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TO SERVICIZE IS TO REPOSITION: UTILIZING A PORTERIAN VIEW TO UNDERSTAND SERVICITIZATION AND VALUE SYSTEMS

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1. INTRODUCTION

Iconic cases illustrate how companies, such as Rolls-Royce, ABB, Caterpillar, and GE (Huikkola, Kohtamäki, & Rabetino, 2016) have been increasingly implementing servitization while moving from offering stand-alone products to selling solutions. Selling solutions allows manufacturers to supply a combination of products, systems, knowledge, and lifecycle services (Rabetino, Kohtamäki, Lehtonen, & Kostama, 2015), but it requires a deep redefinition of manufacturers' business models (Reim, Parida, & Örtqvist, 2014), which involves implementation of different repositioning moves within the value system (Wise & Baumgartner, 1999) through different mechanisms to redefine the firm boundaries.

Previous studies typically downplay the discussion of strategic repositioning in servitization (Bustinza, Bigdeli, Baines, & Elliot, 2015), and mainly recognize repositioning as a way of moving closer to customers, increasing the service portfolio and the 'serviceable' installed-based, and obtaining new skills and competencies. However, the role of industry power and the study of particular strategic moves aimed at increasing companies' sphere of influence during strategic

positioning within the value system are essential, but then again often neglected concepts. Vertical repositioning is not straightforward and typically involves challenging the position of other players in the value systems when strategically moving not only to where the money is (Wise & Baumgartner, 1999) but also to where the money will be in the future (Christensen, Raynor, & Verlinden, 2001:74). Consequently, distribution of power is central when explaining the dynamics of repositioning moves (Sturgeon, 2008). Throughout these moves, companies must “*explore penetration points in multiple tiers that are not immediately adjacent*” and look for “*opportunities to influence customer demand*” (Pil & Holweg, 2006:73). Drawing on an in-depth single case study of one global company in the ship power sector that has been implementing servitization for more than fifteen years, this chapter illustrates the implications of industry power and its consequences on firm vertical positioning within the value system.

2. THEORY

Vertical positioning is built on boundary-related decisions that include considerations regarding the product range and decisions of investing/divesting in infrastructural activities but also decisions regarding moving downstream into servicing and upstream into component manufacturing (Chandraprakaikul, Baines, Lim, & Sakburanapech, 2010). Thus, positioning involves a firm’s decision about which value-adding activities should be performed internally and which should be outsourced to suppliers, partners, distributors, and/or customers (Baines, Kay, Adesola, & Higson, 2005). Companies may either integrate or change their position in the value system to not only leverage the use of existing resources and core capabilities by following a diversification strategy but also acquire those needed capabilities that firms do not currently

possess. However, repositioning not only becomes a central notion for a focal firm but also involves moves that challenge other industry players' positions. Thus, distribution of power is central when explaining the dynamics of repositioning moves (Sturgeon, 2008). Companies must recognize who are the key actors in the industry, how the value system is governed, how the inter-firm division of labor is organized (Gereffi, Humphrey, & Sturgeon, 2005), and how the value is created and distributed within the value stream (Ivarsson & Alvstam, 2010). Several concepts address these power-related issues. For instance, "platform leaders" (Cusumano & Gawer, 2002) and "keystones" (Iansiti & Levien, 2004) are used to describe situations where firms have the power of setting standards and rules in an industry. Governing "bottlenecks" within industries is a necessary condition to reach "architectural advantage" (Grant, 2010:82), which can be achieved by enhancing mobility across the value chain, redefining roles and responsibilities by looking at what other player's needs, and becoming a less replaceable bottleneck within the industry architecture (Jacobides, 2011).

