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# Resource-based theory and strategic logistics research

Resource-based theory

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The need for theoretical development in logistics and the strategic repositioning of the discipline have been suggested as major challenges for logistics researchers (Stock, 1990). Despite recent advances made by logistics, the requirement for further theoretical development on the strategic role of logistics remains a key priority (Mentzer and Kahn, 1995; Stock, 1996). Today's turbulent competitive environment mandates that a firm must have agility in the marketplace to survive and succeed. Therefore, logistics has become an increasing area of strategic concern for firms (Bowersox *et al.*, 1989, 1992; Bowersox *et al.*, 1995; Michigan State University Global Logistics Research Team, 1995; Stalk *et al.*, 1992). Acknowledging the dramatic changes in the economy, which has become more information intensive, more global and more dependent on technology, several authors, both inside and outside the logistics discipline, have indicated the importance of logistics as a source of sustainable competitive advantage (SCA) (Achrol, 1991; Day, 1994; Porter, 1985; Stalk *et al.*, 1992; Webster, 1992).

Borrowing and adapting theories from other fields is a beneficial and commonly-used way rapidly to elevate a discipline's level of theoretical development (Stock, 1995). Nevertheless, the influence of strategic management on logistics has been mainly restricted to and constrained by the work of Porter. Consequently, ten to 15 years of theory development in strategy research has been largely neglected in the strategic logistics literature. Surprisingly, despite the call for more theoretical and strategically oriented work in logistics, the resource-based theory (RBT) of the firm and the related capabilities approach – which represent a dominant stream of research in strategic management over the last decade – have not been prominent in the logistics literature.

We believe, that the “capabilities approach to strategy” and the underlying resource-based theory of the firm have, at least, implicitly influenced recent work in strategic logistics (see, for instance, the Michigan State University's Global Logistics Research Team's 1995 report). However, no clear exposition of the approach has been provided in the logistics literature.

We propose that the RBT has the potential to be applied to important areas of logistics research (i.e. the relationship between distinctive logistics capability and SCA, the role of logistics in strategic partnerships and outsourcing and the interface of logistics with marketing and other functional areas). The purpose of

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this article is to provide a critical review of the extensive literature on the RBT that has accumulated over the last decade and to demonstrate how RBT can be applied to strategically-oriented logistics research.

We first describe the RBT, its major assumptions and its implications for strategic actions. Other areas of research where the RBT has been applied are also discussed. Next, we illustrate how the RBT represents the underlying theoretical support for one of the central propositions of strategic logistics: that a distinctive logistics capability is a source of SCA and superior performance. We develop some ideas of how our understanding of the strategic role of logistics in a dynamic environment may benefit from combining RBT, organizational learning theory and evolutionary approaches to competition. Finally, research and managerial implications are discussed.

### **The resource-based theory of the firm**

*Historical origins: Porter's models and the birth of the resource-based theory of the firm*

One of the major revolutions in the history of the management disciplines was originated by Porter's application of traditional industrial organization economics (i.e. the structure->conduct->performance paradigm) to strategy (Porter, 1980; 1981; 1985). Porter suggested two central strategic issues for achieving high profitability:

- (1) the selection of attractive industries (by using the five competitive forces model); and
- (2) the selection and achievement of a strong relative competitive position within an industry – as a cost leader, differentiator, or focused firm – (by using value chain analysis).

Despite Porter's introduction of value chain analysis for the assessment of actual and desired competitive position within an industry, the emphasis on market and industry structure as the source of a firm's success dominated strategy. However, industrial economics based frameworks failed to address adequately two critical issues:

- (1) Why do firms participating in industries with the same level of attractiveness post differing performances?
- (2) Why do firms participating in industries with different levels of attractiveness achieve similar performances?

The lack of explanatory power of the dominant market attractiveness approach to strategy, in addressing these questions led researchers to suggest that the real sources of a firm's success are due to the organization's firm-specific or idiosyncratic resources (Conner, 1991; Olavarrieta, 1996).

For example, the current boom in Internet commerce has both Federal Express and UPS gearing up to become full-service logistics providers that specialize in orchestrating the flow of goods and information between customers, retailers and suppliers. However, FedEx remains several steps ahead

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of its arch-rival UPS, because it has focused on developing information technology capability (Lappin, 1996). As a result, FedEx regards itself as a network rather than a shipping company or an airline:

The FedEx network embraces two essential components: a global network of planes and trucks used for moving bundles of atoms and an information network of digital technology that specializes in moving streams of bits. FedEx's strength derives from the fact that the company is a network amphibian – equally at home with the task of switching packets of cardboard or packets of electronic data (Lappin, 1996).

Drawing on the Chicago revisionist school of industrial organization (Stigler, 1968) and the early work of Penrose (1959), strategic management and marketing scholars proposed a resource-based explanation of firm and performance heterogeneity. Originating with Wernerfelt's (1984) seminal article, this body of knowledge has been augmented by the works of Barney (1986a; 1986b; 1991), by the writings of Rumelt (1984; 1987) and by a series of other researchers who have contributed to the development of the so-called "Resource-Based Theory of The Firm" (Aaker, 1989; Amit and Schoemaker, 1993; Bharadwaj *et al.*, 1993; Collis and Montgomery, 1995; Day and Wensley, 1988; Dierickx and Cool, 1989; Grant, 1991; Prahalad and Hamel, 1990; Peteraf, 1993; Wernerfelt, 1995) – see Table I for a list of the key works and their contributions.

Empirical studies demonstrating that firm-specific factors are more important than environmental or industry-structure characteristics in explaining firm superior performance, have lent further credence to the early conceptual work on RBT (Hansen and Wernerfelt, 1989; Rumelt, 1991). The premiss also appears to be supported by logistics research which suggests that focusing on the enhancement of logistics capabilities is associated with superior firm performance (Michigan State University Global Logistics Research Team, 1995).

The consequent development and increasing popularity of the theory has led to a considerable and diverse resource-based literature. In order to review it, we have organized the discussion into four subsections. In the first three subsections, we address the major postulates of the RBT: firms as bundles of resources, firms as rent-seekers and the association between a firm's superior resources and superior performance. In the final subsection, we describe some of the areas where the RBT has been applied to the discipline of strategic management and to other disciplines like marketing. In addition, end-note[1] briefly positions RBT among some alternative theories like resource dependency theory, transaction cost economics and agency theory.

