period – real GDP is assumed to increase on average a certain percentage during the assessment period;
- There are no supply-side constraints in case of an increased demand for ships (suppliers have the capacity to respond to increased demand for shipping parts), etc.;
- The ship finance market is assumed to be sufficiently competitive (among banks, export credit agencies, leasing entities, and alternative financiers) such that reductions in expected loss translate into improved borrower terms;
- Demand for ship finance is assumed to be flexible with respect to financing costs;
- There is no major disruptive technological shock that would independently dominate asset values during the assessment period;
- Exchange rate movements are assumed not to systematically bias the estimated effects of legal reform on financing costs.

➤ **What are the law-related assumptions?**

45. It is assumed that the Cape Town Convention system, and any prospective Maritime Protocol, would be effectively implemented and applied by Contracting States so as to achieve

a meaningful degree of legal harmonisation across otherwise divergent domestic regimes governing property, secured transactions, and insolvency. Additionally, the EE assumes that international interests created under the Convention would be recognised, accorded priority, and enforced by national courts in accordance with the Convention and any relevant Protocol, supported by the reliable operation of a single international registry conferring clear and predictable priority effects.

46. The analysis further presumes that insolvency-related provisions would reduce legal uncertainty and repossession delays relative to the existing fragmented maritime law framework, and that potential conflicts with maritime liens and other non-consensual rights would be either excluded from the Convention's scope or sufficiently clarified so as not to undermine creditor confidence.

47. Finally, it is assumed that market participants respond rationally to enhanced legal certainty and that domestic courts interpret and apply the Convention in good faith, consistently with its international character and objectives.

## D. BENCHMARK

### 1. **Benchmark**

#### ➤ **Does a Benchmark already exist, or does it need to be constructed?**

48. Several potential Benchmarks exist, but none individually provides a complete and sufficient reference point for evaluating a future Maritime Protocol under the Cape Town Convention (CTC). The Cape Town Convention provides the overarching model for secured transactions in high-value mobile equipment.

49. The Cape Town Convention is applied to different sectors through individual Protocols. The four existing Protocols are: (i) the Aircraft Protocol (2001); (ii) the Luxembourg Rail Protocol (2007); (iii) the Space Protocol (2012); and (iv) the Mining, Agricultural and Construction (MAC) Protocol (2019).

50. In the aircraft sector, where the regime of the Cape Town Convention is already in operation, several studies have shown that the application of these principles has a hugely beneficial overall economic effect. This is also reflected in the Aircraft Sector Understanding of the Organisation for Economic Cooperation and Development (OECD), which allows export credit agencies to charge lower premiums on the financing provided to buyers or lessees that are located in Contracting States to the Cape Town Convention and Aircraft Protocol.

51. By virtue of a possible Maritime Protocol, these general rules of the Cape Town Convention could be applied to security over ships and maritime equipment as well. The Aircraft Protocol, Rail Protocol, and Space Protocol each offer relevant conceptual and structural elements; however, they do not address the specific characteristics of ships and maritime transport equipment, such as maritime liens, registration systems, international safety and classification regimes, and special insolvency rules. Additional instruments exist within UNCITRAL's maritime law work, but they focus on maritime transport obligations and liability, not secured financing of maritime equipment. Therefore, a constructed Benchmark is required. This Benchmark will be an integrated model, drawing primarily from the Cape Town Convention and its Protocols, complemented by select provisions and principles from UNCITRAL instruments relevant to ships.

#### ➤ **What is/are the relevant Benchmark(s)?**

52. The relevant Benchmarks consist of three groups: A. Primary Benchmarks, B. Secondary Benchmarks, and C. Supplementary Guidance Instruments.

#### **A. Primary Benchmarks (Core Models Based on the Cape Town System)**

##### **Cape Town Convention (2001)**

53. The Cape Town Convention (CTC) provides the foundational secured-transactions framework for high-value mobile equipment. It is particularly relevant for highly specialised, internationally regulated assets. It provides interaction frameworks with sector-specific authorities, clear rules for the creation and enforcement of international interests, and tailored remedies suitable for the unique nature of space equipment.

54. The CTC establishes key elements such as: creation and recognition of international interests; registration and priority rules; default and enforcement mechanisms; and insolvency

remedies. The Maritime Protocol would form part of the Cape Town family of instruments. Therefore, the Convention constitutes the central conceptual and structural Benchmark.

55. The Cape Town Convention provides the foundational framework for secured transactions in high-value mobile equipment, including aircraft, railway rolling stock, and space assets. It establishes the key structural and legal elements relevant for a Maritime Protocol:

- Creation and Recognition of International Interests.
- The Convention allows creditors to create internationally recognised security interests in mobile equipment, which are enforceable across jurisdictions. It provides legal certainty regarding ownership, priority, and enforceability, reducing transaction costs and risk for financiers.
- Registration System.
- The Cape Town Convention establishes a centralised international registry (e.g., the International Registry for Aircraft Equipment), enabling global searchability, priority verification, and transparency of security interests. This registry mechanism is a critical feature that can be adapted for maritime assets.
- Default and Enforcement Mechanisms.
- The Convention defines creditor rights upon default, including repossession and remedies, providing predictable and harmonised enforcement procedures. These mechanisms improve asset liquidity and reduce legal uncertainty.
- Insolvency and Remedies.
- Rules for insolvency proceedings, including protection of secured creditors and recognition of international interests in cross-border insolvency, serving as a precedent for maritime assets that may face similar risks in multi-jurisdictional contexts.

### **Aircraft Protocol (2001)**

56. The most developed and successful Protocol within the Cape Town Convention framework is the Aircraft Protocol (2001). It provides a comprehensive model for asset identification, the operation of the International Registry, and the implementation of efficient creditor remedies. Key features include the use of unique identifiers for aircraft, structured qualifying declarations that allow Contracting States to tailor certain obligations, and well-defined default and enforcement mechanisms. Extensive *ex-post* economic studies, including those by the OECD, demonstrate the substantial financial benefits of this Protocol, including lower financing costs, improved liquidity, and enhanced access to credit.

57. The Aircraft Protocol establishes the creation and recognition of international interests in aircraft, providing financiers with secure and predictable legal claims that reduce uncertainty and increase confidence in cross-border financing. It operates through a centralised International Registry, allowing creditors to register interests electronically and providing unique identifiers for each aircraft, which enhances transparency, facilitates verification of claims, and reduces ownership or lien disputes. The Protocol also sets clear priority rules among competing creditors and detailed enforcement procedures for defaults, including repossession, sale, and insolvency remedies, thereby lowering transaction costs and shortening enforcement timelines. Contracting States may adopt qualifying declarations to tailor certain rules to domestic legal systems without undermining overall legal certainty, promoting broader adoption. Extensive *ex-post* studies, including those by the OECD and the Aviation Working Group, show that the Protocol reduces financing costs, improves liquidity, and increases access to credit, particularly for airlines in emerging markets, yielding measurable gains in investment efficiency and sector growth. Serving as a practical model for

other high-value, mobile equipment sectors, including maritime vessels, the Aircraft Protocol demonstrates how clear asset identification, harmonised registry systems, and enforceable creditor rights can enhance market efficiency and reduce financing risks.

### **Luxembourg Rail Protocol (2007)**

58. It offers guidance on identification systems for mobile transport equipment and registry design based on unique vehicle numbers, ensuring the clear recognition of assets across multiple jurisdictions. It provides rules for registering transnational rail assets, establishing priority, and reducing legal uncertainty for creditors operating in cross-border markets.

59. The Luxembourg Rail Protocol (2007) builds on the framework of the Cape Town Convention to provide a secured-transactions system for railway rolling stock and other rail transport equipment. It establishes the creation and recognition of international interests in rail assets, offering financiers legal certainty and predictable claims across borders. Central to the Protocol is a registry system that assigns unique identifiers to each rail asset, allowing creditors to register interests electronically, ensuring transparency, reducing disputes over ownership or liens, and facilitating cross-border financing. The Protocol also defines priority rules among competing creditors and sets out enforcement mechanisms in the event of default, including repossession and remedies in insolvency, which reduces transaction costs and shortens enforcement timelines. Contracting States may adopt qualifying declarations to adjust certain provisions to their domestic legal systems while remaining compliant with the Protocol, supporting broader adoption. By harmonising asset identification, registry systems, and creditor rights, the Luxembourg Rail Protocol enhances the efficiency of the international rail financing market, mitigates risks for lenders, and serves as a model for other high-value, mobile equipment sectors such as maritime transport.

### **Space Protocol (2012)**

60. The Space Protocol (2012) extends the Cape Town Convention framework to cover space assets, including satellites and related equipment, which are highly specialised and subject to extensive international regulation. It establishes the creation and recognition of international interests in space assets, providing financiers with legal certainty and enforceable claims across jurisdictions. The Protocol incorporates a centralised registry system with unique identifiers for each space asset, ensuring transparency, reducing disputes over ownership or liens, and facilitating cross-border financing. Clear priority rules among competing creditors and defined enforcement procedures, including repossession and remedies in the event of default or insolvency, further enhance market predictability and reduce transaction costs. Contracting States can issue qualifying declarations to adapt specific provisions to domestic legal systems while maintaining compliance with the Protocol, promoting wider adoption. By harmonising registry systems, creditor rights, and enforcement mechanisms for a complex and internationally regulated sector, the Space Protocol improves access to finance, mitigates risk for lenders, and provides a template for other high-value, mobile equipment sectors such as maritime transport.

## **B. Secondary Benchmarks (Relevant International Maritime Instruments)**

61. These instruments do not provide a secured-transactions regime but establish the existing legal environment for ships and maritime transport equipment:

- Brussels International Convention for the Unification of Certain Rules of Law relating to Maritime Liens and Mortgages (1967);
- Geneva International Convention on Maritime Liens and Mortgages (1993);
- Brussels International Convention relating to the Arrest of Seagoing Ships (1952);

- Geneva International Convention on Arrest of Ships (1999);
- Beijing Convention on the International Effects of Judicial Sale of Ships (2022).

62. These are relevant because they define maritime liens with priority over mortgages, rules for recognition and ranking of mortgages, enforcement rights attached to ship mortgages, permissible grounds for arrest, jurisdictional rules, and protection of maritime claimants.

63. In addition, secondary Benchmarks comprise existing international maritime instruments that, while not establishing a secured-transactions regime, define the legal environment for ships and maritime transport equipment.

