Power and dependence perspectives on outsourcing decisions

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ABSTRACT

Since the 1980s outsourcing has been a major topic in both scientific and management literature. Management literature tends to focus on the core competence approach. In economic literature the transaction cost and the core competence perspectives prevail. An emerging alternative view on outsourcing is the power and dependence perspective. This paper first compares and contrasts the different theoretical perspectives towards outsourcing. Then the relevance of the power and dependence dimension is demonstrated using four case studies, involving the maintenance of capital assets. In each instance both the buyer and supplier sides of the dyads are examined. The paper concludes with managerial implications and research opportunities.

Keywords: outsourcing, power and dependence, core competences, asset specificity

1. INTRODUCTION

Since the 1980s both scientific and management literature show a tendency of firms to increasingly outsource certain functions (e.g. Ford, Cotton, Farmer, Gross & Wilkinson, 1993; Kakabadse & Kakabadse, 2001). Initially the emphasis was on outsourcing support and specialist activities in organizations, such as accounting, human resources, facilities and real estate management. Later a tendency towards the outsourcing of functions closer to the core of the organizations became apparent, including customer support and call center functions, manufacturing and engineering (Ford et al., 1993). Recently, about every function that can be outsourced will be (Jones, Kierzkowski & Lurong).

Literature on make-or-buy decisions focuses mainly on the factors that influence the outcome of the make-or-buy decisions. The management literature on outsourcing is centered on the need for the firm to protect its "core competences" (Jenster & Pedersen, 2000; Venkatesan, 1992). In contrast, the most common perspective in the economic literature concentrates on transaction cost economics and the implications of asset specificity for the outsourcing decision (Williamson, 1985; Riordan & Williamson, 1985). The outsourcing of activities that use assets being specific to the transaction might cause a firm to become locked-in to its supplier. If the firm would try to switch to another supplier, it would have to write off those asset specific investments. This lock-in situation for the outsourcing firm can lead to opportunistic behavior by the supplier, exploiting his dominant position to renegotiate the terms of the contract, or insisting on different terms next time around (Lonsdale, 2001). Lonsdale argued in this respect that "it is this risk of outsourcing, rather than that of outsourcing core competencies, that appears to be at the root of a majority of the problems firms have experienced" (2001, p. 22).

In our paper we take this argument somewhat further by arguing that not only asset specificity, but also other issues coming forward from the literature on power and dependence might be key factors that influence the outsourcing decision making process. We argue that this is especially true for the outsourcing activities close to the core of the organization. There is a vast literature about the role of power and dependence that explore the buyer-supplier
relationship (for an overview see Butler & Sohod, 1995, and Gelderman, 2003). We demonstrate that it is possible to gain more in-depth insights into the decision making process itself and the strategic behavior of the actors involved, than uncovered so far by theories and approaches related to outsourcing.

The aim of this paper is to contribute to the understanding of outsourcing decisions, by extracting insights from theories on power and dependence and show their relevance for the outsourcing decision making process. We then apply these insights in examining four dyadic outsourcing cases involving maintenance of capital assets, in recently deregulated industries. The markets involved are rather specific and concentrated, indicating a presence of power and dependence issues (Gelderman 2003). The cases include the maintenance outsourcing decision for railway rolling stock, railway infrastructure, chemical plants, electrical power plants and steel making plants.

In section 2, we briefly review the main outsourcing theories and approaches. In section 3, we introduce basic principles of studies about power and dependence in buyer-supplier relationships and review their relevance for the outsourcing decision. In section 4, the methodology of this study is presented. The application of our insights from the power and dependence discussion to four dyadic case studies follows in Section 5. In section 6, we draw conclusions, put forward managerial implications and give suggestions for further research.

2. VIEWS ON OUTSOURCING

Over time, the scientific literature on outsourcing generated a variety of perspectives, each of which reveal factors that are relevant in the make-or-buy decision process. These views include (1) the neo classical view, (2) the flexibility perspective, (3) transaction cost economics, and (4) the resource based view.

The neo-classical perspective centers on the production function of the firm. In this perspective the outsourcing decision is based on production cost considerations. A central concept is that of economies of scale (and scope) that can be reaped. Outsourcing will lead to savings on overhead costs or it will induce short-term cost savings. Part of the rationale for outsourcing is induced by the role of technological progress. Technological progress often leads to specialization of small suppliers. A major driver of outsourcing is a possibility of cost-effective access to specialized functional capabilities offered by small suppliers. The neo classical view implies several disadvantages of outsourcing, the most prominent one being that outsourcing activities can lead to a loss of in house research and development, which in turn might lead to a loss of competitive advantage (e.g. Engelder, 1988; Chandler, 1977; Langlois & Foss, 1999).

An approach that is linked to neo-classical focus on the production cost structure is brought forward by Harris, Giumpero and Hult (1998). They look at outsourcing from a flexibility perspective. A firm is defined to be flexible when it has a flat-bottomed average cost curve, equalling a slowly rising marginal cost curve (Carlson, 1989; Mills, 1984). More flexibility is then defined as a larger set of future positions (or options) at any given level of costs (Jones & Ostroy, 1984). This view includes attention for uncertainty of the environment, particularly the demand, as a key parameter. Uncertainty can relate to the volume and the mix of the demand for products and services, thus having an impact on the possibilities for economies of scale and scope. Large fluctuations in demand require a flexibility of the organization, thus forcing the firm to develop a sourcing structure that accommodates these fluctuations. Therefore, the outsourcing relationship must be able to deal with uncertainties, which can be done by using particular contractual arrangements. Harris et al. (1998) found that flexible outsourcing contracts lead to a high satisfaction with this outsourcing contract. Flexibility can be found in price, renegotiation possibilities, contract duration, or a choice between an incentive or performance based contract.
Over time it became clear that a narrow focus on the production function of the firm could not fully explain the behavior of actors in an (outsourcing) relationship. Therefore Williamson (1981, 1985) elaborated ideas from Coase (1937) by introducing the concepts of bounded rationality and opportunism. The underlying idea of transaction costs theory is that the make or buy decision is significantly influenced by the degree of asset specificity. More recent studies (e.g. Bensaou, 1999) expand specific assets to specific investments that may also include knowledge. The outsourcing of activities that use assets being specific to the transaction may cause a firm to become locked-in to its supplier. If the firm would try to switch to another supplier, it would have to write off those asset specific investments, which would be undesirable. This lock-in situation for the outsourcing firm can lead to opportunistic behavior by the supplier, who could exploit his dominant position by renegotiating the terms of the contract or insisting on different terms next time around. This line of reasoning favors keeping activities in-house. The transaction costs theory has received a lot of empirical support in explaining outsourcing decisions (e.g. Walker & Weber, 1984; Monteverde & Teece, 1982).