Following the resource dependence (Pfeffer & Salancik, 1978) and industrial organization (Porter, 1980) traditions, firms may change their positioning within the industry value system to obtain capabilities, to reduce the causes of external uncertainty, and to control strategic relationships, knowledge and resources. Repositioning becomes a tool to "determine the sphere of organizational influence, including its degree of industry control and its power over the external forces" (Santos & Eisenhardt, 2005:491). Accordingly, firms may go downstream to offset (intermediate and end) customers' bargaining power or to improve product differentiation by providing a better service for customers and strengthening the firm's brand (Porter, 1980). Appropriating successive markups, dominating the linkages where purchasing decisions are made (Pil & Holweg, 2006),

and establishing industry standards downstream while ensuring the consolidation of the main products on the original upstream market are also relevant reasons. Conversely, firms can move upstream to raise rivals' costs and establish entry and/or mobility barriers to gain power and reduce the dependence on a single supplier while guaranteeing a strategic supply under favorable conditions (Porter, 1980).

3. A PORTERIAN TOOLKIT FOR UNDERSTANDING REPOSITIONING IN SERVITIZATION

Many iconic manufactures have been establishing competitive advantages from servitization based on different steps of vertical repositioning (Davies, 2004; Wise & Baumgartner, 1999). Repositioning has typically been study as a way of reconfiguring the required resources and capabilities (Huikkola et al., 2016), which include system integration and project management, IT capabilities, consulting, financial competences, delivery, and post-sales service capabilities (Brady, Davies, & Gann, 2005). However, the successful development and deployment of new services is also related to the degree of control a firm exercises over a service value chain (Raynor & Christensen 2002). Thus, the need for increasing industry power may also explain why servitizing firms move vertically to safeguard their domain (Cacciatori & Jacobides, 2004). Vertical control should guarantee access to end customers to enter into a higher-return business. Furthermore, a vertically integrated structure can provide means to guarantee that product specifications and services can be adjusted to diverse customer needs (Davies, 2004).

Baines, Lightfoot, and Smart (2011:950) present two positioning practices between conventional manufacturers and conventional service providers: 1) focusing on product-centric services while keeping a tail in production operations, or 2) combining original equipment manufacturer and product-centric services. Davies et al. (2007) propose two ideal types of organizing the integrated selling and delivering of solutions: 1) the system integrator that coordinates the integration of components supplied by other firms and 2) the vertically integrated system seller that produces all product and service components in a system. For instance, system integration is a deliberate “strategic business activity” that facilitates firms to shape “their position in an industry value stream” over time while “enabling them to decide who to compete with, who to collaborate with, what to make in-house, and what to outsource” (Hobday et al., 2005:1136). Whereas vertical integration through mergers and acquisitions appears to be a common pattern of internalizing environmental sources of uncertainty for firms when moving downstream, the control of the value system can also be achieved successfully without full ownership by using quasi-integration, alliances, franchises, and joint ventures (Mahoney & Pandian, 1992).