64. These include the Brussels and Geneva Conventions on Maritime Liens and Mortgages (1967 and 1993), which clarify the hierarchy and enforceability of liens versus mortgages; the Brussels and Geneva Conventions on Arrest of Seagoing Ships (1952 and 1999), which establish permissible grounds for ship arrest, jurisdictional rules, and procedures to protect maritime claimants; and the Beijing Convention on the International Effects of Judicial Sale of Ships (2022), which aims to provide a harmonised framework for judicial sales of vessels. Collectively, these instruments ensure the recognition and ranking of security interests, define enforcement rights, and establish creditor protections while outlining the limitations of current maritime financing mechanisms.

### **C. Supplementary Guidance Instruments**

65. These further instruments complement the construction of a Maritime Protocol: UNCITRAL Legislative Guide on Secured Transactions (2007); IMO Conventions: International Convention for the Safety of Life at Sea (SOLAS, 1974); International Convention for the Prevention of Pollution from Ships (1973) as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL); and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW, 1995).

66. The supplementary guidance instruments provide general principles on secured transactions that help fill conceptual gaps not covered by the CTC by addressing issues not exhaustively regulated under its framework. In particular, they help fill conceptual gaps relating to conflict-of-laws rules, asset-based financing structures, priority frameworks, asset identification, and registry design, all of which are relevant to the development of a Maritime Protocol.

67. The UNCITRAL Legislative Guide on Secured Transactions (2007) offers a comprehensive set of principles on secured financing, including the design of priority rules, registration systems, and conflict-of-laws solutions, which can inform the structuring of a unified and functionally coherent international registry for ships and maritime equipment.

68. The IMO Conventions, including SOLAS, MARPOL, and STCW, provide the technical and operational infrastructure necessary for the effective identification and regulation of ships. In particular, the IMO Number System introduced under SOLAS ensures standardised and globally recognised ship identification, and it facilitates interoperability between an international registry under a Maritime Protocol and existing flag-state and port-state control systems.

69. Taken together, these supplementary instruments supply the conceptual, legal, and operational foundations required for designing a harmonised secured-transactions regime for ships and maritime equipment. They support both economic efficiency and legal predictability without duplicating the normative function of the CTC itself.

- **Is this the appropriate context? Does it reflect the ideally economically beneficial law in the reform’s area of law?**

70. Benchmarks reflect an economically beneficial approach to a maritime protocol to the Cape Town Convention addressing ships and maritime transport equipment by promoting efficiency, accessibility, and cost reduction. They align with the reform’s area of law by addressing the primary legal and economic frictions that hinder efficient ship finance challenges.

- **Does the Benchmark align with the reform’s objectives and policy goals? Does the Benchmark correspond to one or more aspects of the law reform?**

71. The constructed Benchmark, centred on the Cape Town Convention architecture and supplemented by maritime lien, mortgage, arrest, and judicial-sale instruments, maps directly onto the reform’s objectives.

- **Does the Benchmark correspond to one or more aspects of the law reform?**

72. Each Benchmark covers several aspects of the law reform. Together, they could serve as a useful guide for designing a system that meets the specific needs of a Protocol that would produce measurable legal and market effects once widely adopted. However, it is not possible for each individual Benchmark to correspond to multiple aspects of the law reform. For example, the Cape Town Convention provides the core framework for creating and recognising international interests, establishing priority rules, and designing an enforceable registry system, directly aligning with the Protocol’s objectives to harmonise secured transactions for ships and maritime equipment. The Aircraft Protocol illustrates effective creditor remedies, qualifying declarations, and registry operations, providing practical lessons for implementing similar mechanisms in the maritime context.

73. Secondary Benchmarks, such as the Brussels and Geneva Conventions on maritime liens and arrests, address creditor protections, enforcement priorities, and procedural safeguards, informing the Protocol’s treatment of non-consensual claims and legal certainty. Supplementary guidance instruments, including the UNCITRAL Legislative Guide and IMO regulatory frameworks, offer principles on asset identification, registry design, and technical integration with existing maritime standards. Together, these Benchmarks map onto multiple reform objectives, legal certainty, efficiency, creditor protection, and registry functionality, demonstrating how each contributes to the overall law reform, even if no single Benchmark fully covers all aspects.

- **Does the Benchmark have a similar binding nature and enforceability to the proposed law reform?**

74. The binding nature and enforceability of each Benchmark varies; the Cape Town Convention is structurally identical in legal form to the proposed Maritime Protocol. In practice, enforceability and uniformity depend on the degree of ratification and qualifying declaration by Contracting States.

## 2. **The constructed Benchmark**

### ➤ **What are the relevant Benchmarks to form part of the constructed Benchmark?**

75. There are three groups of existing Benchmarks:

#### **A. Primary Benchmarks (Core Models Based on the Cape Town System)**

- Cape Town Convention (2001)
- Aircraft Protocol (2001)
- Luxembourg Rail Protocol (2007)
- Space Protocol (2012)

#### **B. Secondary Benchmarks (Relevant International Maritime Instruments)**

- Brussels International Convention for the Unification of Certain Rules of Law relating to Maritime Liens and Mortgages (1967)
- Geneva International Convention on Maritime Liens and Mortgages (1993)
- Brussels International Convention relating to the Arrest of Seagoing Ships (1952)
- Geneva International Convention on Arrest of Ships (1999)
- Beijing Convention on the International Effects of Judicial Sale of Ships (2022)

#### **C. Supplementary Guidance Instruments**

- UNCITRAL Legislative Guide on Secured Transactions (2007)
- IMO Conventions: International Convention for the Safety of Life at Sea (SOLAS, 1974); International Convention for the Prevention of Pollution from Ships (1973) as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL); International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW, 1995)

### ➤ **What aspects do the existing Benchmarks cover?**

76. The existing Benchmarks under the Cape Town Convention framework cover the essential components of the proposed law reform. However, while they align with many reform objectives, they vary in binding nature and applicability, requiring further adaptation for broader implementation.

### ➤ **What are the main features of the constructed Benchmark?**

77. The constructed Benchmark for the Maritime Protocol is an integrated model that combines the core legal architecture of the Cape Town Convention with the specific legal and economic characteristics of maritime assets. It is anchored in the Convention's fundamental features, including the concept of an international interest, a notice-based international registry, clear priority rules, and uniform enforcement and insolvency remedies, ensuring consistency with the established Cape Town system.

78. At the same time, the Benchmark is adapted to the maritime context. It accommodates maritime liens, ship arrest, judicial sale, and flag-state registration regimes, drawing on

existing maritime conventions and UNCITRAL work to ensure legal realism and operational feasibility. It also incorporates sector-appropriate asset identification and registry design, notably through the use of IMO numbers and coordination between an international registry and national ship registers.

79. Economically, the Benchmark is designed to enhance legal certainty, reduce transaction costs, and improve access to ship finance, reflecting the proven benefits observed under the Aircraft Protocol. Finally, while informed by instruments with varying legal force, the Benchmark is treaty-based in structure and mirrors the binding nature and enforceability of the proposed Maritime Protocol, making it a coherent and authoritative reference for law reform.

### **(i) Expedited and Commercially Oriented Dispute Resolution**

80. The Benchmark should incorporate simplified and expedited mediation and arbitration procedures tailored to maritime disputes, where delay can undermine the value of security and disrupt ongoing commercial activity. Drawing inspiration from expedited procedures under instruments such as the ICC Arbitration Rules or WIPO Expedited Arbitration Rules, the Benchmark should emphasise short procedural timelines, limited written submissions, and focused evidentiary phases.

81. Procedural simplicity is particularly important in maritime finance and shipping disputes, which often involve standardised contracts (e.g. charterparties, ship finance agreements, equipment leases) and recurring factual patterns. The use of a sole arbitrator or neutral for lower-value or technically standardised cases can significantly reduce costs without sacrificing legal certainty. Time efficiency is a defining advantage: expedited procedures minimise disruption to shipping operations, reduce the time during which ships or maritime equipment remain unused, immobilised, or unable to operate because of legal disputes and enforcement delays, and preserve the economic value of vessels and maritime equipment.

82. Affordability should also be an integral element of the Benchmark. By limiting procedural complexity and administrative layers, and by adopting transparent and proportionate fee structures, the Benchmark can ensure accessibility for a broad range of maritime actors, including small and medium-sized shipowners and operators. In this way, expedited dispute resolution enhances both efficiency and confidence in the legal framework governing maritime transactions.

### **(ii) Targeted Use of Technology in Maritime Dispute Resolution**

83. Technological integration should be a core component of the constructed Benchmark, reflecting the inherently transnational and mobile nature of maritime commerce. The use of digital platforms for virtual hearings, electronic filings, and secure document management significantly reduces logistical and financial barriers in disputes involving parties, vessels, and evidence spread across multiple jurisdictions.

84. Technology is particularly valuable in urgent maritime matters, such as interim relief, enforcement of security interests, or disputes arising during ongoing voyages. Digital procedures reduce the need for physical presence, lower travel and accommodation costs, and allow proceedings to continue notwithstanding the geographic location of vessels or crew. Electronic documentation further reduces transaction costs by eliminating paper-based processes and facilitating rapid access to technical and contractual records.

85. In addition, translation technologies can mitigate linguistic barriers commonly encountered in maritime disputes, while data-driven tools may assist in managing repetitive

disputes arising from standard-form shipping contracts. Although initial investment in technological infrastructure and training is required, the long-term gains in efficiency, consistency, and cost reduction make technology an essential feature of a credible maritime Benchmark.

### **(iii) Effective Cross-Border Enforceability**

86. Enforceability is a decisive feature of the constructed Benchmark, particularly in the maritime sector where assets are mobile and enforcement opportunities may be fleeting. The Benchmark should therefore be designed to operate in close alignment with established international enforcement instruments, most notably the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

87. By ensuring compatibility with widely accepted enforcement regimes, the Benchmark reduces legal uncertainty and lowers enforcement costs for creditors and commercial parties. This is especially important in maritime finance, where the economic value of dispute resolution depends on the ability to enforce decisions swiftly against vessels or related assets across jurisdictions.

88. Where appropriate, the Benchmark should also be capable of interacting coherently with existing maritime enforcement mechanisms, such as ship arrest and judicial sale procedures, without generating conflict with domestic priority rules or insolvency frameworks. By embedding enforceability within recognised international and regional legal structures, the Benchmark strengthens legal certainty, enhances market confidence, and supports efficient cross-border maritime transactions.

### **3. Ex-post economic studies**

89. Saunders et al. (1998), Linetsky (2009), and Honnebier (2017) provide background literature on the economic and legal effects of the Cape Town Convention system in the aircraft sector. These studies examine how enhanced creditor protection, international registration, clearer priority rules, and more predictable enforcement may reduce financing costs, improve access to credit, and support asset-based financing.