In the 1990s the resource based view emerged as a major school in strategic thinking about outsourcing. The resource based view originated in the work of Thompson (1967), but did not become prominent until the mid1980s (e.g., Wernerfelt 1984). Prahalad and Hamel (1990, 1994) popularized the approach using the concept of core competences. While competences express what a firm is able to do well (Prahalad en Hamel, 1990), core competencies encompass what the firm is able to do better than others (Lawson & Lorenz, 1999, p. 306). As such they are the basis for a firm’s unique competitive advantage at a given point in time. The ability to adapt core competencies quickly to changing opportunities is what ultimately drives competitiveness over time. In the words of Prahalad and Hamel, "in the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products" (1990, p. 81). Teece, Pisano and Shuen (1997) refer to this ability as the dynamic capabilities of a firm (p. 516). Krüger and Homp (1997) operationalized the concept of core competences by distinguishing three criteria. First, core competences enable organizations to deliver product- or service characteristics that are relevant in the eyes of the customers. They make a significant difference between the organization and its competitors. Second, this competitive advantage must be sustainable over time to protect from imitation by competitors. Third, the resources involved must be usable for more purposes than just a limited number of products or services; it must be a competitive advantage for the entire organization to meet its customers’ needs.

In the resource based view, the allocation of resources to non-core activities leads to opportunity costs. It has become conventional wisdom that core activities should stay in-house, while non-core activities should be outsourced (Kakabadse & Kakabadse, 2000). Kakabadse and Kakabadse (2001) show that 36 to 46% of private and public service enterprises in the USA and Europe outsource facilitating, noncore activities in order to focus more on their core competences. A related top ten reason is the aim to achieve best practices (58 – 68% of the respondents depending on industry sector). Hussey and Jenster (2003) cite the same decision drivers, both on the buyer’s as on the supplier’s side.

In sum, the strategic management literature suggests that the dominant reason for outsourcing has changed over time from cost considerations to a strategic choice about the firm’s core activities. Recently, there are voices that try to re-establish the significance of asset specificity and the importance of the quality of the buyer-supplier relationship in outsourcing (Lonsdale 2001; Buvik & Gronhaug, 2000; Bensaou, 1999). However, these contributions mainly focus on the outsourcing of facilitating, non core activities. In the remainder of this paper we will show that issues generated by the literature on power and dependence are particularly relevant for the outsourcing of core activities.
3. POWER AND DEPENDENCE IN BUYER-SUPPLIER RELATIONSHIPS AND ITS RELEVANCE FOR OUTSOURCING DECISIONS

Outsourcing is buying something somewhere else that previously would have been made in-house (Elfring & Baven, 1994; Kliem, 1999). An outsourcing relationship is not that different from a regular buyer-supplier relationship. The importance of the quality of buyer-supplier relationship for outsourcing has been recognized in the management literature (e.g., Dyer & Ouchi, 1993; Quinn & Hilmer, 1994; Quinn, 1999). In this literature the focus is again on the outsourcing of non-core competences. Short term, transaction based contracts fulfill the need for flexibility of the outsourcing firm. If the need for control is high, an activity should be done in-house (Quinn & Hilmer, 1994).

The outsourcing of core activities is associated with partnership arrangements in which there is a close interaction between buyer and supplier (Elfring & Baven, 1994; Bensaou, 1999). In such an intense relationship firms depend, to varying extents, on their trading partner. Early studies on dependence focused on the effects for the buyer of its dependence on the supplier, without taking into account the supplier's dependence (e.g., El-Ansary & Stern, 1972). More recent studies have incorporated dependence from the perspective of the buyer as well as the supplier (Leek, Turnbull, & Naudé, 2002; Buchanan, 1992; Kumar, Sheer, & Steenkamp, 1995; Geyskens, Steenkamp, Sheer, & Kumar, 1996). In other words, dependence is mutual.

Mutual dependence and power are closely related concepts. The buyer's dependence on the supplier is a source of power for the supplier, and vice versa (Emerson, 1962). A well-known definition is that the relative power of an organization over another is the result of the net dependence of the one on the other. If A depends on B more than B depends on A, then B has power over A (Pfeffer, 1981). Similarly, Bacharach and Lawler define relative power as “the dependence of one party compared to the dependence of the other party” (1981, p. 65). Also Anderson and Narus (1990) use the term relative dependence to refer to the difference between a firm’s dependence on its partner and its partner's dependence on the firm. The primary consequence of relative dependence is indicated as power.

Buchanan (1992) conceptualized power-dependence imbalances in buyer-supplier relationships as the difference in value that buyers and sellers attach to the relationship. In asymmetric relationships, the most independent partner dominates the exchange. Balanced relationships refer to domination of neither party (Buchanan, 1992). Several authors (Johnsen & Ford, 2002; Kumar et al., 1995) use the term interdependence asymmetry in this respect, which is defined as the difference between the two partner's levels of dependence. Symmetrical interdependence exists when parties are equally dependent on each other.

