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Port supply network strategies: An ERBV perspective

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Abstract

Increasingly supply networks are recognised as the most meaningful level of analysis in many industries. Yet few studies examine the additional capabilities and revenue options generated by such alliancing. ERBV is one perspective that addresses how these alliancing related opportunities can create competitive advantage. The ERBV perspective and notion of relational rents is used empirically to understand three distinct port supply network strategies. Whilst this study is confirmatory regarding the basic tents of ERBV, beyond studying ERBV in a new context the study contributes to theory by reporting that, paradoxically, temporary relational rents can be generated without close partnerships.

Keywords: Extended resource base view, ERBV, logistics value added services

Introduction

Since the 1980s the growth of new inter-firm alliances has transformed the business environment; firms are now considered as parts of networks, engaged in “*social, professional and exchange relationships*” with other firms embedded in the same network (Gulati et al., 2000, p.203). More recently, hyper globalisation has created ever more complex supply networks and markets. These trends create a resource gap in organisations, particularly between the strategic goal of a firm and its idiosyncratic resources (Lewis et al., 2010). Consequently, in dynamic and fast cycle markets firms acting independently often cannot possess the resources and capabilities which would enable them to compete equally or seek competitive advantage (CA) (Park et al., 2017). Therefore, firms develop external relationships to acquire resources and develop capabilities (Squire et al., 2009).

Researchers acknowledge that superior performance derives from strategic partnerships between firms (Dyer and Singh, 1998). Dominant theoretical frameworks from organisational sciences, such as transaction cost economics (TCE) and the resource based view (RBV), which have frequently been utilised in operations and supply chain management research (Hitt et al., 2016), focus on the single firm and its control over proprietary resources. As such they do not consider the contribution of resources residing

outside of firm boundaries, and rent generating capabilities that emerge from inter-organisation partnerships (Squire et al., 2009; Spring and Araujo, 2013; Xu et al., 2014; Prajogo et al., 2016; Park et al., 2017). Therefore, a potential conceptual disconnection between those firm based frameworks and the view of firms as members of business networks is created (Lewis et al., 2010). This theoretical gap between the so called traditional theories of the firm is where the Extended Resource Based View (ERBV) sits, enabling research on the strategic behaviour and performance of allied firms (Lavie, 2006; Prajogo et al., 2016). Therefore, ERBV is considered the most appropriate theoretical framework to underpin this research, which aims to investigate the competitiveness of supply network strategies of interconnected organisations in an infrastructure network context. The literature review of this research reveals that ERBV studies are scarce in comparison to the predominant view of RBV and the predominant notion of rent generation derived by proprietary resources. Additionally, the analysis of the few studies that do apply ERBV reveals that ERBV has not been applied in research in the context of infrastructure networks such as ports. This creates a research opportunity considering the view of ports as business networks.

Literature review

ERBV is based on the concepts of complementary assets, the relational view, and network resources, and questions the origin of value generating resources. Complementary assets are additional resources that are needed in conjunction with existing know-how and capabilities for the achievement of innovation (Teece, 1986). The relational view emphasises dyad/network routines and processes which are considered as significant units of analysis for the explanation of CA (Prajogo et al., 2016). This aspect differentiates the relational view (and in extension ERBV) from theoretical frameworks, which explain CA in a single industry or company. CA in the case of the relational view is realised by the creation of relational/quasi rent; which is defined as “*supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through joint idiosyncratic contributions of the specific alliance partners*” (Dyer and Singh, 1998, p.662). However, relational rents cannot be generated by adversarial commercial relationships, as these relationships are not rare or inimitable. Therefore, partnerships and inter-firm relationships are crucial for CA creation based on relational rents (Dyer and Singh, 1998; Hitt et al., 2016). Relational rents can only be created from resources that are intentionally committed and mutually possessed within the alliance. These resources would involve all shared idiosyncratic assets, knowledge, and capabilities of the firm and its alliance partners. Therefore, the value of the shared resources determines the contribution of relational rents to the outcomes of the alliance (Lavie, 2006). The employment of effective governance, and organisational centrality also affects the creation of relational rents (Dyer and Singh, 1998; Arya and Lin, 2007; Moxham and Kauppi, 2014).