90. Warwick Economics & Associates (2018) and Bian (2020) provide broader economic evidence on the effects of harmonised secured-transactions frameworks and creditor-protection regimes. These studies examine how legal harmonisation and stronger creditor protection may generate productivity gains, improve capital allocation, increase investment, and produce wider economic benefits.

91. Böger (2016) and Rodríguez Delgado (2018) focus more directly on the legal and commercial rationale for a possible Maritime Protocol. These studies identify the fragmentation of existing ship-finance rules, the limits of current maritime conventions, the interaction between consensual security interests and maritime liens, and the need for clearer priority, registration, and enforcement rules in the maritime sector.

92. Franks et al. (2015) provide maritime-sector evidence on enforcement, financial distress, and ship auctions. This study addresses how enforcement mechanisms, asset sales, and distress-resolution practices operate in the shipping industry, which is directly connected to the expected effects of a Maritime Protocol on creditor recovery, asset liquidity, and enforcement efficiency.

93. Table 1 summarises these studies in greater detail and indicates how their findings may inform the *ex-ante* assessment of the proposed Maritime Protocol.

**Table 1: Summary of *ex-post* studies**

No.	Source	Focus of the Study	Summary of Main Arguments/ Findings
1	Saunders, Anthony et al. (1998)	Microeconomic benefits include benefits to airlines, passengers, governments, aviation industry investors.	The study concludes that the potential gains are both substantial and complementary, accruing specifically to (1) end-users of the affected aircraft equipment, notably airlines along with their employees, shareholders, and customers; (2) governments and national economies, through improved transportation infrastructure, optimised external debt management, and increased commercial activity; and (3) manufacturers and their shareholders, employees, and suppliers. The study further demonstrates the mutuality and economic significance of these gains with reference to the commercial aircraft sector, which, in turn, strongly supports the rationale for designing and implementing the corresponding legal reforms.
2	Warwick Economics & Associates, MAC Protocol Economic Assessment (2018)	Economic assessment of the proposed MAC Protocol to the 2001 Cape Town Convention and an estimate of its potential impact	Countries hosting MAC equipment manufacturers are projected to experience significant growth in economic output due to an estimated \$90 billion increase in production and exports over the ten-year assessment period. This corresponds to an additional GDP of approximately \$7 billion per year for exporting economies. Some countries may also benefit from the insolvency provisions in the MAC Protocol, although these gains are not quantified in the present study. When combining the GDP gains in both emerging and developing economies with those in equipment-exporting countries, the total estimated impact on global GDP would amount to roughly \$30 billion per year over the ten-year period.
3	Linetsky, Vadim (2009)	The Dynamic Asset Financing	Borrowers with below-investment-grade ratings (below BBB-) benefit

No.	Source	Focus of the Study	Summary of Main Arguments/ Findings
		model was applied to assess the economic benefits of the ratification of the Cape Town Treaty and its Aircraft Protocol (C.T.T.) with qualifying declarations permitting prompt enforcement.	from a reduction in risk spreads equivalent to a one- to two-notch credit rating upgrade when the expected repossession delay is shortened from the global average of ten months to two months.
4	Böger, Ole (2016)	The case for a new Protocol to the Cape Town Convention covering security over ships	Previous efforts to achieve legal harmonisation in this area have largely been unsuccessful. The Cape Town Convention system, however, with its core features, establishing an international proprietary interest and providing a single, uniform international registration system, is expected to gain broader support, in part by circumventing the highly contentious issue of maritime liens, namely non-consensual security over ships.
5	Rodríguez Delgado, Juan Pablo (2018)	Security Interests over Ships: From the Current Conventions to a Possible Shipping Protocol to UNIDROIT - Lege Data and Lege Ferenda	This paper seeks to address the following objectives: (1) to examine the principal legal and practical challenges that a new instrument would encounter in maritime law, including the specific characteristics of the shipping industry, the relationship with financial institutions, potential conflicts with other conventions, and issues arising from international maritime liens versus non-consensual rights or interests; (2) to analyse the challenges related to consensual security interests, particularly regarding their creation, validity, priority rules, recognition, and enforcement, all of which are largely governed by domestic law; and (3) to assess whether the dual structure model (Convention and Protocol), along with the flexibility provided by reservations and declarations, can

<b>No.</b>	<b>Source</b>	<b>Focus of the Study</b>	<b>Summary of Main Arguments/ Findings</b>
			effectively address the main problems faced by the financial industry.
<b>6</b>	Franks, Julian et al. (2015)	Empirical evidence on enforcement, distress resolution, and ship auctions	The shipping industry with its multitude of jurisdictions might be expected to provide for disorderly defaults; whereas in fact this industry is close to Hayek's "spontaneous order".
<b>7</b>	Bian, Bo (2020, Working Paper)	Difference-in-difference (DiD) study of creditor protection harmonisation and productivity gains	Shows that harmonised creditor-protection frameworks enable more efficient capital reallocation, producing significant productivity gains; supports modelling assumptions about efficiency improvements under a Maritime Protocol
<b>8</b>	Honnebier, Patrick (2017)	The Effects of the Cape Town Convention on Four Selected Issues That Hinder the International Financing and Leasing of Aircraft and Engines	Under all circumstances the owner of the aircraft becomes the owner of the engine as soon as the latter object is installed in the former. The Cape Town Convention stipulates that engines are separately financed and leased from the aircraft. Finally, some concluding remarks are made.

## E. DATA AND CONCEPTUAL CAUSAL LINKS

### 1. Data

#### ➤ **What data sources are used for the EE?**

94. The economic evaluation relies on a variety of data sources, such as:

- *Ex-post* economic studies on maritime transport efficiency;
- Reports from international organisations;
- National trade and investment statistics.

#### ➤ **What data should be collected (data mapping)?**

95. Key data includes market and legal data on ship financing structures, interest rates, ship arrest and enforcement statistics, risk assessment indicators, compliance cost, and capital flow trends into maritime industries.

#### ➤ **What data is collected (data collection)?**

96. The collected data includes both legal and economic indicators:

- On the legal side, data covers the number and nature of maritime disputes, enforcement timeframes for ship arrest, effectiveness and predictability of security interests, and compatibility of national ship registries;
- On the economic side, the data includes cost of capital for ship financing and leasing transactions, impact on interest rate spreads for secured maritime lending, port operations efficiency, and administrative and legal costs associated with maritime security interests and enforcement.

#### ➤ **Which qualitative and quantitative methods could be used for data collection?**

97. A combination of qualitative and quantitative methods are used to ensure a comprehensive assessment:

- Quantitative methods: Statistical analysis comparing ship financing conditions before and after the reform, cost-benefit modelling for stakeholders;
- Qualitative methods: case study analysis of judicial and arbitral decisions on ship arrest and secured transactions.

#### ➤ **Is there any data limitation? If yes, please explain how this limitation may affect the overall analysis.**

98. Yes. The principal data limitation lies in the scarcity of *ex-ante* empirical studies specifically addressing the economic and legal impacts of a harmonised secured-transactions regime for ships and maritime transport equipment. Most of the available evidence is derived from *ex-post* assessments of comparable instruments, particularly the Cape Town Convention and its sector-specific Protocols, or from broader studies on ship finance and maritime enforcement. This reliance on analogical evidence may affect the precision of quantitative projections, as sectoral differences between aviation, rail, and maritime markets may influence the magnitude and timing of expected effects. As a result, while the direction of the impacts

can be assessed with reasonable confidence, the exact scale of the anticipated benefits should be interpreted with appropriate caution.

➤ **How reliable are the data sources?**

99. The data sources used in this analysis – including official reports by international organisations, peer-reviewed academic studies, and institutional and industry databases – are generally reliable and widely cited in both legal and economic scholarship. However, differences in data collection methods, legal definitions, and reporting standards across jurisdictions may affect cross-country comparability. Notably, variations in how enforcement delays, creditor recovery rates, and insolvency outcomes are measured can introduce methodological inconsistencies that limit the direct aggregation of results.

➤ **Is the collected data complete, current and reliable?**

100. While the collected data is sufficiently reliable to support a qualitative and semi-quantitative assessment, it is not fully complete or uniformly current across all jurisdictions. Gaps remain in relation to developing economies and high-risk maritime markets, where publicly available data is often limited. Future research based on standardised data collection frameworks and more recent empirical observations – particularly following the implementation of new international instruments – would enhance the accuracy, comparability, and overall robustness of the analysis. Future research and standardised data collection methods would improve accuracy and comprehensiveness.

## **2. Conceptual causal links**

➤ **Are there conceptual causal links between Factors?**

101. Yes, there are clear and well-established conceptual causal links between the legal, economic, and institutional factors examined in this study. In particular, the design of secured-transactions regimes, enforcement mechanisms, and registry systems is closely linked to financing conditions, creditor risk assessments, and investment decisions in the maritime sector.

➤ **Which types of conceptual causal links do exist (direct or indirect)?**

102. Both direct and indirect impact exist between different factors. Direct causal links arise, for example, where legal certainty and enforcement efficiency directly reduce creditor risk and borrowing costs. Indirect causal links operate through intermediate variables, such as improved access to finance leading to increased fleet investment, enhanced asset liquidity, and broader macroeconomic effects in shipping-dependent economies.

### **Direct causal links**

103. The introduction of a Maritime Protocol (Factor A) directly increases legal certainty for financiers, allowing them to lower the cost of credit and expand the availability of financing. This directly benefits investors in the maritime sector and owners of ships and maritime equipment, encouraging greater investment and asset acquisition.

104. The establishment of a uniform international framework for ship and maritime equipment financing (Factor B) directly enhances operational efficiency for financiers and shipping companies across borders. It also reinforces the implementation of the Protocol (Factor D) by providing a coherent set of rules aligned with existing international instruments,

thereby reducing legal uncertainty for stakeholders and supporting cross-border financing activities (Factor C).

### **Indirect causal links**

105. Widespread adoption and recognition of the Maritime Protocol (Factor B) indirectly stimulate economic activity throughout maritime supply chains, affecting manufacturers, exporters, and importers of ships and maritime equipment (Factor C). The resulting increase in investment and trade confidence strengthens the broader financial markets in the maritime sector (Factor A).

106. Reductions in financing costs due to improved legal certainty (Factor A) indirectly support the financial sustainability of maritime operators and related industries (Factor C). This, in turn, encourages more states to ratify and implement the Protocol, thereby expanding the reach of uniform rules and increasing the overall efficiency of the global maritime financing network (Factor B).