#### *Firms as bundles of resources*

According to the RBT, firms are bundles of resources (Wernerfelt, 1984). Firm resources include all inputs that allow the firm to work and to implement its strategies (Olavarrieta, 1996). Firm resources can be tangible or intangible (Hall, 1992) and they may have been developed inside the firm or acquired in the market. Different classifications of resources have been offered in the literature

Authors (year)	Major contribution
Penrose (1959)	Firms as bundle of resources, firm's growth based on firm's resources and limited by managerial resources
Lippman and Rumelt (1982)	Causal ambiguity as a key requisite to superior performance
Wernerfelt (1984)	Firms as bundles of resources
Rumelt (1984)	Strategic theory of the firm based on the idea of firms as resource bundles
Barney (1986a)	Characteristics of the factors market determine possibilities for a firm to earn rents
Rumelt (1987)	Firms as rent-seekers. The importance of isolating mechanisms to earn rents
Rumelt (1987), Dierickx and Cool (1989)	Summary article on imitability barriers (e.g. causal ambiguity and isolating mechanisms like asset interconnectedness, asset stock efficiencies, etc.) that impede (or make very costly) imitation from other competitors
Day and Wensley (1988), Aaker (1989), Grant (1991), Wernerfelt (1989)	Strategic formulation models that have firm resources as the central concept and as the sources of sustainable competitive advantage
Prahalad and Hamel (1990)	Core-competences as the drivers of corporate strategy and diversification. Business should exploit and leverage core competences. Corporations should diversify in related businesses which can make use and enhance the core competences of the organization
Hansen and Wernerfelt (1989), Rumelt (1991)	Empirical studies that support the hypothesis that firm-specific resources or organizational factors are more important than industry variables for explaining firm superior performance
Barney (1991)	Key strategic resources can be sources of SCA if they are scarce, difficult to imitate, non-substitutable, and valuable
Conner (1991)	Comparison of the resource-based theory of the firm with other strategy approaches derived from economics. Clarification of assumptions of the resource-based theory and its implication for rent-earning strategies
Peteraf (1993)	An integrative resource-based framework of SCA. Proposes that firms obtain superior performance, by earning rents from scarce and efficient resources and/or from market power in the product markets
Day (1994)	Capabilities framework of SCA. Distinguish between outside-in, spanning and inside-out capabilities. Suggests that market-driven organizations possess better outside-in capabilities, particularly market-sensing and customer linking, which influence the rest of the organization. Logistics and customer-order fulfilment capabilities are included in the framework
Collis and Montgomery (1995), Barney (1995)	Most recent managerially-oriented reviews of the RBT theory of the firm
Collis and Montgomery (1995)	Edited book examining the linkages between resource-based theory of the firm and evolutionary approaches

**Table I.**  
Key works of the  
resource-based theory  
of the firm

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(Amit and Schoemaker, 1993; Barney, 1991; Bogaert *et al.*, 1994; Brumagim, 1994; Grant, 1991). These are summarized in the following three categories:

Resource-based  
theory

- *Input factors*: are generic resources that can be acquired in the market. Logistics-related input factors include raw factors (e.g. forklift trucks, warehouse racking, packaging materials, inventory) and raw skills (e.g. loading skills, driving skills, picking skills, computer-operating skills). When transformed or applied, input factors become part of the firm's assets or capabilities, contributing directly to the outputs of the firm.
- *Assets*: are stocks of available factors that are owned or controlled by the firm (Amit and Schoemaker, 1993; Dierickx and Cool, 1989). Assets can only be generated through a process of accumulation, consisting of a path of "flows" or investments over time. Assets can be tangible or intangible, but have the characteristic of being "visible" resources (Bogaert *et al.*, 1994). Examples of assets are capital equipment, patents, brand names, articulated and codified knowledge, etc. (Schulze, 1994). Examples of logistics-related assets are warehouses, plant, fleets, railroad systems, satellite-based trucking communication technologies and EDI computerized networks.
- *Capabilities*: are complex bundles of individual skills, assets and accumulated knowledge exercised through organizational processes, that enable firms to co-ordinate activities and make use of their resources (Amit and Schoemaker, 1993; Day, 1994; Schulze, 1994). Two prominent examples of logistics capabilities are Wal-Mart's distribution system (Day, 1994; Stalk *et al.*, 1992) and Hewlett-Packard's postponement dexterity (Feitzinger and Lee, 1997). Other examples are: the ability to work in teams; the ability to manage supplier relationships; technological abilities; new product development; service delivery; and order fulfilment.

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A difference between assets and capabilities is that assets are related to "having" while capabilities are related to "doing", making them more invisible (Bogaert *et al.*, 1994). In addition, capabilities are knowledge-based resources that combine action and cognition (Day, 1994; Klein *et al.*, 1991). The knowledge basis of capabilities makes them firm specific, socially complex and systemic. They reside in the collective memory of the personnel of an organization.

Capabilities also differ from other firm resources in the sense that they are dominated and enhanced by use (Nelson, 1991). The more a capability is utilized, the more it can be refined and the more sophisticated and difficult to imitate it becomes. This characteristic manifests the dynamic or evolving characteristic of capabilities (Bogaert *et al.*, 1994; Nelson, 1991). Similarly, logistics researchers have emphasized the difficulty of copying firms' distribution systems (Lambert and Stock, 1993). It is suggested that "...distribution can be designed as a unique offering not duplicated by competition" (Sterling, 1985).

*Firms as rent-seekers*

In addition to a firm's strategic resources, the resource-based theory focuses on the rents that these capabilities generate, which translate into sustained superior performance. There are two types of rents: economic and monopolic (Peteraf, 1993). *Economic rent* is defined as the excess return to a resource over its opportunity cost. In other words, it is the payment received above and beyond that amount necessary to retain or call the resource into use (Rumelt, 1987). Therefore, economic rents are excess returns that result from efficiency differences in the utilization of similar resources.

Logistics managers' ongoing efforts to ensure optimal equipment utilization represent similar efforts to capitalize on efficiency differences. A prime manifestation of these endeavours is the many sophisticated systems that have arisen to help ensure that cargo carrying transportation does not make empty backhauls. UPS provides a further example of innovative resource utilization. The carrier has announced plans to modify five Boeing 727 freighters for passenger travel on weekends. The aircraft can be reconfigured with removable seats, galleys and overhead storage bins that can be installed in about four hours and will be offered for charter to cruise lines and large tour operators (Logistics Management, 1996).

*Monopolic rents* can be distinguished from economic rents because they result from the deliberate restriction of output rather than an inherent (permanent or temporary) scarcity of resource supply (Klein *et al.*, 1978; Peteraf, 1993). Firms derive rents due to lack of competition rather than from unique and valuable resources. As acknowledged by Peteraf (1993) and by Winter (1995), a firm's superior performance is likely to be derived from both types of rents. That is, firms will have superior performance both because they possess more efficient (strategic or distinctive) resources and because they have some market power.

The distribution service partnership between industrial glass manufacturer Libbey-Owens-Ford (LOF) and Schneider National demonstrates how firm superior performance can be derived from both types of rents. Schneider converted 120 trailers exclusively for LOF, to be used to deliver large panels of glass to customers and secure backhauls. In return, LOF guaranteed Schneider its business for two years beyond the normal depreciation period of the equipment and permitted Schneider to quote contractual rates that were higher than what LOF had been paying (Bowman and Muller, 1993).

The RBT considers firms to be rent-seekers rather than profit maximizers (Rumelt, 1987; Teece, 1990). Rent-seeking behaviour emphasizes the role of entrepreneurship and innovation in organizations. Firms continuously seek new opportunities to generate rents rather than contenting themselves with their normal avenues for profit. This is consistent with the logistics industry's predilection for benchmarking (Stock and Lambert, 1992) and the Michigan State University stream of research that continuously seeks to improve our understanding of how firms can achieve logistical excellence (Bowersox *et al.*, 1989, 1992; Michigan State University Global Logistics Research Team, 1995).