Buyer supplier relationships that are characterized by asymmetric interdependence are believed to be deficient because the independent partner experiences high power and might be attempted to exploit it (Ireland & Webb, 2007; Bretherton & Carswell, 2002; Pole & Haskell, 2002; Anderson & Weitz, 1989; Geyskens et al., 1996; Frazier & Rody, 1991). McDonald (1999) states in this respect that power imbalances within a buyer-supplier relationship can lead to unproductive partnerships. In the long term the position of the weaker party will be eroded too much and the partnership will be destroyed. Anderson and Weitz point out that "imbalanced channel relationships are characterized by less cooperation and greater conflict" (1989, p. 312). However, an unbalanced relationship does not automatically involve actual misuse of power (Provan & Gassenheimer, 1994; Cox, Watson, Lonsdale & Sanderson, 2004; Cox, 2004). Power can provide an effective coordination of exchange relationships, as the distribution of power has become legitimate over time (Frazier & Antia, 1995; Kalafatis, 2000; Svensson, 2001). Maloni and Benton (2000) as well as Hingley (2005) found empirical
evidence indicating that power asymmetry can be used as a tool to promote supply chain integration and to achieve higher levels of performance.

Various researchers have argued that a comprehensive view of the interdependence of a dyadic relationship should include not only interdependence asymmetry (or relative power), but also total interdependence (or total power), for example Bacharach and Lawler (1981), Gundlach and Cadotte (1994), Kumar et al., (1995), Frazier and Antia (1995), and Geyskens et al. (1996). The total interdependence refers to the intensity of a relationship. A high level of total interdependence is an indicator for a strong, co-operative long-term relationship in which both parties have invested. Mutual trust and mutual commitment will characterize those relationships (Geyskens et al., 1996). Besides this loyalty towards the other partner and the accompanying desire to continue the relationship, there is an alternative motivation for both firms to keep the partnership in existence. In the case that both parties know that the other party possesses much power, it is not likely that either side is going to use it. The risk of retaliation is often considered as being too high (Ramsay, 1996). In addition, when total interdependence is high, both partners are often faced with high exit barriers (Geyskens et al., 1996).

From the above can be concluded that the literature about buyer-supplier relationships makes a clear difference between the concepts of (1) relative power, which is the result of interdependence asymmetry; and (2) total power, which is the result of full interdependence of both parties on each other, commonly referred to as total interdependence. From an outsourcing perspective one can argue that it is very important to assess the own firm’s relative power position, along with the total power in the relationship, before taking the decision to outsource an activity to a specific supplier.

To this end, the abstract concepts of relative power and total power must be operationalised. One possible approach is to define relative and total power in terms of buyer’s and supplier’s dependence (cf. Pfeffer, 1981; Bacharach & Lawler, 1981; Cox, Lonsdale & Watson, 2003; Cox, 2004). The buyer’s relative power is indicated as the difference between supplier’s dependence and buyer’s dependence. Similarly, the supplier’s relative power is indicated by the difference between buyer’s dependence and supplier’s dependence. This is conforming Pfeffer’s viewpoint (1981, p. 99) that the relative power of one social actor over another is the result of the net dependence of the one on the other. In accordance with Bacharach and Lawler (1981, p. 61), total interdependence in a relationship can be measured by “the sum of the parties’ dependence on one another”.

We have examined relevant academic contributions to the literature to derive several aspects of organizational dependence that could be used to operationalise buyer’s dependence and supplier’s dependence in an outsourcing relationship. Jacobs (1974) introduces two concepts from economic theory to describe dependence, namely ‘essentiality’ and ‘substitutability’. He points out that it is of primary importance to the concept of dependence whether A can do without B (essentiality of a resource) or whether other sources are available (substitutability of the resource). Scholars in Resource Dependence Theory refer to ‘essentiality’ as ‘the importance of a resource’, which is said to be determined by (1) the relative financial magnitude of the resource (Frazier & Rody, 1991; Buchanan, 1992) and (2) the criticality of the resource (Pfeffer & Salancik, 1978). The criticality of a resource refers to the degree in which the organization is able to continue its business processes in the absence of the resource. In essence, however, the concept is two-fold in nature. On the one hand it refers to a need for technological expertise of the partner (Gelderman & Van Weele, 2004), on the other hand it points to issues of logistical indispensability (Cagliano, Caniato, & Spina, 2002; Gelderman & Van Weele, 2004). Substitutability can be subdivided in (1) the availability of alternative sources (El-Ansary & Stern, 1972; Buchanan, 1992; Heide, 1996;
Frazier, 1983; Buchanan, 1992; Krajewskia, Weia & Tang, 2005) and (2) the level of relation specific investments (i.e., the costs involved with switching between suppliers) (Bourantas, 1989; Buchanan, 1992; Heide, 1996; Jap & Ganesan, 2000).

In the context of outsourcing, the analysis of these aspects can provide relevant insights into the relative and total power position of the parties in an outsourcing relationship. We argue that in practice each of these aspects has a significant impact on the outsourcing decision, particularly when it concerns the outsourcing of core activities. In conclusion, organizational dependence contains four key determinants that are relevant for the outsourcing decision:

1. **The relative financial magnitude of the exchanged resources.** An outsourcing firm will be highly dependent on a supplier if the business represented by the outsourcing firm is small in proportion to the supplier’s total business. On the other hand, outsourcing firms have a favorable position if the business represented by them is large in proportion to the supplier’s total business.

2. **The criticality of the activities.** In the case that a firm outsources core activities, it is paramount that the supplier delivers critical resources and that the outsourcing firm is not able to continue its business processes in the absence of these resources. Hence the outsourcing firm is dependent on the supplier. This dependence is for a large part caused by
   
   (a) **The level of technological expertise** of the supplier. The larger the amount of specific knowledge needed to perform the outsourced activities, the larger the dependence of the outsourcing firm on the technological expertise of the supplier.
   
   (b) **The logistical indispensability** of the supplier. A reliable delivery of a critical activity by the supplier is essential for an uninterrupted flow of manufacturing of the outsourcing firm.

3. **The availability of alternatives.** An outsourcing firm will be highly dependent if a supplier is the sole source of a component or activity, or if this supplier is one of only a few suppliers of the component or activity. In this situation the outsourcing firm has little or no options for backup supplies. Similarly, the more alternative customers the supplier has for the component or the activity, the less dependent the supplier is on the outsourcing firm, hence, the more dependent the outsourcing firm is on the supplier. If it would be the case that a supplier is enjoying large market shares for the delivery of a specific resource of activity, the outsourcing firm would be even more dependent, because apparently the market has collectively decided that this specific supplier is better than other suppliers in the market.