#### **➤ What is the level of intensity of conceptual causal links (weak or strong)?**

107. The conceptual causal links of the Maritime Protocol are generally strong. Direct effects, such as increased legal certainty reducing financing costs and encouraging investment by shipowners and financiers, are well-supported by precedent from the Cape Town Convention. Indirect effects, including enhanced cross-border trade and stronger supply chains, are also significant, though somewhat influenced by broader economic conditions and the pace of adoption. Overall, the Protocol's legal and economic mechanisms are expected to produce clear and meaningful impacts.

## F. ECONOMIC SCORE

### 1. Methodology

#### Framework

$$ES = \left[ \left[ A + B + C \right] \times D \right] / 3 - E$$

With level of certainty (%)

Where -

**ES** is the Economic Score indicating the expected relative economic variation from a Benchmark [range: - 1 to 10].

**A** is the net, direct gain of the new rules [range: 0 to 10].

**B** is the net gain of the new rules as a network [range: 0 to 10].

**C** is the net systemic (including developmental) impact of the new rules [range: 0 to 10].

**D** is the extent that the new rules will be effectively applied by courts, authorities and private actors [range: 0 to 1].

**E** is the expected total net cost of creating and transitioning to the new rules [range: 0 to 1].

**Level of Certainty** is the qualitative assessment of confidence, or certainty, of the occurrence of the impacts.

### 2. Factors

Factors	Score (relative to Benchmark)	Main justification
A	7	The Maritime Protocol is expected to deliver strong direct economic benefits by reducing legal uncertainty, transaction costs, and enforcement risk in secured ship financing, thereby improving loan terms and access to credit, while remaining below the

		Benchmark due to the continued complexity of maritime liens and enforcement regimes.
B	7	The Maritime Protocol is expected to generate meaningful benefits, though these will develop gradually over time constrained by phased adoption and the need to coordinate with existing maritime regimes.
C	7.5	The Maritime Protocol is expected to deliver strong systemic gains by improving capital allocation in ship finance, supporting fleet renewal and maritime employment, and generating spillovers to trade, logistics, and development across multiple regions, including non-Contracting States.
D	0.9	Effective application is expected to be high due to strong stakeholder incentives and a proven Cape Town architecture, but moderated by the need for domestic implementation and judicial adaptation to maritime-specific regimes.
E	0.2	Implementation and educational costs are expected to be moderate, largely one-off, and outweighed by avoided long-term inefficiencies, justifying a limited cost deduction.
Level of Certainty	85%	The assessment is supported by strong evidence from closely comparable Cape Town instruments and established economic theory, with residual uncertainty limited mainly to adoption speed

		and implementation quality across jurisdictions.
ES	6.25 (BBB Good economic impact)	With strong direct, network, and systemic benefits and a very high expected level of effective application, the Maritime Protocol delivers a robust positive net economic impact, comfortably outweighing moderate and largely front-loaded transition costs.

### **Factor A (direct impact)**

#### **Proposed Score for Factor A: 7 (relative to Benchmark)**

##### **➤ Rationale**

108. Relative to the constructed Benchmark, the proposed Maritime Protocol is expected to generate substantial direct economic benefits by reducing legal uncertainty, transaction costs, and enforcement risk in secured ship financing. The reform is likely to improve financing conditions, including more favourable loan terms and increased availability of credit, and to simplify individual transactions by providing clearer and more uniform rules on the creation, priority, and enforcement of security interests across jurisdictions.

109. While some compliance and adjustment costs are anticipated, these are expected to be limited, largely front-loaded, and outweighed by efficiency gains, particularly in cross-border transactions. At the same time, due to the inherent complexity of maritime liens, arrest procedures, and judicial sale regimes, the Protocol is not expected to fully replicate the level of direct impact observed under the Aircraft Protocol Benchmark.

110. Accordingly, Factor A is assigned a score of 7 relative to the Benchmark, reflecting strong but not maximal direct economic effects, with substantial gains in legal predictability, transaction efficiency, and financing conditions tempered by maritime-specific legal constraints that limit full convergence with the best-in-class Benchmark.

##### **➤ Under the baseline scenario, who is suffering from market failures or other inefficiencies?**

111. Under the baseline scenario, the primary parties suffering from market failures and systemic inefficiencies are shipowners and operators – particularly small and medium-sized enterprises and firms operating in developing or high-risk jurisdictions – who face higher financing costs and restricted access to credit due to fragmented and unpredictable secured-transactions and enforcement regimes. Secured creditors and financiers are also adversely affected, as legal uncertainty regarding priority, arrest, and enforcement increases expected losses, prolongs recovery times, and raises transaction and monitoring costs. These inefficiencies extend to shipbuilders and equipment manufacturers, whose demand is dampened by constrained investment, as well as to charterers, cargo owners, and end-users, who ultimately bear higher transportation costs passed through the supply chain. Governments and judicial systems likewise incur inefficiencies through duplicated proceedings, forum shopping, and inconsistent outcomes across jurisdictions, resulting in suboptimal allocation of capital and underinvestment in shipping capacity at the systemic level.

➤ **Which actors would be directly affected by the introduction of the reform?**

112. The introduction of a Maritime Protocol would provide greater legal certainty for financiers, allowing them to decrease the cost of credit and/or increase the availability of credit, directly affecting investors in the maritime sector and owners of ships and maritime equipment. Initial stakeholder mapping indicates that the following actors would be expected to be directly affected by the Maritime Protocol:

- Financiers;
- Investors in the maritime sector;
- Owners of ships and maritime equipment (e.g., offshore maritime platforms).

113. First, financiers – including banks, leasing companies, export credit agencies, and other asset-based lenders – would be directly impacted. The Protocol would create a clearly defined international interest, supported by a public international registry and predictable priority and enforcement rules. This would reduce legal uncertainty, expected loss given default, and enforcement delays, enabling financiers to price risk more accurately. As a result, lenders could lower interest margins, extend loan tenors, increase loan-to-value ratios, and expand lending to jurisdictions and borrowers previously perceived as legally or politically risky.

114. Second, investors in the maritime sector, such as private equity funds, infrastructure investors, ship leasing platforms, and institutional investors, would be directly affected through improved investment conditions. Enhanced legal certainty and enforceability would reduce transaction and due-diligence costs, increase asset liquidity, and improve exit options in distress scenarios. This would make maritime assets more attractive as an investment class and facilitate greater capital allocation to shipping, offshore energy, and related maritime activities.

115. Third, owners and operators of ships and maritime equipment, including shipowners, offshore platform operators, and specialised maritime service providers would be directly affected through improved access to finance. Reduced financing costs and increased availability of credit would support fleet renewal, technological upgrading, and compliance with environmental and safety standards. Smaller and medium-sized operators in particular would benefit from more competitive financing terms and greater ability to operate across borders without facing fragmented and inconsistent security and enforcement regimes.

116. Collectively, these actors form the core group of direct beneficiaries of the reform, as the Maritime Protocol would alter the legal infrastructure governing financing, risk allocation, and enforcement in a way that directly affects their contractual relationships, cost structures, and investment decisions.

➤ **How and to what extent are average loan terms expected to change (e.g., decrease in average interest rates, increase in average loan length)?**

117. Following the adoption of the Maritime Protocol, average loan terms are expected to improve due to the enhanced legal certainty and predictability of cross-border security rights. The primary expected change is a reduction in interest rate spreads, reflecting lower expected losses and improved recovery prospects. A secondary effect is likely to be the extension of loan maturities, as lenders gain confidence in the enforceability of security interests across jurisdictions. Although precise numerical estimates must await empirical assessment, experience from comparable secured-transactions reforms, such as the Aircraft Protocol, suggests the potential for a reduction in interest rate margins by several dozen to several hundred basis points, depending on jurisdictional conditions, and loan maturity extensions

ranging from several months to multiple years. These changes will ultimately depend on adoption levels, domestic implementation quality, and broader market conditions.

➤ **What is the expected impact of changes in loan terms to the demand for debt?**

118. More favourable loan terms, namely lower interest rates and longer maturities, are expected to increase demand for debt financing in the maritime sector. For large shipowners, reduced financing costs increase project net present value and promote fleet renewal, newbuilding orders, and refinancing activities. For small and medium-sized shipowners, improved access to affordable credit lowers entry barriers and facilitates expansion, mergers, and acquisition-driven growth. While the overall effect is expected to be positive, the magnitude of increased debt demand will depend on external factors such as freight rates, ship values, macroeconomic credit conditions, and the cyclical nature of the shipping market. Nevertheless, in a neutral or moderately favourable environment, demand for debt can reasonably be expected to increase in both volume and duration.

➤ **What would be the expected reduction in transaction costs?**

119. The Maritime Protocol is expected to reduce transaction costs significantly by improving legal clarity, reducing the need for extensive legal due diligence, lowering cross-border conflict-of-laws analysis, and simplifying registration and enforcement processes. Cost reductions would arise from decreased legal and advisory fees, streamlined registration and search procedures, shorter enforcement timelines, and reduced uncertainty premiums embedded in financing agreements. In jurisdictions with fragmented or unpredictable secured-transactions frameworks, the cost savings could be substantial, potentially reducing certain categories of legal and administrative expenses by a large proportion. In jurisdictions with already robust systems, the reductions may be more modest but still meaningful. Quantifying these reductions will require post-reform data comparing average per-transaction legal, administrative, and enforcement costs.

➤ **Who is targeted to gain from the law reform? Are the stakeholders to whom the envisaged rules are intended easily identified?**

120. The stakeholders to whom the envisaged rules are intended are clearly identifiable.

121. The primary stakeholders targeted by the envisaged rules are readily identifiable and include secured creditors and lessors, shipowners and operators, international and national ship registries, courts and maritime authorities responsible for enforcement, and purchasers of ships in secondary and distress markets. Secondary stakeholders include insurers, P&I Clubs, shipbuilders, and port and logistics operators whose activities depend on predictable vessel ownership and financing structures.

122. The clarity with which these stakeholder groups can be identified facilitates both the *ex-ante* economic evaluation of the reform and the design of implementation, training, and monitoring measures following adoption.

➤ **What is the size of the market(s) affected by the law reform (e.g., in terms of investment, trade flows, expenditure), relative to the Benchmark?**

123. The law reform would affect markets of substantial economic scale. Global ship finance volumes are estimated to range between 80-100 billion USD annually, with the world fleet exceeding 1.8 billion deadweight tonnes and over 90,000 commercial vessels in operation. Annual newbuilding investment and secondary market transactions together represent several

hundred billion USD per year, and maritime transport underpins approximately 80-90% of global trade by volume and a significant share by value.