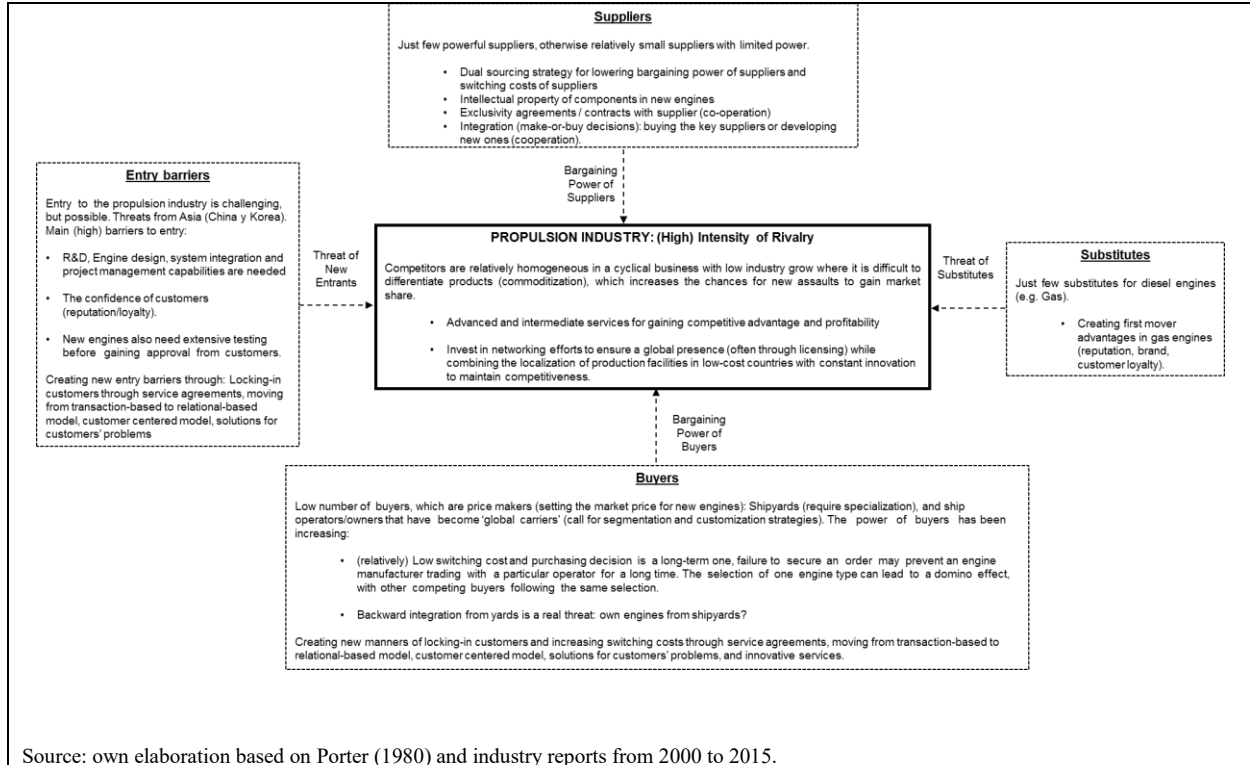
3.1. Industry structure and the transition from systems to solutions

Let us consider a system supplier in the shipbuilding industry as an example. Shipping and shipbuilding industries started feeling the effects of deep globalization during the early 1980s. One of the most significant consequences was a deep change in the way the whole shipbuilding industry worked. By the late 1990s, looking for operational flexibility and technical integration efficiency, and affected by their exposure to demand volatility, shipyards began to demand turnkey systems from their suppliers while becoming ‘system integrators’. For example, shipyards demanded

propulsion systems rather than their components in an individual way because the system procurement strategy enables the use less providers. Today, many yards focus more focused on project management and cost efficiency and, in some segments, the value added in a new ship is increasingly coming from system suppliers. The installation of turnkey systems also simplified ship operators/owners' daily processes while increasing operational reliability and cost efficiency. This strategy also enables the use of only a single lifecycle service provider (after the warranty period is over). Becoming a subsystem integrator also was convenient for component suppliers. They not only have the best knowledge of their components, but also by fulfilling such a role was an opportunity to add aftermarket services as part of the total offering.

Our illustrative case example seized the new opportunities by shifting the emphasis in its business from engine delivery to the integration of systems. Based on the combination of lowered total cost and enhanced performance for the customer, system integration was thought of as a differentiation strategy because of the competitive pressures from low-cost countries. However, the system integration strategy has turned into a highly spread industry recipe during the following years. In a highly globalized, volatile, and cyclical shipbuilding industry (Cho & Porter, 1986; Stopford, 2009), the structural forces (Porter, 1980) of the marine propulsion industry pushed the hitherto system integrator to initiate an additional journey to become a solution provider (Figure 1).

Figure 1. Five forces in the propulsion industry.



Regarding the rivalry, the market for propulsion systems is controlled by few European and Asian manufacturers (and licensees), where the share of the latter group has been continuously increasing during the last years. The business is a mature and capital-intensive industry lead by several global dominant players constantly struggling to improve their volumes and market share. Still, there is a need for constant investment in technology and R&D, and the market leadership undoubtedly depends on the engine type and market segment. The major suppliers must invest in networking efforts to ensure a global presence (often through licensing) while combining the localization of production facilities in low-cost countries with constant innovation to maintain competitiveness. While some competitors have more comprehensive portfolios and integrated offerings, other companies are only active in certain market segments.