In addition to relational rent, literature identifies three additional types of rent that can be realised by the firm from shared and non-shared resources. The first is the internal rent, which is the combination of Ricardian and quasi rents that can be realised by the proprietary resources of the company, and are exclusively retained by the firm (Moxham and Kauppi, 2014). The Ricardian rent will derive from the rare internal strategic resources of the company, and the quasi rent will derive from added value extracted from the company’s strategic resources, given the possibility to access the complementary resources of the interconnect alliance firms (Lavie, 2006; Arya and Lin, 2007). The second rent type is inbound spillover rent, which is an additional type of rent private to the firm (Moxham and Kauppi, 2014). This rent relates to the unintended gains of the

firm, such as reputational and knowledge gains (Arya and Lin, 2007; Lewis et al., 2010; Moxham and Kauppi, 2014), derived from both the shared and unshared resources of the network partners. Thirdly, outbound spillover rent, refers to unintentional beneficial leakage from the firm that can be appropriated by its alliance partners for the creation of spillover rents (Lavie, 2006; Moxham and Kauppi, 2014). Together, under ERBV, these are the four types of rents that can be realised by the firm regarding shared (network) and non-shared resources within an alliance that determine the financial and strategic impact of the supply network strategy of the firm.

The third theoretical construct of ERBV is network resources. Network resources emerge from inter-firm networks that the firm belongs to, and are information rich resources that differ from internal resources (Gulati, 1999). Network resources can be considered as a specific form of a firm's resource, which can represent the strengths upon which a firm will realise and apply its strategy. Moreover, the unique historical experience and path dependency related with the frequency of past ties and partners' identity are crucial components which can result in the creation of network resources (Gulati, 1999). Grounded in the term network resources, Gulati et al. (2000, p.207) argue that the network a firm is part of "*can be thought of as creating inimitable and non-substitutable value (and constraint!) as an inimitable resource by itself, and to access inimitable resources and capabilities*. Therefore, organisations, which are members of network structures, can enjoy CA and benefits in comparison to organisations that are not members of such structures (Arya and Lin, 2007). Moreover, business-networks are idiosyncratic and path dependent. Thus, imitation or substitution of business-networks by competitors is difficult. Consequently, network resources are also idiosyncratic, because they are generated through the unique networks of the firm. Therefore, network resources are relatively inimitable and non-substitutable. Consequently, the combination of a firm's network and network resources leads to sustainable competitive advantage (SCA) (Gulati et al., 2000). From the above discussion it is evident that one of the main arguments of ERBV is that resources which exist outside the boundaries of the firm can be sources of CA. Additionally, it can be argued that alliances enable firms to develop a bundle of value creating resources which could not be developed by the firm in isolation and that these resources in combination with the path-dependent and idiosyncratic network of the company can potentially lead to SCA. Reviewing extant ERBV literature also reveals that ERBV has previously been applied in research in manufacturing, IT, non-profit organisations, petrochemical, and pharmaceutical contexts. As such ERBV has not been applied in research in an infrastructure network context such as ports. In an effort to re-establish their role within supply networks, ports implemented various supply chain integration practices and focused on provision of value added services (VAS) (Demirbas et al., 2014), facilitating a new view of ports as business (Van der Lugt et al., 2013) and infrastructure networks. For example, port operators realised that increased benefits could be derived by the on-site provision of logistics-VAS (e.g. container unloading, cross-docking, warehousing), in addition to their core offerings. This strategic shift of ports is defined as Port Centric Logistics (PCL). PCL literature does not investigate both "*why*" and "*how*" ports move beyond core offerings and implement strategies enabling them to co-create value with customers. Therefore, the present study by linking ERBV literature to PCL, and to infrastructure networks, combines research gaps in applying ERBV and the rent generating capabilities of inter-connected firms.

Methodology

An abductive research approach is employed (Ketokivi and Choi, 2014). A qualitative multiple case study research strategy was adopted to investigate the dynamic and complex

research phenomenon in-depth, and to provide clarification concerning the actors and mechanisms that create an augmented offering within a dynamic environment (Yin, 2011). Furthermore, a multiple case study design augments the external validity of the research and reduces the potential researcher's bias (Barratt et al., 2011). When following an abductive approach, Dubois and Araujo (2007) suggest that cases should emerge during data collection and analysis, permitting contextual idiosyncrasies to shape the unit of analysis, and facilitating a more pragmatic conceptualisation of the researched phenomenon. This novel approach within operations and SCM research is defined as casing (Spring and Santos, 2015). As such, the exact definition and number of cases of this research were not predetermined, but rather emerged during data collection and analysis, particularly at the point that the data collection reached theoretical saturation. Following a disciplined desk-based identification of companies that met the specified company selection criteria, 25 semi-structured interviews among 18 organisations were conducted. The semi-structured interviews ensured a systematic approach to data collection but did not preclude pursuing emerging threads. Additionally, observations within 4 organisations and extensive secondary data allowed for verification of informants' responses. The multiple data sources increase the reliability of the research by the achievement of data triangulation (Yin, 2011; Barratt et al., 2011). Combining interviews with observations and company documents is common in case study research in operations and SCM research (Barratt et al., 2011; Ketokivi and Choi, 2014). Finally, template analysis (King and Brooks, 2016) allowed for a rigid yet flexible data analysis method combining theoretical assumptions (a-priori codes) with empirical observations (emergent codes).