124. Financing structures in the maritime sector are predominantly secured and cross-border. They make legal certainty over priority and enforcement a material determinant of credit pricing and availability. Expenditure related to ship acquisition, refinancing, leasing, and enforcement proceedings therefore constitutes a material component of international capital flows and trade-related investment, particularly in emerging and developing economies.

125. Relative to the constructed Benchmark, the baseline maritime secured-transactions environment exhibits higher legal risk, longer enforcement timelines, and greater variability in recoveries; the direct economic gains under Factor A arise from narrowing this gap through adoption and effective implementation of the Maritime Protocol.

➤ **What is the expected change in the affected markets brought about by the legal reform?**

126. The reform is expected to improve market efficiency in ship-finance markets by reducing legal fragmentation, enforcement risk, and transaction frictions associated with secured lending across jurisdictions. Enhanced legal certainty would lower risk premia and financing costs, expand access to credit, and increase cross-border lending and leasing activity.

127. Relative to the Benchmark, ship-finance markets may exhibit increased liquidity and contestability, as clearer and more predictable secured-transactions rules reduce barriers to entry for financiers and support a broader range of financing structures. While overall market outcomes will continue to be influenced by macroeconomic conditions and sector-specific cycles, the proposed reform is expected to narrow structural disparities between jurisdictions with stronger and weaker legal frameworks, thereby improving market functioning.

➤ **What is the expected improvement of transactions at individual level?**

128. At the individual transaction level, the Maritime Protocol is expected to simplify the structuring, execution, and enforcement of secured financing arrangements involving ships. Parties are expected to benefit from clearer and more predictable rules governing the creation, registration, priority, and enforcement of security interests, thereby reducing the need for extensive bespoke contractual protections, jurisdiction-specific legal analysis, and complex legal structuring. This is expected to shorten transaction timelines, lower legal and advisory costs, and enhance predictability in enforcement and default scenarios.

129. For lenders, improved recovery expectations and faster enforcement mechanisms are likely to reduce downside risk. For shipowners and operators, these improvements are expected to translate into more favourable financing conditions, including lower interest rates, longer loan maturities, higher loan-to-value ratios, and improved refinancing options. Overall, individual transactions are therefore expected to become less complex, less costly, and more predictable relative to the Benchmark.

➤ **Is the law reform expected to lead to compliance costs (e.g., costs to comply with reporting requirements, etc.)?**

130. The law reform is expected to generate limited and largely one-off compliance costs, primarily associated with the registration of international interests, adaptation of contractual documentation and financing practices, and initial familiarisation with the new legal framework by financiers, registry authorities, and courts. These costs may include registration fees,

internal compliance adjustments by financial institutions, and training or familiarisation costs for legal and operational staff.

131. Ongoing compliance costs are expected to be modest and largely front-loaded, and are likely to be offset over time by reductions in existing compliance burdens arising from fragmented national registration, priority, and enforcement regimes. Relative to the Benchmark, the net effect on compliance costs is therefore expected to be neutral to negative (i.e., cost-reducing), particularly for cross-border transactions that currently require multiple registrations, extensive legal due diligence, and precautionary contractual arrangements.

- **Is the law reform expected to lead to increased legal predictability relative to the Benchmark? If so, is this expected to affect the number of disputes and related costs?**

132. Yes. The reform is expected to materially increase legal predictability by harmonising and clarifying rules governing the creation, priority, and enforcement of security interests in ships. Improved predictability is likely to reduce the incidence and complexity of disputes, particularly those arising from priority conflicts, enforcement rights, and cross-border recognition of security interests, including in insolvency and enforcement scenarios.

133. Where disputes do arise, clearer and more uniform legal standards are expected to shorten enforcement timelines and lower litigation and advisory costs by reducing uncertainty and narrowing the scope of legal disagreement. Over time, this may also support more consistent judicial outcomes and greater reliance on out-of-court enforcement mechanisms. Relative to the Benchmark, the reform is therefore expected to lower both the frequency and the cost of disputes associated with secured ship financing.

- **What type of statistical information, indicators and information should be generated in order to facilitate an evaluation of the direct impacts of the law reform?**

134. To facilitate a rigorous evaluation of the direct impacts of a Maritime Protocol, a structured set of legal and economic indicators should be generated, focusing on ship financing, secured transactions, and enforcement outcomes. Core financial indicators should include changes in interest rate spreads, loan tenors, loan-to-value ratios, and overall credit availability for shipowners and operators, with disaggregated data for SMEs and entities operating in higher-risk jurisdictions. Transaction-cost data should capture variations in legal due-diligence expenses, documentation and structuring costs, and fees associated with the creation, registration, amendment, and discharge of security interests.

135. Enforcement-related statistics are equally central. These should cover the number of enforcement actions involving ship mortgages or international interests, average timeframes for arrest, repossession, and judicial or private sale, recovery rates achieved by secured creditors, and the frequency and cost of related litigation. Pre- and post-reform comparisons would allow assessment of whether enhanced legal predictability reduces enforcement delays and loss given default. In parallel, registry performance indicators should be collected, including the volume of registrations, average processing times, search activity, error rates, and cross-border usage patterns, as direct measures of the effectiveness and economic value of an international registry.

136. At the market level, data should track investment flows into ship acquisition and refinancing, volumes of newbuilding and second-hand transactions, and participation by international financiers. Complementary indicators may include changes in credit ratings or risk premiums applied to ship finance in Contracting States compared with non-Contracting

States. Finally, perception-based information – such as surveys of lenders, shipowners, insolvency practitioners, and registry users – should assess perceived legal certainty, predictability of priority rules, and confidence in enforcement outcomes. Collectively, these indicators would provide a coherent and evidence-based framework for assessing whether the Maritime Protocol delivers measurable legal and economic effects consistent with the objectives of the Cape Town Convention system.

137. A robust *ex-post* assessment would require systematic collection of statistical indicators across several dimensions. Financial indicators should include average loan interest rate spreads, loan maturities, transaction volumes, and total value of ship financing activities. Registry-related indicators should track the number of registrations, time required for registration and searches, and distribution of registrations by vessel type and jurisdiction. Enforcement indicators should include average enforcement duration, recovery rates, method of sale, and asset price discount levels in distress sales. Transaction-cost indicators should measure changes in average legal fees, due diligence expenses, and registration-related costs. Market indicators, such as ship sale volumes, vessel liquidity measures, and second-hand ship price indices, would help capture broader market effects. Perception-based indicators collected through structured stakeholder surveys should assess changes in legal certainty, predictability, and overall confidence in the secured-transactions environment. For accuracy, all indicators should be disaggregated by country, vessel class, financing method, and transaction type.

### **Factor B (network impact)**

#### **Proposed Score for Factor B: 7 (relative to Benchmark)**

➤ **Rationale:**

138. A score of 7 reflects meaningful expected network benefits arising from the creation of an international framework for secured ship financing. The introduction of a Maritime Protocol is expected to establish a network of uniform rules governing the financing of ships and maritime equipment, enabling financiers and shipping companies to operate more efficiently across borders and across regions. These network effects are expected to strengthen as participation expands, as wider adoption increases the usability and predictability of the framework.

139. At the same time, the Protocol is expected to interact with and complement existing international maritime and commercial law instruments, creating synergies rather than substitution effects, although coordination requirements with established maritime conventions and gradual adoption are likely to limit full convergence with the best-in-class Benchmark.

140. Accordingly, Factor B is assessed as generating strong but not maximal network benefits relative to the Benchmark, reflecting both the potential for cumulative gains as adoption widens and the structural constraints inherent in the maritime legal environment.

➤ **Which existing laws and regulations would the law reform interact with?**

141. Relevant international instruments are the following:

- Brussels Convention for the Unification of Certain Rules of Law Relating to Maritime Liens and Mortgages of 1926;
- Brussels Convention for the Unification of Certain Rules of Law Relating to Maritime Liens and Mortgages of 1967;
- Geneva Convention on Maritime Liens and Mortgages of 1993;

- Brussels Convention relating to the Arrest of Seagoing Ships of 1952;
- Geneva Convention on the Arrest of Ships of 1999;
- Beijing Convention on the Judicial Sale of Ships of 2022.

142. The Maritime Protocol would be expected to complement and create synergies with these instruments. Potential points of attention could include:

- 1952 and the 1999 Conventions: The rules in the Cape Town Convention on the immobilisation of the object as a form of relief pending final determination would need to be aligned with the rules of the 1952 and 1999 Conventions, by including additional rules in the Maritime Protocol;
  - Beijing Convention on the Judicial Sale of Ships: The Cape Town Convention generally refers to the remedy of “sale” of the collateral, which should be understood as what is commonly regarded an authorisation to affect a private sale, conferring title on the buyer free of the rights of the following persons: the debtor, the enforcing secured creditor and junior secured creditors. The Convention does not address the possibility of a judicial sale, under which the buyer would acquire a completely clean title. Additional rules in the Maritime Protocol could be included to ensure that the exercise of the remedy of judicial sale is not precluded, and would be aligned with the Convention on the Judicial Sale of Ships.
- **To what extent would the Maritime Protocol lead to an increase in legal certainty and predictability? Which factors could be used to assess this (e.g., reduction in costs for legal advice and litigation etc.)?**

143. The Maritime Protocol is expected to substantially enhance legal certainty and predictability by standardising rules on the creation, perfection, priority, and enforcement of security interests in ships and related maritime equipment. This increased uniformity reduces the fragmentation that currently arises from divergent national regimes. The extent of this improvement may be assessed through indicators such as reductions in the cost of legal advice associated with structuring secured transactions, a decline in litigation and arbitration related to priority disputes, and shorter timelines for asset registration and enforcement. Additional evidence includes the stability and consistency of judicial interpretations within participating jurisdictions.

- **What benefits would arise as more countries become a party to the Maritime Protocol?**

144. As more states become parties to the Maritime Protocol, the value of a uniform secured-transactions framework for ships increases through network effects. Each additional Contracting State expands the geographic scope within which financiers can rely on predictable rules on registration, priority, and enforcement, reducing the need for jurisdiction-specific legal structuring. A broader participation in the Maritime Protocol lowers aggregate transaction costs, reduces enforcement risk in cross-border operations, and increases asset liquidity, particularly for vessels operating globally.