Thus, there is a constant quest for new competitive advantages to sustain existing competitive advantages (Dickson, 1992; Hunt and Morgan, 1995). *Competitive advantage* is commonly defined as a positional advantage derived by

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a firm which, compared to the competition, provides its customers with lower cost or perceived uniqueness (Porter, 1985). Competitive advantages, however, are often rapidly erased by competitors, resulting in relatively short duration. Consequently, researchers have argued that competitive advantages should be sustainable in order to be strategically relevant (Coyne, 1985; Porter, 1985). *Sustainable competitive advantage* is defined as a competitive advantage that is not easily replicable or eliminable, that can be maintained over a certain period of time and that is the origin of a firm's sustained superior performance. Therefore, rents are only important if they can be sustained over time and transformed into superior performance (e.g. above-normal returns). Fundamental to this process are the strategic resources of the firm.

*Strategic resources and superior performance*

Probably the key postulate of the RBT is that differences in resources are causally related to differences in product or service attributes and thus to competitive advantages and differences in performance (Conner, 1991; Schulze, 1994). Strategic resources are those firm-specific resources that are valuable, scarce and imperfectly imitable, that generate rents (Barney, 1991) and endow a company with competitive advantage (Schoemaker and Amit, 1994).

Resources are considered valuable when they enable a firm to conceive of or implement strategies that improve performance, exploit market opportunities or neutralize impending threats (Barney, 1991; 1995). They provide a disproportionate contribution (relative to their cost) to customer perceived value (Day, 1994).

To be strategic, resources must also be scarce. Access must be restricted to the firm itself or to the firm and a few competitors. If multiple firms possess a valuable resource, there is no change in customer's perceptions of the value of the firm's outputs relative to that of other competitors. In addition, if resources that are valuable and scarce are easily imitable, the advantages of a firm that possesses them will be rapidly eroded.

Different but related sources of *imperfect imitability* are offered in the literature: causal ambiguity, tacit knowledge, social complexity and the characteristics of the resource development process. Lippman and Rumelt (1982) present the theory of causal ambiguity, suggesting that one of the major barriers to imitation (or benchmarking) is the lack of understanding by competitors and even by successful firms of the links between the resources they control and their performance advantages. Related to causal ambiguity is the concept of tacit knowledge, which is knowledge that cannot be articulated, lies in the collective "mind" of the organization and which is embedded in the processes and capabilities of the organization (Nelson and Winter, 1982).

Another characteristic that may make firm resources less imitable is their social complexity. The interpersonal relations within a management team and a firm's reputation among suppliers or customers, are examples of socially complex firm resources that cannot be completely managed by the firm and are therefore difficult to replicate and imitate. Dierickx and Cool (1989) offer a complementary insight with respect to barriers to imitability, focusing on the characteristics of the resource development process. They maintain that

resources such as assets and capabilities have to be developed by choosing appropriate paths of flows (investments) over a period of time. This accumulation process may affect imitability if time compression diseconomies, asset mass efficiencies and interconnectedness of asset stocks are present. Finally, Barney's initial characterization of strategic resources also considers their lack of substitutability. However, a later study classifies substitutability of resources as a special case of imperfect imitability (Barney, 1994).

Strategic resources then, consist of superior assets and distinctive capabilities (Day, 1994; Day and Wensley, 1988; Selznick, 1957). However, given the conditions that are necessary for a resource to become strategic, firm-specific capabilities are the type of firm resources most likely to generate rents and become strategic resources (i.e. distinctive capabilities). They are based on processes, involve the combination of physical resources and human collaboration and are repositories of a firm's knowledge – both tacit and explicit.

A distinction is made between distinctive capabilities at the business level and those at the corporate level. Corporate level distinctive capabilities are what Prahalad and Hamel call "core competences" or under the terminology of this article, core capabilities. Core capabilities are specific types of strategic resources that have the additional characteristic of being able to span and support a wide variety of markets (Prahalad and Hamel, 1990). They also contribute to the development of new capabilities or to the enhancement of old ones and to the acquisition and selection of new businesses. In this sense core capabilities give direction to the organization as a whole, as well as to single businesses within the organization. They contribute to the formulation of an organization's dominant logic, helping to define the route a firm chooses and its future positions in the market (Bettis and Prahalad, 1995; Nelson, 1991). Examples of core capabilities are Honda's ability to design and manufacture small, efficient, gas engines, Coca-Cola's promotion and advertising capability and in a logistics context, Wal-Mart's warehouse cross-docking and inventory control expertise.

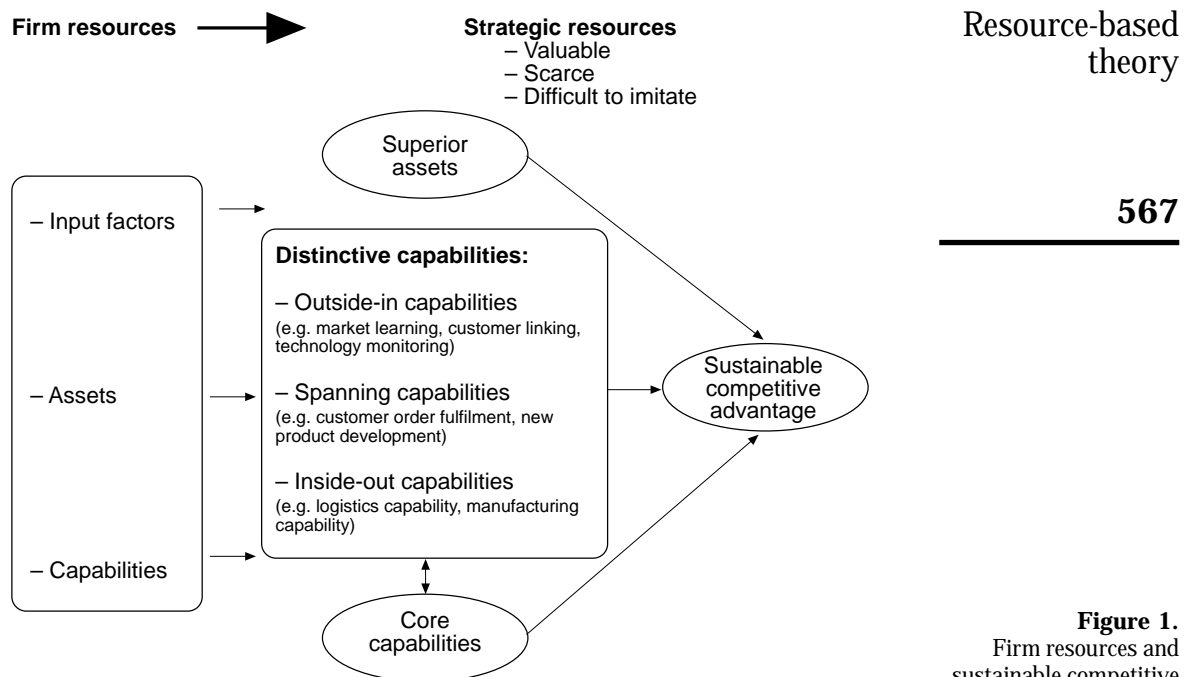
Figure 1 summarizes the previous discussion by depicting a framework of sustainable competitive advantage and superior performance which highlights the role of strategic resources – superior assets and distinctive capabilities. The last subsection in our review of the RBT literature briefly addresses specific issues to which the RBT has been applied.

#### *Applications of the resource-based theory to strategic issues*

In addition to the conceptual development of RBT, a wide range of studies have applied RBT to address specific issues. We attempt to classify them into four categories:

- (1) RBT and sources of SCA;
- (2) RBT and corporate diversification;
- (3) RBT and strategic alliances; and
- (4) miscellaneous applications.





