

Innovative Techniques And Port Management: Implications For Port Organisations

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ABSTRACT

Integrated networks of interdependent businesses are created as part of the modern competitive paradigm. Port organisations are key elements of many diverse trading networks. Understanding key features of networks and the skills required to effectively manage these intangible assets may be vital for strategic development of ports. The ability of some innovative management performance models to assist in the management of these intangible assets for port organisations is discussed. By effectively linking business strategy and intangible assets, port organisations can better strategically manage the development of their unique competitive advantage.

1. Introduction

Today's global information economy is a dynamic system of increasing complexity. Increasingly, extended entities in a boundaryless world are becoming the norm, driven by the economics of networks (McGee & Sammut Bonnici 2002; Shapiro & Varian 1999). Integrated networks of interdependent businesses are created as part of this new competitive paradigm (Christopher 1998). These affect market dynamics and the competitive strategies required for businesses to succeed (McGee & Sammut Bonnici 2002). Adding to these complexities, sophisticated products and services, many of which continually change, dominate world trade (Bryant & Wells 1998). Trading networks are thus continually changing to accommodate this dynamic environment; networks of strategic alliances and relationships are formed to achieve competitive advantage (Kumar & Hoffmann 2002; Song 2003).

Ports are a critical link in these networks, handling over two thirds of world trade, and facing increasing demand for maritime transport services (Carbone & de Martino 2003; Kumar & Hoffmann 2002; Park & De 2004; Paixão & Marlow 2003; Song 2003).

Ports are no longer merely gateways for national trade; they are complex institutions, with an increasingly significant role in global trading networks (Carbone & de Martino 2003; Paixão & Marlow 2003; Rodrigue, Slack & Comtois 1997). Port organisations, then, are facing an increasingly dynamic environment that impacts significantly on the creation and maintenance of their competitive advantage and strategic development. For their continued strategic development and increased efficiency in these trading networks, the ability to value their networks and manage their performance within each network is critical.

Valuing networks and performance management within them is difficult to achieve. This paper studies key features of networks and the skills required to effectively manage them in today's dynamic environment. Some implications for port organisations are discussed, with an overview of some more recent management tools included. These tools may facilitate the process of valuing networks and aligning business strategy with key relationships, and highlight vital skill requirements for senior management's decision making.

2. Networks

Port organisations are interacting with a diverse network of organisations in both the macro- and microenvironments. Challenges for a port organisation in this new competitive paradigm include collective strategy development, creating positive benefits for all participants in the network, process integration, managing open, transparent communications and developing relationships within their network (Christopher 1998). Port organisations' networks include customers, suppliers, marketing intermediaries, competitors and other stakeholders, such as governments, the local community and citizen action groups (Christopher 1998; Kotler 1997).

The value of any network for each individual organisation is dependent upon the network's size; a bigger network creates more positive externalities, which benefits all members (McGee & Sammut Bonnici 2002; Shapiro & Varian 1999). Networks facilitate the development of key relationships - the significance of these and a market orientation for firms' success have been highlighted (Achrol & Kotler 1999; Bengtsson & Kock 1999; Helfert, Ritter & Walter 2002; Jaworski & Kohli 1993; Narver & Slater 1990; Slater & Narver 1994).

As networks evolve a relationship approach is increasingly required for effective management in this networked environment (Kotler 1997; Ritter 1999). For example, some of the key relationships to manage are those with customers (McKenzie 2001). These benefit an organisation through lifetime customer value, with ongoing sales, and opportunities for product development and identification of new opportunities (Burger & Cam 1995; Kotler 1997; McKenzie 2001). These relationships raise performance management and appraisal issues, such as how to measure customer relationship profitability; it is difficult to allocate costs and strategic outcomes to specific relationships (Johnson 1999).

Customers are also becoming better informed, making additional demands on their suppliers, with needs such as faster responses, better information, more transparency and greater reliability and quality increasing (Christopher 1998; Handfield & Nichols, Jr. 2002; Kuglin 1998; McKenzie 2001). These varied requirements impact upon a port's role as an integral part of each trading network.

