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RELATIONAL MARITIME CONTRACTS – A COST AND RISK PERSPECTIVE

CBS MARITIME

BLUE INNOSHIP

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4 INTRODUCTION

This follow up paper concerns relational contracts in the maritime industry from a legal, game theoretical, and strategic perspective. The paper discusses the purpose of a relational contract, the specific legal characteristics in a relational contract, and draw up economic explanations of the relations among the clauses in relational contract. Strategy and game theory are used to explain the output of negotiations and explain how to behave if to obtain joint utility in a contractual relationship in the maritime industry.



Foto 1: Iris/Scanpix

DEFINING RELATIONAL CONTRACTS

The first important definition of a relational contract is that it is an alternative to a traditional contract. The relational contract is not here to replace the traditional contract. Relational contracts are useful and may even be an economic improvement if the economic transaction concerns for example a strategic alliance or another type of transaction with a close and long term relationship among the parties.

Strategic alliances can be explained as a hybrid in a Williamson¹ universe, but it is the purpose of this paper to define the strategic alliance. If the transaction and the specificity and frequency call for a hybrid, a relational contract could be a relevant legal tool, if the parties are interested in prioritising positive elements and relational norms to improve the long-term transaction.



Foto 2: Iris/Scanpix

¹ Williamson Comparative Economic Organization: The Analysis of Discrete Structural Alternatives, Administrative Science Quarterly, Vol. 36, No. 2, 1991, pp. 269-296.

STRATEGIC ALLIANCE IN THE MARITIME INDUSTRY

As in all industries, affected by the globalization and global legal changes, the maritime industry has faced a high degree of competition and a restructured international market in the last decade. Many different strategic measures have been used to ensure market shares, increase competitive advantages, access to new markets etc., for example mergers, cost reduction, integration of services, vertical and or horizontal outsourcing².