**Figure 1.**  
Firm resources and sustainable competitive advantage

Source: Adapted from Day (1994)

#### *RBT and sources of SCA*

Examples from the marketing literature include the utilization of RBT in a model that examines SCA in service industries (Bharadwaj *et al.*, 1993), in a model that addresses the potential causes of first mover advantage (Kerin *et al.*, 1992) and in a recent study which highlights the capabilities that are found in market-driven organizations (Day, 1994). Bharadwaj *et al.* propose a framework of SCA for service firms that is derived from the assets and capabilities of the firm. The extent of the service firms' SCA is basically determined by the degree of imitability inherent in the firm's resources. Kerin *et al.* present an integrative framework of the literature on first mover advantage, suggesting that the realization of SCA, through market pioneering, is contingent on the resources that a firm possesses. Also, Day, asserts that outside-in capabilities such as market-sensing, customer linking and channel bonding play an instrumental part in a firm's SCA.

#### *RBT and corporate diversification*

The RBT was popularized as a result of Prahalad and Hamel's core competences study (Prahalad and Hamel, 1990). The research suggests that firms should try to develop and exploit the organization's core competences throughout their different business units. In other words, firms should avoid unrelated diversification – like the portfolio approaches that were prevalent in

the late 1970s, early 1980s – and should only attempt to expand into new businesses where there is the potential for value to be enhanced by the presence of the entrant's core competences. In an empirical study, Markides and Williamson (1994) find that related diversification based on core competences is a more effective strategy and produces superior performance.

*RBT and strategic partnerships*

As indicated by Webster (1992), managers should focus more on developing relationships than on pure transactions. The strategic alliance is one of the most important types of relationship or partnership due to the high degree of commitment and influence over the other party that is involved. In a recent article, Varadarajan and Cunningham (1995), propose a conceptual framework related to the formation of strategic alliances, where the complementarity of resources between potential partners represents a positive influence.

According to McWilliams and Gray (1995), vertical strategic alliances are a form of quasi-integration, that represent an intermediate state between market transactions and vertical integration (i.e. quasi-integration involves relational contracting, strategic alliances and equity joint-ventures). The research proposes a conceptual framework that explains the existence of these interorganizational arrangements, combining traditional transaction-cost economics explanations with resource-based arguments. Transaction costs and the opportunism derived from uncertainty provide incentives for the formation of these arrangements. However, firm resources provide additional incentives which influence the extent of the integration. The more that a prospective partner's resources are perceived to be complementary, adding competitive edge to a firm's offering, the greater the incentive to form a strategic alliance.

*Miscellaneous applications*

Other important applications of the RBT include the firm's environmental strategy (Hart, 1995) and technological innovation (Christensen, 1995). Hart proposes that the RBT can serve as the basis for a theory of competitive advantage which considers the firm's relationship to the natural environment. He asserts that strategists should expand their notion of environment and resources to include the natural resources and that, to achieve SCA, firms should engage in three types of environmental strategies: pollution prevention, product stewardship and sustainable development. Logistics is often at the forefront of such "green" initiatives.

Christensen proposes a theory of innovation based on firm resources. He suggests that firms may possess a mixture of four types of innovative assets:

- (1) scientific research assets;
- (2) process innovative assets;
- (3) product innovative application assets; and
- (4) aesthetic design assets.

Different combinations of innovative assets are preferred for particular products and the innovative cycle involves an evolution of the set of innovative assets within the organization. Once again, firms implementing process innovations are increasingly relying on logistics-oriented solutions.

As has been demonstrated, the RBT has been applied to a wide range of issues, some of which are summarized in Table II. In each application, particular strategic resources or capabilities are posited as critical factors for a firm's SCA. However, the examination of RBT in logistics contexts is lacking. The exploitation of a logistics distinctive capability represents an equally fruitful arena for the application of this theoretical rationale. As previously suggested, we believe that the RBT is particularly germane as a theoretical vehicle for validating the association between a logistics distinctive capability and superior performance.

### **Logistics distinctive capability and superior performance: a resource-based explanation**

Despite a growing consensus in the marketing and strategic management literatures that a logistics distinctive capability represents a powerful strategic source of sustainable competitive advantage, the logistics function is still largely regarded as a separate entity or cost centre whose activities are distinct from the functionings of the rest of the firm. As a result, the strategic role of logistics has not received the attention it deserves in terms of the considerable influence that it can have as a resource that contributes to service superiority (Bowersox *et al.*, 1995; Innis and La Londe, 1994). The RBT represents a theoretical rationale for parties outside the logistics function to reassess their "totally traditional view" of logistics – a mindset that continues to prevail in organizations (Stock, 1990). Accordingly, logistics capability can be regarded as a key strategic resource in situations where its exploitation meets the criteria for qualification as a distinctive capability – specifically, when it is valuable, scarce and both difficult and costly to imitate.

#### *Logistics distinctive capability as a valuable resource*

Firm resources are not valuable in a vacuum, but rather are valuable only when they can exploit opportunities and/or neutralize threats (Barney, 1995). The following definition captures the holistic nature of a firm's logistics distinctive capability as a valuable strategic resource that provides SCA and superior performance. Logistics distinctive capability can be instrumental in:

... the creation of time, place, quantity, form and possession utilities within and among firms and individuals through strategic management, infrastructure management and resource management with the goal of creating products/services that satisfy the customer through the attainment of value (Novack *et al.*, 1992, p. 236).

Firms' increased preoccupation with quick response systems, efficient consumer response initiatives and just-in-time supply programmes is further evidence that logistical distinctive capabilities are emerging as valuable factors

Application (author)	Argument
<i>Superior performance and sustainable competitive advantage (SCA)</i>	
<ul style="list-style-type: none"> <li>• SCA of services firms (Bharadwaj, <i>et al.</i>, 1993)</li> </ul>	Services firms derive their SCA from their strategic resources (assets and capabilities). However, this relationship is contingent on the imitability of these resources. The easier to imitate the lower the SCA
<ul style="list-style-type: none"> <li>• SCA of market pioneers and first mover advantages (Kerin <i>et al.</i>, 1992)</li> </ul>	Market pioneering provides just the potential for obtaining SCA. However, in order to exploit this potential, firms need to have adequate resources
<ul style="list-style-type: none"> <li>• The capabilities of market-driven organizations and SCA (Day, 1994)</li> </ul>	Day also suggests that a firm's SCA is derived from the resources of an organization but mainly from its distinctive capabilities. In particular, he highlights the role of outside-in capabilities like market-sensing or customer-linking, which are characteristic of market-driven organizations
<i>Corporate diversification</i>	
<ul style="list-style-type: none"> <li>• The role of core competences (Prahalad and Hamel, 1990)</li> </ul>	Firms should avoid unrelated diversification and should try to concentrate on business where they can use, exploit and enhance their core competences
<ul style="list-style-type: none"> <li>• Related diversification and performance (Markides and Williamson, 1994)</li> </ul>	Related diversification based on core competences leads to superior performance
<i>Strategic partnership</i>	
<ul style="list-style-type: none"> <li>• Strategic alliances (Varadarajan and Cunningham, 1995)</li> </ul>	The existence of complementarity between the resources of different firms or the need for particular resources will favour the formation of strategic alliances in general (both vertical and horizontal)
<ul style="list-style-type: none"> <li>• Vertical quasi-integration (McWilliams and Gray, 1995)</li> </ul>	Firm resources, in addition to transaction costs and uncertainty, will favour vertical quasi-integration (i.e. relational contracting, vertical strategic alliances and equity joint ventures)
<i>Miscellaneous applications</i>	
<ul style="list-style-type: none"> <li>• Environmental strategy (Hart, 1995)</li> </ul>	Firms and strategists should expand their notion of environment and resources to include the natural environment. Firms may obtain a sustained competitive advantage by engaging in three environmental strategies: pollution prevention, product stewardship and sustainable development
<ul style="list-style-type: none"> <li>• Technological innovation (Christensen, 1995)</li> </ul>	Innovation is based on the innovative assets of firms. Four types of innovative assets exists: scientific research assets, process innovative assets, product application assets and aesthetic design assets. Particular combinations of these innovative assets are more appropriate for innovation in different product categories. Additionally, the innovative process involves the evolution of the innovative assets of the firm and its competitors

