

The influence of alliance capabilities on alliance performance : an empirical investigation

Citation for published version (APA):

Duysters, G. M., & Heimeriks, K. H. (2002). *The influence of alliance capabilities on alliance performance : an empirical investigation*. (ECIS working paper series; Vol. 200208). Technische Universiteit Eindhoven.

Document status and date:

Published: 01/01/2002

Document Version:

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.tue.nl/taverne

Take down policy

If you believe that this document breaches copyright please contact us at:

openaccess@tue.nl

providing details and we will investigate your claim.



**The influence of alliance capabilities on alliance performance:
an empirical investigation.**

G. Duysters & K. Heimeriks

Eindhoven Centre for Innovation Studies, The Netherlands

Working Paper 02.08

Department of Technology Management

Technische Universiteit Eindhoven, The Netherlands

September 2002

**The influence of alliance capabilities on alliance performance:
an empirical investigation.**

Geert M. Duysters

Department of Organization Science
Eindhoven University of Technology, The
Netherlands

✉ PO. Box 513

NL – 5600 Eindhoven, The Netherlands

💻 g.m.duysters@tm.tue.nl

☎ ++ 31 40 247 39 72

Fax ++31 40 246 80 54

Koen H. Heimeriks

Department of Organization Science
Eindhoven University of Technology, The Netherlands

✉ PO. Box 513

NL – 5600 Eindhoven, The Netherlands

💻 K.H.Heimeriks@tm.tue.nl

☎ ++ 31 40 247 44 35

Fax ++31 40 246 80 54

**The Influence of alliance capabilities on alliance performance:
an empirical investigation.**

Geert M. Duysters

Koen H. Heimeriks

ABSTRACT

This study examines the effect of alliance capabilities on alliance performance. Four categories of micro-level mechanisms are postulated to help build a firm's alliance capability: functions, tools, control and management processes and external parties. The findings indicate that the level of a firm's alliance capability (based on the number and type of a firm's alliance mechanisms) is found to be positively related to alliance performance. Moreover, different micro-level mechanisms are found to have a distinct influence on alliance performance.

INTRODUCTION

In spite of the unprecedented growth in alliance activity over the last decades (Khanna et al., 1998), there is mounting evidence that alliance performance has remained weak (for review see: Park and Ungson, 2001). Although reported failure rates are generally high, ranging from 40 to 70% (Porter, 1987; Harrigan, 1988; Dacin et al., 1997), some firms seem to consistently enjoy better alliance performance than others. However, little is known about the micro-level mechanisms these successful firms apply in order to gain such high and consistent alliance performance levels. This study, therefore, aims to determine the influence of individual micro-level mechanisms on alliance performance.

In recent academic literature two groups of factors can be identified which are suggested to enhance alliance performance. First, behavioral factors such as trust and commitment are found to be important drivers of alliance performance (e.g. Lorange and Roos, 1990; Kanter, 1994; Young-Ybarra and Wierseman, 1999). These factors can collectively be referred to as relational advantages (Dyer and Singh, 1998). In particular, collaboration-specific rents (Madhok and Tallman, 1998), relational rents (Lane and Lubatkin, 1998), common benefits (Khanna et al., 1998) and relational capital (Kale et al., 2000) can result from these advantages. Second, more recent studies have looked at structural factors; i.e. firms' assets or resources that aid in managing alliances over a longer period of time and are not alliance-specific. These studies refer to the need to create collaborative advantage (Dyer, 2000) or

alliance capability (Kale and Singh, 1999; Kale et al., 2002). These studies suggest that dedicated assets and mechanisms, e.g. the use of an “alliance function or department”, have a positive effect on alliance performance. The basic premise of these studies is not merely to explain rent optimization in individual alliances, but to uncover firm-specific capabilities that help leapfrog the performance of the entire firm’s alliance portfolio. Little is known, however, about the possible effects of mechanisms that firms employ to accumulate new skills in dealing with alliances. For instance, the influence of mechanisms such as alliance trainings or gatekeepers on alliance performance has not been empirically analyzed. As alliances are reported to generate a growing share of revenues for many firms (Harbison and Pekar, 1997; Margulis and Pekar, 2001), it becomes increasingly important for firms to understand what structural factors or micro-level mechanisms are critical to enhance their alliance performance. In this way, alliance mechanisms can not only help to leverage a firm’s revenues that come from alliances, but also play an essential part in building and sustaining a firm’s competitive advantage.

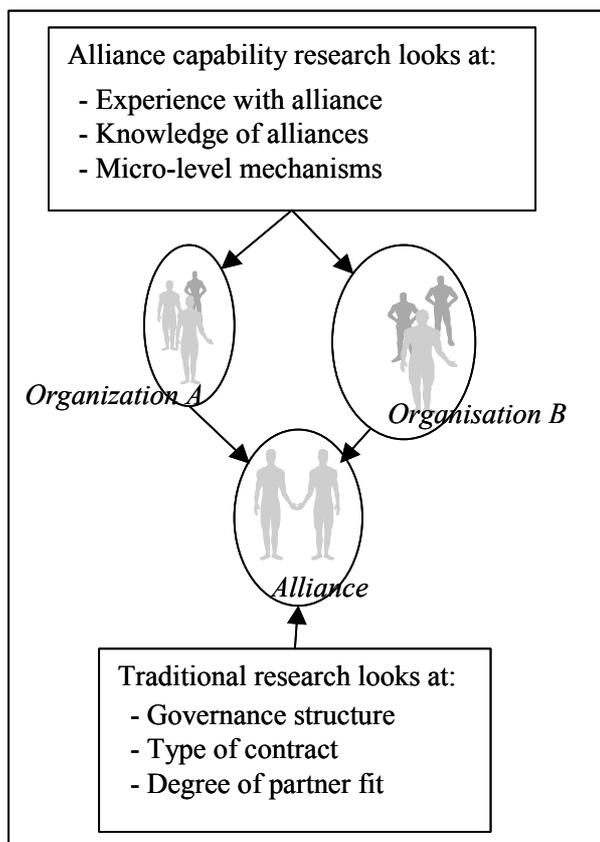
Building on the need to analyze *how* firm can enhance alliance performance (Simonin, 1997; Takeishi, 2001), we investigate the way in which firms can build alliance capabilities by investigating the influence of micro-level mechanisms on alliance performance.

