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A resource-based view of competitive advantage at the Port of Singapore[☆]

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Abstract

The purpose of this paper is to discuss the resources, including operations and information technology that have contributed to the competitive position of the Port of Singapore. We present a detailed discussion of the Port and its resources, and analyze the case using the resource-based view of strategy. A firm with a competitive advantage excels in time, quality, or cost, or a combination of such over its competitors. We argue that a combination of resources including supportive government policies, ample investment, and well thought out operations and information technology along with location and a natural deep harbor to help create a sustainable advantage for the Port. We find that Singapore compensated for some of its natural disadvantages like small land area by successfully applying information technology in critical areas to increase the island's capacity to handle shipping.

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The purpose of this paper is to describe the key resources, including operations and information technology (IT) that have contributed to the competitive position of the Port of Singapore. The Port of Singapore has achieved a sustainable competitive advantage relative to other locations by carefully building a set of resources that other Ports would find very difficult to match. Some of these resources are natural (a superb sheltered

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harbor), some can be replicated at a significant cost (infrastructure, well-educated and hard working labor force), and some are particularly valuable in Singapore, but less useful in other Ports (scheduling systems for multiple cranes to handle the complexity of multi-tier stacking of containers).

There have been a number of studies of the Port of Singapore and the information technology that supports it, including a series of Harvard Business School teaching cases. One discusses Singapore TradeNet, an EDI system that dramatically reduced turnaround times for processing information about ship arrivals, loadings and unloadings and departures; see [Konsynski and King \(1990a\)](#) and [Applegate et al. \(1993\)](#). A subsequent case describes the efforts of Singapore to become an 'intelligent island' by developing a national network infrastructure ([Applegate et al., 1995](#)). A comprehensive description of the Port of Singapore may also be found in [Applegate et al., 2001](#). [Konsynski and King \(1990b\)](#) describe Hong Kong's TradeLink, which is interesting to compare with the EDI system in Singapore. The case in this paper extends this prior work by analyzing the Port's strategy using a resource-based view, and by showing the importance of operations and information technology in creating an advantage.

We believe that RBV helps explain and interpret the contribution of technology to the Port of Singapore (PSA). This view of competitive advantage is based on the unique resources that a firm possesses. To the extent that a competitor cannot create or substitute for these resources, they provide an advantage to the firm that owns them. Two succinct presentations of the resource-based view (RBV) may be found in papers by [Barney \(1991\)](#) and [Peteraf \(1993\)](#). [Jarvenpaa and Leidner \(1998\)](#) have used this theory to analyze the case of a company in Mexico, a developing country, while [Wade and Hulland \(2004\)](#) review the RBV and information systems research. Section 1 of the paper presents a case study of the Port of Singapore, followed by an analysis of the case using the RBV of strategy. The paper concludes with the implications for management.

1. The Port of Singapore

1.1. Data

The data for this paper came from a number of sources. First, we interviewed Mr Eric Lui, Executive Vice-President (Information Technology)/Executive Vice-President, Container Terminals Division and several members of his staff at PSA. Second, one author visited Kent Ridge Digital Laboratory, the organization that assisted in developing expert systems at the Port. An author interviewed Mr Patrick T.C. Poon, the Director of RTW Shipping (S) Pte. Ltd, which is the shipping agent for the Evergreen and Uniglorry Line and a major customer of the Port at the time of the interview. The purpose of the interviews was to learn about operations and specific IT initiatives employed by the Port.

The authors toured the Port to study its operations, and collected information from PSA publications, annual reports and various Singapore government Web sites. Finally, we drew on several prior studies of PSA including [Teo et al., 1997](#), and several cases, described above, on the Port. We used the RBV of the firm to identify strategic resources at

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