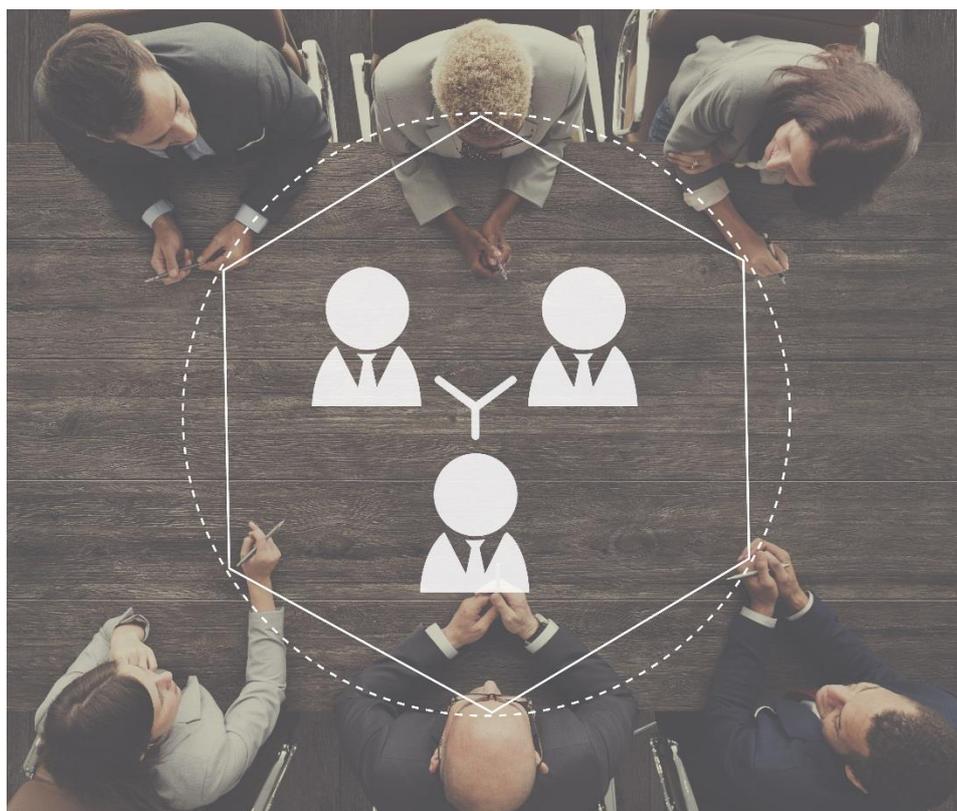


Foto 3: Iris/Scanpix

Global industries, as for example the automobile, e-commerce, IT, manufacturing, production, pharmaceutical and also the maritime industry, find that strategic alliances have become a significant strategic tool³. The traditional cost-reduction alliances perspective has changed to a relational output focused type of strategic alliances⁴. Firstly, the maritime carriers realized that they must cooperate despite their desires to operate independently, secondly, the rest of the maritime industry has used both vertical and horizontal strategic alliances to improve the competitive advantages.

² Midoro & Pitto, A Critical Evaluation of Strategic Alliances in Liner Shipping Maritime Policy and Management, 27, 31-40, 2000.

³ Douma, Bilderbeek, Idenburg, & Looise, Strategic Alliances: Managing the Dynamics of Fit. Long Range Planning, 33 (4), 579-598, 2000.

⁴ Hamel, Competition for Competence and Inter-partner learning within international strategic alliances, Strategic Management Journal . 12, 83-103, 1991.

Maersk Line, Limited (MLL) uses strategic alliances⁵:

”We partner with small and large companies that are well positioned to deliver top-quality services and provide the best solutions to resolve our customers’ challenges. We rely upon our network of partners to augment our skills in commercial and government contracting while reducing the total cost of ownership. Our strategic alliances provide us the flexibility to assemble a team having the specialized experience and unique knowledge necessary to fulfill any requirements.”

Hapag-Lloyd AG and five Asian carriers have formed a new vessel-sharing through a strategic alliance⁶:

”Through this robust network, THE Alliance will offer a superior, reliable, efficient, and wide ranging product suite to shippers in the East/West lanes. The partners of THE Alliance will keep the market informed about further steps and the final, more precise service rotations.”

The Ocean Alliance between CMA CGM, China CoscoShipping, Evergreen Line, and OOCL have established an alliance⁷:

“This new partnership will allow each of its members to bring significantly improved services to its respective customers. Shippers will have an attractive selection of frequent departures and direct calls to meet their supply chain needs, including access to a vast network with the largest number of sailings and port rotations connecting markets in Asia, Europe and the United States....The Alliance will also bring service reliability and the most efficient integration of the latest vessels in a fleet of over 350 containerships. Initially the deployment will cover more than 40 services globally mostly connected with Asia, including about 20 services each in the U.S. and Europe related trades.”

Several economic scientists have shown that carriers are entering into a wide range of both ocean and land setup contracts⁸ to ensure and maintain “a synergic relationship for their mutual interest as benefits from individual efforts would fail to achieve stated goals”⁹. Hence, the advantages from strategic alliances in the shipping industry are:

- Improve innovation
- Reduce costs by collaboration – sharing cost
- Improve operational management
- Service improvement
- Increase market share
- Increase profits
- Increase competitive advantages
- Share resources
- New markets

All parties in the broad maritime and shipping industry can participate in a strategic alliance, for example: Container shipping companies, shippers, freight forwarders, shipping agents, terminal operators, customs clearance, stevedore companies, warehouse service, truckers, inland warehouse operators, railway transportation, consignees, etc.

⁵ <http://www.maersklinelimited.com/working-with-mll/partners/>

⁶ <https://www.hapag-lloyd.com/en/press/releases/2016/11/the-alliance-announces-plans-for-its-competitive-product.html>

⁷ <https://www.cma-cgm.com/news/1137/cma-cgm-cosco-container-lines-evergreen-line-and-orient-overseas-container-line-to-establish-ocean-alliance->

⁸ Sheppard and Seidman, 2001 and Song and Panayides, 2002.

⁹ Huang & Yoshida, Analysis of Key Factors for Formation of Strategic Alliances in Liner Shipping Company: Service Quality Perspective on Asia/Europe Route after Global Economic Crisis, World Academy of Science Engineering and Technology, 7, 2013.