Data analysis

The data analysis, in accordance with the process of casing (Spring and Santos, 2015), allowed the development of three emerging cases studies. Each represents a distinct competitive supply network strategy for ports and intermediaries involved with the provision of on-port logistics-VAS. Each positively impacted on the competitiveness of the ports and intermediaries, however, the impact varied depending on the type of strategy. These supply network strategies are: leasing, operator, and lease and operate. Due to space constraints only the first two strategies are reported on here.

Case study 1: Leasing supply network strategy

Analysis of the data revealed two organisations with similar supply network strategies. Both organisations do not actively provide logistics-VAS, or manage port-centric warehousing facilities *per se*. Instead, their role is limited to *leasing* land and/or warehousing facilities to intermediaries that wish to provide on-port logistics-VAS. The leased land and facilities can either be within the premises of the port, or in logistics parks adjacent to- and owned by the port. Implementation of leasing supply network strategies is either path dependent, as it is inherited from the traditional functions of ports prior to containerisation or is a "*risk averse*" approach to meeting market demand.

Forms of leasing supply network strategy extend from the basic leasing of land to a tenant through to the construction of warehousing facilities by the port according to customer requirements, or the co-finance of facilities in joint ventures (JV). However, in no circumstance will the port be actively involved with the provision of logistics-VAS. Therefore, the leasing supply network strategy related revenue is only from leasing land and/or facilities to third parties, not from operation. There are marketing benefits: on the one hand the success of tenants' operations results in increased container throughput. On the other hand, successful operations lock-in tenants for longer leases.

Analysing the data also revealed that a leasing strategy gives the capability to offer a joint value proposition (i.e. bundle of port services and logistics VAS), which can confer CA, and that it enables the development of a network of interdependent organisations, which also enables the creation of network resources. These network resources are the bundles of services that comprise the joint value proposition of the port, and its network partners. The combination of those elements creates the conditions for the realisation of SCA. The Head of Commercial of Port4T reported that a lease strategy positively affects their competitiveness because it enables the offering of a joint value proposition to cargo owners tailored to the individual requirements of cargo owners, and the characteristics of the cargo itself. The Commercial Manager of Port5 argues “...it definitely has enhanced the competitiveness of the port in the sense that our end to end product is so much better with the fact that these facilities are in the port and the companies that use them are able to drive efficiencies”. Respondents reported that the combination of capabilities derived from the lease strategy, and other intrinsic strategies enable the ports to differentiate and achieve CA. The Head of Commercial explains how Port4T differentiates itself from competitors “...where we safeguard our revenues is through the fact that we are able to be quite diverse, it is not just containers for us it's about what's in the container, and how it flows through the port”. She further argued for a lease strategy with PCL enabling other forms of diversification into niche markets and how it helps to lock in either importers, end customers, distributors or LSPs; “We like to lock them in so that they are obviously reducing their SC cost, but it also forces them to put their bill of lading at [Port4T]” *ibid*. In addition to the financial and strategic benefits reported above, the data analysis also shows that a leasing supply network strategy allows ports to leverage marketing opportunities and yields two marketing benefits. The explicit marketing benefit is that a port can directly lease land and/or facilities to LSPs. The implicit marketing benefit; is that the existence of LSPs at port premises enhances the market proposition of the port, which leverages the organisational resources and capabilities of its tenants to promote a bundle of port and logistics-VAS.

Case study 2: Operator supply network strategy

Analysis identified that twelve organisations actively operate logistics-VAS, either as providers (external use: revenue from the charges for logistics-VAS), or as providers and consumers (internal use of logistics-VAS) or as organisers of logistics-VAS (i.e. the port/intermediary is the trading entity but subcontracts part or the entirety of the offering to counterparties). This strategy is labelled operator supply network strategy.