RESEARCH ON ALLIANCE CAPABILITIES

As the value of interorganizational relationships has grown into a significant percentage of a company’s value (Dyer and Singh, 1998), alliance performance and its antecedents have become an important area of research. We define alliances as voluntary, inter-firm agreements aimed at achieving competitive advantage for all partners involved (see Das and Teng, 2000). Initially, research on alliance performance was conducted from a transaction cost or traditional industrial organization theory perspective (e.g. Porter, 1987). Firms were considered to be individual, self-fulfilling units (Williamson, 1975, 1991) that prefer going alone over cooperative agreements (Contractor and Lorange, 1988). These studies generally viewed alliances as single transactions pursued to overcome market failure. The insights generated by these studies refer mainly to critical aspects in the dyadic relationship (Duysters et al., 1999). For instance, choice of governance structure (Williamson, 1985; Pisano, 1989) and partner fit (Geringer, 1991; Medcof, 1997) have been found to have a significant impact on the quality of the relationship between the partners and therefore can be seen as a critical determinant of alliance performance.

In spite of their important contributions in many areas of alliance management, studies based on traditional theories left un-discussed the factors that determine performance across a portfolio of alliances (Kale and Singh, 1999). Consequently, they are unable to explain the reported fixed-firm effects in individual firm's alliance performance. In more recent work, other theoretical perspectives have proven to be a suitable complement to traditional theories (Henderson and Cockburn, 1994). These theoretical viewpoints are evolutionary economics (Nelson and Winter, 1982; Lewin and Volberda, 1999), organizational learning and knowledge-based theory (Conner and Prahalad, 1996; Grant, 1996; Lei et al., 1997), resource-based view (Wernerfelt, 1984; Barney, 1991; Das and Teng, 2000) and dynamic capability view (Mahoney, 1995; Teece et al., 1997; Eisenhardt and Martin, 2000). These theories point to organizational capabilities rather than to dyadic and relational characteristics in order to explain (alliance) performance. This area of alliance research pays attention to a firm's internal features that are often difficult to buy or imitate, such as managerial processes, tools and routines (Dierickx and Cool, 1989; Khanna et al., 1998). The differences in theoretical logic are represented in figure 1.

Figure 1 Alliance capability versus traditional approach



Source (adapted from): Draulans et al., 1999.

Recently, borrowing mainly from the organizational learning and evolutionary economics that linked experience and learning curves to productivity gains and rent generation (see Dutton and Thomas, 1984), researchers pointed to experience as an important explanatory variable for alliance performance (Pisano, 2000). Building on a resource-based (RBV) and dynamic capability view (DCV), experience is posted to influence learning, as contingencies can be better anticipated and responded to (Anand and Khanna, 2000; Kale et al., 2002). In spite of the fact that accumulated experience can positively influence learning, learning curves vary significantly among firms (Pisano et al., 2001). In this way, experience is positively linked to capabilities, in which case a firm's alliance performance is influenced by trials and tribulations of earlier alliances. Thus, learning effects can influence value creation in alliances and create firm heterogeneity with regard to alliance performance (Lambe et al., 2002).

In spite of the fact that scholars have extensively researched the RBV and DCV, the relationships between the critical concepts experience, capability and performance is complex and has remained obscure (Dosi et al., 2000; Rugman and Verbeke, 2002). In order to understand how alliance capabilities are built, it is essential to clearly define these concepts¹. Henderson and Cockburn (1994) distinguish between component and architectural competence, which respectively refer to lower and higher-order resources (Hunt and Morgan, 1996). Higher-order resources can be called 'capabilities' (Amit and Schoemaker, 1993) and are said to determine the way in which firms manage their resources (Teece et al., 1997). Makadok (2001) defined a capability as a special type of resource which is organizationally embedded and nontransferable and improves the productivity of other resources possessed by the firm. This definition explicitly suggests capabilities should be built to enable resources to be efficiently deployed. Thus, whereas the RBV seeks to optimize resource-picking mechanisms, the DCV intends to optimize the mechanisms that facilitate efficient deployment of these resources. We define an alliance capability as a firm's set of micro-level mechanisms that seeks to optimize the ex ante resource deployment and asset commitments in its alliances.

Alliance capabilities can be built in many ways. Firms can commit to various mechanisms depending on the task at hand (Zollo and Winter, 2002). There are abundant examples in the literature of firms that successfully manage alliances in very different ways (see e.g. Hill and Hellriegel, 1994; Alliance Analyst, 1995; Spekman et al., 1999; Takeishi, 2001). Some firms prefer to use firm-specific material and others use generalized alliance knowledge in their quest for better alliance performance (Alliance Analyst, 1995; Margulis and Pekar, 2001).

1 . As it is not our intention to provide an extensive overview of the vast amounts of literature on RBV and DCV, we wish to refer to other papers for more elaborated reviews (Peteraf, 1993; Teece et al., 1997; Dosi et al., 2000; Fujimoto, 2000).

Investments made to increase a firm's alliance capability should fit its needs as learning and capability development are path-dependent (Alliance Analyst, 1995) and hence the principle of equifinality applies (Eisenhardt and Martin, 2000). Leaving some notable exceptions aside (Nault and Tyagi, 2001; Zahra and Nielsen, 2002), so far scholars' attempts to discern how firms build these capabilities have remained scarce (Simonin, 1997) and little is known about the mechanisms that make up such a capability (Thomke and Kuemmerle, 2002).

Although ample empirical evidence confirms the positive relationship between higher-order alliance capabilities and alliance performance (e.g. Powell et al., 1996; Anand and Khanna, 2000; Sivadas and Dwyer, 2000; Kale et al., 2002), empirical evidence on specific, micro-level mechanisms fostering alliance performance is scarce. This study intends to fill this void by investigating the mechanisms that help build an alliance capability.

The next section will introduce this study's main research question which is based on a categorization of the micro-level mechanisms: functions, tools, control and management processes and external parties. Thereafter, these will be tested to first understand how alliance capabilities can be built and thereafter analyze the influence of the alliance mechanisms on alliance performance.

EMPERICAL STUDY: RESEARCH QUESTION

In this paper we divide the micro-level mechanism into four categories². The first group of alliance capabilities consists of 'functions', referring to individual positions or units which manage a number of critical tasks for a firm with respect to its alliances (e.g. a vice-president of alliances or alliance department³). These functions support alliance management in a number of ways. First of all, functions can aid in accumulating and assembling experience in such a way that it is easily transferable to new situations (Cohen and Bacdayan, 1994; Kale et al., 2002), sometimes referred to as assimilation (Zahra and George, 2002). In case higher-order cognitive understanding is required, knowledge codification is essential. Functions then help to identify the resources to be acquired, and thereafter initiates dissemination of these resources (Alliance Analyst, 1996a). The intention surpasses mere knowledge transfer and is geared towards supporting the knowledge evolution process (Zollo and Winter, 2002). For instance, an alliance department of alliance manager can support day-to-day alliance activities and pinpoint the critical aspects in a particular stage of a firm's alliance. In this way, earlier

2 . See appendix for an overview of the four categories and the accompanying mechanisms.