- **How are the new rules expected to fit into the existing legal framework?**

145. The Maritime Protocol is expected to be integrated into the existing international legal framework by complementing, rather than displacing, established instruments. By clarifying the interaction between consensual security interests created under the Cape Town Convention and non-consensual maritime claims recognised under existing regimes, the Maritime Protocol would reduce legal fragmentation while preserving essential creditor protections.

146. At the same time, the reform is expected to offer simplified and increasingly technology-enabled mechanisms for structuring and enforcing secured transactions, and to support cross-border enforceability. As participation expands, these features are expected to generate network effects by providing a shared and predictable legal infrastructure on which financiers, registries, courts, and market participants can rely.

- **How do the objectives of the law reform compare to the objectives of the existing legal framework (e.g., do they support or oppose each other) and to those of the Benchmark?**

147. The objectives of the Maritime Protocol are largely complementary to those of the existing maritime legal framework. While established conventions prioritise creditor protection and formal enforcement procedures, the Maritime Protocol focuses on enhancing legal certainty, efficiency, and accessibility in consensual secured financing.

148. The reform does not seek to displace core maritime safeguards but to clarify their interaction with secured-transactions rules, thereby reducing barriers to cross-border financing and dispute resolution while preserving essential protections. In this sense, the objectives of the Protocol and existing frameworks are mutually supportive, notwithstanding differences in emphasis between streamlined efficiency and procedural formality.

- **What are the expected synergies or conflicts with existing regulations?**

149. The proposed law reform is expected to create several significant synergies with existing regulations. Synergies arise from clearer priority rules, improved coordination between registries, and alignment of enforcement remedies, which together reduce conflicts of law and procedural uncertainty.

150. However, potential conflicts may arise due to variations in national arbitration laws and domestic implementation which could pose challenges to the harmonisation. Moreover, clarity in the interaction between international registration and national ship registers might affect potential conflicts. These risks can be mitigated through targeted declarations, interpretative guidance, and alignment with the Beijing Convention (2022).

151. Additionally, resistance from established arbitration centres or legal professionals may also be encountered, as the reform's emphasis on reduced procedural complexity could be perceived as diminishing their roles or altering traditional processes.

- **How many states are expected to join the initiative (e.g., expected number of ratifications or adoptions)?**

152. While precise participation cannot be predicted *ex ante*, it is reasonable to expect initial uptake among states with significant shipping registries, active ship-finance markets, or strong reliance on maritime trade, including major flag states and ship-owning economies across regions such as the Asia-Pacific, Africa, and Latin America.

153. Early adoption could plausibly involve a core group of approximately 30-50 states, with broader participation increasing over time as network benefits become evident. As with other Cape Town instruments, adoption is expected to be gradual rather than universal in the short term.

➤ **What gains would arise as more states adopt the law reform (e.g., implement a model law or become party to a treaty)?**

154. As adoption of the law reform widens, the expected economic gains are likely to increase through network effects. Greater uniformity across jurisdictions is expected to reduce legal fragmentation and transaction costs and contribute to a more predictable environment for cross-border activity. As participation expands, shared legal and technological infrastructures become more effective. This lowers average costs and enhances system efficiency.

155. In the maritime context, broader adoption is also expected to increase confidence among lenders and investors, support greater cross-border investment and secondary-market liquidity, and reinforce the economic rationale for further participation over time.

➤ **How does the law reform affect states that are not direct addressees of the reform?**

156. States that do not become parties to the Maritime Protocol may nonetheless experience indirect effects. Non-adopting states may benefit from spillovers associated with increased efficiency in global shipping and trade, as vessels financed under the Maritime Protocol operate internationally and contribute to lower transaction and transport costs.

157. At the same time, competitive pressures are likely to arise, as shipowners and financiers may prefer registries and jurisdictions offering the legal certainty associated with the Maritime Protocol. This dynamic may incentivise legal convergence or eventual accession, while continued non-participation may carry risks of marginalisation in ship-finance markets if legal fragmentation persists.

➤ **What type of statistical information, indicators and information should be generated in order to facilitate an evaluation of the network impacts of the law reform?**

158. To enable a meaningful *ex-post* assessment of network impacts following the adoption of the Maritime Protocol, it is essential to generate a coherent set of statistical information and indicators. This should include longitudinal data on registration activity within the international registry, including the number, value, and duration of registered security interests, as well as the frequency of cross-border transactions involving maritime assets. It is also necessary to monitor trends in financing costs, investment flows, and liquidity conditions in the maritime credit market, as these indicators reflect whether the network of users is expanding and whether the legal certainty provided by the Protocol is producing broader market effects. Information on enforcement actions, dispute outcomes, and compliance patterns across jurisdictions will further illustrate the functioning and reach of the system. Additionally, collecting data on stakeholder participation, such as the number and type of financial institutions, shipowners, and registry users, will shed light on whether the Protocol is attracting a sufficiently diverse user base to generate positive network externalities. Finally, qualitative assessments drawn from industry surveys and expert interviews should complement quantitative indicators to capture perceptions of legal certainty, operational efficiency, and interoperability, which are key dimensions of network impact.

**Factor C (systemic impact)****Proposed Score for Factor C: 7.5 (relative to Benchmark)**

159. A score of 7.5 reflects the expectation that the Maritime Protocol would generate substantial systemic economic benefits by improving capital allocation, expanding access to ship finance across regions, and strengthening the efficiency of a globally critical transport sector. Unlike Factors A and B, the systemic effects extend beyond Contracting States, as vessels financed under the Protocol operate internationally and influence trade, logistics, and supply chains worldwide.

160. Improved financing conditions and enforcement predictability are expected to support fleet renewal, facilitate investment in more efficient and cleaner vessels, and reduce transport bottlenecks, particularly in developing and emerging economies where maritime connectivity is a key growth constraint. Although these effects will materialise gradually and remain influenced by shipping cycles, their breadth, persistence, and relevance for trade-dependent sectors justify a higher systemic score than for direct or network effects.

➤ **Which actors would be indirectly affected by the law reform?**

161. The introduction of a Maritime Protocol may indirectly affect a variety of actors. Initial stakeholder mapping indicates that the following actors would be expected to be indirectly affected by the Maritime Protocol:

- Manufacturers of ships and maritime equipment;
- Maritime sector supply chains;
- Importers and exporters of ships and maritime equipment;
- Governments (e.g., impact on tax revenues);
- Consumers of shipped goods (due to lower supply chain costs).

➤ **Which sectors are expected to be indirectly affected?**

162. Indirect effects are anticipated in sectors linked to maritime trade, including:

- Trade-intensive industries (e.g., manufacturing, agriculture, energy commodities), which may benefit from more reliable and cost-effective shipping, supporting exports and supply-chain efficiency;
- Ports, logistics, and related infrastructure and services, where increased investment in ships and maritime equipment is expected to raise utilisation and activity levels;
- Financial, insurance, and compliance-related services, including banking, leasing, maritime insurance, classification, and legal/advisory services, as maritime financing activity expands and uncertainty declines;
- Environmental and technological domains, where improved access to finance may support investment in newer, more fuel-efficient or lower-emission vessels, although such effects are expected to be gradual and reflected through the level of certainty rather than directly scored.

➤ **How many different regions or countries are expected to be affected?**

163. The systemic impact of the Maritime Protocol is expected to be global, reflecting the inherently cross-border nature of ships and ship finance. The reform is likely to affect major

flag states and ship-owning economies, key maritime finance centres, and developing and emerging jurisdictions seeking to expand access to ship finance.

164. Initial adoption could plausibly involve approximately 30-50 states across regions such as Europe, North America, East Asia, and the Middle East, with indirect spillover effects extending to non-adopting states engaged in international maritime trade. Even partial adoption is expected to generate multi-regional effects, as vessels financed under the Protocol operate internationally and interact with ports, courts, and counterparties across jurisdictions.

165. Over time, the Protocol could support the emergence of a near-global network of harmonised maritime financing rules, with a systemic footprint extending beyond Contracting States to the broader maritime trade network.

➤ **How is the law reform expected to affect the labour market?**

166. The Maritime Protocol may have several labour-market consequences. The Protocol is expected to create positive employment effects, particularly in countries with shipyards, port clusters, or technical-maritime training sectors.

167. By reducing legal uncertainty and improving access to credit, the Maritime Protocol is expected to support increased investment and utilisation of maritime assets, with positive implications for labour markets. Improved financing conditions and more predictable enforcement are likely to facilitate fleet renewal, maintenance, retrofitting, and replacement of older vessels, supporting employment in shipbuilding (where relevant), ship repair, maritime engineering, and related support services.

168. Indirectly, increased vessel acquisition and retrofitting generate higher demand for shipbuilding, maintenance, port services, and maritime engineering. Growth in maritime transport with a greater shipping capacity and efficiency are expected to stimulate activity and employment in ports, maritime logistics, freight forwarding, port operations, and associated compliance and insurance services. While the magnitude of these effects will vary across jurisdictions depending on industrial structure and existing maritime capacity, the overall impact is expected to be employment-supporting, particularly in maritime clusters and developing economies where financing constraints currently limit sectoral growth.

169. Additionally, adoption of more technologically advanced vessels encourages training in digital navigation systems, safety technologies, and green propulsion.

➤ **How is the law reform expected to impact the financial markets?**

170. Additionally, the Maritime Protocol is expected to enhance the functioning and efficiency of financial markets for maritime credit and leasing by providing clear and enforceable security interests and harmonised priority rules, thereby reducing legal and enforcement risk. This is likely to lower risk premia embedded in maritime lending, reduce borrowing costs, and improve recovery expectations, leading to greater availability of credit for shipowners and investors.

171. The introduction of a Maritime Protocol, extending Cape Town-style asset-based financing rules to ships and maritime equipment, is expected to increase the size and renewal rate of maritime assets over time. Improved predictability is expected to broaden participation by international financiers and institutional investors, strengthening liquidity and supporting more efficient capital allocation within the shipping sector, including a shift toward more productive operators and more efficient fleets. Stronger creditor protection and predictable enforcement mechanisms reduce the risk premium for financiers, thereby lowering financing

costs for shipowners, especially in developing and emerging maritime economies, facilitating access to credit for smaller carriers and regional operators, and encouraging earlier replacement of ageing ships and promoting investments in green and energy-efficient vessels. Empirical analogies from the Aircraft and MAC Protocols show that improved secured-transactions regimes stimulate capital formation in asset-heavy industries, and similar dynamics are anticipated for shipping.

172. Over time, more predictable secured-lending conditions may also contribute to greater stability in financing availability, even though shipping cycles will continue to influence market dynamics and may encourage longer-term investment horizons where enforcement outcomes are trusted across jurisdictions.