An operator supply network strategy is a response to market requirements, i.e. demand from cargo owners for logistics-VAS at points of import. Furthermore, organisations implemented an operator supply network strategy to enter new markets. Distinct examples are LSP8, LSP4 and LSP5 who entered the fresh fruit and frozen foods market, the wine bottling market, and e-commerce market respectively. All of these market segments were new to these organisations. Another reason for implementing an operator network strategy is the capability to extend control over the SC by incorporating another SC segment. These were organisations with existing national distribution networks whose investment in PCL enables them to extend SC control by capturing imported products at the point of import (e.g. LSP8, Retailer1 and Retailer2). Finally, implementation of an operator supply network strategy can be path dependent (e.g. LSP4 developed from a freight forwarder to an asset based LSP).

All twelve companies reported positive financial impacts from an operator strategy; broken down into two components. The *first component* regards the increased revenue opportunities; such organisations realise increased revenue from *higher charges for*

logistics-VAS, and increased demand for logistics-VAS and enhanced marketing capability (The Group Sales Director of LSP5; the Sales and Marketing Director of LSP8). The higher charges for logistics-VAS will increase the revenue of those who implement an operator strategy. The higher charges are justified by offering specialist services, and because a PCL solution can rationalise the SC of cargo owners and reduce inland distribution costs. Analysis of the data shows that these value-added capabilities can create CA. The Commercial Manager of LSP7 argues that an operator supply network strategy enables them to become more competitive by eliminating non-value-added distribution segments; the Sales and Marketing Director of LSP8 argues that the operator supply network strategy enables them “to facilitate an end-to-end supply chain using a facility for goods coming in the SE of England”; the Commercial Director of LSP6 argues that the ability to handle products at “the first point of landing” increases visibility and control of cargo owner’s pipeline inventory levels. That is because they “have it on their stock system potentially 3 to 5 days earlier rather than if they have to send it to the middle of the country”. Additionally he asserts that the possibility to handle products at “the first point of landing” gives the value-added capability to offer flexible SC solutions to customers. He comments: “...with the model we’ve got here, we can delay containers on quay, we can fast track containers, we can put into holding areas, so we can help manage the flow of work at this point”.

The second component of the positive financial impact regards the stability of the revenue derived from an operator supply network strategy. This revenue stream can be regarded as relatively stable due to the loyalty of cargo owners to the “port-centric” benefits, and the length of contracts between cargo owners, and ports and intermediaries. LSP6’s Systems Project Analyst claims that the company differentiates itself from other LSPs that do not implement an operator strategy. He maintains: “Having a port centric operation enables us to reduce some of the haulage charges. For example, for [wine importer], we save around £3,000,000 per year, by having a port centric operation that allows the use of [curtain-side trucks] for delivery of the stock and improves about 19% the efficiency because they use backloads to return”. A view supported by the Commercial Director of LSP6 in terms of on port location and collaboration opportunities. The second differentiator lies in how the operator strategy investment in this resource enables LSP4 to focus on particular market segments, and thus, differentiate itself from other LSPs that implement an operator supply network strategy. In summary, the operator supply network strategy differentiates the LSP because it enables the LSP to provide product specific logistics-VAS within a port’s environment, and because the particular investment enables LSP4 to differentiate itself from competitors in the PCL market.

Discussion

Case study 1: Leasing supply network strategy

Major revenue streams are associated with the leasing of warehousing facilities to intermediaries that have established operations at the port. The presence of those intermediaries at the port attracts more customers for the port. Subsequently, the leasing supply network strategy implicitly secures cargo owners for the core services of the port. The increased number of cargo owners enhances the revenue derived from core services in addition to the revenue derived from the leasing of land and/or facilities. Concerning the higher revenue that derives from increased demand for core services of the port, it can be argued that the port leverages its own idiosyncratic resources (port land) by accessing the complementary assets of its tenant. In this case complementary assets are regarded as the tangible and intangible resources of the tenant that are necessary for the innovation in question (i.e. logistics-VAS). According to Lavie (2006) and Moxham and Kaupi (2014),

if the firm leverages the value of its proprietary resources (i.e. port land, financial resources for development of the building and marketing capabilities), by accessing its partner's complementary assets, then the firm realises internal rent.