4. **Switching costs,** incurred when replacing the supplier. An outsourcing firm will be highly dependent on a supplier if it is costly to switch to an alternative one.

**4. METHODOLOGY**

Our aim in this study is to analyze the outsourcing decision and the outsourcing relationship with respect to issues about power and dependence. We applied the determinants of dependence as outlined in part 3 to four dyadic cases. The cases that were chosen meet the following set of criteria:

1. The outsourcing concerned processes that require specialized assets and/or knowledge
2. Processes were outsourced in markets with imperfections such as high entry/exit barriers, heterogeneous products or lack of transparency

The cases revolve around the outsourcing of maintenance of capital assets, which are key to the primary process of a firm. Performance failure of capital assets can impede the value creation process of the firm and result in major loss of revenue. Capital assets are further
characterized by relatively high value and long lifespan (10-40 years). Maintenance of capital
assets can account for a large proportion of total operational costs.

Studying decisions concerning the outsourcing of maintenance is interesting as well
because of the important random component of the scope of work (urgent corrective
activities). Polo, Piattini and Ruiz (2002), approaching outsourcing from the supplier’s point
of view, dedicate ample attention to the risk management involved in the maintenance
outsourcing decision and contracting related to this aspect.

The cases were chosen from different industries in the Netherlands: public transport,
infrastructure, chemical process industry, and steel production. Case studies include
maintenance of railway rolling stock, railway infrastructure, chemical process plants,
electrical power plants and steel production facilities. In all cases informants from both the
buyer and supplier were interviewed. All parties distinguish between daily maintenance (with
trouble shooting) and heavy maintenance (overhaul after a number of years). Another
important distinction is made between specific activities and generic activities. Specific
activities require intimate knowledge of the equipment and operations. These activities are
tied to daily maintenance and troubleshooting and are less likely to be outsourced.

Respondents were asked for their perception of the role of cost issues, core competence
considerations and dependence issues in the make-or-buy decision and outsourcing
relationship design. Based on their views on the components of buyer's or supplier's
dependence the overall buyer's and supplier's dependences were assigned to a scale ranging
from “low”, through “low/medium”, “medium/low”, “medium”, “medium/high”, and
“high/medium” to “high”. If respondents identified all four components of dependence as
being high (or low), than an overall score of high (or low) was denoted. In all cases that fell in
between, we have chosen the description from the range above that suited the situation best in
our view. The sum and the difference of the buyer's and supplier's dependences were
translated into approximations for the total interdependence and the interdependence
asymmetry in a similar way.

5. CASE STUDIES

Case 1: Maintenance Of Railway Rolling Stock

Until the early 1990s most European railway operators were fully integrated state companies.
In 1991 an EC directive prescribed division of operation and infrastructure followed by a
gradual opening of the market. In the Netherlands this directive led to the division of the
Dutch railways (NS) in several companies, each focused on a specific market, with NS
operating as the overall holding. NS Reizigers (NSR) became the passenger train operator and
NedTrain became the rolling stock maintenance company. NS Financial Services (NS FSC)
owns the rolling stock and leases it out to NSR and other operators. Vertical hierarchical
governance was replaced by horizontal contracts between companies that also act on the
market outside of the NS holding.

Between 1997 and 2003 considerable management attention and deliberation was given to
the outsourcing of daily and heavy maintenance to contractors on the market besides
NedTrain. Motives were a drive for efficiency and freeing up funds for NSR. In several new
rolling stock projects NSR considered outsourcing the maintenance of new trains to the
manufacturer of the rolling stock.

The make-or-buy decision-making process spanned over five years and showed a
considerable amount of political maneuvering by all players involved: NSR, NedTrain and the
potential suppliers of rolling stock and maintenance. In 2003 it was decided that NSR would
formulate make-or-buy decisions for heavy maintenance on a project-by-project basis. The
use of external contractors would put enough market pressure on the NedTrain refurbishment
facilities to ensure efficiency.
Heavy maintenance would be partly sourced from Nedtrain and partly from external suppliers. According to the key informants, dependence issues were the primary reason for this choice. NSR did not want to fully outsource heavy maintenance to external suppliers such as train manufacturers because that could limit their access to documentation and upstream supplier relationships. This would lead to a situation with a dominant power position for the train manufacturer. By sourcing from Nedtrain disputes could still be solved by the board of the holding company NS, of which both NSR and NedTrain are part.

It was also decided that daily maintenance would solely be sourced from Nedtrain and not from external parties. This strategy can be classified as "in-house outsourcing" (Bonazzi & Antonelli, 2003). To ensure a maximum of benefits and a minimum of disadvantages of in-house outsourcing, NSR choose to outsource to NedTrain by means of a performance agreement. In this way NSR would not be dependent on an external party, while Nedtrain would still experience a drive for efficiency. To maintain a pressure for efficiency NedTrain and NSR jointly perform regular benchmarking projects on costs and performance.

Note that daily maintenance represents about 20% of the operating costs of NSR and therefore it represents a considerable financial magnitude (Table 1). However, this was not the main reason for outsourcing in-house, since not all daily maintenance would have to be provided by only one external contractor. The main reasons for the choice to exclusively outsource daily maintenance in-house to Nedtrain stem from the logistical interdependence on NedTrain and the specific technological knowledge needed from Nedtrain. Of course this choice generates a high total interdependence between NSR and NedTrain. Key informants on both the buyer and the supplier sides indicated that there is a balanced power position between the parties, with the board of NS in an arbitration role. However, the views of the informants differ on the origins of this high total interdependence.

NSR informants declare the need for Nedtrain's specific technological expertise as the main factor that makes NSR dependent on NedTrain. They argue that it is very difficult to build the body of expertise that NedTrain has. This knowledge is largely implicit, tacit and very specific to the needs of NSR. Nedtrain informants also mention the presence of specific knowledge, but they give this factor far less weight compared to the judgment of NSR informants.