THE AIM OF THE RELATIONAL CONTRACT

The aim of a relational contract is to establish a set of binding rules to ensure the effectiveness of business strategic. Thus, the purpose of the relational contract is to structure and guides the parties from being separate parties to be partners in the strategic alliance¹⁰. Hence, the relational contract provides a binding legal framework aiming to optimise the transaction among the parties instead of two parties aiming to optimise their own utility.

This paper defines relational as a contract type in which all involved parties, from the beginning to the end of the project, oblige themselves to collaborate on solving the needs and functions of the project described by the owner, with a joint utility perspective and by agreeing upon common goals. All parties must increase the utility of the transaction, not their own, and allocate the benefits from joint optimisation in an economic and fair share by awarding when fulfilling the positive incentives, acknowledging that joint optimisation can only be obtained by full information, open books and calculations, trust, dialogue and use these objectives if a conflict arises¹¹.

Thus, the relational contract is a legal setup to promote long term relational commitments among two or more parties, as for example a strategic alliance or a multiple party maritime contract. In a relational contract, the parties must shift from being parties to being partners, a significant tool to maximise the output from a long-term strategic alliance. Sharing information is also a relevant alliance tool together with the relational norms as trust, collaboration and incentives, and also tools in strategic alliances used to create a competitive advantage¹².

¹⁰ Matton van den Berg and Peter Kamminga, Optimising contracting for alliances in infrastructure projects, *The International Maritime Law Review*, 2006, 59-77.

¹¹ Tvarnø, Partnering contracts, A Solution to the Nash Equilibrium? In a Contract Law and Game Theory Perspective. Paper presented at CBS conference, 2013, see <http://openarchive.cbs.dk/bitstream/handle/10398/8909/Tvarnoe.pdf?sequence=1>

¹² Matton van den Berg and Peter Kamminga, (2006). Optimising contracting for alliances in infrastructure projects. *The International Maritime Law Review*, 2006, 59-77.

BRIEF EXPLANATION OF THE GAME THEORY

The prisoner's dilemma game¹⁴ illustrates the dilemma between choosing self-optimisation and joint utility. The two individuals choose not to cooperate, even though they both have a common interest in collaborating, which is why the game illustrates the difference between individual and collective rationality. Decisions that are rational from the individual's perspective are inappropriate when seen with common eyes, even though an outsider can see the rational gains resulting from a common perspective¹⁵.



Foto 4: Iris/Scanpix

¹⁴ Rappaport, Prisoners' Dilemma, The New Palgrave, Game Theory, [1998], Maxmillian, p. 100. See also Rappaport & Chammah, Prisoners Dilemma, Ann Arbor, University of Michigan Press. MI.

¹⁵ Rappaport & Chammah, Prisoners Dilemma, Ann Arbor, University of Michigan Press. MI

Two people (“the prisoner’s”) have been arrested with stolen goods. The prosecutor only has sufficient evidence to get them prosecuted and convicted for possession of stolen goods if one or both of them confess to burglary. If the prosecutor only prosecutes the prisoners for possession of stolen property, then it will lead to a lower penalty than conviction for burglaries¹⁶. The two prisoners are placed in isolation and cannot talk to each other. Each prisoner is visited by the prosecutor, and gets offered the same deal. If one prisoner confesses and also gives evidence against the other prisoner, then the first prisoner will go free, while the other prisoner will receive the maximum sentence of four years’ imprisonment. If both prisoners confess, they will each get sentenced to three years’ imprisonment for burglary. If neither confesses, then each prisoner will get half a year imprisonment for possession of stolen goods because the break-in cannot be proved. The dilemma and the economic pay-offs from the decision-making are shown in the matrix below.

	Keeps quiet = Cooperates	Confesses = Defects
Keeps quiet = Cooperates	$-\frac{1}{2}, -\frac{1}{2}$	$-4, 0$
Confesses = Defects	$0, -4$	$-3, -3$

Figure 1: Prisoners Dilemma¹⁷

Confession is the dominant strategy because confession is the optimal choice for each player regardless of what the other player does or stated in economic terms, thus the only possible Nash equilibrium is to always defect. The prisoner’s dilemma game illustrates that defecting is always chosen in preference to cooperation, because, a rational self-interested person evaluates their own options in consideration with the other party’s possible choice, knowing that the rational self-interested counterparts do the same – in this scenario the only possible outcome therefore is not to cooperate but to defect. The risk of being defected by the other person is too great¹⁸.