3. For an extensive and specific overview of pro and cons of an alliance department, we refer to Kale, Dyer and Singh (2002), pp. 749-752.

experiences can be more easily disseminated throughout the firm and are more likely to create value in the firm's entire alliance portfolio.

Second, functions can *structurally* coordinate alliance knowledge in the firm (Kale et al., 2002). They provide a mechanism that facilitates sharing of knowledge on a structural basis (Kale and Singh, 1999), as it allows individuals to communicate in a more effective manner (Dyer, 2000). For instance, whereas gatekeepers stimulate knowledge transfer in an ad-hoc manner, an alliance department provides a structural mechanism to leverage knowledge. In this way, it can act as a central coordination mechanism (Harbison and Pekar, 1998a) or coordinative capacity (Kale and Singh, 1999). The ability to integrate knowledge that resides either inside or outside the firm is a distinctive part of an alliance capability (Lorenzoni and Lipparini, 1999).

In similar vein, functions also relate to the concept of absorptive capacity (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998; Zahra and George, 2002). A prerequisite for learning is the existence of a certain knowledge set or body of knowledge in a firm (Oliver, 2001). The absorptive capacity of the firm is therefore constituted by its prior related knowledge, enabling it to recognize the value of new information and to assimilate and apply it to commercial ends (Cohen and Levinthal, 1990). Although some name experience 'a poor teacher' (Levinthal and March, 1993), it aids in extending this body of prior related knowledge in order to achieve a higher level of alliance capability (Simonin, 1997).

In general, 'functions' can enhance a firm's ability to learn (Spekman et al., 1999). These mechanisms can positively influence the transferability factor in two ways (Khanna et al., 1998). First, these functions determine the extent to which the scope of the alliance (Khanna, 1998) overlaps with current firm activities (Khanna et al., 1998). Second, it can increase the firm's skills to accomplish the transfer of learning. In this case, external coordination of alliances is supported by internal coordination (Takeishi, 2001). Coordination in the alliance itself, in addition to coordination at the firm level, is important (Teece and Pisano, 1994; Nault and Tyagi, 2001) and can be facilitated by the use of for instance an alliance manager or vice-president of alliances.

Moreover, the creation of any of these functions may give a firm-wide sign that alliances are considered important. In this way, it rejects the notion of the 'not-invented here' syndrome (Leonard-Barton, 1995) and can reflect management commitment to both internal and external knowledge exchange (Inkpen, 1998). For instance, an alliance department can help ensure that resources are allocated in an appropriate manner over the firm's alliance portfolio,

thereby reducing the chances that alliances fail because of lack of commitment or coordination (Kale et al., 2002).

The second group of mechanisms consists of ‘tools’. Tools are practical mechanisms that aid the process of day-to-day management of alliances by increasing know-how of particular stages of the alliance life-cycle or by raising alliance know-how throughout the firm. Tools tend to support ‘functions’ as they help to disseminate knowledge by either codification (e.g. best practices or alliance database) or verbalization (e.g. alliance training). Tools can support management in various ways. First of all, they support alliance management by their potential to ease conflict situations and aid in joint problem solving activities (Mohr and Spekman, 1994; Kale et al., 2000). For example, a firm’s ability to find the right partner is critical to its ability to generate sufficient pay-off in the end (Dyer and Singh, 1998). In similar vein, by sharing their knowledge and expectations in a joint business planning session, partners will become aware of the future direction of the alliance (Spekman et al., 1999). Second, they stimulate the sharing of individual experiences and knowledge in general, which - in the end - fosters the collective competence of the firm (Zollo and Winter, 2002). For instance, the use of an alliance database can prove a structural means through which information on alliance progress is dispersed throughout the firm and codification stimulated (Harbison and Pekar, 1998a; Hoang, 2001). Even cultural sensitivity, which can be fostered by cultural trainings, can enhance alliance performance (Johnson et al., 1996). Third, management of the alliance itself can be supported using tools. Using evaluation techniques can aid in realizing the alliance objectives. In the same way, self-assessments and evaluation by partners can instill experiences into alliance managers (Harbison and Pekar, 1998b). Moreover, they can be used to review the health of an alliance and, as a result, help to react in time in case the alliance needs improvement (Callahan and MacKenzie, 1999).

Control and management processes make up the third group of managerial mechanisms. These mechanisms are geared towards support of specific aspects of alliance management referring i.e. control (e.g. alliance metrics), formal use and sharing of particular knowledge (e.g. formally structured knowledge exchange) and management of responsibility (e.g. responsibility level for alliances or reward and bonuses). A number of advantages can result from these mechanisms. First of all, they can allow firms to ensure that learning occurs at the firm-level, the alliance as well as the individual level so as to optimally utilize the cooperative advantages (Spekman et al., 1999). Value creation in alliances will only become effective if knowledge is both transferred and integrated (Almeida et al., 2002). It is important to leverage knowledge across a firm’s alliances by considering alliances as a portfolio rather than a separate activity (Lorenzoni and Baden Fuller, 1995). Isolation of an alliance by considering

it as a stand-alone activity would unnecessarily limit the firm's learning abilities (Khanna et al., 1998). Therefore, acquired knowledge is only valuable after its diffusion (Hamel et al., 1989). For instance, knowledge exchange between alliance managers can be an effective means to formalize communication channels through which valuable knowledge can be transmitted. In many cases, tacit knowledge is shared via informal organizational structures. Formalizing this mechanism may enhance knowledge to not only flow via the informal but also via the formal communications channels. The most effective manner to exchange knowledge is from peer to peer (Alliance Analyst, 1999).

Second, as is the case for functions, this group of managerial mechanisms can help increase coordination. Since firms are most effective in sharing and transferring knowledge between individuals and units (Kogut and Zander, 1992), they should exploit this ability by establishing both tacit and explicit rules for coordination (Kogut and Zander, 1996). Complexity, being a feature of coordination and integration, will reduce the effectiveness of knowledge exchange (Cyert and March, 1963) and will increase the need to establish clear rules for alliance management. For instance, formalizing knowledge exchange between alliance managers can be a useful mechanism to ensure effective knowledge transfer. Moreover, using sophisticated incentive systems not only helps employees to share in an alliance, but it can also increase employee involvement (Greenhalgh, 2001). Alliance metrics and rewards and bonuses can prove a useful means to this end. This can positively influence the continuity among personnel, which in turn greatly affects the success of knowledge absorption in the alliance (Leonard-Barton, 1995).

