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Towards a Resource-based Theory of Information Strategy

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Abstract
The central aim of this paper is to instigate the construction of a theory of information strategy based on the Resource-based View (RBV) of the firm (Barney, 1986, 1991; Penrose, 1959; Wernerfelt, 1984). Therefore, an initial theoretical framework is proposed within which such a theory could be developed further. In essence, this theoretical framework sheds light on how organizations can realize and sustain above-normal returns by either maintaining or solving information imperfections in factor and product markets. This explicit focus on information as a source of above-normal returns is reflected in a new type of rent, called InfoRent. Hence, information strategy can be conceived as a continuous search for InfoRent, analogous to the notion of strategy within the RBV (cf. Mahoney et al., 1992, p.364). First, the urge for constructing a theory of information strategy will be clarified. Subsequently, the appropriateness of the RBV as theoretical foundation for constructing such a theory will be discussed. Finally, the initial outline of a theoretical framework will be explained and empirical work that exemplifies the relevance and explanatory power of the theory are described shortly.

Keywords: information strategy, resource-based view, InfoRent, information imperfections, information asymmetry

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Towards a Resource-based Theory of Information Strategy

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Introduction

The central aim of this paper is to instigate the construction of a theory of information strategy based on the Resource-based View (RBV) of the firm (Barney, 1986, 1991; Penrose, 1959; Wernerfelt, 1984). Therefore, an initial theoretical framework is proposed within which such a theory could be developed further. In essence, this theoretical framework sheds light on how organizations can realize and sustain above-normal returns by either maintaining or solving information imperfections in factor and product markets. This explicit focus on information as a source of above-normal returns is reflected in a new type of rent[1], called *InfoRent*. Hence, information strategy can be conceived as a continuous search for InfoRent, analogous to the notion of strategy within the RBV (cf. Mahoney *et al.*, 1992, p.364). First, the urge for constructing a theory of information strategy will be clarified. Subsequently, the appropriateness of the RBV as theoretical foundation for constructing such a theory will be discussed. Finally, the initial outline of a theoretical framework will be explained and empirical work that exemplifies the relevance and explanatory power of the theory are described shortly.

Urging for a theory of information strategy

The main reason for constructing a theory of information strategy, is simply that no such theory exists. The strategic management discipline lacks a founded theory that explains the strategic use of information, while its strategic potential has been acknowledged for several time (e.g. Clemons, 1987; Porter *et al.*, 1985). Too often the possibility of information *technology* (IT) as a strategic asset (cf. Amit *et al.*, 1993) is examined, whereas the underlying subject matter of *information* as strategic asset is conveniently bypassed. Furthermore, this lack of theory in information strategy is even more surprising, considering that theories from organizational economics are at our disposal as proper foundations for such a theory. After all, (micro)economic theories have a distinguished tradition in informing strategy content research (see Hoskisson *et al.*, 1999; Rumelt *et al.*, 1991 for overviews). Summarized, it is posed that a theory of information strategy contributes to the theoretical progress of both the strategic management and information management (IM) discipline, and the RBV. Opportunities rest in (1) filling a lacuna in strategic management by explicitly focusing on the strategic use of information, (2) enriching the RBV by addressing *how* rent can be created, as opposed to *under which circumstances* it

[1] *Rent is defined as return in excess of a resource owner's opportunity costs. The opportunity cost of a resource is the revenue it can generate when put to an alternative use in the firm or the price which it can be sold for (Grant, 1991, p.22).*

can be sustained and (3) founding the IM discipline with a theory of information strategy without overemphasizing IT-related issues.

Resource-based foundations

The appropriateness of the RBV as a theoretical foundation for a theory of information strategy, rests on the utility of its main assumptions and propositions. Broadly, the RBV seems to provide a point of departure for theoretical development for three reasons. Notwithstanding its critiques (e.g. Foss, 1997; Priem *et al.*, 2001), the RBV seems a promising contestant in becoming a *strategizing*[2] theory of the firm (Williamson, 1994), based on contemporary insights drawn from several economics-based theories of strategy (Conner, 1991). Secondly, the RBV acknowledges the rent-earning potential and importance of invisible assets, in specific information (e.g. Barney, 1986; Itami *et al.*, 1987), although the area is rather under explored. Thirdly, the RBV addresses the question why performance differential exist between firms and how they relate back to a firm's idiosyncratic resources. This delineation guides the theoretical focus towards the process of rent creation in light of a firm's resources and capabilities, which allows to concentrate on the role of information resources and capabilities in the rent creation process.