Regarding the customers, the 'propulsion business' consists of two connected markets: propulsion systems for the shipyards (primary market), and aftersales services for ship operators (secondary market). Shipbuilding includes the assembly of new ships and its associated activities (repairing, maintenance and conversion). Whereas backward integration from yards is a real threat (offering own engines), few large conglomerates dominate the industry today (mainly from South Korea; China; Japan and Western European countries). The aim of shipyards is to meet the standard reliability and legal requirements at the lowest possible cost. Despite the high barriers to entry (e.g. regulations, scale economies, capital and expertise), new entrants have cyclically entered the shipbuilding industry driven not only by demand peaks, but also promoted by local governments. Increasing arrivals lead to overcapacity once the demand peak is over, creating oversupply. Overcapacity has been promoting mergers and acquisitions waves for years. Due to the combination of high fixed costs, overcapacity and high exit barriers price is a key competitive factor. Thus, price cutting practices and the search for cost efficiency based on economies of scale and low-cost locations for operations are common strategies.

In addition, the number of operators is relative low compared with the number of shipyards once the market is properly segmented. Whereas many operators have become global carriers and have increased their bargaining power during the last years, the decision power regarding the ship design has been partially moved from shipyards to ship owners. Typically, ship operators demand uninterrupted operations at the lowest possible guaranteed lifetime costs (total cost of ownership). The relatively low switching cost and long-term one purchasing decisions increase operators' bargaining power because a failure to secure an order may prevent a yard or a propulsion system provider trading with an operator for a long time. Moreover, the selection of one engine type can

lead to a domino effect within the industry, with other competing buyers following the same decision.

The provision of after-sales support to a large installed base during the system lifecycle (30 years) is an important source of sales and profits. Access to this secondary market depends largely on completing the original sale of new propulsion systems, which provides the opportunity for the provider to offer after-sales services. Ship-owners in different market segments have dissimilar needs in terms of professional support and operational guarantees, ranging from those who want a low-cost service to those who need full service contracts. In any case, neither the shipyards nor the engine manufacturers are able to control this secondary market entirely because of the existence of relatively low entry barriers. Attracted by the prospect of achieving significant benefits, a large but heterogeneous group of companies selling components and providing basic services (e.g. repair, maintenance, and overhaul) and spare parts, has emerged nearby the most relevant system manufacturers over the past 20 years. Once again, system suppliers may increase the control of the secondary market by providing solutions provider and service agreements that include advance services (e.g., remote diagnostics, and operational services).

Finally, whereas the threats of substitute products and potential new entrants are weak (high entry barriers such as R&D investments, reputation and customer loyalty, system integration and project management capabilities), only a few suppliers of engines components have some relative but still limited bargaining power (e.g., injection systems, cylinders liners, pistons sets, crankshafts, dampers, turbochargers and coupling systems). Markets for other relevant components of the

propulsion system are fragmented and highly competitive (e.g., propellers, thrusters, gears, seals, and bearings).