The relational contract can solve this economic inefficiency by making the parties acknowledge the concept and benefit of joint utility and by creating a legally binding framework which will make the parties choose the right strategy without being caught in the dilemma between joint and self-optimisation.

¹⁶ Anatol Rapoport, Prisoners Dilemma, The New Palgrave, Game Theory, p. 100.

¹⁷ Cooter & Ulen, Law and Economics, 5th ed

¹⁸ Tvarnø, Partnering contracts, A Solution to the Nash Equilibrium? In a Contract Law and Game Theory Perspective. Paper presented at CBS conference, 2013.

THE CONTENT IN THE RELATIONAL CONTRACT



THE CONTENT IN THE RELATIONAL CONTRACT

The obligation to have open books and calculations is a significant condition if the parties are to reach the benefits from joint utility. If the parties do not share all relevant information and can trust the other parties to reveal their information too, self-optimisation will occur at once. Full information will increase the possibility to cheat and self-optimize¹⁹. Trust and collaboration as well as open books and joint utility are obligations to be delivered on the same conditions as delivering the building and payment. Open books and calculations increase the amount of information which includes information regarding prizes, cost, payment, salary, discounts, savings, earnings, etc. The higher degree of information, the larger is the possibility to achieve joint utility. Information also decreases moral hazard and adverse selection and the risk of a hold-up. Sharing information is a key element to increase the output of the transaction and combined with the fact that the parties are legally bound to reveal the information regarding the transaction, the closer to joint utility the parties get²⁰.

Game theory has shown some relevant theoretical information regarding situations, where the economic agent or contract party face a decision concerning a conflict of interest, in which the agent or contract party must choose a strategy. Many similar decisions must be taken every day in contracting, negotiation, employment, pricing, buying, selling, collaborating etc. - situations, where persons must consider to behave in a certain way or not²¹.

The specific clauses in relational contracts consist of binding agreements requiring the building owner to describe the needs and functions, and the constructor and design enterprises together with the building owner to collaborate on common goals and to use positive incentives to obtain the goals instead of negative clauses on breach and damages. Furthermore, the clauses are binding the parties to have open books, calculations and trust. The long-term intention in the relational contract is to stretch out the length of the contract to create the framework for the on-going negotiations in order to seek for the most optimal solutions on future challenges in the transaction. When building on needs and functions, the designer and the constructor do not have any specifications to fulfil, but must fulfil a more uncertain goal; a goal negotiated along the way by using the joint utility perspective in the relational contract. A very different perspective compared to a traditional works contract²².

As for traditional contracts, the relational contract is the legal rule among the parties and by that the legal reality, even though the framework differs from the contract law doctrine²³. It is necessary to make the parties legally bound by the relational contract. If not, the game theory has shown that it is too risky to engage in a joint optimisation - and too tempting to self-optimize. The risk of being cheated is too big if the parties are not bound by the contract. When using positive incentives and positive pay-offs, the relational contract sends a signal to share the common benefit from joint utility which is possible to gain, as shown by the prisoner's dilemma game.

¹⁹ Bagley & Tvarnø, Pharmaceutical Public-Private Partnerships: Moving from the Bench to the Bedside. Harvard Business Law Review (HBLR), Vol. 4, Nr. 2, 2014, s. 373-401. Tvarnø, Partneringaftalens særlige karakteristika, UFR nr. 45, 8. November, 2003, p. 366.

²⁰ Shavell, Contracts, The New Palgrave Dictionary of Economics and the Law, p. 433.

²¹ Cooter & Ulen, Law and Economics, 5th edition, Pearson/Addison-Wesley, 2008, p. 38.

²² Tvarnø, To bind or not to bind: It's in the contract, Formalizing Collaboration Through Partnering Contracts in the US, British and Danish Construction Industries, Journal of Strategic Contracting and Negotiation, Vol. 1, Nr. 4, 2015, s. 288-314. Tvarnø, Kontrahering af fælles optimering Partneringaftaler - i et komparativt og spilteoretisk perspektiv, Rets- og kontraktøkonomi (Eds Kim Østergaard; Jacob Lyngsie; Bent Ole Gram Mortensen), Djøf 2016, s. 13-35

²³ Tvarnø, Loyalitetspligt og partneringaftaler, Julebog 2002, ed. Ruth Nielsen, DJØF, p. 149.