This difference in the evaluation of the importance of knowledge could be explained by the knowledge asymmetry between NSR and NedTrain. NSR needs NedTrain knowledge in procurement of new rolling stock and refurbishment by external contractors. NedTrain more or less takes this situation for granted; it is used to possess this knowledge and does not realize the criticality of this knowledge for NSR. NedTrain informants state that the specific knowledge is possessed by a limited number of key personnel, who can be hired by another party. However, the fleet management staff of NSR (which consists partly of former NedTrain employees) note that in practice it is not easy to hire these knowledgeable people. NedTrain informants indicate that the critical knowledge needed for the procurement and refurbishment of rolling stock is dispersed widely throughout the organization of NedTrain.

The second origin of a high total interdependence between NSR and NedTrain lies in the logistic indispensability and the high switching costs. Whereas NSR informants say that it is expensive, but relatively easy to build new maintenance facilities, NedTrain informants emphasize that their possession of depots at key locations and the intricate interwoven-ness between transport and maintenance processes makes them logistically indispensable for NSR. Furthermore, Nedtrain informants state that these assets will induce high switching costs if NSR were to switch to another supplier.

The different evaluation of the importance of the fixed assets of NedTrain may be caused by a difference in focus. NedTrain focuses on improving the interplay with the transport operation by building new facilities that are closely tied to NSR’s transport operation. NSR
fleet management has a more 'controlling view' on NedTrain, considering that all real estate is owned by NS Real Estate and hence, under hierarchical governance, which considerably reduces the feeling of being dependent.

The power and dependence position for daily and heavy maintenance is summarized in Table 1. For daily maintenance, total interdependence is very high with a slight interdependence asymmetry in favor of NedTrain based on their technological expertise. The fixed assets (workshops and equipment) translate into high switching costs at both the buyer and supplier sides.

For heavy maintenance (refurbishment, overhaul and modification) the situation is quite different. Overhaul projects require much less specific knowledge and exists a market with considerable overcapacity but a limited demand. Therefore, the total interdependence is medium with a clear interdependence asymmetry in favor of NSR.

Table 1: Power and dependence positions for maintenance of railway rolling stock

<table>
<thead>
<tr>
<th>Dependence position heavy maintenance</th>
<th>NSR</th>
<th>Supplier's dependence</th>
<th>NedTrain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyer's dependence</td>
<td>Medium</td>
<td>Financial magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>Financial magnitude</td>
<td>Low / medium</td>
<td>Logistical indispensability</td>
<td>Low</td>
</tr>
<tr>
<td>Logistical indispensability</td>
<td>Medium</td>
<td>Need for buyer's technological expertise</td>
<td>Medium</td>
</tr>
<tr>
<td>Need for supplier's technological expertise</td>
<td>High</td>
<td>Availability of alternative buyers</td>
<td>Medium</td>
</tr>
<tr>
<td>Availability of alternative suppliers</td>
<td>High</td>
<td>Switching costs supplier</td>
<td>Medium</td>
</tr>
<tr>
<td>Switching costs buyer</td>
<td>Medium / Low</td>
<td>Overall supplier's dependence</td>
<td>Medium / High</td>
</tr>
<tr>
<td>Overall buyer's dependence</td>
<td>Medium / Low</td>
<td></td>
<td>Medium / High</td>
</tr>
</tbody>
</table>

| Interdependence asymmetry in the relationship | Medium (buyer power) |
| Outsourcing | Partial |

Case 2: Maintenance Of Railway Infrastructure

As mentioned above, the Dutch railways split in 1995 in an operations- and an infrastructure management group as a result of EC directives on competition in railway markets. The infrastructure management group, later unified in ProRail, became responsible for capacity allocation on the railway network, traffic control and infrastructure asset management. It acts on behalf of the Dutch government under a management franchise. NS operates passenger trains on the major part of the network.

All commercial activities of NS, including the construction and maintenance of infrastructure, were separated from the management of infrastructure and concentrated in the NS Group. NS subcontracted these projects for a large part to Strukton (owned by NS Group), Volker Stevin and NBM Amstelland. This situation meant that NS Group as a transport operator was hiring capacity from ProRail, which in turn, was contracting the maintenance of
its infrastructure back to the NS Group. Conflicts of interest, liability issues and reduced competition and efficiency resulted. Therefore NS sold its infrastructure maintenance activities to the former subcontractors. The governance regime changed from vertical management contracts (before 1994) to horizontal contracts within the NS group (1994 – 1997) to horizontal contracts between ProRail and contractors in the market (since 1997).

Heavy maintenance (e.g. track renewal) is tendered out on a project base to a large number of suppliers. Key informants stated that in this case the amount of specific knowledge that is needed from the supplier is quite low and the availability of alternative suppliers is rather high (see Table 2). As a result, there exists a dominant power position for ProRail. The total level of interdependence in the buyer-supplier relationship is medium to low, and therefore the choice to outsource these activities is easily made.

Daily maintenance is distributed over three suppliers who each cover a distinct geographic area. Although since 1997 the suppliers are external parties, the original maintenance contracts are still in place. In these original contracts, the control of the maintenance activities is completely in the hands of the supplier. The supplier assesses whether and to what extent daily maintenance is required for which part of the infrastructure. Key informants indicated the high total interdependence in the relationship between ProRail and each of its geographic dispersed suppliers as one of the main reasons fuelling the need for open tendering of new projects. Table 2 shows that ProRail's dependence is mainly rooted in the need for the specific expertise of the supplier. The supplier’s dependence is determined by the lack of availability of alternative buyers.

To lessen its dependence on the suppliers, ProRail wants to tender contracts for daily maintenance from 2007 onwards. ProRail is currently trying to rebuild its body of specific knowledge on the maintenance need and status of their infrastructure assets. In this way ProRail can regain control over daily maintenance activities.