Meeting customer needs, and managing key customer relationships is thus another imperative of today's networked economy. It is symptomatic of the importance of a market-orientation for success. Market orientation and network management need similar key tasks to be effectively achieved. These key tasks include the management of exchange, coordination, conflict resolution and adaptation (Hakansson 1990; Helfert et al 2002; McKenzie 2001).

But key relationships for an organisation are more than just those with specific customers. An organisation's performance is enhanced through new product development that can arise through cooperation and collaboration with other key stakeholders. These include parties such as suppliers, competitors and community groups (Ritter 1999). An organisation can thus no longer isolate each relationship, but needs to view it as part of the whole network in which the organisation is embedded (Ritter 1999). This adds further challenges to management.

These challenges are increased when the nature of emergent networks is considered. These are an integral element of any modern business, but are generally not found at the top of the organisation - where strategic decisions are determined. Combining strategic thinking with an emergent network thus adds complexity. The resource-based view of the firm adds clarification. It views any organisation as a unique cluster of physical resources, financial resources, human resources and organisational resources, such as reputation and relationships (Cummings 2002).

To develop strategies to maximise the advantages of these resources, and in particular, the organic growth of relationships, the organisation can be viewed as a web of relationships, with tacit knowledge embedded within. The tacit 'knowledge web' becomes, effectively, one of the organisation's key sources of competitive advantage (Burton & Pennotti 2003; Cavusgil, Calantone & Zhao 2003). With this advantage, it can realistically differentiate itself from other organisations that can easily re-engineer and copy many other sources of competitive advantage or benchmark best-practices (Cummings 2002; Porter 1985; Porter 1996). Cummings (2002, p.252) states, "historically determined inter-relationships and the knowledge embodied in them, are difficult to quickly replicate."

Close inter-firm relationships are not managed in isolation (Hakansson 1990) and are important strategic assets (Doyle 1995; Johnson 1999). They are an integral part of a dynamic environment, requiring different strategic skills and competencies to achieve competitive advantage and/or market leadership (Handfield & Nichols, Jr. 2002; Porter 1985). Each member of the network is also interconnected, adding to the complexity of strategically managing within this embedded environment.

An organisation's ability to manage its network has a positive impact on performance (Cummings 2002; Johnson 1999). Research demonstrates that network competence has a positive influence on innovation success, internationalisation, technological development and performance. It also identifies a high correlation between network competence and market orientation (Coviello & Munro 1995; Ritter 1999; Ritter, Wilkinson & Johnston 2002; Roy, Sivakumar & Wilkinson 2004). And as each network member increases in network competence, the network evolves (Wilkinson & Young 2002).

Network evolution changes the nature of the interactions, leading to a process of learning

and systematising actions for each and every organisation within that network (Charan 1991). Each member firm is effectively co-producing its future network interactions (Wilkinson & Young 2001). For each network participant, then, this leads to the strategic issue of ensuring that these processes of network evolution lead to a positive outcome (Draulans, deMan & Volberda 2003). The ability of a firm to manage its network is thus a core competence (McKenzie 2001; Ritter 1999; Ritter, Wilkinson & Johnston 2002; Song 2003).

Network competence is organisation specific, and encompasses both the qualifications and the ability to utilise them for task execution related to inter-organisational relationships (Ritter 1999). Qualifications in this context, as Ritter (1999, p. 468-9) states, are skills that "allow a person to develop, to maintain, and to use relationships." Task execution has two components. Firstly, it includes the management of individual relationship-specific tasks, such as exchange and collaboration. And secondly it includes the management of cross-relational tasks in the network, such as planning and controlling (Ritter 1999; Ritter, Wilkinson & Johnston 2002).

Developing network competency and key relationship management are thus significant elements of a port organisation's strategic planning and management (Bengtsson & Kock 1999; Draulans, deMan & Volberda 2003; King 1997; Ritter, Wilkinson & Johnston 2002). In order to develop network competence, then, a port authority needs to continually audit its in-house qualifications and determine the specific relationship tasks that need to be undertaken. Being able to measure the value of relationships and the organisation's network competence skill set become critical to successful strategic decision-making for senior management.

