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INNOVATION STRATEGIES IN SHIPBUILDING: THE SHIPBUILDING CYCLE PERSPECTIVE

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Abstract. This paper investigates the innovation strategies of shipbuilding firms. The paper aims to understand the application of different innovation strategies adopted by firms in the shipbuilding industry related to the phase of the shipbuilding cycle. This is a conceptual paper aiming to summarize existing research in green shipbuilding, innovation and shipbuilding cycles. The paper also intends to shed new research avenues related to green innovation in the maritime sector. Issues relating to the aims of innovation development; environmental entrepreneurship, governmental support and how collaborative strategies were related to the phase of the shipbuilding cycle were explored. Implications for further research, practitioners, and policy-makers are provided.

Keywords: shipbuilding; the shipbuilding cycle theory; innovation; green shipbuilding.

References

Alajoutsijärvi, K., Hahtola, K., Klint, M.B. and Tikkanen, H. (2001) 'Customer relationship strategies and the smoothing of industry-specific business cycles: the case of the global fine paper industry', *Industrial Marketing Management*, Vol. 30, No. 6, pp. 487–497.

Arnold, L. G. (2002) *Business Cycle Theory*, Oxford: Oxford University Press.

Barney, J. B. and Hesterly, W. S. (2008) *Strategic Management and Competitive Advantage*, Upper Saddle River, N.J.: Pearson Education.

Berends, P. A. J. and Romme, A. (2001) 'Cyclicality of capital-intensive industries: a system dynamics simulation study of the paper industry', *Omega*, Vol. 29, No. 6, pp. 543–552.

Borch, O. J. & Solesvik, M. Z. (2013). Collaborative design of advanced vessel technology for offshore operations in Arctic waters. In *Cooperative Design, Visualization, and Engineering* (pp. 157–160). Springer Berlin Heidelberg.

Borch, O. J. & Solesvik, M. (2014). Partner selection for innovation projects. In *International Society for Professional Innovation Management (ISPIM) Americas Innovation Forum.*

Borch, O. J. & Solesvik, M. Z. (2015). Innovation on the open sea: Examining competence transfer and open innovation in the design of offshore vessels. *Technology Innovation Management Review*, 5(9), pp. 17–22.

Borch, O. J. & Solesvik, M. Z. (2016). Partner selection versus partner attraction in R&D strategic alliances: The case of the Norwegian shipping industry. Forthcoming in the *International Journal of Technology Marketing*.

Branch, A. E. (1998) *Maritime Economics: Management and Marketing*, Cheltenham Stanley: Thornes.

Chesbrough, H. W. (2002). Making sense of corporate venture capital. *Harvard Business Review*, 80(3), pp. 90–99.

Chesbrough, H. W. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.

Child, J., Faulkner, D. and Tallman, S. B. (2005) *Cooperative Strategy: Managing Alliances, Networks, and Joint Ventures*, Oxford: Oxford University Press.

Combs, J. G., and Ketchen, D. J. (1999). Explaining interfirm cooperation and performance: toward a reconciliation of predictions from the resource-based view and organizational economics. *Strategic Management Journal*, 20(9), pp. 867–888.

Das, T. K. (2004). Time-span and risk of partner opportunism in strategic alliances. *Journal of Managerial Psychology*, 19(8), pp. 744-759.

Das, T. K. and Teng, B.-S. (2000) 'A resource-based theory of strategic alliances', *Journal of Management*, Vol. 26, No. 1, pp. 31-61.

Freiling, J. (2004) 'A competence-based theory of the firm', *Management Revue*, Vol. 15, No. 1, pp. 27–52.

Fuhrer, J. C. and Schuh, S. (1998) *Beyond Shocks: What Causes Business Cycles?* Boston, Federal Reserve Bank of Boston.

Gulati, R. & Singh, H. (1998). The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. *Administrative Science Quarterly*, pp. 781-814.

Gulbrandsen, M. & Solesvik, M. (2015a). University-industry linkages in two industrial clusters in Norway. *Available at SSRN 2707272*.

Gulbrandsen, M. & Solesvik, M. (2015b). Comparing university-industry linkages in two industrial clusters in Norway. In *Academy of Management Proceedings* (Vol. 2015, No. 1, p. 18826). Academy of Management.

Inkpen, A. C. & Dinur, A. (1998). Knowledge management processes and international joint ventures. *Organization Science*, 9(4), pp. 454–468.