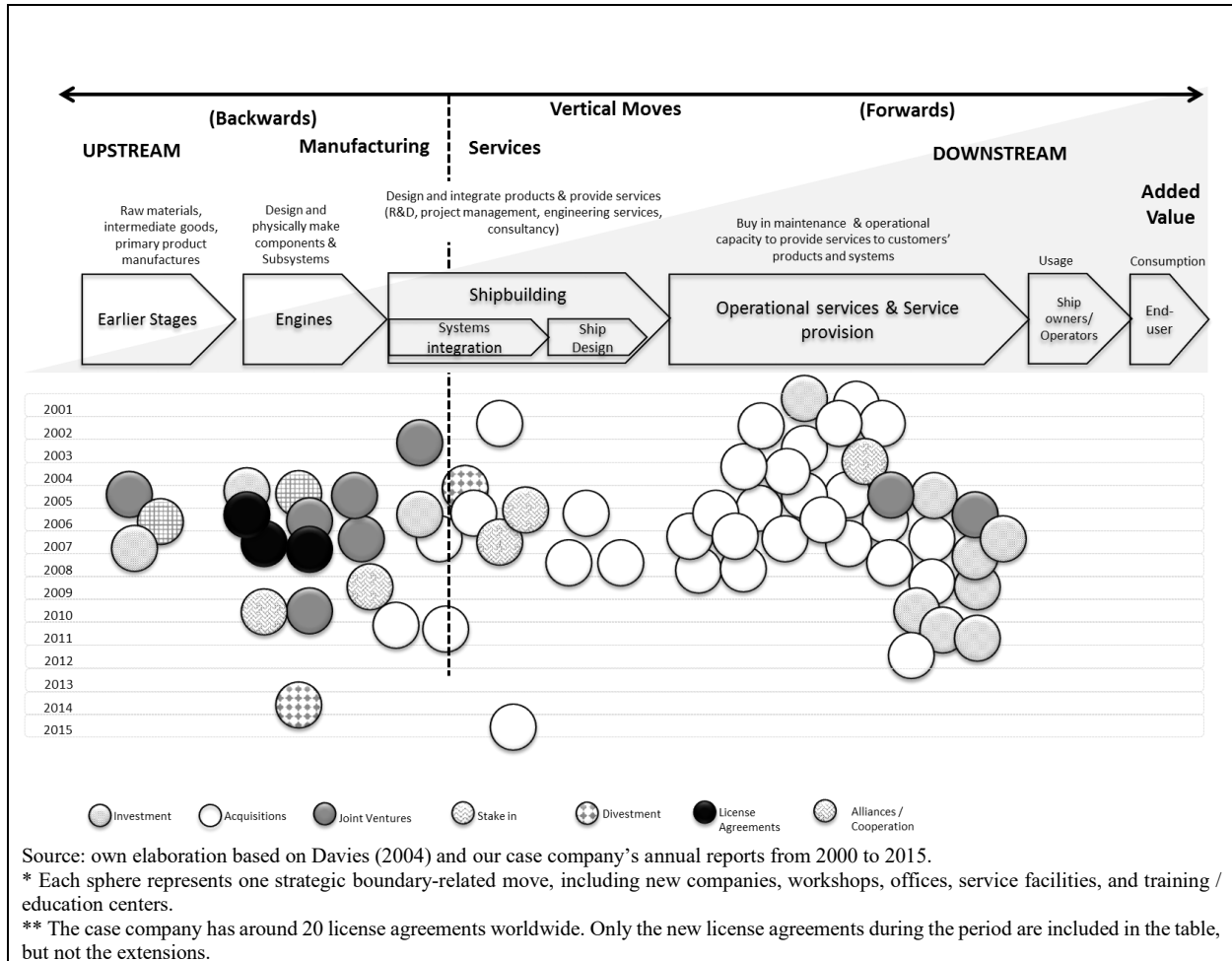
Facing such an industry structure, moving from a transaction-based to a relational-based model that is customer centered and based on solutions and advanced services while locking-in customers through service agreements and increasing the switching cost is a way to not only increase differentiation (reduce rivalry) and reduce the bargaining power of customers but also build stronger entry barriers. Finally, the bargaining power of suppliers may be reduced (even more) through dual sourcing strategies, intellectual property of components in new portfolios, signing exclusivity agreements, and buying the key suppliers or developing new ones through cooperation.

3.2. (Re) positioning for solution provision: A value system approach

Moving towards solutions involved for the case company a change in the organizational structure while reconsidering the scope of vertical positioning. For instance, the acquisition of a company specialized in propulsion systems (2002) and an agreement for manufacturing propellers (2004) were the initial steps when becoming a system supplier. Then, our case company initiated a strategic step that has been broader than the change from an engine maker to a system integrator. The company acquired several service providers to develop new service products and speed up deliveries. Maintenance and operational services provision for the systems sold became a necessary constitutive component of the new value proposition, providing means to maximize the customer value and create competitive advantages, revenues, and profits. Although the company already had services (field services, spare parts, and projects), they were still sold rather unbundled.