➤ **What is the expected impact of the law reform on prices?**

173. The Protocol is expected to lower the cost of capital, which may translate into lower leasing and financing prices for vessels and maritime equipment, reduced operating costs in the shipping sector, and downward pressure on freight rates in competitive markets. Improved access to capital is likely to increase fleet capacity, expand intra-regional shipping routes, and stimulate global maritime trade flows. Increased equipment availability and reduced downtime also support higher trade volumes.

174. Reduced financing costs and improved access to capital are expected to lower the effective cost of vessel acquisition and maritime equipment. Through financing and asset-market channels, lower lending spreads and improved credit availability may translate into lower charter or freight rates in competitive market segments over time, as financing costs form part of operators' overall cost structures and pricing decisions.

175. At the same time, improved title certainty and enforcement predictability are expected to reduce fire-sale discounts in distress scenarios, supporting higher recovery values and more stable secondary-market prices for vessels. While these effects are likely to materialise gradually and remain influenced by shipping cycles and market structure, they are directionally consistent with increased liquidity, higher market confidence, and reduced enforcement frictions.

➤ **What are the effects on economic growth or development?**

176. The Maritime Protocol is expected to support economic growth and development by facilitating capital investment in shipping and maritime equipment, to enhance operational efficiency, and to improve connectivity for international trade.

177. By expanding access to ship finance, the reform may reduce transport bottlenecks, improve export competitiveness, and support participation in regional and global value chains. Developing and emerging economies with nascent maritime sectors are likely to experience comparatively stronger benefits, including expanded trade capacity and higher contributions from maritime activities. While the Protocol is not a macroeconomic policy instrument, improvements in the legal infrastructure for ship finance can contribute to higher investment, productivity gains in logistics and transport, and positive spillovers to income and employment.

178. GDP effects will vary across jurisdictions, but the following mechanisms are anticipated: higher investment rates in ship acquisition and maritime infrastructure; growth in trade volumes, which strengthens export competitiveness and reduces transport costs; and productivity gains through the adoption of more modern equipment, including energy-efficient and digitalised vessels. Empirical experience from the Aircraft Protocol indicates that legal

certainty in asset-based financing can have a measurable positive impact on national GDP, particularly where transport infrastructure is an economic bottleneck.

➤ **What type of statistical information, indicators and data should be generated in order to facilitate an evaluation of the systemic impact?**

179. To evaluate the systemic effects of the Maritime Protocol, an *ex-post* assessment should monitor a coherent set of indicators capturing adoption, financing conditions, enforcement performance, market outcomes, and spillovers, including:

- Geographic coverage and adoption: number of Contracting States; volume and share of cross-border ship-finance transactions;
- Credit market indicators: ship-finance volumes, interest-rate spreads, maturities, default rates, and lender participation by jurisdiction;
- Registry usage metrics: registrations, searches, time-to-register, and cross-border registrations;
- Enforcement and risk indicators: time-to-enforcement, recovery rates, incidence and duration of arrests, proportion of private versus judicial sales, and observed fire-sale discounts;
- Asset-market outcomes: vessel and maritime-equipment prices, secondary-market liquidity, price dispersion, and distress-sale outcomes;
- Trade and logistics indicators: shipping volumes, port throughput, connectivity indices, freight or charter rate trends, and trade costs;
- Investment and employment metrics: capital expenditure in shipbuilding, maritime equipment, and related infrastructure;
- Employment trends in maritime and linked sectors;
- Sectoral spillovers and perceptions: revenue or output growth in logistics, insurance, and maritime services, complemented by structured stakeholder surveys on predictability and access to finance.

180. Collectively, these indicators enable a comprehensive *ex-post* evaluation of the Maritime Protocol's systemic impact on maritime finance, trade, and broader economic activity, with results disaggregated where feasible by vessel type, transaction type, and country group.

**Factor D**

**Proposed Score for Factor D: 0.9**

181. A score of 0.9 reflects a high but not full expectation of effective application. The Maritime Protocol would build on the well-tested Cape Town Convention architecture, supported by strong incentives for financiers and clear enforcement mechanisms, which all favours rapid uptake by core market participants.

182. At the same time, effective application will depend on domestic implementing legislation, judicial training, and alignment with existing admiralty and maritime-lien regimes, which vary significantly across jurisdictions and may introduce transitional frictions. These factors justify a moderate downward adjustment from full effectiveness, while remaining consistent with observed implementation patterns of comparable Cape Town instruments.

➤ **How complex are the new rules?**

183. The Maritime Protocol would likely follow the Cape Town Convention structure, which is conceptually sophisticated but internally coherent and modular. While complexity rises due to maritime-specific issues, the overall framework is expected to remain manageable. This assessment is contingent on the interaction between the Protocol and domestic admiralty procedures and maritime-lien regimes being clearly addressed through implementing legislation and judicial guidance.

➤ **Do the new rules provide for specific dispute resolution or other enforcement mechanisms?**

184. The Cape Town system includes clear rules on default, remedies, and asset recovery, international registries of interests, and cross-border recognition and enforcement obligations. A Maritime Protocol would incorporate equivalent mechanisms, improving clarity in repossession, deregistration, and cross-border enforcement.

➤ **Do the new rules have direct effect at national level or are implementing actions needed?**

185. The Protocol would not have direct effect; domestic implementing legislation will be necessary to integrate new security-interest rules into national maritime codes, ensure conformity with existing ship-mortgage and admiralty frameworks, and adapt domestic dispute-resolution and enforcement systems.

➤ **How will stakeholders be involved in the law reform?**

186. Expected stakeholders include shipowners, cargo operators, lenders, lessors, maritime registries and port authorities, shipbuilders and classification societies, insurers, P&I Clubs, maritime lawyers, and maritime labour unions and training institutions. Stakeholder engagement is essential to ensure practical viability and alignment with industry practices.

➤ **What advocacy and assistance activities are anticipated?**

187. UNIDROIT would likely provide explanatory reports and implementation guides, technical assistance missions, capacity-building workshops for registries, courts, and maritime authorities, and outreach to IMO, UNCITRAL, UNCTAD, and regional bodies.

➤ **To what extent are direct stakeholders expected to effectively apply the new rules?**

188. Financial institutions and lessors are expected to adopt the new rules rapidly due to strong incentives for risk reduction, improved predictability in collateral recovery, lower transaction costs. Shipowners, especially MSMEs, may require more time and capacity-building to adjust to the new system.

➤ **To what extent are courts in the relevant jurisdictions expected to effectively apply the new rules?**

189. With adequate training, courts should be able to apply the rules effectively. However, existing admiralty procedures differ greatly between jurisdictions, potential capacity constraints in some legal systems, and the need to harmonise implementation with existing maritime-lien rules may require judicial guidance. Where such constraints or frictions materially delay or weaken effective application in certain jurisdictions, their impact should be

reflected through a proportionate reduction in Factor D, rather than through separate cost adjustments.

➤ **Is any data available on compliance with comparable legal instruments?**

190. Comparable data comes from Aircraft Protocol implementation studies, MAC Protocol economic evaluation, national ship-mortgage registries, and OECD, UNCTAD, and IMO maritime-transport statistics. These provide a credible empirical basis for assessing expected implementation and compliance under a Maritime Protocol, notwithstanding sector-specific differences in maritime law.

**Factor E**

**Proposed Score for Factor E: 0.20 (relative to Benchmark)**

191. A score of 0.20 reflects that the Maritime Protocol entails non-negligible but contained transition, implementation, and educational costs, most of which are front-loaded and offset by efficiency gains. These costs are materially lower than the recurring economic costs of inaction and are consistent with those observed for comparable Cape Town instruments. Accordingly, while Factor E appropriately subtracts from the overall score, its magnitude is limited relative to the benefits captured under Factors A-C.

➤ **What are the expected costs of negotiating and adopting the law reform?**

192. The expected costs of negotiating and adopting a Maritime Protocol derive primarily from (i) preparatory work conducted by the Secretariat, (ii) Working Group meetings, (iii) intergovernmental negotiations at diplomatic conferences, and (iv) supporting research and consultations with industry stakeholders. Negotiation costs tend to be moderate and largely predictable. Earlier experiences suggest that costs mainly consist of secretariat staff time, travel and hosting expenses for Working Group sessions, translation, documentation, and technical drafting costs, costs borne by Member States for participation in negotiations, typically absorbed through existing budget lines for treaty-making activities.

193. Overall, based on past UNIDROIT instruments, the cost of negotiating and adopting the Maritime Protocol is expected to be reasonable and manageable, especially with active participation and support from the maritime industry and states with major shipping interests.

194. Additionally, the expected cost of setting up an international registry for the registration of security interests over ships is also an important component of the adoption costs of the Maritime Protocol. The principal costs regarding the registry setting-up include IT infrastructure development, including secure electronic registration platforms, cybersecurity and data-protection systems to ensure compliance with international standards, user-interface design for global accessibility, integration mechanisms with national ship registries or IMO identification systems, operational staffing, including technical and administrative personnel, and ongoing maintenance and system upgrades.

195. Past experience from the Aircraft Registry shows that the Registry is typically operated on a cost-recovery basis by a private registrar, selected through an international tender. This significantly limits the financial burden on UNIDROIT and Member States. The maritime sector may require additional features, such as integration with maritime-lien information, flag-state registries, and vessel-tracking identifiers, which could raise initial development costs. However, digitalisation in ship registries and enhanced IMO data standards mean that these integration costs are technically feasible and likely comparable to the aircraft model.

➤ **What are the expected educational costs for the instrument?**

196. Effective adoption of the Maritime Protocol requires investment in education and training for judges, registry officials, maritime authorities, legal practitioners, financiers, shipowners, and other relevant private-sector users. These costs relate primarily to understanding the Protocol's legal framework, procedures, and its interaction with existing maritime-*lien* regimes and domestic enforcement rules. They are expected to include professional training courses, workshops and awareness-raising seminars, and the preparation of guidance materials such as manuals, explanatory notes, and online resources, including materials tailored to smaller maritime operators.

197. Based on experience with other Cape Town instruments, these educational and training costs are expected to be front-loaded and manageable, and can largely be addressed through standardised guidance, workshops, and technical assistance coordinated by UNIDROIT and partner organisations.

198. Over time, costs are expected to decline as familiarity with the system increases and jurisprudence develops. While non-trivial, these costs are expected to be outweighed by long-term economic benefits, including reduced transaction costs, lower financing risks, increased investment in maritime assets, and more efficient dispute resolution. Monitoring such costs *ex post* will be important for assessing the cost-effectiveness and sustainability of the Protocol.