Lambe, C. J., Spekman, R. E., & Hunt, S. D. (2002). Alliance competence, resources, and alliance success: conceptualization, measurement, and initial test. *Journal of the academy of Marketing Science*, 30(2), pp. 141–158.

Lee, S.-H. and Makhija, M. (2009) 'Flexibility in internationalization: Is IT valuable during an economic crisis?' *Strategic Management Journal*, Vol. 30, No. 5, pp. 537–555.

Mowery, D. C., Oxley, J. E., & Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic management journal*, 17(S2), pp. 77–91.

Parkhe, A. (1993). Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal*, 36(4), pp. 794–829.

Parsyak, V. N., & Solesvik, M. B. (2014a). Integration of marine engineering and information and communication technology. *Shipbuilding & Marine infrastructure*, (2), pp. 144–155.

Prause, G., & Solesvik, M. (2011). University-Business Cooperation in Maritime Sector–The German-Norwegian Experience. *University-Business Cooperation Tallinn 2011*, 5, pp. 20–37.

Ring, P. S. and Van de Ven, A. H. (1994), 'Developmental processes of cooperative interorganizational relationships', *Academy of Management Review*, Vol. 19, No. 1, pp. 90–118.

Rockwell, L. H. J. (2005) 'Why Austrian Economics Matters?', Obtained through the Internet: *http://mises.org/etexts/why_ae.pdf.*

Samuelson, P. A. (1998) 'Summing up on business cycles: opening address', In: Fuhrer, J. and Schuh, S. (eds.), *Beyond Shocks: What Causes Business Cycles?* (pp. 33–36) Boston: Federal Reserve Bank of Boston.

Scarsi, R. (2007) 'The bulk shipping business: market cycles and shipowner's biases', *Maritime Policy and Management*, Vol. 34, No. 6, pp. 577–590.

Schaan, J.-L. and Kelly, M. J. (2007) *Cases in Alliance Management. Building Successful Alliances*, Thousand Oaks: Sage.

Solesvik, M. Z. (2007). A collaborative design in shipbuilding: two case studies. In *Industrial Informatics*, *2007 5th IEEE International Conference on* (Vol. 1, pp. 299–304). IEEE.

Solesvik, M. Z. (2011). Interfirm collaboration in the shipbuilding industry: the shipbuilding cycle perspective. *International Journal of Business and Systems Research*, 5(4), pp. 388–405.

Solesvik, M. Z. & Encheva, S. (2010). Partner selection for interfirm collaboration in ship design. *Industrial Management & Data Systems*, 110(5), pp. 701–717.

Solesvik, M. & Gulbrandsen, M. (2013). Partner selection for open innovation. *Technology Innovation Management Review*, 3(4), pp. 6–11.

Solesvik, M. Z. & Westhead, P. (2010). Partner selection for strategic alliances: case study insights from the maritime industry. *Industrial Management & Data Systems*, 110(6), pp. 841–860.

Stopford, M. (2009) *Maritime Economics*, London: Routledge.

Temin, P. (1998) 'The causes of American business cycles: an essay in economic historiography', In: Fuhrer, J. and Schuh, S. (eds.), *Beyond Shocks: What Causes Business Cycles?* (pp. 37–59), Boston: Federal Reserve Bank of Boston.

Todeva, E., & Knoke, D. (2002). Strategic alliances and corporate social capital. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, pp. 345–380.

Varadarajan, P. R., & Cunningham, M. H. (1995). Strategic alliances: a synthesis of conceptual foundations. *Journal of the Academy of Marketing Science*, 23(4), pp. 282–296.

Volk, B. (1994) *The Shipbuilding Cycle — A Phenomenon Explained*, Bremen: Institute of Shipping Economics and Logistics.

Warren, K. (2008) *Strategic Management Dynamics*, Chichester: John Wiley & Sons.

Wildeman, L. (1998). Alliances and networks: the next generation. *International Journal of Technology Management*, 15(1–2), pp. 96–108.

Williamson, O. E. (1975). Markets and hierarchies. *New York*, pp. 26–30.

York, J. G. & Venkataraman, S. (2010). The entrepreneur–environment nexus: Uncertainty, innovation, and allocation. *Journal of Business Venturing*, 25(5), pp. 449–463.