STRATEGIC INFORMATION

In relational contracting, there is, as mentioned above, a mutual obligation to exchange strategic information and at best achieve relational rent, which means taking additional three conditions into consideration. The undertaking of exchanging strategic information increases the likelihood of getting closer to sharing the perfect amount of information and reduce asymmetric information between the parties. One could question what the economic reasoning behind the exchange of strategic information is? If the parties have managed to solve the game theory problem, as discussed above, the parties must fulfil the below mentioned cumulative conditions in order to achieve relational rent:

1. Investments in relation-specific assets
2. The combining of complementary, but, scarce resources or capabilities (typically through multiple functional interfaces) which results in the joint creation of unique new products, services, or technologies; and
3. Lower transaction costs than competitor alliances, owing to more effective governance mechanisms²⁴.

The exchange of strategic information is highly related to human specific assets deriving from the employees engaged in the strategic alliances on behalf of their companies. The exchange of strategic information should in the maritime sector result in new products and services benefitting both parties. Over the course of time, the exchanged strategic information becomes more and more specific resulting in relational-specific asset having a lesser value outside the contractual relationship. Among other things, the parties have to take into consideration whether they should have a joint title to the innovation, including but not limited to patents, and how and who should utilize the innovation in the market place, in order to use the contract as a mean to achieve relational rent. Thus, the exchange of strategic information between the parties is a central part of relational contracting.

²⁴ Dyer, J.H. & Singh H, The Relational View: Cooperative Strategy and Sources of Inter-Organizational Competitive Advantage, *Academy of Management Review*, 23(4), 1998, p. 662.

STRATEGIC CONTRACTING

However, relational contracting can be taken even further which in the new literature is defined as strategic contracting. Petersen & Østergaard define strategic contracting as follows:

“In contrast, we view strategic contracting as characterized by the aim of generating relational rent through the use of both proactive and reactive provisions that, based on resource complementarity and strategic fit between the contract partners, protect knowledge exchange and relationship-specific investments from opportunistic behavior. Hence, a strategic contract is a partnership arrangement through which the contracting parties achieve competitive advantage²⁵”.

The protection of knowledge exchange or strategic information is essential if the parties for instance pursue to obtain a patent, since there is a global requirement that news of potential patents must not be leaked to the public before the application for patent is handed in to the relevant authority. If any news has been leaked to the public, it is not possible to obtain a patent.

The protection of strategic information must be addressed in the contract and as well if relevant in a letter of intent, which has to be the main rule. Such a provision in the contract is normally denominated as a Non-Disclosure Agreement (NDA). Among other things, such provision must address the mutual obligation not to exchange information with any third party during the pre-contractual phase, over the course of the contract, and even when the contract has lapsed. The breach of such provision can be crucial, resulting in fundamental breach of the contract even though the parties might not have addressed such a breach as a fundamental breach directly in the content of the NDA. Furthermore, it must be taken into consideration whether a NDA should contain a penalty provision where the party in question has the right to claim further damages, if the penalty provision does not cover the loss derived from breaching the NDA.

²⁵ Petersen, B & Østergaard, K, Reconciling Formal Contracts and Relational Governance Through

THE PHD PROJECT



THE PHD-PROJECT

The PhD-project included in the research project -Blue INNOship, 'Servitization - Creating the market by understanding performance, price, cost, contracts and financing' - conducts research in regard to strategic alliances and relational contracting in servitization²⁶.

The maritime sector handles around 90% of the global industry trade, and is therefore a very important sector in our globalized world. Further, the shipping industry is a very costly business, and at the moment not very lucrative, due to a tight market.

Ships are very costly and thereby tie up a lot of capital. As a result hereof, the cost of capital can actually account for up to 80% of the costs of running a bulk shipping company with a fleet of modern ships, and therefore makes it very important that the ship-owners are cost efficient in order to have a profitable business and market²⁷. However, the maritime sector is forced to deal with many and diverse problems in its operation, as any imperfections or cost inefficiencies will have significant effects on the global trade. It is therefore essential that the ship-owners are cost efficient e.g. in relation to the ongoing service and maintenance of the ship from the market suppliers.