**Table II.**  
Some applications of the resource-based theory of the firm

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in the development of customer-oriented corporate strategy aimed at developing SCA to enhance performance.

Resource-based  
theory

These programmes tend to position logistics as the core capability – or strategic resource – aimed at achieving customer satisfaction through inventory availability, timely delivery, less product failure and thus fewer lost sales or returns/complaints. In fact, many organizations that are succeeding – particularly those operating in commodity or convenience goods markets – are doing so as a result of their logistics systems rather than their marketing strategies (Christopher, 1994; Schultz *et al.*, 1993). As distinctions between products themselves diminish, service capabilities are rapidly becoming the premier means of differentiation available to firms. Effective logistics management can provide firms with a competitive edge, provided that the logistics system is designed around the needs of the customer (Christopher, 1993).

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For example, Levi Strauss & Co. offers their customers the Personal Pair Jeans programme (Fox, 1996). Store associates enter the customer's vital statistics into a PC, then transmit them electronically to a Levi's factory in Mountain City, Tennessee, where a bolt of cloth is cut precisely to the customer's measurements. The finished jeans, which cost the customer \$10 more than a mass-produced pair, can be shipped back either to the store within three weeks, or directly to the customer by Federal Express for an additional \$5 fee. The programme has enabled Levi's to increase the number of sizes it can offer from 40 to over 4,000. Described as "the ultimate in quick response technology", Personal Pair Jeans' "mass customization" programme is the only one of its kind in the apparel industry allowing Levi's to differentiate their product by employing logistical expertise.

Logistical expertise also helps Putnam Berkley Group exploit market opportunities in the book publishing business (Harrington, 1995). To coordinate new title availability with promotional activities, it is imperative that new books be delivered to every bookstore nationwide in the same one- to two-day time period. With more than 80 new titles released every month, Putnam relies heavily on CF MotorFreight, its primary LTL carrier. CF personnel spend many hours with the publisher's transportation staff planning pickup and delivery schedules for the launch of each new book. Using CF's computerized tracing and image processing systems, Putnam's transportation personnel keep up to date on the progress of all shipments which are continuously tracked to destination. Putnam's can trace all shipments, retrieve an electronic copy of proof of delivery and, most importantly, get back to customers within five minutes to advise them of the whereabouts of their orders. Investing in this strategic logistical tracking resource has helped Putnam's maintain their status as one of the top five book publishing houses in the USA.

The above examples demonstrate that logistical capabilities can prove valuable to firms from both a customer service and from a productivity perspective. However, the scarcity or rarity of a capability is equally germane to its distinctiveness.

*Logistics distinctive capability as a scarce resource*

Many companies are attempting to upgrade their logistical capabilities. This has focused attention on integrated supply chain management and information-based logistics partnerships. However, despite these efforts, companies that excel in the area of logistics are relatively scarce. At least two reasons can explain this scarcity. First, distinctive logistics capabilities involve a complex combination of physical assets, organizational routines, people skills and knowledge, which are not obvious and which require time to develop and integrate. In addition, distinctive logistics capabilities may require the formation of relationships with logistics suppliers or providers, which are demanding and complex undertakings. Suitable and appropriate partners are scarce, therefore companies that pre-empt competitors by securing successful partnerships are in a better position to develop and enhance their logistics capabilities.

For instance, in the JIT II system – a customer-supplier partnership pioneered at Bose Corporation and now practised by several major companies and their suppliers (Pragman, 1996) – the customer brings into its organization supplier transportation professionals. These individuals work full-time in the customer firm while being paid by the supplier. The “in-plants” assume responsibilities previously held by the customer’s personnel, bringing inside many duties previously performed at the supplier’s location (Dixon and Porter, 1994). From a resource perspective JIT II expands transportation staff and allows the customer to take full advantage of carrier expertise. JIT II also enhances the customer’s control over its freight, thereby improving performance. The rare combination of professional in-plant expertise and EDI links allows the transportation supplier to monitor and drive performance (i.e. damage, shortage, on time, container utilization) with a “high degree of specificity”, making it possible for the host firm to shrink leadtimes and eliminate inventory from its pipeline.

Wal-Mart’s logistical expertise, can be used to illustrate the scarcity of distinctive logistics capabilities. Wal-Mart sells much the same merchandise as its major competitors, but the effectiveness and innovation of its logistics system ensures that it is the market leader in its field. Wal-Mart’s valuable point-of-purchase inventory control systems and cross-docking distribution plants have resulted in competitive advantage relative to its major US competitor, K-Mart (Barney, 1995). Another characteristic that differentiates Wal-Mart’s logistics system is its inimitability.

*A logistics distinctive capability is difficult and costly to imitate*

The difficulty of duplicating advantages in distribution is apparent. Logistics systems are much harder to copy or adjust to than changes in price, promotion or product tactics. In fact, the firm’s logistics system has been described as a “proprietary asset” that “theoretically” should be identified as an intangible asset on the corporate balance-sheet (Lambert and Stock, 1993).

As well as illustrating scarcity, Wal-Mart’s logistical system provides a powerful example of how difficult it is to imitate or reproduce a logistics

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distinctive capability. K-Mart is still unable to match the Wal-Mart logistical system despite continuous efforts to benchmark and copy it. Over the last 20 years, Wal-Mart has consistently posted a return on sales twice the average of its industry (Barney, 1995). Senior management's recognition of and investment in, distribution and transportation as a strategic resource that yields superior performance is cited as being an instrumental factor (Walton and Huey, 1992).

In sum, a firm's logistics capability can be valuable, scarce and difficult to imitate and consequently can become a strategic resource capable of explaining differences in performance among firms in the same industry. As such, a logistics distinctive capability represents a highly significant means of differentiation that can be plucked out from the firm's complex bundle of resources and exploited to enhance and maintain SCA. The RBT offers an explanation of the conditions under which logistics capability can be of strategic value to firms and provides a rationale for including logistics as an integrated segment in the firm's strategic planning.

However, just as firm resources are not valuable in a vacuum, nor do they continue to be strategic or distinctive unless they are nurtured and enhanced by organizational learning processes and unless the dynamic evolution of the marketplace is recognized.