3. Implications for port organisations

Ports are a key element of many diverse trading networks. They are complex systems,

with multiple users interacting at various levels. Frequently they integrate activities for logistics, trade and supply channels (Bichou & Gray 2004; Carbone & De Martino 2003; Moglia & Sanguineri 2003; Paixão & Marlow 2003). In addition, they form part of their local community, so there is continuous interaction with government, regulatory organisations and householders. In essence a port is one of the few actual locations in the trading network/supply chain where all stakeholders may interact (Bichou & Gray 2004; Carbone & De Martino 2003). This results in the constant evolution of their role (Carbone & De Martino 2003; Moglia & Sanguineri 2003; Paixão & Marlow 2003).

From the port organisation's perspective it participates in multiple networks. Its ability within each network to not only shape the network but also drive strategy development for each network becomes of paramount importance to the port's success and long-term survival. Planning is significant to the successful development of strategy (Moglia & Sanguineri 2003; Paixão & Marlow 2003; Porter 1996).

One key element of planning is an understanding of all key stakeholders (Bartol, Martin, Tein &

Matthews 1998; Moglia & Sanguineri 2003). This is facilitated by knowledge of key players; in modern supply chains, ports are in a strong linking position (Paixão & Marlow 2003; Song 2003). The heterarchy of port users in Figure 1 shows these links, which are also known as a knowledge web (Cummins 2002).

Management techniques inform strategic decision-making (Porter 1996). Successful adoption of new management techniques and attitudes, with their associated changes, requires that ports are learning organisations, with superior strategic management and organisational skills (Bryant 1998). Learning can be acquired through interactions such as relationships, networking, forming strategic alliances and benchmarking (Samli, Kaynak & Sharif 1996). A learning organisation generally achieves higher growth and/or profitability – and a key feature of a learning organisation is its extensive network of close relationships with key stakeholders (Slater & Narver 1995).

A broader perspective is required for port organisations when assessing their strategic directions. Traditionally, ports' performance is investigated in terms of efficiency metrics relating to throughput, such as cargo handling, storage and efficiency rates and the activities of

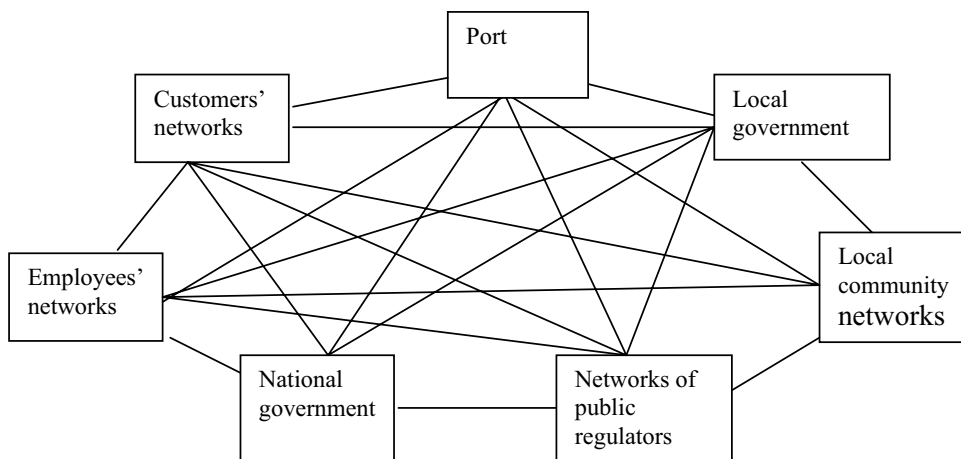


Figure 1 Heterarchy of port users, showing web of relationships

Based on Maccoby (2000).

their local, competing ports (Paixão & Marlow 2003). Nowadays, global trading networks require information visibility to be competitive (Handfield & Nichols, Jr. 2002). Ports, as an integral link in these trading networks, will thus be faced with a multitude of different real-time information sharing requirements for competing supply chains (Bichou & Gray 2004). With their increasing role in trading networks, performance measures need to include meeting these information requirements (Kavan, Frohlich & Samli 1994), particularly given that the collective knowledge of all its employees is a key strategic asset (Kaplan & Norton 2004). Additional metrics, relating to the port's significant role in these trading networks are increasingly necessary too. This entails developing expertise in measuring and managing intangible assets, such as information systems management and relationships, to consolidate the port's strategic role in trading networks.