The joint value proposition identified in the leasing strategy above is a bundle of core services (offered by the port), and logistics-VAS (offered by the port's tenants), which positively affects the competitiveness of the ports that implement a leasing supply network strategy. The joint proposition of the port with its tenants is the outcome of the combination of the port's idiosyncratic resources (port land, and physical and human capital resources responsible for the accommodation of cargo from/to sea), and the organisational capabilities of the port's tenants (derived from the idiosyncratic resources of the tenant that enables them to offer logistics-VAS). This argument confirms the theoretical views of ERBV, in that value generating resources reside beyond the boundaries of the firm (Lavie, 2006; Spring and Araujo, 2013; Prajogo et al., 2016).

Furthermore, services are intangible resources of the firm; therefore the joint proposition of the port with its tenants is an intangible resource residing within the port's network. However, according to Gulati (1999), the resources that are emergent from inter-firm networks that firms belong to, are network resources. It can be argued that a leasing supply network strategy enables the establishment of a network around the firm; and within this network the development of network resources. The combination of the network that a firm belongs to, and the network resources, can lead to the realisation of SCA. That is, because networks are considered idiosyncratic to the firm, are relatively inimitable and non-substitutable, and their development is path dependent (Gulati, et al., 2000; Arya and Lin, 2007).

From case study one it appears that a leasing supply network strategy does not confer CA based on differentiation for the port *per se*; it is the combination of the capabilities derived from the leasing supply network strategy, and other intrinsic strategies that enable the port to differentiate. These intrinsic strategies enable the port to focus on specific market segments, select business partners, and develop networks, both for maritime and land transportation. These networks create differentiation. Thus, the leasing supply network strategy is only a fragment of a broader strategy that enables differentiation of the port based on the utilisation of the organisational capabilities of business partners. This argument complements the ERBV literature (Lavie, 2006; Lewis et al., 2010; Prajogo et al., 2016); in that the organisational capabilities of network partners assist the differentiation strategy of the port. The responses suggest that a leasing supply network strategy enhances the marketing capability of the port by implicitly or explicitly leveraging the environmental benefits that are associated with the organisational capabilities of its tenants. Capabilities are considered a particular form of organisational resources, and they can generate value on their own, or increase the value of a resource. It can be concluded that the organisational resources of intermediaries enhance the value of the marketing capabilities of landlords. This argument confirms the theoretical view of this research; that value generating resources can reside beyond the boundaries of the firm (Lavie, 2006; Spring and Araujo, 2013; Prajogo et al., 2016).

Case study 2: Operator supply network strategy

An operator supply network strategy creates a twofold positive strategic advantage for firms. Firstly for all the companies populating this case study, CA or SCA can be achieved by the value-added capabilities that derive from an operator network strategy. These value added capabilities, which can create CA, are associated with the underlying efficiencies of the port-centric warehousing and distribution model. However, this CA is also identified as dependent upon two non-exhaustive factors; the location of the intermediary,

and the level of collaboration (from close to arm's length) with the port. Interviews with participants from LSP8, LSP4, and Retailer 1, reveal that the combination of the location of port centric facilities, and the intrinsic processes and capabilities of intermediaries can result in CA. However, the interviews with participants from LSP5, and LSP3, highlight that such value-added capabilities can be attributed to intermediaries that are marketed as port-centric, but are not located on port land and have only an arm's length relationships with the ports.

This argument contradicts the ERBV literature (Lavie, 2006; Lewis et al., 2010; Prajogo et al., 2016); in that organisations can leverage resources of other organisations without formal collaborative agreements. Consequently, the possession of logistics-VAS provision capabilities, and the location of the intermediary are not exhaustive factors for the realisation of CA. An operator supply network strategy can confer CA even if one of those factors is fulfilled. Prior to any conclusive arguments the sustainability of such CA needs to be evaluated. Conditions for the realisation of SCA can be achieved by the inimitable and ambiguous nature of services due to their dependency on labour. However, only very niche logistics-VAS require highly skilled workers. In this case the complexity of interactions between the tacit knowledge that resides in the human resources, and the assets of the firm, will result in increased causal ambiguity, which is positively related with the imitability of a firm's CA. Inimitability of resources can contribute towards the sustainability of a firm's CA. It follows that human capital resources can contribute towards the realisation of SCA if their interactions with the assets of the firm are complex, because added complexity will impose higher imitation barriers. Services are also less imitable due to their ambiguous nature. In our context the provision of logistics-VAS is based on the bundle of the intermediary's idiosyncratic resources and the resources of network partners or counterparties. Considering the concept of network resources, it can be argued that the combination of the firm's network and the network resources can lead to SCA (Gulati et al., 2000). Thus, intermediaries who engage in collaboration with other network partners can realise SCA, because the logistics-VAS derive from a bundle of idiosyncratic and network resources and capabilities. Subsequently, the offerings of intermediaries that are not located within a port, or do not collaborate with network partners is more imitable, because they provide services based only on their idiosyncratic resources, and the exploitation of the marketing power of the PCL model.