The ship-owners are mainly experts on shipping – not the ship itself – and seek to minimize cost while finding quick solutions that meet the statutory requirements. However the ship-owners are not necessarily experts on the long term cost effective maintenance of the ship. The ship-owners simply have imperfect knowledge when they are retrofitting and they base their decisions on limited information. The market suppliers are experts on the long term cost effective maintenance of the ship. However the market is imperfect and the quick (short term) solutions seems to overrule long term cost effective solutions thereby creating unnecessary costs for the individual parties. This creates an imperfect market with an unused potential.

The aim of the PhD dissertation is to optimize the market through long term cooperation and agreements between the parties. The imperfection in the market is created by asymmetrical information between the parties, which needs to be transferred between the parties. The PhD dissertation will perform a thorough analyze of the contractual relationship between the ship-owners and the market suppliers, and an analysis of the parties will include financial, environmental, time use, and service issues in order to establish an optimal contract for the parties.

In order to optimize the market through a long-term contract, the PhD dissertation will use theories on partnering and apply such theories to the maritime sector. Partnering can be characterized as an implementation of a strategic alliance between the parties through a joint optimizing contract. A party, who wants to create a strategic alliance, can either use the traditional way of contracting, where both parties seek to increase their own benefits and profit. Or they can make use of a partnering contract, in which both parties' interests will jointly be optimized. Both parties are trying to optimize the common goal/purpose with their contract and therefore not just their own benefits. Partnering has become applicable to many industries, which the PhD dissertation will find inspiration in these industries. Partnering is therefore a very important concept and may be able to create value in the maritime industry.

²⁶ The delivery of a service component as an added value, when providing products.

²⁷ Stopford, M., Maritime Economics, 3rd. edition, p. 269.

The basis for the PhD dissertation is the figure below, which illustrates the supply chain in which has been created based on the cooperation with the industry. The supply chain is a simplification of the situation in the industry, since several parties can be involved, all depends on the situation and market.

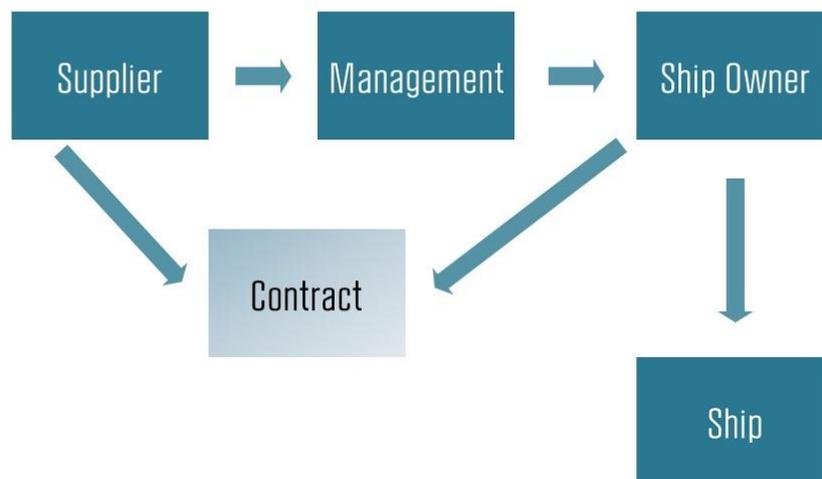


Figure 2: Contractual Relationship in the PhD-Project

Credit: Henriette Schleimann

When a ship-owner (principal) wants to buy a product from the supplier, he/she usually have a management (agent), which buys the product from the supplier on their behalf. This creates a principal- agent problem.

The aim of this PhD dissertation is to conduct research that will benefit all parties in the industry by creating these long term collaborations. This is not limited to the parties involved since new innovative products may be created. The research might actually change, not only the way of thinking in the business, but also the entire way of contract negotiation. Even the slightest optimizing will be of great value to the parties.