The fourth set of mechanisms that can be used to support alliance management consists of external parties. Different third parties can be used, such as consultants, lawyers, mediators or financial experts. These third parties can pre-empt a firm's own lack of knowledge regarding e.g. contractual arrangements in case of lawyers or due diligence and valuation in case of financial experts. Especially companies initiating cooperation with other firms or small firms may find it more useful to build alliance experience via external parties (Alliance Analyst, 1995). External parties can be beneficial for a number of reasons. First, the potential value a third party can contribute resides not only in practical problem solving or in developing alliance specific know-how, it can also assist in conflict resolution (Conlon and Sullivan, 1999; Margulis and Pekar, 2001). Second, it can underscore the partners' commitment to the alliance as an external party tends to be more objective, increase neutrality and bring an increased level of equality in the planning process (Alliance Analyst, 1996b). Third, it may enhance the commitment to deliver and ensure goals set are reached (Alliance Analyst, 1996b).

On basis of these four categories, we define the following research question: *what micro-level mechanisms positively influence alliance performance?*

EMPIRICAL STUDY: DESIGN & DATA

The primary source to gather data was the database of the Association of Strategic Alliance Professionals (ASAP). This database allowed us to address the mailing to VP's of alliances or – in absence of this function- to top managers in charge of corporate alliance management. This ensured that we approached those people in the organization that were sufficiently knowledgeable about the organization's mechanisms and performance levels. A survey was conducted among more than 1000 alliance managers and VPs. The survey was sent out to the respondents, where after we send out a reminding message in order to maximize the response rate (Dillman, 1978). Although information gathering via self-report can limit the validity of the results (Philips, 1981), data was extensively screened to delete invalid cases, which resulted in a sample of 151 respondents. Finally, we corrected for missing data, where after the final dataset consisted of 107 cases. The final data set provided cases from various industries: 2,6% chemicals, 25,2% ICT, 17,9% ICT services, 7,3% financial services, 25,2% other services (e.g. consultancies), 4,6% pharmaceuticals and biotechnology, 11,3% other manufacturing and 4,6% public sector (e.g. education and non-profit organizations), and 1,3%, is missing data. Thus, 75,6% of the respondents are active in ICT and service sectors. Furthermore, firm sizes also showed a strong heterogeneity. The largest amount of respondents, namely 32,5%, is found in the category of US\$ 1b to US\$ 50b. The rest is found in: 25,8% below \$1m, 24,5% between \$1-100m, 13,2% between \$100m-\$1b, 3,3% larger than \$50b, and 0,7% was missing data. The experience measured by the number of alliances formed over the last five years showed that 60,5% of the respondents has formed between 6 and 15 alliances over the last 5 years, 28,9% formed between 16 and 25 alliances, while 17,8% formed between 26 and 40 alliances. Only 2,4% formed over 40 alliances over the last five years. However, the sample diversity should not hamper the validity of this study's result, as alliance mechanisms should equally influence alliance performance independent of the specific firm or alliance (Day, 1995).

In order to obtain information about the influence of a firm's alliance mechanisms on alliance performance, the questions referred to a firm's entire alliance portfolio. Consequently, the unit of analysis of the study is the firm's alliance portfolio, as micro-level mechanisms are posted to have an equal impact on all of a firm's alliances. In line with this logic, alliance performance is measured as a composite measure reflecting the performance of a firm's

alliance portfolio over the last 5 years. Most questions were closed and respondents could rate answers on a 5-point Likert-type scale.

EMPIRICAL STUDY: ANALYSIS & RESULTS

For the analysis of differences or similarities among high-performing alliance companies and low-performing alliance companies, we applied a number of statistical techniques such as discriminant function analysis and analysis of variance (ANOVA). Alliance performance is defined as the percentage of alliances where the firms' goals were realized (Hamel et al., 1989; Hamel, 1991; see for a critical overview Park and Ungson, 2001). Low-performing firms have an alliance performance level between 0 and 40% and high-performing firms between 61-100%. The firms having a performance between 41 and 60% were left out of this particular analysis. Discriminant function analysis is used to find out which set of predictors can most clearly distinguish between groups of companies that are combined in terms of their alliance performance. In contrast to regression analysis where the dependent variable is continuous, discriminant function analysis can be used to deal with categorical dependent variables (Klecka, 1980). This allows us to differentiate among the various categories of alliance performance by means of a discriminant function which derives the maximum discrimination among the two groups using alliance performance group membership as a categorical, dependent variable⁴. ANOVA is used to generate additional information that can be used to determine which regions differ significantly on the various structural and strategic variables.

To reveal patterns of the effect of alliance capabilities on alliance performance we applied discriminant function analysis using the dummy for alliance success as a categorical, dependent variable. The starting point for our analysis is the evaluation of the mean scores on the individual variables of companies from the two main success categories. We performed a 'one-way' ANOVA to measure whether group means of independent variables differ significantly. In addition to the ANOVA we apply the so-called Scheffe test because the sizes of the groups are not equal. The Scheffe test makes use of the differences between means to calculate an F-ratio (see table 1). This enables us to calculate which groups differ significantly from each other with respect to a particular variable.

⁴ The weights of the discriminant function are estimated in order to obtain the largest discriminating power between the categories.

The ANOVA table (see table 1) shows that the mean values of the following variables differ significantly among the two groups: VP of alliances, alliance department, alliance manager, partner selection program, alliance database, use of intranet, individual alliance evaluation, joint evaluation of alliances, formally structured knowledge exchange between alliance managers and use of own knowledge about national differences. Moreover, we find that the responsibility for alliances at top management level is also significant.