#### **Potential developments: combining resource-based theory with organizational learning theory and evolutionary approaches to competition**

Despite the important role that RBT has played in the recent development of strategic thinking and its potential for application to strategic logistics issues, the theory is not without limitations. For instance, a potentially major limitation is that an extreme perspective of RBT could be regarded as tautological – e.g. “firms obtain superior performance because they have superior resources” – thus, limiting its managerial applicability (Porter, 1991). The RBT undoubtedly makes significant contributions to the characterization of rent-earning or strategic resources. However, a related and perhaps more challenging and important issue is how these strategic resources are identified in advance, acquired and developed.

For example, from a logistics perspective, how do logistics managers determine which service performance areas or capabilities to focus on and develop in advance? Superior logistics performers should work on the premiss that in a rapidly changing world, customer needs and expectations continuously shift. Technology, competitors, regulation, legislation and demographics all impact what companies that are dependent on logistics do and how they serve customers. We suggest that a dynamic understanding of strategy and strategic logistics can be gained by combining RBT with organizational learning theory (Dodgson, 1993; Huber, 1991; Levitt and March, 1988; Sinkula, 1994) and evolutionary approaches to competition (Baum and Singh, 1994; Dosi and Marengo, 1993; Foss *et al.*, 1995).

*RBT and organizational learning*

RBT stresses the importance of developing and enhancing those resources that are distinctive, in particular, distinctive capabilities. Capabilities, are the type of resources more likely to be sources of SCA because they are based on organizational routines and processes, which are socially complex, knowledge-based (explicit and tacit) and difficult to observe and imitate. Capabilities, however, are not built overnight – they are dependent on a firm's personnel and its knowledge and understanding of the marketplace and customers' requirements and operations.

For example Andraski *et al.* (1996) document Nabisco's struggles and successes with the development of a supply chain management capability. Nabisco embarked on a lengthy undertaking where personnel concentrated on learning about the business process needs of its customers, while simultaneously focusing on changing existing culture, departmental mindsets and operating procedures to more closely align the firm with supply chain philosophy. Accordingly, for Nabisco, organizational learning played an important role in the change process inherent in the development and enhancement of the firm's supply chain management capabilities.

Researchers from different business disciplines (organizational theory, decision sciences, economics, marketing and strategic management) have studied the phenomenon of organizational learning for decades. Organizational learning can be defined as "the process of improving actions through better knowledge and understanding" (Fiol and Lyles, 1985, p. 803). It may also be described as

...the ways firms build, supplement and organize knowledge and routines around their activities and within their cultures and adapt and develop organizational efficiency by improving the use of the broad skills of their workforces (Dodgson, 1993, p. 377).

Organizational learning takes place through a process that has four different phases: information acquisition, information distribution, information interpretation and use, knowledge transmission and storage (Huber, 1991; Nevis *et al.*, 1995). Logistics has an increasingly important role in the organizational learning process, because of its exposure to important customer data and information that can severely impact the firm's activities and performance. For example, distorted information from one end of a supply chain to another can lead to tremendous inefficiencies: excessive inventory investment, poor customer service, lost sales, misguided capacity plans, ineffective transportation and missed production schedules (Lee *et al.*, 1997). Therefore, firms that leverage logistics information throughout the four phases of the organizational learning process have the potential to better serve their customers.

Information acquisition occurs through experience, through search and through observation. To become organizational knowledge, newly acquired information must be disseminated throughout the company and then it must be interpreted (Daft and Weick, 1984). Cross-functional teams, integrated information systems, intra-firm networks and other co-ordinative and communication mechanisms may contribute to a broader dissemination of acquired information.



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During the interpretation phase, top management plays a special role in framing the interpretation. In what has been referred to as “enactment” (Daft and Weick, 1984), top managers’ mental models influence and permeate the rest of the organization and determine the way the organization perceives and interprets new information. Additionally, firms and organizational members need to challenge actual knowledge and mental models in order to be able to learn and incorporate new knowledge that is somewhat contradictory to prevalent ways of thinking (Senge, 1990).

A final stage of the learning process is the storage of new organizational knowledge. Jelinek and Litterer (1994) suggest that, “for learning to be meaningful, what is learned must be remembered” (p. 28) and should be available to different organizational members and subunits. For this reason, the concept of organizational memory is critical (Walsh and Rivera, 1991).

Organizational memory has three major functions: the recording of previous experience and knowledge, the conservation of this knowledge and the facilitation of retrieval of this knowledge (Levitt and March, 1988). Organizational memory includes rules, procedures, routines, scripts and physical devices (e.g. computers, databases, files, etc.) in which are stored both the explicit and the tacit knowledge of an organization (Kim, 1993). Tacit knowledge – which cannot be formalized or explicitly communicated – is more likely to be stored in the shared mindsets of members of an organization, in their culture and in their routines and capabilities (Jelinek and Litterer, 1994; Nelson and Winter, 1982).

Another issue related to organizational learning is the existence of levels of learning (Argyris and Schon, 1978; Sinkula, 1994). Argyris and Schon identify single-loop, double-loop and deuterio learning. Single loop learning refers to the improvement of actual practices and policies through the detection and correction of errors. Customizing the palletization of merchandise to prevent breakages, the implementation of advance shipping notices and affixing pricing labels and barcodes to goods prior to delivery can all be considered logistics-related examples of single loop learning.

Double-loop learning represents a more complex type of learning, where the organization modifies the ways in which it sees the world and perceives and filters new incoming information. Nabisco’s supply chain management capability development experience is an example of double loop learning because corporate vision and culture had to be transformed. Deuterio-learning depicts a higher stage in the complexity of learning types that involves learning to learn. It has been suggested that deuterio learning is most likely to occur when market-based information takes precedence over internal issues (Sinkula, 1994). Logistics’ direct exposure to market-based information affords a unique opportunity to help firms’ deuterio learning processes.

The existence of different levels of learning and knowledge, has different implications in terms of a firm’s adaptability, survival and performance, which is congruent with the resource-based perspective. Simpler learning and explicit knowledge, can be more easily imitated than complex learning processes, such

as deutero learning and tacit knowledge endowments – the likely domain of logistics distinctive capabilities.

In summary, it is suggested that the link between organizational learning and firm resources is very tight because firms need to learn in order to acquire and maintain their distinctive capabilities (Helleloid and Simonin, 1994; Leonard-Barton, 1995). In fact, a firm's knowledge is at least partly stored within its capabilities. Therefore, for logistics managers, understanding and facilitating learning processes is critical for developing, enhancing and sustaining the distinctive resources from which firms derive SCA.

*RBT and evolutionary approaches to strategy and competition*

Advances in RBT and organizational learning theory are also consistent with new evolutionary approaches to competition and firm growth in economics and organizational theory (Baum and Singh, 1994; Dickson, 1992; Dosi and Marengo, 1993; Jacobson, 1992; Nelson and Winter, 1982). Evolutionary economic theory is derived from earlier work by Schumpeter and the Austrian School of Economics (Jacobson, 1992; Schumpeter, 1934), by Penrose (1959) and from contemporary work by Nelson and Winter (1982).