Парсяк, В. (2012). Економіка в заручницях екології: хтось має це зупинити. *Економіст*, (6), с. 4–5.

Парсяк, В. (2014a). Морська економіка як чинник піднесення країни. *Економіст,* (5), с. 3–5.

Парсяк, В.Н. (2014b). От экономики судостроения к экономике моря — целесообразный вектор регионального развития. Судостроение и морская инфраструктура : Николаев, НУК, (1), — С. 136–147.

Парсяк, В.Н. & Солесвик, М.Б. (2014b). Информационно-коммуникационные технологии в проектировании судов. *Конференция Sworld*, Одесса, 17–28 июня 2014. Доступна на http://www.sworld.com.ua/konfer35/647.pdf

1 Introduction

Governments try to enhance innovativeness of the national firms. Innovativeness is considered as a key driving factor of competitiveness of the Norwegian firms in the market (Borch and Solesvik, 2014; 2015). Innovation work becomes a core competence and an important area of firm's activity. New approaches to innovation has been developed, for example, open innovation Chesbrough, 2002). Innovation goes steadily beyond the firm's borders and becomes a cooperative process where firms collaborate with each other (Borch and Solesvik, 2016) and other stakeholders, i.e. governments, R&D institutions and universities (Gulbrandsen and Solesvik, 2015a; 2015b; Prause and Solesvik, 2011). The level of interfirm cooperation in maritime R&D development will be even more significant in the future since the industry needs more radical innovations. Radical innovations are needed in relation to the course towards green shipping and shipbuilding (Parsyak, 2012, 2014a, 2014b; York and Venkataraman, 2010) as well as exploration of remote areas with complex conditions for maritime operations, such as Arctic areas (Borch and Solesvik, 2013). This study addresses the scarcely explored area of interfirm cooperation in the context of the shipbuilding industry. Interfirm cooperation related to maritime R&D represents a vast potential to increase competitive advantage of firms in the shipbuilding industry (Solesvik and Westhead, 2010). Very little literature, however, has directly addressed the issues of innovation in the context of the shipbuilding industry.

One of the specific features of the shipbuilding industry is its cyclicality. This study draws on the shipbuilding cycle perspective. A firm's strategic flexibility to respond to negative changes in a firm's environment helps to avoid below-par performance (Lee and Makhija, 2009). There has been little attention to the exploration of innovation strategy related to the phase of the business cycle. The purpose of this study is to address this research gap. The paper aims to understand the dynamics of innovation strategies adopted by firms in the shipbuilding industry related to the phase of the shipbuilding cycle.

The research questions guided this study: Is the innovation strategy selected by a shipbuilding firm related to the phase of the shipbuilding cycle? The study focuses upon the shipbuilding firms. Shipbuilding firms include shipbuilding yards, ship design firms, and suppliers of ship equipment and machinery. The paper is organized as follows. In the next section, the theoretical perspectives are reviewed. Afterward, the model linking innovation strategy and stages of shipbuilding cycle is presented. Finally, conclusions with a summary for policy-makers and practitioners are given. Presentation of the public policy dimension is important, since policy-makers in a number of regions are interested in development of shipbuilding and have approved a range of initiatives to support shipbuilding production.

2 Theoretical perspectives

2.1. Open innovation

Open innovation was conceptualized relatively recently (Chesbrough, 2002), but it has rapidly become a popular approach to new product development. Open innovation is defined as «the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively» (Chesbrough, 2006). There are many approaches and dimensions to open innovation, but for this paper, we focus on the importance of tight cooperation between the end user and suppliers of core production units. Open innovation approach to the development of innovative products is successfully used in maritime sector (Solesvik and Gulbrandsen, 2013).

2.2. The shipbuilding cycle perspective

2.2.1. Defining shipbuilding cycles

The shipbuilding market is one of the four shipping markets. Other shipping markets are the freight market, the demolition market, and the second-hand markets. A shipbuilding cycle is defined as 'the period of time between one production peak and the next' (Volk, 1994: 13). The average reduction in production between peak and trough in shipbuilding is around 50%, and in some worse cases reduction is up to 80% (Volk, 1994). The market cycles are not unique to marine businesses. The cycles are common for the whole world economy

as well as to specific industries, including construction, the semiconductor industry, petrochemicals, pulp paper, and computer memory chips manufacture (Berends and Romme, 2001; Warren, 2008). Moreover, it has been noticed that the level of cyclicality in different industries has increased lately (Alajoutsijärvi et al., 2001).