Table 1 ANOVA table of Micro-level mechanisms

| | Wilks' lambda | F-value | Sig. |
|---|------------------|---------|--------|
| VP of alliances (1) | 0,952 | 5,297 | ,023* |
| Alliance department (2) | 0,949 | 5,630 | ,019* |
| Alliance specialist (3) | 0,991 | ,903 | ,344 |
| Alliance manager (4) | 0,951 | 5,400 | ,022* |
| Gatekeeper or boundary-spanner (5) | 0,995 | ,499 | ,481 |
| Local alliance managers (6) | 0,991 | ,957 | ,330 |
| Internal alliance training (7) | 0,998 | ,231 | ,632 |
| External alliance training (8) | 0,981 | 2,029 | ,157 |
| Training in intercultural management (9) | 0,995 | ,537 | ,465 |
| Partner selection program (10) | 0,930 | 7,912 | ,006* |
| Joint business planning (11) | 0,987 | 1,379 | ,243 |
| Alliance database (12) | 0,898 | 11,985 | ,001* |
| Use of intranet to disperse alliance knowledge (13) | 0,931 | 7,822 | ,006* |
| Alliance best practices (14) | 0,978 | 2,359 | ,128 |
| Culture program (15) | 0,999 | ,109 | ,742 |
| Partner program (16) | 0,992 | ,834 | ,363 |
| Individual evaluation (17) | 0,953 | 5,176 | ,025* |
| Comparison of alliance evaluations (18) | 1,000 | ,000 | ,989 |
| Joint evaluation (19) | 0,922 | 8,891 | ,004* |
| Responsibility level for alliances (20) | | | |
| (a) top management | ,963 | 4,020 | ,048* |
| (b) business development | ,965 | 3,842 | ,053 |
| (c) marketing | ,998 | ,231 | ,632 |
| (d) mergers & acquisitions department | ,995 | ,521 | ,472 |
| (e) research & development | ,987 | 2,342 | ,129 |
| (f) strategy department | ,938 | 6,889 | ,010** |
| Rewards for alliance managers tied to alliance performance (21) | 0,986 | 1,544 | ,217 |
| Rewards for business managers tied to alliance performance (22) | 0,972 | 3,029 | ,085** |
| Formal exchange of experience among alliance managers (23) | 0,949 | 5,673 | ,019* |
| Use of own knowledge about national differences in international alliances (24) | 0,951 | 5,400 | ,022* |
| Alliance metrics (25) | 0,963 | 4,020 | ,048* |

| | | | |
|---|-------|-------|------|
| Country-specific alliance policies (26) | 0,984 | 1,656 | ,201 |
| Consultants (27) | 0,989 | 1,118 | ,293 |
| Legal experts (28) | 0,998 | ,177 | ,675 |
| Mediators (29) | 0,977 | 2,523 | ,115 |
| Financial experts (30) | 0,981 | 1,993 | ,161 |

* significant at the 5% level

** significant at the 10% level

After we evaluated the discriminatory power of separate variables, we continue with the assessment of the overall discriminatory power of the total set of variables. We will consider the 'goodness' of the discriminant functions as is reflected in various indicators presented in table 2 and 3. The first indicator is the eigenvalue which represents the relationship of the between group and the within group sum of squares. Higher eigenvalues can be associated with more discriminating functions. In this case the functions seem to have strong discriminating power. Other important statistics include the canonical correlation which represents the proportion of total variance which is accounted for by differences among regions. A chi square value of 46.37 and a corresponding significance of 0.095 implies that the hypothesis, that the mean scores on the various variables for different regions are equal, can be rejected at the 10% level.

Table 2 Eigenvalues

| Function | Eigenvalue | % of variance | Cumulative % | Canonical correlation |
|----------|------------|---------------|--------------|-----------------------|
| 1 | 0.699* | 100.0 | 100.0 | 0.641 |

* First 1 canonical discriminant functions were used in the analysis.

Table 3 Wilks' Lambda

| Test of function (s) | Wilks' lambda | Chi-square | Df | Sig. |
|----------------------|---------------|------------|----|--------|
| 1 | 0.589 | 46.370 | 35 | 0095** |

** significant at the 10% level

The effectiveness of the discriminant functions is measured by classifying all cases according to their scores on the combined discriminant functions. Whereas the prior probability of classification is 50 %, the actual classification procedure results in a correct classification of 82.9 % of the cases. This points to a relatively large degree of divergence among companies from various success categories.

DISCUSSION & CONCLUSION

In line with recent research on alliance capability building, our study confirms the positive relationship between higher-order alliance capabilities and alliance performance (e.g. Powell et al., 1996; Anand and Khanna, 2000; Sivadas and Dwyer, 2000; Kale et al., 2002; Lambe et al., 2002). Successful alliance firms seem to employ a significant larger number of alliance functions, tools and alliance control and management processes. Of course, this is to a certain degree dependent on the number of alliances a firm employs.

More importantly, we tried to fill the empirical lack of evidence on specific micro-level mechanisms that foster alliance performance. This study therefore investigated the specific underlying mechanisms that enable firms to build an alliance capability.

The result of our empirical analysis enable us to reveal some important findings about the use and performance effect of various alliance mechanisms. Because of their potential to enhance learning in alliances we expected a number of alliance functions to contribute significant to alliance performance. In our analyses we were able to show that high-performing alliance firms had a significant higher number of important functions in place than low-performing firms. In particular, the use of VPs of alliances, alliance departments and alliance managers proved to be a key factor to obtain enhanced alliance performance for many firms in our sample. These functions are likely to facilitate and direct the dissemination of alliance knowledge within their firm. Furthermore, they act as human-embodied repositories of alliance knowledge within the firm. In many instances, they also take on an active role in coordinating and managing alliance activity within a company.

The second group of mechanisms under study was referred to as alliance ‘tools’. Tools are needed to support management in making the right alliance decisions and in dealing with critical choices such as partner selection and alliance evaluation issues. In this respect, the use of partner selection programs proved to be a critical tool for many high-performing alliance firms. Moreover, the application of knowledge dissemination tools such as alliance databases and intranet environments proved to be of significant importance in our study. Their role is to stimulate the sharing of individual and collectively acquired know-how among the organization. Finally, the operational phase of alliance management can be supported by making use of specific tools. From our study it was found that, successful alliance firms employed significantly more alliance evaluation tools than their non-performing counterparts.

In addition to functions and alliance tools, control and management processes made-up our third group of mechanisms. Our results pointed out that alliances have become a key strategic weapon. We clearly found that responsibility for alliances should therefore reside at either a top management level or at the level of a strategy department. This strategic dimension of alliances can also be coupled to the performance reward structure of successful organizations, as shown in our study by the importance of rewards for business managers tied to alliance performance. Of course, alliance performance can only be measured by the use of alliance metrics. Therefore, most of the successful alliance firms have also incorporated the use of alliance metrics in their evaluation schemes. Furthermore, two mechanisms that are aimed at sharing and transferring knowledge between individuals and units seemed to be of particular importance, formal exchange of experience among alliance managers and the use and distribution of knowledge about national differences in international alliances.