Evolutionary economics emphasizes the market process and what Schumpeter called the process of creative destruction. Creative destruction is the process by which competition for rents induces firms to innovate and discover new technologies, products, or uses for resources, thus improving the efficiency of an economy and at the same time “destroying” previous knowledge through such creation (Tushman and Anderson, 1986). Magnusson (1994) summarizes Schumpeter's views by stating that:

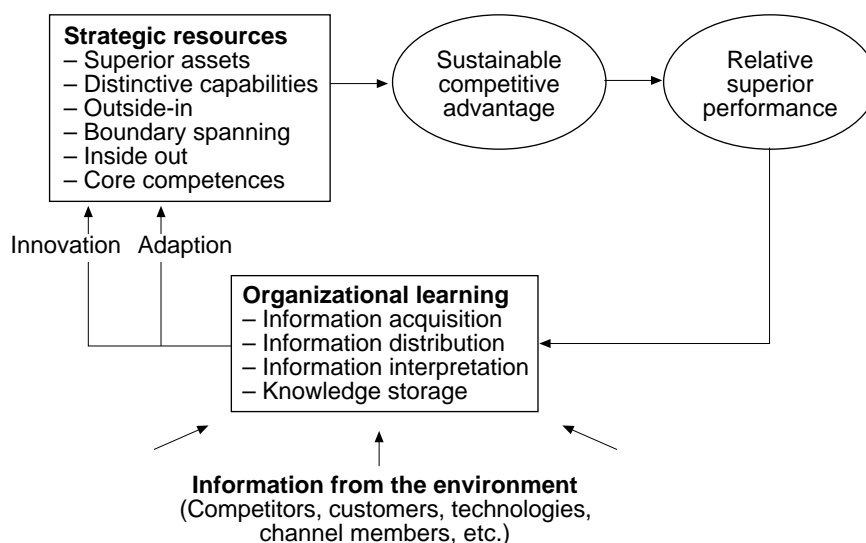
...he [Schumpeter] envisions the market as something more than a signaling device for the allocation of scarce resources that serve to guarantee a state of equilibrium. Rather, the market is a sphere of radical change that pushes firms and agents to innovate and the economy to grow and change structurally. Schumpeterian competition is thus a realm of “creative destruction” where firms grow, survive and die (p. 3).

From an evolutionary perspective, markets are scenarios of competition, experimentation and learning where firms strive to maintain, enhance, or renew their SCAs. This mandates an evolutionary learning and selection process, providing a rationale for why firms must continuously improve their processes and organizational routines, adapting to newly detected environmental requirements and innovating both on the technological and the managerial aspects of their operations. For example, there is ample evidence that EDI and other information technology advancements have changed the way firms relate to vendors, customers and third parties. Therefore, a firm's strategic resources – like a distinctive logistics capability – can most accurately be regarded as dynamic phenomena that evolve as a result of advances in technology and management practices.

The evolutionary perspective further suggests that the environment cannot be ignored in a firm's strategic analysis. A firm's resources are the result of a developmental and learning process that is affected by the firm's decisions as well as by environmental changes in technology, consumption habits and the

actions of competitors. In this sense, firms co-evolve with their environments. "Over the past three decades, the logistics task in many cutting-edge firms has moved from an operational orientation to a tactical orientation to a strategic orientation" (La Londe, 1990, p. 45). The arrival and ready availability of low-cost information technology is cited as the major catalyst for the increased strategic importance of logistics (Bowersox, 1991). Therefore, firms need to keep up with environmental changes when developing or enhancing their firm specific capabilities to prepare for present day and future competition.

In summary, Figure 2 presents a resource-based dynamic framework of competition that takes into consideration both organizational learning and evolutionary theory. This framework suggests that the firm's strategic resources (superior assets and distinctive capabilities) need to be updated by means of adaptation to new environmental demands and through innovation. These processes are facilitated by organizational learning and allow a firm to maintain or enhance its sustainable competitive advantage. Monitoring the results of a firm and the environment provides information that serves as input for organizational learning processes.



**Figure 2.**  
A dynamic resource-based framework of competition

Research and managerial implications that emerge from the proposed integration of RBT organizational learning perspectives, evolutionary views of competition and strategic logistics research are discussed below.

## Research and managerial implications

### *Research implications*

RBT has undergone a great deal of conceptual development over the last ten years. However, because of the methodological difficulties involved in

measuring entities that are largely intangible, studies that operationalize or test RBT have been rare. Accordingly, the application and operationalization of RBT in a logistics-related setting has the potential to make important contributions, both to the understanding of strategic logistics issues and to the advancement of strategic management thought. In the following paragraphs, we suggest several areas for future research that could be addressed using the RBT postulates.

A primary development in the application of RBT to strategic logistics, would be the construction of a generalizable typology of logistics-related resources, using the three categories described earlier (e.g. input factors, assets and capabilities). Initially, the tangible and intangible, firm specific and general elements of a logistics distinctive capability should be identified, together with an analysis of which of these elements are the most likely to differentiate firms.

Next, conceptualization and operationalization should incorporate the development of a measure for a multidimensional logistics distinctive capability construct, together with an assessment of its psychometric characteristics. Recent studies by the Michigan State University Global Logistics Research Team (1995), by Bienstock *et al.*, (1997) and by Chow *et al.* (1994), represent a potent framework for this undertaking.

As discussed, a key premiss of RBT is that firms possessing distinctive capabilities perform better than firms which do not. Thus, the multidimensional logistics distinctive capability construct could be used to develop a better understanding of the relationship between logistics distinctive capability and superior firm performance. In particular, financial measures of firm performance – i.e. profitability, market share, sales growth, etc. – should be examined. Although the Michigan State University stream of research appears to support the association between superior capabilities and performance, more logistics-based studies would add further credence to one of the key postulates of RBT.

The application and operationalization of RBT also provide insights as to which resources are most likely to generate superior economic performance for firms. Thus, logistics researchers may be interested in identifying those logistics-related assets and capabilities most likely to be sources of superior performance. To explore this issue, the three criteria espoused by RBT for generating economic rents – i.e. scarcity, inimitability and value added – must be considered.

Measures of the scarcity, inimitability and addition to perceived value of different logistics-related resources could be obtained, the better to assess their relative importances and consequent potential impacts on firm performance. Several approaches could be used. Firms could be analysed, with counts of the presence or absence of specific logistical resources being used as overall indicators of scarcity. Similarly, evaluations of the contribution made to perceived value of different logistics capabilities could be gathered from customers, or from logistics managers. Inimitability could also be assessed by having logistics experts estimate the amount of tacit knowledge and relative

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transferability, of the skills inherent in the different logistics capabilities. According to RBT, firms with the most unique and valuable inventories of logistical capabilities, should be superior performers.

Armed with this information, logistics researchers may wish to investigate how logistics resources can benefit, or can generate benefits from asset complementarities. For example, having a strong brand may enhance customer perceptions of the firm's logistics capabilities. Equally, having superior logistics capabilities may help the organization to build its reputational assets (i.e. corporate image, brand strength, etc.). Another research area that is related to complementarities between different firm resources, involves the effects that outside-in capabilities (Day, 1994), may have on the development, maintenance and enhancement of a logistics distinctive capability. In other words, do superior market-sensing, customer-linking and technology-monitoring capabilities facilitate and enhance the development of logistics skills and capabilities?