Table 2: Power and dependence positions for maintenance of railway infrastructure

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<thead>
<tr>
<th>Dependence position heavy maintenance</th>
<th>ProRail</th>
<th>Supplier's dependence</th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buyer’s dependence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial magnitude</td>
<td>Medium / high</td>
<td>Financial magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>Logistical indispensability</td>
<td>Medium</td>
<td>Logistical indispensability</td>
<td>Medium</td>
</tr>
<tr>
<td>Need for supplier's technological expertise</td>
<td>Low</td>
<td>Need for buyer's technological expertise</td>
<td>Low</td>
</tr>
<tr>
<td>Availability of alternative suppliers</td>
<td>Medium / high</td>
<td>Availability of alternative buyers</td>
<td>Medium</td>
</tr>
<tr>
<td>Switching costs buyer</td>
<td>Low</td>
<td>Switching costs supplier</td>
<td>Low</td>
</tr>
<tr>
<td>Overall buyer's dependence</td>
<td><strong>Low / medium</strong></td>
<td>Overall supplier's dependence</td>
<td>Medium / low</td>
</tr>
<tr>
<td><strong>Total interdependence in the relationship</strong></td>
<td>Low / medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interdependence asymmetry in the relationship</strong></td>
<td>Low / medium (buyer power)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outsourcing</strong></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Dependence position daily maintenance</th>
<th>ProRail</th>
<th>Supplier's dependence</th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buyer’s dependence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial magnitude</td>
<td>High</td>
<td>Financial magnitude</td>
<td>Medium / high</td>
</tr>
<tr>
<td>Logistical indispensability</td>
<td>High</td>
<td>Logistical indispensability</td>
<td>Medium</td>
</tr>
<tr>
<td>Need for supplier's technological expertise</td>
<td>Medium / high</td>
<td>Need for buyer's technological expertise</td>
<td>Low</td>
</tr>
<tr>
<td>Availability of alternative suppliers</td>
<td>Medium</td>
<td>Availability of alternative buyers</td>
<td>Medium / low</td>
</tr>
<tr>
<td>Switching costs buyer</td>
<td>Medium</td>
<td>Switching costs supplier</td>
<td>Medium / high</td>
</tr>
<tr>
<td>Overall buyer's dependence</td>
<td><strong>Medium / high</strong></td>
<td>Overall supplier's dependence</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Total interdependence in the relationship</strong></td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interdependence asymmetry in the relationship</strong></td>
<td>Medium / low (buyer power)</td>
<td></td>
<td></td>
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</table>
Case 3: Maintenance Of Chemical Process Plants
DSM, a leading chemical industry in the Netherlands, evolved over the twentieth century from a state-owned mining company to highly competitive chemical company. The shift in strategic focus initiated a drive for outsourcing of several activities during the 1990s. Between 1990 and 1995 about forty outsourcing projects were implemented, which resulted in the transfer of 1,200 employees (10% of the 1991 headcount) to 25 external suppliers.

The first major outsourcing project was the transfer of the central maintenance organization of DSM that employed about 400 people, to Stork Limburg Limited, one of the leading industrial service providers in the Netherlands. This central maintenance organization was responsible for major overhauls and modifications of 42 DSM plants, as well as the maintenance of the infrastructure between the plants.

Stork Limburg Limited was founded in 1992 as a joint venture between Stork (51%) and DSM (49%). The main rationale behind DSM's outsourcing arrangement with Stork was the aim to limit both, Stork’s and its own, dependence on each other. In order to achieve this, DSM contracted a guaranteed, but declining, level of maintenance work to Stork Limburg. This allowed Stork Limburg to broaden its customer base, and thus limiting its dependence on DSM. At the same time DSM was able to broaden its supplier base for these activities thus curbing the buyer's dependence.

According to the key informants these goals were reached in practice. Although total interdependence was still high during the first years after DSM’s decision to outsource, after 1995 it was reduced considerably as DSM started to source from other suppliers and Stork Limburg broadened its customer base. At present the dependence can be characterized as low, with a slight interdependence asymmetry in favor of DSM (see Table 3).

For the daily maintenance of plant units the power and dependence situation is different. Table 3 shows that there are high levels of logistical indispensability and specific technological expertise required, resulting in a high level of total interdependence with significant asymmetry in favor of the maintenance units. Standardization of technologies and methodologies could possibly diminish the technological expertise dimension to a certain extent, but not the logistical indispensability. Therefore, DSM chose to keep daily maintenance of these plants in-house. Currently, special departments that are an integral part of DSM perform these activities.

Table 3: Power and dependence positions maintenance of chemical plants

<table>
<thead>
<tr>
<th>Dependence position for chemical plant overhaul</th>
<th>DSM</th>
<th>Supplier's dependence</th>
<th>Stork Limburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyer's dependence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial magnitude</td>
<td>Medium</td>
<td>Financial magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>Logistical indispensability</td>
<td>Medium</td>
<td>Logistical indispensability</td>
<td>Medium</td>
</tr>
<tr>
<td>Need for supplier's technological expertise</td>
<td>Low</td>
<td>Need for buyer's technological expertise</td>
<td>Low</td>
</tr>
<tr>
<td>Availability of alternative suppliers</td>
<td>High</td>
<td>Availability of alternative buyers</td>
<td>Medium</td>
</tr>
<tr>
<td>Switching costs buyer</td>
<td>Low</td>
<td>Switching costs supplier</td>
<td>Low</td>
</tr>
<tr>
<td>Overall buyer's dependence</td>
<td>Low</td>
<td>Overall supplier's dependence</td>
<td>Low / medium</td>
</tr>
</tbody>
</table>

| Total interdependence in the relationship | Low |
| Interdependence asymmetry in the relationship | Low/medium (buyer power) |
| Outsourcing | Yes |

<table>
<thead>
<tr>
<th>Dependence position for daily maintenance of chemical plants</th>
<th>DSM production units</th>
<th>Supplier's dependence</th>
<th>DSM plant maintenance departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyer's dependence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial magnitude</td>
<td>High</td>
<td>Financial magnitude</td>
<td>High</td>
</tr>
</tbody>
</table>
Case 4: Maintenance Of Steel Making Plants
This case study refers to the maintenance of the Dutch steel making plant of Corus in IJmuiden. Corus was formed in 1999 through a merger of Koninklijke Hoogovens and British Steel. Corus has its own Maintenance Service division, called HTD (Hoogovens Technische Dienst) with 1100 employees carrying out about half of all maintenance work; the other half is outsourced.