Strikingly, none of the external parties supporting alliance management proved to play a significant role in determining alliance success. High-performing alliance firms seem to be confident and capable enough to do without an extra amount of external support.

Of course, these findings should not be dealt with in isolation. Distinctive competitive advantage cannot be distilled from the mere possession of a certain mechanism. This requires the development of managerial capabilities as well as the difficult-to-imitate combinations of organizational, functional and technological skills (Teece et al., 1997). In practical terms, this translates to developing certain managerial attributes (see Spekman et al., 1999, pp. 197-207; Dent, 1999), which support effective use of alliance capabilities.

REFERENCES

- Alliance Analyst*. 1995. Two grandmasters at the extremes. November 1995. NewCap Communications: Philadelphia, PA.
- Alliance Analyst*. 1996a. Arguing the collaborative core. April 1996. NewCap Communications: Philadelphia, PA.
- Alliance Analyst*. 1996b. Outsider in the middle. July 1996. NewCap Communications: Philadelphia, PA.
- Alliance Analyst*. 1996c. Managing alliances- skills for the modern era. March 1996. NewCap Communications: Philadelphia, PA.
- Alliance Analyst*. 1999. Welshing the Knowledge Rabbit. May 1999. NewCap Communications: Philadelphia, PA.
- Almeida P, Song J, Grant RM. 2002. Are firms superior to alliances and markets? An empirical test of cross-border knowledge building. *Organization Science* **13**(2): 147-161.
- Amit R, Schoemaker PJH. 1993. Strategic assets and organizational rent. *Strategic Management Journal* **14**(1): 33-46.
- Anand BN, Khanna T. 2000. Do firms learn to create value? The case of alliances. *Strategic Management Journal* **21**(3): 295-316.
- Barney JB. 1991. Firm resources and sustained competitive advantage. *Journal of Management* **17**(1): 99-120.
- Callahan J, MacKenzie S. 1999. Metrics for strategic alliance control. *R&D Management* **9**(4): 365-378.
- Cohen M, Bacdayan P. 1994. Organizational routines are stored as procedural memory: Evidence from a laboratory study. *Organization Science* **5**: 554-568.
- Cohen WM, Levinthal DA. 1990. Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* **35**: 128-152.
- Conlon DE, Sullivan DP. 1999. Examining the actions of organizations in conflict: evidence from the Delaware court of chancery. *Academy of Management Journal* **42**(3): 319-329.
- Conner K, Prahalad C. 1996. A resource-based theory of the firm: knowledge versus opportunism. *Organization Science* **7**(5): 477-501.
- Contractor FJ, Lorange P. 1988. *Cooperative strategies in international business*. Lexington: Lexington Books.
- Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Prentice-Hall, Englewood Cliffs, NJ.
- Dacin MT, Hitt MA, Levitas E. 1997. Selecting partners for successful international alliances: examination of U.S. and Korean firms, *Journal of World Business* **32**(1): 3-16.

- Das TK, Teng B-S. 2000. A resource-based theory of strategic alliances. *Journal of Management* **26**(1): 31-61.
- Day GS. 1995. Advantageous alliances. *Journal of the Academy of Marketing Science* **23**(4): 297-300.
- Dent SM. 1999. *Partnering Intelligence, Creating value for your business by building strong alliances*. Davies Black Publishing, Palo Alto.
- Dierickx I, Cool K. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science* **35**(12): 1504-1511.
- Dillman DA. 1978. *Mail and Telephone Surveys: The Total Design Method*. New York: John Wiley.
- Dosi G, Nelson RR, Winter SG. 2000. *The Nature and Dynamics of Organizational Capabilities*. Oxford University Press: New York.
- Draulans J, Man de A-P, Volberda HW. 1999. Alliantievaardigheid: een bron van concurrentievoordeel. *Holland/Belgium Management Review* **63**: 52-59.
- Dutton JM, Thomas A. 1984. Treating progress functions as a managerial opportunity. *Academy of Management Review* **9**: 235-247.
- Duysters GM, Man de A-P, Wildeman L. 1999. A network approach to alliance management. *European Management Journal* **17**(2): 182-187.
- Dyer JH. 2000. *Collaborative Advantage, Winning through extended enterprise supplier networks*. Oxford University Press, New York.
- Dyer JH, Kale P, Singh H. 2001. How To Make Strategic Alliances Work, Developing a dedicated alliance function is key to building the expertise needed for competitive advantage. *Sloan Management Review* **42**(4): 37-43.
- Dyer JH, Singh H. 1998. The relational view: cooperative strategy and sources of inter-organizational competitive advantage. *Academy of Management Review* **23**(4): 660 – 679.
- Eisenhardt KM, Martin JA. 2000. Dynamic capabilities: What are they?. *Strategic Management Journal* Special Issue **21**(10-11): 1105-1121.
- Fujimoto T. 2000. Evolution of manufacturing systems and ex post dynamic capabilities: case of Toyota's final assembly operations. In *The Nature and Dynamics of Organizational Capabilities*, Dosi G, Nelson RR, Winter SG (eds). Oxford University Press: Oxford, New York; 244-278.
- Geringer JM. 1991. Strategic determinants of partner selection criteria in international joint ventures. *Journal of International Business Studies* **22**(1): 41-62.
- Grant RM. 1996. Prospering in dynamically-competitive environments: organizational capability as knowledge integration. *Organization Science* **7**(4): 375-387.
- Greenhalgh L. 2001. *Managing Strategic Relationships*. New York: The Free Press.
- Hamel G. 1991. Competition for competence and interpartner learning within international strategic alliances. *Strategic Management Journal* **12**: 83-103.