The operator case study shows that intermediaries leverage marketing opportunities by the provision of on-port logistics-VAS which result from a combination of the idiosyncratic resources of the port, with the idiosyncratic resources of the LSP. This confirms the theoretical assumptions of ERBV (Lavie, 2006; Spring and Araujo, 2013; Prajogo et al., 2016). In this case the value generating resources are the idiosyncratic resources of the port that enable intermediaries to implement such a strategy to leverage marketing opportunities. However, intermediaries can not lease land from a port and instead, advertise themselves as port centric and compete in this market without being involved in a contractually defined collaborative agreement with a port. Consequently, the idiosyncratic resources of a company can confer value to another company without those two companies being engaged in a partnership. This argument complements the ERBV literature. In summary, it can be argued that an operator supply network strategy can confer SCA if the logistics-VAS derive from a bundle of idiosyncratic and network resources. Additionally, it can be argued that even though a port centric operation can result in a competitive edge based on differentiation, this edge is temporary, due to imitability of the offering. The competitive edge is more sustainable when the differentiation derives from a combination of factors, such as collaboration with the port for the development of services and processes, and/or focus on a niche product market.

The data presented above reveal that the marketing capabilities of intermediaries that implement an operator supply network strategy are positively affected. The logistics-VAS inherent in an operator supply network strategy enable firms to fulfil the demand of cargo owners for on-port logistics-VAS, and *enter new markets, attract more recognisable cargo owners, and quote to competitors' customers..* Therefore, an operator supply network strategy enables intermediaries to leverage marketing opportunities. In a PCL context, the logistics-VAS are designed to facilitate the movement of product through the SC and are offered in combination with port services. Intermediaries combine the offering of two organisations to provide this bundle of services. The combined offerings can be bilateral (intended) (i.e. formal collaborative agreement between firms) or unilateral (opportunistic) (i.e. LSP exploits its proximity to the port). The development of logistics parks close to ports negates the entry barriers set by the limited availability of on port land. Additionally, LSPs not located on port land increase the level of imitability of this resource. Thus, even though the possession of a state-of-the-art facility could lead to CA based on differentiation, this CA is imitable. Consequently, LSPs that implement an operator supply network strategy should be located directly within the port and collaborate closely with it.

Conclusion

This research has used ERBV to understand the adoption of port centric strategies by UK ports, where new levels of service are offered at, or close to, the port. The use of ERBV theory mirrors the contemporary perspective of ports as parts of wider business networks (Van der Lugt et al., 2013), who now compete with rival supply networks (port networks) not standalone ports. Two of three strategies identified were reported on here. In case 1, ports that implement a leasing supply network strategy leverage the value of proprietary resources (i.e. port land, monetary resources for the development of facilities, and marketing capabilities) by accessing organisational resources of business partners (i.e. relationships with cargo owners) for the realisation of internal rents, CA, enhanced marketing proposition, and widened customer base. It was reported that the combination of the network that a firm belongs to, and the network resources, can lead to the realisation of SCA; because such networks are considered idiosyncratic to the firm, are relatively inimitable and non-substitutable, and their development is path dependent. In case 2 an operator supply network strategy will only generate SCA when there is a formal collaborative relationship between port and logistics intermediaries, which has developed their idiosyncratic resources and network resources. However, only one of the two factors influencing the capabilities of intermediaries is necessary for CA; if an intermediary is not located within the port's premises nor/(or does not) collaborate with a port for the provision of logistics-VAS, then its CA is prone to imitation by competitors. Thus, CA can be conferred if one of the two factors is achieved. However, the fulfilment of both factors can lead to the realisation of SCA. In summary, it can be argued that an operator supply network strategy can confer SCA if the logistics-VAS derives from a bundle of idiosyncratic and network resources. If intermediaries and ports share resources that result in the creation of a rent that cannot be realised by either firm in isolation, then conditions for the appropriation of relational rent, and SCA are created. This research confirmed the theoretical arguments of ERBV in a new context, by proposing that in an infrastructure network context value generating resources can reside beyond the boundaries of the firm. This study also identified that the organisational capabilities of network partners can assist the differentiation strategy of the firm. This finding contributes to extant ERBV literature by highlighting differentiation as an additional positive outcome of resources/capabilities sharing among network partners.

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