Market cycles have been a popular research theme in economics for more than a century (Arnold, 2002; Fuhrer and Schuh, 1998; Rockwell, 2005; Samuelson, 1998; Temin, 1998). However, the topic of coping with business cycles has received limited attention from management scholars. It was generally believed that the cyclicality is an exogenous and uncontrollable factor from the firms' side. Recent studies, however, aim to find strategies which assist firms in smoothing industry-specific business cycles. Notably, Alajoutsijärvi et al. (2001) suggest that different customer relationship strategies during different phases of business cycle assist to smooth cyclicality. The innovation strategies applied by firms in different stages of the cycle differ as well. Alajoutsijärvi et al. (2001) argue that during a boom period, firms should have a more collaborative and flexible strategy; whereas during a trough period firms shall have a more competitive and dominant strategy.

2.2.2. Stages of the shipbuilding cycle

The shipbuilding cycle usually develops as follows. First, for some reason, the demand for transportation of certain commodities grows. If the supply of ships to transport these goods cannot be raised quickly, the freight rates will increase. High profits stimulate the ordering of new ships. Finally, an augmented supply may lead to a slump. Shipbuilding cycle theorists (Stopford, 2009; Volk, 1994) suggest that there are four stages in the market cycle: trough, recovery, peak, and collapse (Fig. 1).

Trough is characterized by the excessive supply of seaborne transport. Some vessels go slowly to economize on fuel, or to stay idle. The discrepancy between supply and demand pushes he freight rates down. The demand for newbuildings is low. Shipowners who have high operating costs, above the freight rates, are forced to lie down, sell, convert, or demolish vessels. A significant part of old tonnage is scrapped in this period. The number of new shipbuilding contracts is smaller. The production facilities are underutilized. Only a few shipping companies try to go anti-cyclical. They order new vessels at the bottom of the cycle. This gives shipowners certain advantages, such as quickly constructed cheaper vessels. During this phase, shipbuilding firms are in a vulnerable strategic position in the highly competitive shipbuilding market. During this period, margins are lower and product differentiation is problematic. When the order book is small, ship designers, suppliers of ship equipment and machinery, and shipyards try to attract customers with new, innovative ships which are more efficient than the existing fleet. Thus, competences in new product development are crucial during the stages of trough and recession.

Recovery. Demolition and conversion of some vessels lead to decrease of the ships supply in a given segment. If demand for transportation services increases, the freight rates might go up. The prices for second-hand vessels grow. The order book of the shipbuilding firms slowly fills in.

Peak. When demand for marine transportation is equal to supply, the market is in the equilibrium. If the trade or industrial needs continue to rise and additional vessels cannot be supplied immediately, the freight rates continue to grow well above the operating costs (in some cases two-three times more). The higher revenues and freight rates stimulate demand for new ships. The shipyards are usually fully booked up to several years in advance. Two to three years is a typical world order book (Branch, 1998). In the periods of 'super-cycles', the shipyards may be booked up to six to seven years ahead (Scarsi, 2007). The shipbuilding capacity is a scarce re-

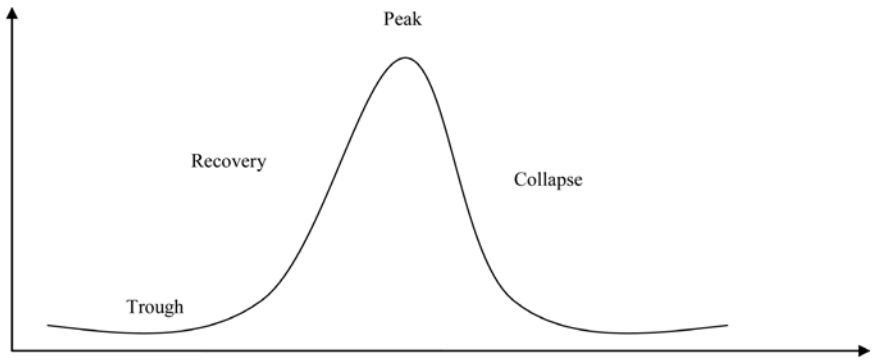

Fig. 1. A shipbuilding cycle

Source: adapted from Stopford (1997)

source in this period. In such situation, the shipyards may obtain necessary resources (e.g. human, production facilities) through interfirm collaboration.