4. Measuring intangible assets

Intangible assets are difficult to copy, giving an organisation a sustainable and unique competitive advantage (Cummings 2002; Kaplan & Norton 2004). But on their own they are not valuable and often cannot be directly linked with financial performance – it is their combination with other assets that gives the advantage (Kaplan & Norton 2004). As Kaplan & Norton (2004, p. 54) state “the measurement of the value they create is embedded in the context of the strategy the company is pursuing.”

Kaplan & Norton (2004) propose that determining the value of these intangible assets relates to the congruence between the company's strategy and these assets. The authors propose that by developing a strategy map the link between intangible assets and creating organisation value becomes apparent. This process also permits the capturing of the value inherent in emergent networks. The strategy map is a framework based on four interdependent views of the organisation, namely its financial, customer,

internal process and learning and growth perspectives (Banker, Chang & Pizzini 2004; Kaplan & Norton 2004). In a similar way another analytical tool, the enterprise map, visualises the critical dependencies between key activities for strategic decision-making and encourages team building (Burton & Pennotti 2003). Within each of these perspectives are the strategic processes and competencies required for the intangible assets to be “ready”; in other words, they are in alignment with the strategic objectives of the organisation.

Linking performance with business strategy is a key attribute of the balanced scorecard (Banker, Chang & Pizzini 2004; Morana & Paché 2003; Ritter 2003). Although originally a multidimensional performance measure, the balanced scorecard has “evolved into an organising framework for a strategic management system” (Banker, Chang & Pizzini 2004, p.2). Providing linked performance measures improves managers' ability to benefit from adoption of a balanced scorecard system (Banker, Chang & Pizzini 2004; Morana & Paché 2003; Ritter 2003).

Criticisms of the balanced scorecard have noted that it does not sufficiently include the significant contributions of groups such as suppliers, the community or stakeholders, does not have a very long-term view for strategic development and has not been empirically validated sufficiently (Malz, Shenhar & Reilly 2003). Malz, Shenhar & Reilly (2003) have taken these identified limitations into account and developed the Dynamic Multi-Dimensional Performance (DMP) framework in conjunction with “Success Dimensions”. Success Dimensions views organisational effectiveness within a matrix of time frames and organisational levels.

This has produced the DMP model based on five dimensions, namely Financial, Market, Process, People and Future (Malz, Shenhar & Reilly 2003). This framework has scope for the inclusion of relationships and their contribution to strategic performance. It is integrative of

key performance indicators and is able to demonstrate an organisation's value creation over time (Malz, Shenhar & Reilly 2003).

Given the dynamic nature of relationships, the requirement for a non-static model to effectively capture costs and benefits of the relationship (Storbacka, Strandvik & Gronroos 1994) may be met by these models. This is in contrast to models such as Business Process Reengineering (BPR), which has been applied in small to medium ports in Europe. This model highlighted key operational processes that could be made more efficient, and brought tangible savings (Giannopoulos & Papageorgiou 2002).

Models such as the balanced scorecard and DMP may also help develop port organisations' understanding of supply chain management concepts and the application of techniques to manage and measure channel performance. This lack of understanding is highlighted by Bichou & Gray (2004).

5. Conclusion

Trading networks are an integral part of today's business environment. Ports play a pivotal role in diverse networks. For port organisations to effectively manage their

strategic development, an understanding of the value of relationship management within these networks is vital. Each relationship is different for a port organisation; it is thus difficult to actually quantify its strategic value. Yet relationship management needs to be built into strategic planning.

Innovative modelling tools such as the balanced scorecard and DMP provide the link between the selection of multiple performance measures with business strategy planning and performance. Incorporating these performance models in strategic planning may assist port organisations to manage their intangible assets, such as key relationships in multiple trading networks. They also provide measurement techniques for the more traditional metrics port organisations associate with efficiency, such as cargo handling. These models will also highlight deficiencies in the hinterland, such as insufficient road access.

By effectively linking business strategy and intangible assets, port organisations can value their networks and highlight key skills required. This will assist port organisations with future strategic planning and the development of a unique competitive advantage.

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