In order to construct a resource-based theory of information strategy, the RBV's basic assumptions and main propositions are incorporated. The RBV 'perceives the firm as a unique bundle of idiosyncratic resources and capabilities where the primary task of management is to maximize value through the optimal deployment of existing resources and capabilities, while developing the firm's resource base for the future' (Grant, 1991, p.110). From this notion of the firm, the RBV notion of strategy as exploring and exploiting rent opportunities is derived. In order to implement their strategies and realize rents, firms acquire resources at strategic factor markets (Barney, 1986), bundle them and develop capabilities which make use of these resource bundles in order to make up products or services which are sold at product markets (Figure 1).

[2] *There is an ongoing debate in the strategic management literature between adherents of* strategizing *and* economizing *theories of the firm. The heart of the matter lies in whether* strategizing *can be a basis for firm existence and whether or not* economizing *underlies this and is therefore more fundamental (Williamson, 1994).*

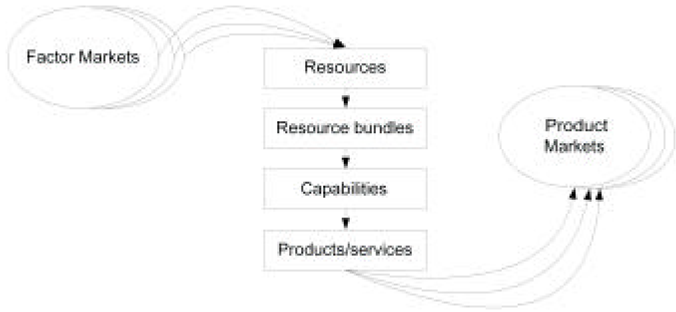

Figure 1 The view of the firm in the RBV

Whereas neoclassical economic theory assumes completely rational economic actors, perfectly mobile resources, uniformly understood production functions and all firms to have complete and perfect information, the RBV departs from these rather unrealistic assumptions associated with the perfect market. The RBV assumes resources to be heterogeneous across firms (Barney, 1991), as well as inelastic in supply (Dierickx *et al.*, 1989), and the combination of resources not to be obvious for firms. Furthermore, economic actors are assumed to be boundedly rational[3] (Simon, 1955) and possibly opportunistic (Williamson, 1975). As a result of these competitive imperfections in both factor and product markets, the RBV asserts that firms are able to appropriate and sustain economic rent under certain conditions (Peteraf, 1993). Ex-ante limits to competition, in the sense of imperfectly competitive factor markets, are required in order for resource costs not to offset rents (Barney, 1986). Furthermore, ex-post limits to competition, in the sense of imperfectly imitable and non-substitutable resources and capabilities, are required in order for rents to be sustained (Barney, 1991).

Information imperfections

Although several types of market imperfections exist (Yao, 1988), a theory of information strategy focuses solely on competitive *information* imperfections. The theory therewith focuses and elaborates on the RBV's departure of the neo-classical assumption of complete and perfect information. These information imperfections create so-called InfoRent opportunities that firms can explore and exploit by means of an information strategy. The theory therewith emphasizes information resources and

[3] *Bounded rationality points out the inability of the human brain. It 'involves neuro-physiological limits on the one hand and language limits on the other. The physical limits take the form of rate and storage limits on the powers of individuals to receive, store, and process information without error' (Williamson, 1975, p.21).*

capabilities that are aimed at (1) identifying information imperfections in factor and product markets, and at (2) either maintaining or solving the identified information imperfections.

In order to be able to identify information imperfections, their origins ought to be understood. Information imperfections derive from the behavioral assumptions of bounded rationality and opportunism, and accordingly two types are distinguished: *incomplete information* and *information asymmetry*.

Incomplete information

Incomplete information is associated with bounded rationality which explains humans' limited rational information behavior (Simon, 1955). 'Instead of a complete search for all relevant information the decision-maker only tries to attain a subjectively satisfying, yet incomplete level of information' (Wigand *et al.*, 1997, p.75). This kind of behavior is known as *satisficing*. Satisficing behavior and thus incomplete information is part of firm's decision making in both factor and product markets. In factor markets it concerns, for instance incomplete information about which suppliers offer particular resources, what the competitors' demand for resources is, what price is demanded, what competitors are willing to pay and what quality differences exist between resources from different suppliers. In product markets it concerns for instance incomplete information about which customers might be interested in buying a product, which sellers are competing, what the demand for a particular product is, what prices customers are willing to pay, and how products differ in quality compared to competitors. Not only firms, but all market parties, including competitors, consumers and suppliers face the information imperfection of being incompletely informed (see Figure 2).