In 2005, an overall make-or-buy procedure was formalized. Three groups of activities were distinguished: (1) activities to be solely performed by Corus HTD, (2) activities that will always be contracted to external suppliers, and (3) activities that can either be performed by Corus HTD or can be outsourced to an external party. According to the key informants in this case, considerations about Corus’ dependence position predominantly determine whether an activity belongs to a certain category. In general, the guiding principle on whether to in-source to Corus HTD is the wish to avoid dependence on external parties for the availability of primary production equipment. Generic and heavy maintenance activities fall in the third category. The largest external contractor for these activities is Stork. Table 4 shows that the financial magnitude of the outsourcing to Stork is only a medium to small proportion of the overall maintenance budget of Corus. Stork tries to limit its dependence on Corus by maintaining a broad customer base. Stork wants to increase its power position by adopting integral contracts (unit rates) with Corus, as it does in other industries. However, Corus wishes to retain the maintenance management as a part of its “specifying capability”. As a result of the current way of working, it can be concluded that total interdependence between Corus and Stork is low, with some interdependence asymmetry in favor of Corus based on the availability of alternative suppliers.

Daily and specific maintenance activities are solely to be performed by Corus HTD. The Corus steelmaking plant is a 24/7 process with a very high level of investment. Downtime of the primary production equipment would result in considerable costs and is therefore unacceptable (high logistical indispensability, see Table 4). In addition, these activities call for very specific technological expertise, which is another an incentive for sourcing in-house. Hence Corus does not allow dependence on an external party for the daily maintenance activities or troubleshooting. As a result, total interdependence between the Corus production units and Corus HTD is high, with some interdependence asymmetry in favor of Corus HTD.

Table 4: Power and dependence for maintenance activities on steel plants

<table>
<thead>
<tr>
<th>Buyer’s dependence</th>
<th>Corus production</th>
<th>Supplier’s dependence</th>
<th>Stork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial magnitude</td>
<td>Medium/low</td>
<td>Financial magnitude</td>
<td>Medium/low</td>
</tr>
<tr>
<td>Logistical indispensability</td>
<td>High/medium</td>
<td>Logistical indispensability</td>
<td>Medium/low</td>
</tr>
<tr>
<td>Need for supplier's technological expertise</td>
<td>Low</td>
<td>Need for buyer's technological expertise</td>
<td>Low</td>
</tr>
<tr>
<td>Availability of alternative suppliers</td>
<td>Medium</td>
<td>Availability of alternative buyers</td>
<td>High</td>
</tr>
<tr>
<td>Switching costs buyer</td>
<td>Low</td>
<td>Switching costs supplier</td>
<td>Low</td>
</tr>
<tr>
<td>Overall buyer's dependence</td>
<td>Low</td>
<td>Overall supplier's dependence</td>
<td>Medium/low</td>
</tr>
</tbody>
</table>
6. CONCLUSIONS, IMPLICATIONS AND ISSUES FOR FURTHER RESEARCH

The extensive strategic management literature about outsourcing suggests that the dominant reason for outsourcing has changed over time from cost considerations to a strategic choice about the firm’s core activities. Whereas the literature about buyer-supplier relationships puts much emphasis on power and dependence issues, the outsourcing literature seems to have forgotten the crucial influence on the outsourcing decision of power and dependence positions of the parties involved. Our empirical findings illustrate that power and dependence considerations do play an important role in the make-or-buy decision and the design and development of the outsourcing relationship. Moreover, the outsourcing decision appears to be oriented toward a risk-benefit trade-off, rather than a cost-benefit trade-off. In the cases presented in this study the interdependence asymmetry is a key factor that is taken into account by firms in the outsourcing decision. Buyers tend to outsource only when they have a dominant power position. In cases without interdependence asymmetry or with a power advantage for the supplier, buyers tend towards “in house outsourcing” or to no outsourcing at all. Our empirical findings indicate that the level of total dependence is generally medium to high in case of daily maintenance activities (see also Table 5). As a result, these activities are less often and less completely outsourced.

Two factors that were most frequently mentioned as salient to the outsourcing decision are the dependence generated by the need for specific technological expertise (either of the supplier or of the buyer) and the lack of alternative buyers or suppliers. Another factor mentioned repeatedly is the logistical indispensability of the maintenance activities as a source for dependence on the other party.

In several cases the outsourcer takes very clear measures to limit the interdependence asymmetry, for example by capping the volume of the outsourced work, by keeping the maintenance engineering and asset data management in house (NS, ProRail, Corus, DSM) or by explicitly formulating dependence criteria for their suppliers (DSM limits both the buyer’s and the supplier’s dependence). These measures do not only reduce the interdependence asymmetry, but also the total interdependence in the relationship.

Larger maintenance suppliers (e.g., Stork) propose integral maintenance contracts to fortify their own power position. When buyers pay per 'performance unit', the contractors can deliver more added value than in a traditional arrangement. The buyers involved (Corus and ProRail) are hesitant towards this practice, being concerned to increase their dependence on the supplier.

| Total interdependence in the relationship | Low |
| Interdependence asymmetry in the relationship | Low/medium (buyer power) |
| Outsourcing | Partial |

| Dependence position for daily and specific maintenance activities on steel plants |
| Buyer’s dependence | Corus production | Supplier’s dependence | Corus HTD |
| Financial magnitude | High | Financial magnitude | High |
| Logistical indispensability | High | Logistical indispensability | Medium |
| Need for supplier's technological expertise | High | Need for buyer's technological expertise | Low |
| Availability of alternative suppliers | Low | Availability of alternative buyers | Low |
| Switching costs buyer | High | Switching costs supplier | Medium/High |
| Overall buyer's dependence | High | Overall supplier's dependence | High |

| Total interdependence in the relationship | High |
| Interdependence asymmetry in the relationship | Low |
| Outsourcing | No |
## Table 5: Overview of industrial maintenance outsourcing cases