An important research agenda that emerges from the joint consideration of RBT, organizational learning theory and evolutionary arguments, is the issue of static versus dynamic efficiency. For example, firms doing well today might be burying their own futures because managers, blinded by success, often fail to realize that sustained competitive advantages and superior performance only occur as a result of continuous improvements and investments in strategic resources. Accordingly, logistics researchers could measure the consistency of investments made by firms to maintain their superior resource-based positions, while investigating whether extraordinary logistics performers at a moment in time (i.e. one year), continue to be superior performers over longer periods of time (i.e. five to ten years).

The event history approach that has recently been utilized in strategic management studies (e.g. Allison, 1984), could be employed by logistics researchers to further address issues of static versus dynamic efficiency. For example, the successes and failures of firms in the currently burgeoning field of third-party logistics could be analysed and then associated with measures of logistics capability. The event history approach could also be used in conjunction with more common longitudinal design approaches, like time series analysis or longitudinal case studies, to trace the performance histories, learning environments and investment in resources of third-party logistics providers. Such research efforts would make significant contributions towards an improved understanding of the proposed link between RBT, organizational learning and evolutionary views of competition, in a strategic logistics context.

Finally, researchers could investigate the influence of logistics managers' perceptual and cognitive biases in identifying trends and market signals. Such biases may precipitate decisions to postpone or reject opportunities for investing in resources. They may also be associated with selection of the wrong resources. Because investments in logistics capabilities normally involve large financial outlays and are becoming increasingly strategically significant to firms, these studies should include senior managers. In particular, it would be

interesting to gain further insight concerning senior managers' perceptions of the competitive importance of logistics resources, how these perceptions may affect their investment decisions and subsequent corporate performance in the mid- to long term.

*Managerial implications*

We have indicated that logistics capabilities can be sources of sustainable competitive advantage because they provide value to the customer, because they are not equally distributed across competitors and because they are complex enough to avoid easy imitation. Therefore, logistics managers, should constantly prune and enhance their inventory of logistics resources in relation to those of their competitors, using the three criteria of scarcity, inimitability and value-added to guide their investment decisions.

However, because resources that may become strategic in the future must be developed in the present, a clear vision of future market trends and impending consumer requirements, though hard to obtain, is desirable. Thus, logistics managers must be permitted and prepared, to draw on complementary organizational-level resources in their efforts to develop this foresight and monitor or predict environmental changes. For example, firms with outside-in capabilities, like market-sensing, customer-linking and technology-monitoring can help provide their logistics managers with market information to facilitate the strategic development and renewal of their resource bases (Day, 1994). Similarly, the link between a firm's learning capabilities and the generation of strategic resources is recognized (Dickson, 1996; Slater and Narver, 1995).

RBT can also provide guidance for managers with regard to the types of partnerships that should be fostered. For example, the absence of critical strategic resources may be the key determinant for engaging in partnerships and alliances with other parties (Varadarajan and Cunningham, 1995). This rationale can be used to find partners who have sufficient need for the firm's resources to enter into long-term relationships. It can also be used as a basis for finding partners capable of enhancing the firm's own resource base. For example, companies that lack certain logistics resources often engage in partnerships with third-party logistics providers.

However, managers must carefully scrutinize and monitor prospective alliances and partnerships to avoid potentially damaging knowledge leaks, that may alter their firms' competitive positions. Managers must take into consideration both the desirability and the possibility of knowledge transfer. For example, third-party logistics service providers must decide how much of their scarce and valuable knowledge and skills they are willing to transfer to their client-partners. Managers may also wish to reflect on what their firms are actually gaining from clients apart from pay in return for service. For example, are the service providers learning anything new for themselves? Are they enhancing their own resources (i.e. brand, reputation, logistics skills) as they go about their duties?

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Similarly, managers in firms that lack logistical expertise, who may be thinking about entering into partnerships with companies that excel in logistics, must determine whether their firms have adequate learning capabilities to capitalize on and benefit from their prospective partners' tacit knowledge and skill-bases. Managers should be aware, that because of the largely intangible nature of capabilities, – including logistics capabilities – the transfer of knowledge and skills is not always easy, or even possible.

Thus, it is increasingly being suggested that continuous learning may represent the only source of sustainable competitive advantage (Day, 1994; De Geus, 1997; Slater and Narver, 1995). Logistics managers should help and encourage their personnel to learn continuously about and critically evaluate both their own internal logistics processes and the external needs and technologies of their customers and competitors. By doing so, they are, in effect, proactively preserving and enhancing their firms' logistics capabilities by reducing the likelihood of ignorance of emerging trends and practices. To facilitate such endeavours, logistics managers must be kept fully apprised of and must be permitted to participate in, all cross-functional decisions and issues related to customer needs, information processing, production and technology.

In sum, logistics managers may best serve their firms – and preserve their own futures – by promoting an ongoing stream of dialogue and inquiry concerning the current scarcity, value and inimitability of the firm's inventory of logistics capabilities. In particular Watkins and Marsick (1993) suggest that members of areas and departments should: analyse mistakes to learn from them, help each other, seek accurate feedback from one another, communicate and question regardless to rank, listen to others first, revise group thinking as a result of group discussions and information gathered, identify skills that may be needed in the future, learn from problem-solving activities and be rewarded for learning.

### **Conclusion**

Distinctive capabilities cannot remain so for ever. Imitation, learning and innovation by competitors may cause once-distinctive logistics capabilities to evolve into common resources, or even to become obsolete. However, as yet, not all firms possess a logistics distinctive capability. Although, "strategically the momentum is moving toward logistics" (Bowersox *et al.*, 1995), there will always be firms who are more diligent and innovative than their rivals in unearthing new ways to satisfy their clientele logistically. This natural evolution will preserve the relative rarity and inimitability of a logistics distinctive capability, thus ensuring that the enhancement and strategic exploitation of a firm's logistics resource offers a meaningful way to create value-added service and maintain SCA.

In this sense the RBT can be a very valuable theory to incorporate into strategic logistics research. RBT can be applied to strategic logistics issues like partnerships, outsourcing, location decisions, interfaces between logistics and

other areas of the firm and process innovations. The combination of RBT with organizational learning theory and with evolutionary approaches in economics and organizational sciences is suggested as a further step towards an improved understanding of the dynamic process that constitutes the maintenance, enhancement and development of sources of sustainable competitive advantage.

#### Note

1. The resource-based theory of the firm (RBT) can be regarded as a theory that seeks to explain why firms succeed. Accordingly, RBT constitutes an alternative, but somewhat complementary theory, to some other theories of the firm that focus on different phenomena. For example, transaction cost economics (Williamson, 1981, 1985), suggests that firms exist because they represent a more efficient format for organizing exchanges and avoiding transaction costs. Agency theory (Bergen *et al.*, 1992; Fama and Jensen, 1983), seeks to understand issues arising from the separation of ownership and control in corporations, as well as the mechanisms necessary for promoting agent behaviour that is in harmony with the interests of a firm's owners. Another important distinction is between resource-based and resource-dependency theory. Resource-dependency theory (Pfeffer and Salancik, 1978), views firms as a bundle of coalitions whereas RBT views firms as bundles of resources. The key difference between these two theories is that resource-dependency theory proposes that, in order to survive, firms must secure the flow of resources from the environment to the firm, while RBT suggests that this is not enough. RBT suggests that firms must secure the right type of resources. Also, to be successful, firms must concentrate on the acquisition and, most importantly, on the development and enhancement of those resources that are scarce, hard-to-imitate and valuable to their customers now and in the future.

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