Collapse. If, for some reason, demand stops growing or decreases, and newly built vessels arrived to the market from shipyards, the misbalance of supply and demand causes collapse. The freight rates are downsizing. The shipyards complete the started orders. In some cases uncommenced construction can be cancelled. The number of new shipbuilding contracts is low.

2.3 The role of interfirm collaboration

Strategic alliances which are a form of interfirm cooperative strategy increasingly identify the structure of whole industries (Child et al., 2005; Schaan and Kelly, 2007), including maritime industry (Parsyak and Solesvik, 2014a; Solesvik, 2007; Solesvik and Encheva, 2010). Interfirm cooperative relations may be defined as 'socially contrived mechanisms for collective action, which are continually shaped and restructured by actions and symbolic interpretations of the parties involved' (Ring and Van de Ven, 1994: 96). Some writers have asserted that interfirm cooperation arrangements create value by exploiting opportunities and neutralizing threats standing in front of a firm (Barney and Hesterly, 2008). Further, Barney and Hesterly (2008) argue that interfirm cooperative arrangements create value in several ways: exploiting economies of scale; learning from competitors; managing risk and sharing costs; facilitating the development of technology standards; facilitating tacit collusion; low-cost entry into new markets, industries and industry segments, low-cost exit from industries and industry segments, managing uncertainty.

Firms can learn from their collaboration partners. Learning may be a goal of a collaborative arrangement, or it may be a beneficial by-effect (Todeva and Knocke, 2005). Mowery et al. (1996) suggest that a strategic alliance is a channel for transferring and creating novel organizational capabilities. Equity-based alliances are viewed as being superior to contract-based alliances in terms of transfer of complex capabilities. Furthermore, successful knowledge management, cultural proximity between partners, alliance management skills, and learning can be generated by strategic alliances (Inkpen, 1998).

Firms engaged in interfirm collaboration can share complementary competences with their partners. Further, the partners may share resources. Combs and Ketchen (1999) argue that resource deficient firms engage in interfirm collaboration in order to gain access to critical resources (Lambe et al., 2002).

Firms can reduce their risk exposure by developing interfirm collaborative relationships, particularly with regard to the generation and exploitation of novel technologies (Wildeman, 1998). Further, partners engaged in collaborative relationships can reduce their cost bases. Joint marketing agreements may enable collaborating firms to reduce their communication and advertising costs. Joint R&D is a mechanism to reduce costs related to the generation of new innovations and new product development.

Interfirm cooperative arrangements can be associated with several drawbacks. Cooperative arrangements can fail to achieve their goals (Child et al., 2005). Strategic alliances can be difficult to manage (Das and Teng, 2000). Coordination costs relating to the management of some types of strategic alliances can be high (Gulati and Singh, 1998).

Potential drawbacks might arise due to conflicts between the parties, which can be related to a lack of strategic fit, goal inconsistency, inter-organizational culture difference, and low level of coordination efficiency (Freiling, 2004). Risk is associated with all types of interfirm collaboration. Notably, partners might incur financial resource-deficiency and / or market opportunity risk (Child et al., 2005). Participating firms bear a risk of partner opportunism (Das, 2004). Opportunistic behaviour is defined as "self-interest seeking with guile" (Williamson, 1975: 9). Collaborative partners might have different views and expectations on their own contribution, as well as their partners' contribution. Firm managers might get upset when their partners violate the norms and the principle of reciprocity in strategic alliances (Todeva and Knocke, 2005). Additionally, the time used by top managers to negotiate and implement the alliance might be significant, a firm's knowledge might leak to a partner, and some capabilities might atrophy (Varadarajan and Cunningham, 1995).

Careful partner screening and selection can reduce the problem of opportunistic behaviour by a partner (Parkhe, 1993). Information and communication (ICT) tools can encourage management flexibility and efficiency (Parsyak and Solesvik, 2014a). Additional evidence is required surrounding methods of best and worst practice relating to collaborative partner selection, and subsequent collaborative behaviour by shipbuilding firms.