<table>
<thead>
<tr>
<th>Case Description</th>
<th>Outsourcing</th>
<th>Core competence issues</th>
<th>Power and dependence issues</th>
<th>Buyer’s Dependence</th>
<th>Supplier’s Dependence</th>
<th>Total interdependence</th>
<th>Interdependence asymmetry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Railway rolling stock: NSR-NedTrain</td>
<td>daily</td>
<td>rolling stock knowledge</td>
<td>Technological expertise</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td></td>
<td>maintenance</td>
<td></td>
<td>Logistical indispensability</td>
<td>medium/low</td>
<td>medium/high</td>
<td>medium</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>heavy</td>
<td>none</td>
<td>Availability of alternative suppliers</td>
<td>medium/low</td>
<td>medium/low</td>
<td>low/medium</td>
<td>low/medium</td>
</tr>
<tr>
<td>2. Railway infrastructure: ProRail-contractors</td>
<td>daily</td>
<td>infrastructure knowledge</td>
<td>Technological expertise</td>
<td>medium/high</td>
<td>medium</td>
<td>medium</td>
<td>medium/low</td>
</tr>
<tr>
<td></td>
<td>maintenance</td>
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<td>medium/low</td>
<td>low/medium</td>
<td>low/medium</td>
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<tr>
<td></td>
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<td>low/medium</td>
<td>low/medium</td>
<td>low/medium</td>
</tr>
<tr>
<td>3. Chemical process plants: DSM - Stork</td>
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<td>none</td>
<td>Technological expertise</td>
<td>high</td>
<td>low/medium</td>
<td>medium</td>
<td>medium/high</td>
</tr>
<tr>
<td></td>
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<td>low/medium</td>
<td>low/medium</td>
<td>low/medium</td>
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<td>low/medium</td>
<td>low/medium</td>
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<tr>
<td></td>
<td>overhaul</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Steel making plants: Corus - Stork</td>
<td>specific</td>
<td>steel specific equipment</td>
<td>Technological expertise</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td></td>
<td>maintenance</td>
<td></td>
<td>Logistical indispensability</td>
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<td>high</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td></td>
<td>generic</td>
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<td>Availability of alternative suppliers</td>
<td>low</td>
<td>medium/low</td>
<td>low</td>
<td>low/medium</td>
</tr>
</tbody>
</table>

The most important managerial implication of this research concerns the significance for managers to systematically map sources of buyer’s and (potential) supplier’s dependence in an early stage of the outsourcing decision process. This exercise could serve as a major consideration in the make-or-buy decision complementary to core competence considerations. A mapping of the relative power and dependence positions can also provide a basis for the design of a governance regime in case that a firm does decide to outsource. Hence, power and dependence mapping is useful before outsourcing contracts are entered, as well as in the subsequent stages of the relationship. Further investigation along the power and dependence dimension appears warranted.

We found that the buyer’s dependence was mainly influenced by the need for the supplier’s specific knowledge and lack of alternative suppliers. Because of the nature the case study research design it is impossible to evaluate the relative importance of power and dependence issues compared to other factors. Quantitative research could shed some light on the interplay of power and dependence issues and other factors in make-or-buy decisions and outsourcing relationships.

The case study evidence also indicates that there are common factors between the power and dependence perspective and the transaction cost approach. Further research could provide insight in the underlying factors and differences between these two perspectives.
REFERENCES


## APPENDIX 1: LIST OF KEY INFORMANTS PER CASE

<table>
<thead>
<tr>
<th>Case</th>
<th>Buyer</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintenance of railway</td>
<td>procurement director NS Reizigers</td>
<td>former commercial director NedTrain</td>
</tr>
<tr>
<td>rolling stock</td>
<td>fleet director NS Reizigers</td>
<td>program manager NedTrain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>managing director Strukton Railinfra – Randstad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>regional director Volker Stevin Rail &amp; Traffic</td>
</tr>
<tr>
<td>2. Maintenance of railway</td>
<td>procurement director ProRail</td>
<td>general manager Corus HTD</td>
</tr>
<tr>
<td>infrastructure</td>
<td>contract manager maintenance ProRail</td>
<td>business director Stork Industrial Services Noord West</td>
</tr>
<tr>
<td></td>
<td>project manager contracting ProRail</td>
<td></td>
</tr>
<tr>
<td>3. Maintenance of steel</td>
<td>procurement director Corus</td>
<td></td>
</tr>
<tr>
<td>making plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Maintenance of chemical</td>
<td>director human resources DSM Industrial</td>
<td>former commercial manager, Stork Limburg</td>
</tr>
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<td>process plants</td>
<td>Services</td>
<td></td>
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<tr>
<td></td>
<td>general manager, DSM Industrial Services</td>
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**Green series**

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<th>No.</th>
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### Yellow series

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<tr>
<th>Year</th>
<th>Title</th>
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<tr>
<td>2003</td>
<td>Critical Accounting in the Academy</td>
<td>Bernard Verstegen</td>
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<td>De afstudeerbegeleider als coach: reflecties op ervaringen in een bedrijfskundige opleiding</td>
<td>Huibert de Man</td>
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<td>2004</td>
<td>Managing the Global supply Base through Purchasing Portfolio Management</td>
<td>Bé Albronda, Kees Gelderman</td>
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<td></td>
<td>Vox popule vox dei? Versterken van burgerinitiatieven</td>
<td>Iwan Sewandono</td>
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<td>Bewust organiseren? De betekenis van onbewuste processen in organisaties en de consequenties daarvan voor strategievorming en organisatieverandering</td>
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<td></td>
<td>Knooppunt school en bedrijf. Visie op zij-instromers en het onderwijsleerbedrijf in de regio Dordrecht</td>
<td>Iwan Gerrichhauzen, Albert Kampermann</td>
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<td></td>
<td>Benefits of Using Multiple Channels as Drivers for Channel Selection</td>
<td>Jos Schijns, Hanneke Blokland</td>
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<td>2005</td>
<td>Assumpties achter doelmatigheidsonderzoek</td>
<td>Mimi Crijns</td>
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<td>Knooppunt school en bedrijf. Visie op zij-instromers en het onderwijsleerbedrijf in de regio Dordrecht</td>
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<td>2006</td>
<td>Managementwetenschappen Eindverslag: een typering van 5 taaktypen voor het onderwijs bij Managementwetenschappen</td>
<td>Werkgroep taaktypen en toetsvormen</td>
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