Over subsequent years (2004-2011), the development and/or acquisition of new capabilities to offer solutions and service agreements composed of systems and services to support customer processes (Mathieu, 2001) became the company's strategic target. A detailed analysis of the last 16 annual reports of the case company allows us to translate this transformation into systematic and quantifiable strategic moves from 2000 to 2016. Pictorially, our service transition map illustrates that whereas upstream strategy was based mostly on joint ventures, alliances, and license agreements, investments and acquisitions were the chosen mechanisms for the downstream value migration from 2000 to 2015 (Figure 2).

Figure 2. Service transition map: repositioning within the value system.



In project-based businesses with tailored outcomes, the need for cross-system coordination and knowledge sharing across complementary components and systems also reveals that modularization has limits. Movement system supplier towards system integration means that the firm becomes a knowledge integrator with a strategic role in designing and developing the system. Controlling key physical systems and the acquisition of service capabilities to guarantee the lifecycle performance of the system becomes critical factor to assure system reliability and the profitability of the new business strategy. Controlling the interdependent links in a value system allows companies to capture the most profit, and thus, these component interdependencies will

shape firm boundary decisions. Therefore, the case company needed a higher degree of vertical control to coordinate and guarantee system compatibility and a threshold level of performance (Osegowitsch & Madhok, 2003) while ensuring that product specifications and services can be tailored and adjusted to the needs of different customers when supplying systems (Davies, 2004).

Technical aspects, such as lower engineering costs and faster construction time, as well as the dual need to minimize the “cost of response” and maximize the “speed and effectiveness of respond” to particular customer needs (Baines et al., 2011: 952) became relevant drivers for the case company when deciding how to provide solutions for the marine industry. In particular, customer preferences regarding performance features, such as fuel consumption, emissions, and noise, became a key to understanding the need to control how subsystems must be coupled and how the value system processes are organized (Baines et al., 2011; Fine, Vardan, Pethick, & El-Hout, 2002). In the presence of integral systems (Ulrich, 1995), these solutions can only be provided by controlling “knowledge in engineering and manufacturing domains” while allowing “significant dependence for supply in manufacturing capacity” (Fine et al., 2002:73).

In addition, being close to the customer was an opportunity for the case company to not only access market information and a more profitable business, but also to acquire influence and new competences upon which the company can build a non-contestable position in the propulsion industry (Porter, 1980). As suggested by Kaplinsky (2000), the ability to govern the value system often arises from intangible competences, such as marketing, R&D, design, and branding. Also, by “understanding the anatomy of purchasing decisions”, firms are able to make better choices “about ways to shift control over the demand and manage risk” (Pil & Holweg, 2006:80).

The case company identified ship design as a permeable break/penetration point and thus bought design companies as a way of doing business and of positioning itself in between yards and operators and controlling ship design. This strategic move would favor the company's propulsion systems because the company could design the ship such that customers can derive the highest possible value from its systems. Furthermore, this move would enable the company to offer solutions and lifecycle service agreements to ship operators (including preventive maintenance). Therefore, entering the ship design market for the company became a strategy to achieve upstream market lock-in (Porter, 1980) and downstream knowledge by increasing the cost of switching the supplier of propulsion systems and also the company's lifecycle bargaining power over both yards and ship operators. Other example is the acquisition of a UK-based producer of scrubbers in 2012. This acquisition was an important part of the case company's growth strategy in the marine gas, offshore, and environmental solutions markets. The acquisition was implemented for developing a first-mover advantage in a profitable business segment, but also to control the competing environmental technology (different from the option developed in house) before knowing which will become the industry standard. Since companies can make above-average profits when their technology turns out to be the industry standard (Funk, 2003), securing the adoption of the focal organization's industry standard is a way to increase industry power (Santos & Eisenhardt, 2005).