3 Findings

The study aimed to disclose the impact of shipbuilding cycles on innovative strategies of the maritime firms. The study added to debate regarding innovation strategy (Barney and Hesterly, 2008). Innovative strategies can differ relating to the phase of the shipbuilding cycle. General reflections regarding a rationale for innovation activities on the various phases of shipbuilding cycle are summarized in Table 1. During the trough, shipbuilding firms might cooperate with shipowners and other stakeholders to develop radical innovation products. An excessive human

resource capacity leads to the possibility using the well qualified engineers in R&D work. This strategy also helps to retain skilled workers and engineers. R&D collaboration to attract shipowners with novel innovative design is also a possible avenue during the trough. As an example, an R&D consortium is created to elaborate a platform supply vessel which uses fuel cells. The members of the R&D consortium were the shipping company, the engine supplier, the shipyard, and the ship design firm. During the recovery, R&D collaboration to attract new orders and R&D collaboration are also advisable. The nature of innovation strategy changes during the peak. Shipbuilding firms often might lack of engineering resources and would concentrate on developing incremental innovations. During the collapse, shipbuilding firms still have some R&D works to finish. However, to secure new orders they are advised to seek radical innovation ideas. Additionally, Table 1 contains the characteristics of the stages in the related markets: the freight, the second-hand, and the demolition markets.

4 Conclusions and implications for future research

The role of innovation development in the maritime industry is steadily growing. The maritime authorities and governments introduce tougher rules and requirements related to ship safety and emissions of dangerous gases. This leads maritime firms to develop novel types of the vessels that use environmental friendly sources of fuel, for example, electricity of hydrogen. The tasks facing maritime firms are difficult. The contribution from specialists in many fields is required to create radical innovations in the shipbuilding. Thus, firms in the maritime industry seek to form reliable cooperative relations

Table 1. Innovation and shipbuilding cycles

Phase of the cycle	Characteristics of the phases		Rationale for innovation
	In the freight, second-hand and demolition markets	In the shipbuilding market	
Trough	– demand for seaborne transportation is low – shipowners are reluctant to invest – freight rates are low – low prices for second-hand vessels – scrapping of older tonnage – weak cash flow – banks are careful to give loans	– minimal demand for new vessels – low newbuilding prices – small order book for ships – low levels of workload – some employees are fired	– R&D collaboration for new vessel development – radical innovation development – new markets entry (i. e. offshore windmills) – utilization of excess production capacity – utilization of low-used technological resources (designers and engineers) – use and retain of existing skilled human resources – preservation of core competences – maintaining shipbuilding capabilities
Recovery	– demand for transportation is increased – freight rates go up – prices for second-hand vessels rise – stronger cash flow – fall in scrapping of old vessels	– demand for newbuildings is rising – order book of the yards starts to fill up – prices for new ships are slightly increasing – the number of employees is stabilized	– radical innovation development
Peak	– sky-high freight rates – high prices for second-hand fleet – only a few very old vessels are scrapped – very strong cash flow – banks compete with each other to give loans to shipowners	– high demand for new vessels – high newbuilding prices – order book for several years in advance – shipowners invest into new ships – shipyards increase delivery capacity – a number of employees is increasing – prices for equipment and materials for ships are high – building costs increased	– incremental innovation strategy
Collapse	– supply of ships and demand for them becomes even; in some cases, ships supply is higher due to new ships arrival from shipyards ordered before – freight rates go down – prices for second-hand vessels go down	– reduced demand for new ships – shipyards complete previously ordered vessels – decline in orders – newbuilding prices go down	– search for ideas of radical innovative products

Source: own development of the authors, Solesvik (2011).

with other stakeholders, i.e. other industrial firms, governments, R&D institutions and universities. The serious problem facing the maritime industry is related to industrial cyclicality when periods of high rates and revenues can be suddenly changed with the lean periods with small order books and low income. This feature is reflected in innovation strategies of the maritime firms. In this conceptual paper, I have summarized knowledge from several streams of research in order to shed light on the changes of innovation strategy at the different stages of the shipbuilding cycle.

The study represents an early exploration into heterogeneity of innovation strategies of shipbuilding firms regarding the phase of shipbuilding cycle. Future studies can empirically test proposed framework. Policy-makers should acknowledge the heterogeneity and dynamics of innovation strategies. This implies that identical policy programmes aimed towards increasing innovation among firms of the shipbuilding industry would influence them in different ways during the peak, collapse, trough, and recovery phases of the business cycle.

СОВРЕМЕННЫЕ ЗАДАЧИ ЭКОНОМИКИ МОРЯ