- Hamel G, Doz Y, Prahalad C. 1989. Collaborate with your competitors and win. *Harvard Business Review*. **67**(1): 133-139.
- Harbison JR, Pekar P jr. 1997. Cross-border alliances in the age of collaboration. 2nd in a Series of Viewpoints on Alliances.
- Harbison JR, Pekar P jr. 1998a. *Smart Alliances, A practical guide to repeatable success*. Jossey-Bass: San Francisco, CA.
- Harbison JR, Pekar P jr. 1998b. Institutionalizing alliance skills: Secrets of repeatable success. 3rd in a Series of Viewpoints on Alliances.
- Harrigan KR. 1988. Joint ventures and competitive strategy. *Strategic Management Journal* **9**(2): 141-158.
- Henderson R, Cockburn I. 1994. Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal* Special issue **15**: 63-84.
- Hill RC, Hellriegel D. 1994. Critical contingencies in joint venture management: Some lessons for managers. *Organization Science* **5**: 594-607.
- Hoang HT. 2001. The impact of organizational and alliance-based complexity on the development of alliance capacity. white paper INSEAD.
- Hunt SD, Morgan RM. 1996. The resource-advantage theory of competition: dynamics, path dependencies, and evolutionary dimensions. *Journal of Marketing* **60**(4): 107-114.
- Inkpen AC. 1998. Learning and knowledge acquisition through international strategic alliances. *Academy of Management Executive* **12**(4):69-80.
- Johnson JL, Cullen JB, Sakano T, Takenouchi H. 1996. Setting the stage for trust and strategic integration in Japanese-U.S. cooperative alliances. *Journal of International Business Studies* **27**: 981-1004.
- Kale P, Dyer JH, Singh H. 2002. Alliance capability, stock market response, and long term alliance success: the role of the alliance function. *Strategic Management Journal* **23**(8): 747-767.
- Kale P, Singh H. 1999. Alliance capability and success. Best Paper Proceedings, Academy of Management Meetings. Chicago, IL.
- Kale P, Singh H, Perlmutter H. 2000. Learning and protection of proprietary assets in strategic alliances: building relational capital. *Strategic Management Journal* Special Issue **21**(3): 217-237.
- Kanter R. 1994. Collaborative advantage. *Harvard Business Review* **72**(4) 96-108.
- Khanna T. 1998. The scope of alliances. *Organization Science* **9**(3): 340-355.
- Khanna T, Gulati R, Nohria N. 1998. The dynamics of learning alliances: competition, cooperation, and relative scope. *Strategic Management Journal* **19**(3): 193-210.
- Klecka WR. 1980. *Disciminant Analysis*. Series: Quantitative Applications in the Social Sciences. Sage Publications.

- Kogut B, Zander U. 1992. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science* **3**: 383-397.
- Kogut B, Zander U. 1996. What firms do? Coordination, identity, and learning. *Organization Science* **7**(5): 502-518.
- Lambe CJ, Spekman RE, Hunt SD. 2002. Alliance competence, resources, and alliance success: conceptualization, measurement, and initial test. *Journal of the Academy of Marketing Science* **30**(2): 141-158.
- Lane PJ, Lubatkin M. 1998. Relative absorptive capacity and interorganizational learning. *Strategic Management Journal* **19**(5): 461-477.
- Lei D, Slocum JW jr, Pitts RA. 1997. Building cooperative advantage: managing strategic alliances to promote organizational learning. *Journal of World Business* **32**(3): 203-223.
- Leonard-Barton D. 1995. *Wellsprings Of Knowledge*. Harvard Business School Press, Mass: Boston.
- Levinthal DA, March JG. 1993. The myopia of learning. *Strategic Management Journal* **14**: 95-112.
- Lewin AY, Volberda HW. 1999. Prolegomena on coevolution: a framework for research on strategy and new organizational forms. *Organization Science* **10**(5): 519-534.
- Lorange P, Roos J. 1990. *Strategic Alliances, Formation, Implementation and Evolution*. Cambridge, MA: Blackwell.
- Lorenzoni G, Baden-Fuller C. 1995. Creating a strategic center to manage a web of partners. *California Management Review* **37**(3): 146-163.
- Lorenzoni G, Lipparini A. 1999. The leveraging of interfirm relationships as a distinctive organizational capability: a longitudinal study. *Strategic Management Journal* **20**(4): 317-338.
- Madhok A, Tallman SB. 1998. Resources, transactions and rents: managing value through interfirm collaborative relationships. *Organization Science* **9**(3): 326-339.
- Mahoney JT. 1995. The management of resources and the resource of management. *Journal of Business Research* **33**(2): 91-101.
- Makadok R. 2001. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal* **22**(5): 387-401.
- Margulis M, Pekar P. 2001. The Next Wave of Alliance Formations: Forging Successful Partnerships with Emerging and Middle-Market Companies. Houlhan Lokey Howard & Zukin.
- Medcof JW. 1997. Why Too Many Alliances End in Divorce. *Long Range Planning* **30**(5): 718-732.
- Mohr J, Spekman R. 1994. Characteristics of partnership success: partnership attributes, communication behavior and conflict resolution. *Strategic Management Journal* **15**: 135-152.

- Nault BR, Tyagi RK. 2001. Implementable mechanisms to coordinate horizontal alliances. *Management Science* **47**(6): 787-799.
- Nelson R, Winter S. 1982. *An Evolutionary Theory of Economic Change*. Harvard University Press, Cambridge, MA.
- Oliver AL. 2001. Strategic alliances and the learning life-cycle of bio-technology firms. *Organization Studies* **22**(3): 467-489.
- Park SO, Ungson GR. 2001. Interfirm rivalry and managerial complexity: a conceptual framework of alliance failure. *Organization Science* **12**(1): 37-53.
- Peteraf M. 1993. The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal* **14**(3): 179-191.
- Philips LW. 1981. Assessing measurement error in key informant reports: a methodological note on organizational analysis in marketing. *Journal of Marketing Research* **18**(November): 395-415.
- Pisano GP. 1989. Using equity participation to support exchange: evidence from the biotechnology industry. *Journal of Law, Economics, and Organization* **5**: 109-126.
- Pisano GP. 2000. In search of dynamic capabilities: the origins of R&D competence in biopharmaceuticals. In *The Nature and Dynamics of Organizational Capabilities*, Dosi G, Nelson RR, Winter SG (eds). Oxford University Press: Oxford, New York; 129-154.
- Pisano GP, Bohmer RMJ, Edmondson AC. 2001. Organizational differences in rates of learning: evidence from the adoption of minimally invasive cardiac surgery. *Management Science* **47**(6): 752-768.
- Porter ME. 1987. From competitive advantage to corporate strategy. *Harvard Business Review* **65**: 43-59.
- Powell WW, Koput KW, Smith-Doerr L. 1996. Interorganizational collaboration and the locus of control of innovation: networks of learning in biotechnology. *Administrative Science Quarterly* **41**(1): 116-145.
- Rugman AM, Verbeke A. 2002. Edith Penrose's contribution to the resource-based view of strategic management. *Strategic Management Journal* **23**(8) 769-780.
- Simonin BL. 1997. The importance of collaborative know-how: an empirical test of the learning organization. *Academy of Management Journal* **40**(5): 1150-1174.
- Sivadas E, Dwyer RF. 2000. An examination of organizational factors influencing new product development in internal and alliance-based processes. *Journal of Marketing* **64**(1): 31-40.
- Spekman RE, Isabella LA, MacAvoy TC. 1999. *Alliance Competence, Maximizing the value of your partnerships*. John Wiley & Sons, New York.
- Takeishi A. 2001. Bridging inter and intra-firm boundaries: management of supplier involvement in automobile product development. *Strategic Management Journal* **22**(5): 403-433.