Instances of Incomplete Information				
	Factor markets		Product markets	
for / about	Supplier	Organization	Organization	Customer
Customers				n/a
Suppliers	n/a			
Competitors				
Resources			n/a	n/a
Product	n/a	n/a		
Quality				
Price				
Demand				
Supply				

Figure 2 Instances of incomplete information

Information asymmetry

Due to incomplete information and the fragmentation of knowledge in society as described by Hayek (1945), information can be asymmetrically distributed over parties in markets. Drawing on work by Nobel Prize (Nobel Foundation, 2001) laureates Akerlof (1970), Spence and Stiglitz (1985), information asymmetries[4] have been analyzed extensively as hazards to economic transactions (Arrow, 1984; Clemons *et al.*, 2001; Williamson, 1975). However besides Nayyar (1990), seldom information asymmetry has been regarded as strategic opportunities for firms. It is posed that information asymmetries provide strategic opportunities under two conditions: (a) high costs of achieving information parity and (b) the proclivity of parties to behave opportunistically (Williamson, 1975, p.31). An information asymmetry can result in a favorable situation for either the buyer or the seller, depending on whoever has the information advantage and whether the party with the information advantage exploits it opportunistically.

Information strategy: maintaining or solving information imperfections

Information strategy focuses attention on the way firms deal with incomplete information and information asymmetry. Firms that have identified instances of incomplete information in either factor or product markets, decide in their information strategy whether it is desirable that (1) these instances of incomplete information exist and (2) these instances develop into information asymmetries, meaning either information advantages or disadvantages vis-à-vis competitors, suppliers or customers. Firms decide upon whether they dedicate (informational) resources and capabilities to either:

- *maintaining* or *solving* instances of incomplete information in factor or product markets, therewith influencing market transparency positively or negatively.
- *maintaining* or *solving* information asymmetries therewith creating either information advantages and disadvantages or information equality.

Having made the decision to solve a particular information asymmetry in relation to competitors, suppliers or customers, firms have to realize that these economic actors are also characterized by

[4] *Examples of information asymmetries are known from the field of insurance: moral hazard, adverse selection (Arrow, 1984), and the market for 'lemons' (the used-car market) (Akerlof, 1970).*

bounded rationality and opportunism, moreover they might have different interpretations of the same information. So even in case firm dedicate their resources and capabilities to solving identified information imperfections, therewith creating information equality, the two parties might still experience an information asymmetry due to differences in interpretation (cf. Williamson, 1975, p.32).

Figure 3 summarizes the range of information strategy choices firms face.

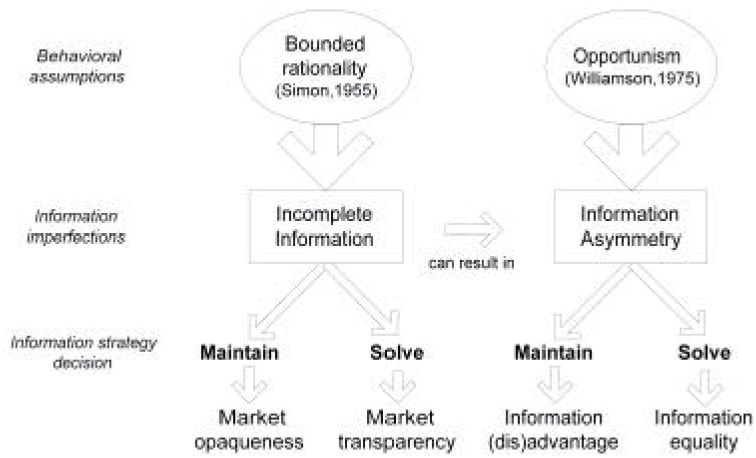

Figure 3 Information strategy decisions: maintaining or solving information imperfections

Empirical status

Apart from the theoretical development, research efforts have been aimed at the empirical validation of the proposed theory by means of an illustrative case in the lease and let segment of the Dutch commercial real estate market, and two case studies in the Dutch travel industry. The former explains the rise and fall of an initiative to increase market transparency for both landlords (owners, developers, asset managers) their agents, and tenants and their brokers. The latter two study the information strategy of both a large Dutch travel organization and a Dutch airline company. These studies describe and explain how and why these organizations decide either to increase or obstruct market transparency by either maintaining or solving information imperfections on for instance the market for airplanes, hotel rooms, and airline seats. Furthermore, the studies show why and how these organizations attempt to solve or maintain information asymmetries. For example, the travel organization attempts to maintain their information advantage over consumers about the contribution of particular travel components (airline seat, hotel, car rental) to the total price of a package tour. While the airline company actively attempts to solve their information disadvantage vis-à-vis tour operators concerning insight in consumer demand for airline seats to a particular charter destination.

In the near future these studies will be complemented by an empirical investigation into the extent to which travel comparison websites, such as *www.expedia.com*, influence market transparency in the travel industry.

Prospect

The proposed theoretical framework focuses on how firms attempt to generate InfoRent, based on the assumptions of bounded rationality, opportunism, and explicitly adding the multi-interpretableness of information. It draws on the RBV with regard to its view of the firm and its notion of strategy. Therefore in the future this theoretical framework can be extended by incorporating the circumstances under which InfoRent can be sustained, as set forth by RBV proponents (e.g. Barney, 1991).

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