From a ship-owner perspective a better and more cost efficient ship/business structure would be created. From a supplier perspective, part of a development will be rethinking their existing products and how they can be optimized, or through development of new and more efficient products which can last longer and comply with the buyer's actual needs, who is therefore willing to pay more. Thus, as in any other industry, it is important to adapt to the market which one operates in, which means that the parties need to rethink their positions and the potential of optimization.

Based on the above, it is essential that the ship-owners are cost efficient e.g. in relation to the ongoing service and maintenance of the ship, which are provided by market suppliers.

Currently, the market is defined by one-off transactions which means that the ship-owners buy a product, install it - and then just keep on doing their business of shipping as usual. This business model is what the suppliers would like to change.

ACKNOWLEDGEMENTS

The report is part of the dissemination of the Blue INNOship Project No. 15 ‘Servitization: Creating the market by understanding the price, cost, contracts and financing’. The project is part of the Danish societal partnership, Blue INNOship and partly funded by Innovation Fund Denmark (IFD) under File No: 155-2014-10, as well as the Danish Maritime Fund and Orient’s Fond.



20 APPENDIX A. BLUE INNOSHIP

Blue INNOship is a societal partnership focusing on creating growth and employment in the Blue Denmark through development of green and energy-efficient solutions.

Blue INNOship consists of app. 40 partners covering suppliers, shipowners, consultants, universities and schools, GTS institutions, authorities and classification societies, who work together in 5 work packages containing 14 active projects and 1 pre-study.

The long term objective of Blue INNOship is to develop an innovation model for the Danish maritime industry and the partnership is an investment in the development of this strong common innovation model that will offer a central, competitive advantage for the Danish maritime industry.

The activities in Blue INNOship are funded by the project partners, Innovation Fund Denmark, the Danish Maritime Fund and Orient's Fund.

APPENDIX B. BLUE INNOSHIP PROJECT NO.15

Servitization: Creating the market by understanding price, cost, contracts and financing

Project background

As part of the Blue INNOship, Copenhagen Business School together with Danish maritime carries out the project 'Servitization - Creating the market by understanding performance, price, cost, contracts and financing'. Focusing on the critical success factor in servitization, the project aims to advance the dialogue between the Danish equipment manufacturers/service providers and ship owners. In particular, the project looks at the pricing practice and cost management of product-service solutions, design of service contracts, and financing of servitized solutions.

Project highlights

This project aims to advance the manufacturer-ship owner dialogue with focuses on the following aspects:

Price and cost - Building up the competencies of suppliers in pricing strategy and cost management of product-service solutions by considering market, design, life cycle and value chain; and building up the competencies of ship owners to strategically select the reliable supplier, product and service.

Contracts - Establishing new specific knowledge about how contracts can enable the transformation from one-off transactions to long-term collaboration between supplier and ship owner that encourages innovation and technical development by e.g. ensuring balance between risk and reward.

Financing - Creating specific insights into understanding how to link scale, profitability and financing of servitized solutions for the industry.

Project participants

CBS Maritime and Danish Maritime

Project Homepage

For more information on the project and upcoming activities, please visit the CBS Maritime website <http://www.cbs.dk/en/knowledge-society/business-in-society/cbs-maritime/research/research-projects>

22 APPENDIX C. PROJECT NO.15 THEMATIC SEMINARS

Seminar theme	Seminar dates
1. Target costing as a strategic tool to commercialize the product and service innovation (finalized)	3 October 2016
2. Pricing management and strategy for the marine equipment suppliers	14 December 2016
3. Optimization and handling of risks and cost within contracts	1 March 2017
4. Pricing products and services in the modular age	12 June 2017
5. Financing of new business models that can promote business and sales within the maritime industry – general	20 September 2017
6. Financing of new business models that can promote business and sales within the maritime industry – cases	6 December 2017
7. Negotiation and collaboration through international contracts	22 March 2018
8. Final Conference	14 June 2018
Optional: marine equipment leasing workshop	6 February 2018

Note: The project partners reserve the right to adjust the themes and timing of the remaining seminars according to the interests of the stakeholders and the progress of the project activities.

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CBS MARITIME:
A BUSINESS IN SOCIETY PLATFORM
AT COPENHAGEN BUSINESS SCHOOL

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