Teece DJ, Pisano G. 1994. The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change* **3**(3): 537-556.

Teece DJ, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* **18**(7): 509-533.

Thomke S, Kuemmerle W. 2002. Asset accumulation, interdependence and technological change: evidence from pharmaceutical drug discovery. *Strategic Management Journal* **23**(7): 619-635.

Wernerfelt B. 1984. A resource-based view of the firm. *Strategic Management Journal* **5**(2): 171-180.

Williamson OE. 1975. *Markets and Hierarchies: Analysis and antitrust implications*, New York: Free Press.

Williamson OE. 1985. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. Free Press: New York.

Williamson OE. 1991. Comparative economic organization: the analysis of discrete structural alternatives. *Administrative Science Quarterly* **36**: 269-296.

Young-Ybarra C, Wiersema M. 1999. Strategic flexibility in information technology alliances: the influence of transaction cost economics and social exchange theory. *Organization Science* **10**(4): 439-459.

Zahra SA, George G. 2002. Absorptive capacity: a review, reconceptualization, and extension. *Academy of Management Review* **27**(2): 185-203.

Zahra SA, Nielsen AP. 2002. Sources of capabilities, integration and technology commercialization. *Strategic Management Journal* **23**(5): 377-398.

Zollo M, Winter SG. 2002. Deliberate learning and the evolution of dynamic capabilities. *Organization Science* **13**(3): 339-351.

APPENDIX

| Functions | Tools | Control and management processes | External parties |
|------------------------------------|---|---|------------------------|
| Vice-president of alliances (1) | Internal alliance training (7) | Responsibility level for alliances (20) | Consultants (27) |
| Alliance department (2) | External alliance training (8) | Rewards and bonuses for alliance manager (21) | Lawyers (28) |
| Alliance specialist (3) | Training in intercultural management (9) | Rewards and bonuses for business managers (22) | Mediators (29) |
| Alliance manager (4) | Partner selection program (10) | Formally structured knowledge exchange between alliance managers (23) | Financial experts (30) |
| Gatekeeper or boundary spanner (5) | Joint business planning (11) | Use of own knowledge about national differences in international alliances (24) | |
| Local alliance manager (6) | Alliance database (12) | Alliance metrics (25) | |
| | Use of intranet to disperse alliance knowledge (13) | Country-specific alliance policies (26) | |
| | Alliance best practices (14) | | |
| | Culture program (15) | | |
| | Partner program (16) | | |
| | Individual evaluation (17) | | |
| | Comparison of alliance evaluations (18) | | |
| | Joint evaluation (19) | | |



Eindhoven Centre for Innovation Studies

WORKING PAPERS

Ecis working papers 2001-2002 (September 2002):

- 01.01 H. Romijn & M. Albu
Explaining innovativeness in small high-technology firms in the United Kingdom
- 01.02 L.A.G. Oerlemans, A.J. Buys & M.W. Pretorius
Research Design for the South African Innovation Survey 2001
- 01.03 L.A.G. Oerlemans, M.T.H. Meeus & F.W.M. Boekema
Innovation, Organisational and Spatial Embeddedness: An Exploration of Determinants and Effects
- 01.04 A. Nuvolari
Collective Invention during the British Industrial Revolution: The Case of the Cornish Pumping Engine.
- 01.05 M. Caniëls and H. Romijn
Small-industry clusters, accumulation of technological capabilities, and development: A conceptual framework.
- 01.06 W. van Vuuren and J.I.M. Halman
Platform driven development of product families: Linking theory with practice.
- 01.07 M. Song, F. Zang, H. van der Bij, M. Weggeman
Information Technology, Knowledge Processes, and Innovation Success.
- 01.08 M. Song, H. van der Bij, M. Weggeman
Improving the level of knowledge generation.
- 01.09 M. Song, H. van der Bij, M. Weggeman
An empirical investigation into the antecedents of knowledge dissemination at the strategic business unit level.
- 01.10 A. Szirmai, B. Manyin, R. Ruoen
Labour Productivity Trends in Chinese Manufacturing, 1980-1999
- 01.11 J.E. van Aken
Management research based on the paradigm of the design sciences: the quest for tested and grounded technological rules
- 01.12 H. Berends, F.K. Boersma, M.P. Weggeman
The structuration of organizational learning
- 01.13 J.E. van Aken
Mode 2 Knowledge production in the field of management

- 01.14 A. Cappelen, F. Castellacci, J. Fagerberg and B. Verspagen
The impact of regional support on growth and convergence in the European Union
- 01.15 W. Vanhaverbeke, G. Duysters and B. Beerkens
Technological capability building through networking strategies within high-tech industries
- 01.16 M. van Birgelen, K. de Ruyter and M. Wetzels
The impact of attitude strength on the use of customer satisfaction information: An empirical investigation
- 01.17 M. van Birgelen, K. de Ruyter A. de Jong and M. Wetzels
Customer evaluations of after-sales service contact modes: An empirical analysis of national culture's consequences
- 01.18 C. Keen & M. Wetzels
E-tailers versus retailers: which factors determine consumer preferences
- 01.19 J.E. van Aken
Improving the relevance of management research by developing tested and grounded technological rules
- 02.01 M. van Dijk
The Determinants of Export Performance in Developing countries: The Case of Indonesian manufacturing
- 02.02 M. Caniels & H. Romijn
Firm-level knowledge accumulation and regional dynamics
- 02.03 F. van Echtelt & F. Wynstra
Managing Supplier Integration into Product Development: A Literature Review and Conceptual Model
- 02.04 H. Romijn & J. Brenters
A sub-sector approach to cost-benefit analysis: Small-scale sisal processing in Tanzania
- 02.05 K. Heimeriks
Alliance Capability, Collaboration Quality, and Alliance Performance: An Integrated Framework.
- 02.06 G. Duysters, J. Hagedoorn & C. Lemmens
The Effect of Alliance Block Membership on Innovative Performance
- 02.07 G. Duysters & C. Lemmens
Cohesive subgroup formation: Enabling and constraining effects of social capital in strategic technology alliance networks
- 02.08 G. Duysters & K. Heimeriks
The influence of alliance capabilities on alliance performance: an empirical investigation.