Finally, investing in the development of a global company-owned service network to acquire operational and maintenance capacity also was a major target. This move opens a direct channel to end customers (ship operators), which provides a source of information and knowledge that allows companies to offer improved services for the current systems while gaining knowledge

from customers to improve future systems (Baines et al., 2011; Davies, 2004; Osegowitsch & Madhok, 2003).

4. MANAGERIAL IMPLICATIONS

This chapter was set out to contribute to the literature on value system (re)positioning in the context of the servitization process of a manufacturer when migrating from a system integrator to a solution provider. To this end, we analyzed the patterns of repositioning moves made by the case company over the last 15 years. We discuss how structural conditions drive manufactures' servitization through different vertical moves to repositioning within the industry value system and shed light on both the role of market power during the implementation of servitization strategies and the use of different vertical practices as repositioning mechanisms. Moreover, this chapter illustrates how the power approach to firm boundaries complements the widespread capability view and contributes to value system analysis in servitization. Accordingly, re-positioning within the value system was a double opportunity for acquiring new competences and influence upon which the company can build a non-contestable position in the industry and lock-in customers. In this situation, the power and competence notions are symbiotic.

Whereas the chosen repositioning mechanisms for downstream moves were investments and acquisitions, which allowed for the control of core resources and key linkages in the value system, the upstream moves, at the core of the company's traditional business, were mostly based on collaborative practices, such as licensing, long-term contracts, strategic alliances, and joint ventures. The combination of the above mechanisms allowed the case company to access critical

capabilities, decrease external dependencies, and increase its sphere of influence. Aligned with the findings of Pil and Holweg (2006), our case also demonstrated that re-positioning goes beyond adjacent activities and involves detecting profitable points within the value system. The case company was able to recognize where money can be made (Wise & Baumgartner, 1999) as well as “...where, in an industry’s shifting value chain, the money will be made in the future” and strategically move to where the money will be (Christensen et al. 2001:74).

Using a forward-looking interpretation, our case seems to support existing evidence that shows how some industries may reintegrate when participant firms change strategies to cope with commoditization and changes in customer demands (Cacciatori & Jacobides, 2005). Once the firms within the value system and industry understood the new rules and opportunities, many of them intended to shift their position along the value system to find rents. Even component suppliers attempted to benefit from the new situation by offering spare parts directly to ship operators/owners or joining networks with other providers to offer a portfolio of after-sales services. Therefore, once the existing division of labor became inadequate to meet the changing needs of the customers, the new situation encouraged industry participants to reshape the value chain while searching for new forms of vertical structures with a new division of labor (Cacciatori & Jacobides, 2005). This discussion could be extended by adding further evidence on the nature of value creation and appropriation logics in different positions within the value system and on why value migrates from one value system point to another (Dietl, Royer, & Stratmann, 2009).

There are several strategic barriers associated with repositioning. Building strong joint ventures and alliances and learning how to integrate knowledge and retain people from acquired companies

are both critical and challenging. Furthermore, creating an extensive service network and finding competent people to offer field services are neither straightforward nor easy processes. In addition, industry conditions are key determinants of the smoothness of this value migration. While it can take some time to become familiar with the new practices, roles, and rules in the industry, rivalry in service markets will eventually intensify and all services will turn into a commodity (Matthyssens & Vandenbempt, 2008), which can alter the differentiating power of an advanced service strategy over time. Consequently, the real sources of differentiation and competitive advantage will be the implementation rather than the strategy itself (Rabetino, Kohtamäki, & Gebauer, 2017). An early understanding of the importance of key novel industry trends has given the case company the possibility to dominate, at least temporarily, key sources of competitive advantages. Being the first mover allowed our case company to re-organize its value system functionally for the new customer-centric strategy and develop efficient and reliable systems and an innovative portfolio of advanced services.

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