➤ **What are the expected costs for implementing and complying with the instrument?**

199. The expected implementation and compliance costs of the Maritime Protocol arise primarily from domestic legislative adaptation, institutional adjustments, and operational use of the International Registry.

200. For states and relevant institutions, these costs include:

- Establishing or adapting registry infrastructure, including IT systems and interoperability with existing identification frameworks;
- Drafting and enacting implementing legislation to align domestic maritime, secured-transactions, and insolvency laws with the Protocol; and
- Institutional coordination and capacity-building, including training officials and ensuring procedural coherence with existing maritime conventions (such as the 1952 and 1999 Arrest Conventions).

201. States may also incur ongoing administrative costs related to registry maintenance, transaction verification, and compliance monitoring.

202. For private stakeholders, including financiers, shipowners, and maritime equipment operators, compliance costs are expected to include:

- Registration fees;
- Legal and advisory expenses associated with contract review and procedural adjustments;
- Documentation and reporting obligations; and
- Investments in technology or systems needed to interface with the International Registry.

203. However, these costs are expected to be moderate and largely one-off, and in many cases offset over time by reduced duplicative registrations, lower legal due-diligence requirements, and simplified enforcement procedures relative to the baseline of fragmented national regimes.

204. Additionally, cost related to advocacy and assistance in capacity-building, and implementation support form essential components of implementation and compliance costs. These activities aim to ensure that Contracting States, ship registries, courts, financiers, and shipowners understand and correctly apply the new system.

205. Expected costs include technical assistance missions to support domestic implementation, training workshops for maritime registrars, judges, maritime lawyers, and ship-finance professionals, preparation of legislative guidance, explanatory documents, and model laws, translation of documentation into multiple UN languages, regional seminars co-organised with IMO, UNCTAD, or regional economic organisations, and stakeholder engagement activities, including awareness-raising for MSMEs and small ship operators.

206. Based on past treaty implementation, advocacy and assistance costs are expected to be moderate, with significant opportunities for external funding and partnership-based cost sharing. Costs can be mitigated by collaboration with existing institutions, such as IMO's Integrated Technical Cooperation Programme, UNCTAD's maritime and transport economics units, regional development banks for funding workshops, and industry partners.

➤ **What are the expected future costs of inaction?**

207. The future costs of inaction are expected to be significant and persistent. Without adoption of the Maritime Protocol, legal fragmentation in ship finance will continue to generate elevated legal uncertainty and enforcement risk, resulting in higher borrowing costs, prolonged enforcement timelines, and depressed recovery values, particularly in cross-border defaults. These inefficiencies impose recurring costs on lenders, shipowners, and courts, restrict access to finance and inhibit fleet renewal and investment in more efficient or environmentally improved vessels.

208. Market efficiency would remain constrained by inconsistent national regimes for ship mortgages, liens, arrests, and judicial sales, while the absence of a uniform registry and priority framework would continue to limit transparency and deter foreign investment. Over time, these effects are expected to reduce trade efficiency, weaken supply chains, and generate indirect losses through delayed asset utilisation and reduced liquidity, with associated foregone economic activity and fiscal revenues. Non-adopting jurisdictions may also face competitive disadvantages in global maritime finance markets as financiers and operators gravitate toward more predictable legal environments.

### **3. Level of certainty**

#### **Proposed level of certainty: 85%**

209. Level of certainty at 85% reflects the strong and consistent evidence drawn from closely analogous Cape Town instruments, relevant *ex-post* economic studies, and well-established economic mechanisms linking legal certainty to financing conditions and asset liquidity. While the assessment is necessarily *ex ante*, and maritime-specific features introduce additional complexity, the direction and transmission channels of the expected effects are well supported by prior institutional experience.

210. Residual uncertainty relates primarily to adoption dynamics and variations in domestic implementation rather than to the existence of the underlying economic effects. This justifies a high but not maximal level of confidence.

- **How reliable are the findings, based on the type, quantity, quality of evidence or input data, the timing of data collection, and the degree of agreement?**

211. The reliability of the findings is generally high. It draws on *ex-post* economic studies of closely related Cape Town instruments, economic evaluation conducted by UNIDROIT, sector-specific empirical research, and comparative legal and academic analyses. While the evidence base is more extensive for aircraft and rail than for maritime assets, reflecting the *ex-ante* nature of the proposed Maritime Protocol, the quality of available studies is strong, including econometric analysis, scenario modelling, and longitudinal data. Across sources, there is a high degree of agreement regarding the direction and transmission mechanisms of the expected economic effects, supporting a relatively high level of confidence, subject to the inherent limitations associated with *ex-ante* evaluation.

- **Are there deviations between the evaluated reform and the Benchmark in terms of legal areas, geography, or sector?**

212. While the constructed Benchmark draws heavily on the Cape Town Convention framework and experience under the Aircraft, Rail, and Space Protocols, the Maritime Protocol deviates from the Benchmark in legally and economically relevant respects. Maritime law presents distinctive complexities, including the presence of maritime liens, non-consensual claims, arrest procedures, and judicial sale regimes, as well as sector-specific regulatory requirements (e.g., IMO standards) that are less prominent in other Cape Town sectors.

213. In addition, shipping activity is more geographically dispersed and institutionally heterogeneous, with greater variation in court capacity and enforcement practices across jurisdictions, and adoption is likely to be initially concentrated in major shipping states rather than globally uniform. These sectoral, legal, and geographic deviations limit the direct transferability of Benchmark outcomes and therefore justify a more cautious application of Benchmark conclusions and a downward adjustment in certainty relative to instruments operating in more legally uniform sectors.

- **How confidently can the effects documented in the Benchmark be expected to apply to the reform under evaluation?**

214. Given the structural similarities of the Cape Town Convention, the key effects documented in the Benchmark can reasonably be expected to translate to the Maritime Protocol in terms of direction and underlying mechanisms. However, maritime-specific features, including operational liens, enforcement delays, and greater legal and institutional heterogeneity, are likely to moderate the magnitude and speed of these effects.

215. Confidence in transferability is therefore moderate to high, but stronger for qualitative and order-of-magnitude effects than for precise quantitative estimates, and contingent upon effective harmonisation with existing maritime regulations and the implementation of an international registry.

- **Are there any externalities (e.g., environmental or social effects) that should be considered in the evaluation?**

216. Environmental and social externalities may arise indirectly from the Maritime Protocol. Improved access to finance and more efficient investment may accelerate fleet renewal and

support investment in newer, more fuel-efficient vessels, with potential positive environmental implications, while increased shipping activity could also entail adverse environmental effects if not accompanied by appropriate regulatory safeguards.

217. Social effects may include employment gains in maritime sectors, particularly for skilled labour in shipbuilding, operations, and related services. These externalities are relevant for a comprehensive policy assessment but difficult to quantify *ex ante* and are therefore acknowledged qualitatively and reflected in the level of certainty rather than directly incorporated into the economic score.

➤ **Do indirect network effects, such as impacts on complementary markets, influence the law reform?**

218. Indirect network effects are expected to arise from the harmonisation of maritime financing rules, with spillovers into complementary markets such as shipbuilding and repair, port services, logistics, insurance, leasing, and maritime legal services.

219. Enhanced predictability in financing may support secondary markets for maritime assets and facilitate cross-border trade, generating broader systemic benefits beyond the immediate participants. The existence of these effects is conceptually well supported, but their magnitude is uncertain and dependent on adoption rates, market conditions, and broader economic trends; accordingly, network and spillover effects are treated cautiously and reflected in the overall confidence level rather than precisely quantified.

➤ **How reliable are the data sources used?**

220. The data sources used (including UNIDROIT and IMO reports, OECD and UNCTAD assessments, academic literature, industry analyses, and institutional databases) are generally reliable, authoritative, and widely cited.

221. However, gaps in maritime-specific *ex-post* studies, along with differences in data coverage, methodologies, and cross-jurisdictional reporting standards, limit comparability and precision. As a result, while the evidence base is credible overall, it is stronger for certain regions and transaction types than for others, which should be taken into account when interpreting the findings.

➤ **How do changes in input data and assumptions effect the certainty and uncertainty of the law reform?**

222. The evaluation is sensitive to key assumptions, including adoption rates, quality of domestic implementation, enforcement effectiveness, and market conditions in the shipping sector. Variations in these inputs, such as slower ratification, weaker judicial capacity, or adverse shipping cycles, could reduce realised impacts, while faster uptake or early adoption by major flag states could increase benefits. This sensitivity underscores the need to treat certainty as dynamic, with results subject to refinement through *ex-post* data and sensitivity analysis as implementation progresses.

➤ **Is there any existing previous economic research that has tackled similar reforms specifically?**

223. While no *ex-post* economic study exists for a Maritime Protocol, extensive prior research on economically comparable reforms provides robust reference points. These studies include quantitative and scenario-based assessments of financing-cost reductions, investment effects, and capital-allocation improvements, and consistently find positive economic impacts

following legal harmonisation. This body of evidence offers a strong methodological and analytical foundation for the present evaluation, subject to appropriate sector-specific adjustments for maritime assets.

#### 4. **Calculation of ES**

224. The Economic Score (ES) of the law reform is expected to be the following:

$$ES = (A + B + C) \times \frac{D}{3} - E = (7 + 7 + 7.5) \times \frac{0.9}{3} - 0.2 = 21.5 \times 0.3 - 0.2 = 6.45 - 0.2 = 6.25$$

#### 5. **Ex-post quantification**

225. Bian (2020) estimates that the Convention increased fleet productivity by approximately 12%. Applying the Benchmark-relative methodology to the proposed Maritime Protocol, *ex-post* quantification of the law reform for the expected productivity impact can be demonstrated as the following:

	<b>Fleet Productivity</b>	<b>ES</b>	<b><i>Ex-post</i> quantification</b>
<b>Bian (2020)</b>	12%	6.25	$12\% \times \frac{6.25}{10} = 7.5\%$

226. This *ex-ante* estimate reflects a proportional scaling of the Benchmark effect. It recognises that, while the proposed Maritime Protocol is expected to generate material productivity gains through improved legal certainty, reduced enforcement frictions, and enhanced access to finance, it does not fully replicate the scope, maturity, or uniformity of the Cape Town Convention as observed in the aircraft sector.

227. The resulting estimate therefore represents a conservative, Benchmark-adjusted projection rather than a direct transfer of Benchmark outcomes.

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