

On the termination of strategic technology alliances : an exploratory study

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Eindhoven Centre for Innovation Studies

**On the termination of strategic technology alliances:
An exploratory study**

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Abstract

Despite an enormous growth in strategic technology alliances the theoretical and empirical discussion has been slow in providing an integrated and coherent framework on alliance termination. Strategic alliances have been defined as inherently instable, i.e. often involving unplanned and premature termination by partnering firms. The paper examines whether this characteristic holds in the case the strategic technology alliances which are considered as new organizational forms. It concludes that failure rates are rather high for strategic technology alliances, but this seems not to deter firms to establish new strategic technology alliances even with the same partnering firm.

1 Introduction

Since the 1980s, the strong growth of strategic technology alliances has dramatically changed the competitive landscape. Strategic technology alliances have become a key competitive weapon for companies contending in an increasingly hostile international environment. It allows them to efficiently leverage their resources, to participate in emerging cutting-edge technologies and to strategically re-position themselves in different market segments. By allying with competent technology partners firms are able to share risks and costs associated with technological development. At the same time, they are able to reduce time-to-market because of complementarities in skills and technologies among alliance partners. It has often been argued that the flexibility and adaptability of these alliances makes them a perfect substitute to more conventional modes of organization such as mergers and acquisitions and internal development (Dyer, 2000; Duysters & de Man, 2005). However, in spite of these noted advantages of strategic technology alliances, empirical studies have shown that termination rate of strategic alliances is somewhere between 40 to 70 percent (Duysters, Heimeriks, & Jurriens, 2003, for an overview of the literature see Duysters, Kok & Vaandrager, 1999).

In the marketing, strategic management and technology management literature, there has been a long-standing debate on alliance termination and in particular on the issue how parent dissatisfaction can lead to alliance failure (Madhok and Tallman 1998). The early literature in the area emerging in the late 1970s and 1980s considered strategic alliances as a more peripheral business activity and as second best option compared to stand-alone alternatives and mergers and acquisitions. It contended that the absence of strategic and operational fit between partnering firms

was the primary determinant for the termination of an alliance (Harrigan 1986; Harrigan 1988). The focus in these studies has been on the argument that insufficient value was created in strategic alliances. A gradual shift in the theoretical analysis has emerged in the past years with researchers found that performance differentials among firms in terms of their strategic alliances arised from firm-level characteristics. (Spekman, Forbes et al. 1998; Spekman and Isabella 2000). With the emergence of strategic technology alliances as a new business phenomenon, the theoretical discussion began to consider these new forms of strategic alliances as belonging to core business activities of companies and as a means of quasi-external acquisition of technology in particular in high technology industries (Duysters and Sadowski 1999; Hagedoorn and Duysters 2002). The theoretical analysis increasingly began to focus on the link between technological capabilities of parent companies and the strategic technology alliance (Reuer and Zollo 2005; Vanhaverbeke, Duysters et al. 2005). In spite of the theoretical development, the literature has rarely examined whether (or not) parent dissatisfaction has been due to firm-level technological capablities in terminating existing strategic technology alliances.

Given the growing number of strategic alliances and the strategic importance of these alternative organizational modes questions surrounding alliance termination and failure have become more important than ever. The current debate on alliance termination has been embedded in the ongoing discussion of appropriate performance measures of strategic alliances. As Gulati (1998) stated these performance measures still consider a obstacle in research on strategic alliances. A variety of measurements have been utilized to characterize alliance termination ranging from relative contributions of partners to (e.g. financial and operational) alliance assessment to more intangible performance measures. It has furthermore been suggested alliance

termination could be even something desirable which is inherent to strategic alliances (Reuer and Zollo 2005). In this study we aim to shed more light on the specific causes of termination in the case of strategic technology alliances. In order to examine termination of strategic technology alliances, we characterize termination of a strategic technology alliances can either be 1) deliberately planned, pointing to a successful ending of an alliance, or 2) associated with an unintended termination, which is generally associated with failure. This dichotomy allows us to exclude alliance termination which has been intended and has been considered as desirable by the parties involved. In the paper, our focus is on strategic technology alliances, i.e. cooperative ventures in which the development of technology has been a strategic objective at least of one partner. This definition excludes short term inter-firm agreements as well as more conventional (e.g. marketing) alliances. It allows us to focus on the importance of the technological component in the evolution of these ventures.

In the following, we characterize the discussion on alliance termination rates and their measurement in the light of current trends in strategic technology alliance activity. We then examine the theoretical discussion on alliance termination and develop a conceptual model that is related to parent dissatisfaction due insufficient managerial skills and competencies in coordinating and stabilizing existing alliances. This conceptual model is afterwards used to examine a sample of 48 strategic technology alliances. We finish the paper by summarizing our argument and drawing some conclusions with respect to preventing unintended termination of strategic technology alliances

2. The Termination of Strategic Technology Alliances: Paradoxes and Mismatches

Quite paradoxically, we have been witnessing an enormous growth in terms of the number of strategic technology alliances since the 1970s despite of an ongoing discussion of high failure rates for strategic alliances in the theoretical and business literature. As the data show (see Figure 1), there has been a vast increase in the number of strategic technology alliances since the late 1970s and, in particular, in the early 1980s. Despite some decline in the early 1990s, the growth of strategic technology alliances has been continuous and seemed unaffected by fluctuations in the world economy. It has been argued that these growth patterns will persist in the near future (Baum et al., 2000; Ernst et al. 2001; Duysters & de Man 2005).

Insert Figure 1 about here

In spite of the potential advantages of strategic alliances, the empirical evidence on failure rates has painted a rather dark picture.

'Let the potential alliance partner beware: all is not as it seems. It is true that one can leverage resources, jump-start technology and facilitate market development. It is also true that one can learn a great deal from one's partner in a shorter time than it would have taken to develop that particular skill set or tacit technology internally.'

The espoused gains are many and well documented. The data, however, paint a different and more somber picture' (quoted from Spekman et al., 1996).

In other words, the striking paradox is that companies continue to engage in strategic alliances despite rates of failure are quite high. This poses some awkward questions as to what kind of skills and competencies of managers involved in strategic technology alliances are necessary to prevent an unintended termination of the alliance: For example, are these manager aware about the current rates of unintended termination of strategic alliances; to what extent do skills and competence levels within an alliance differ in the stabilization and coordination phase of a strategic alliance?

3 Termination of Strategic Technology Alliances: Failure Rates

The literature on alliance termination has generated a mixed bag of findings. However, the general picture has been rather somber. For example, Spekman et al. (1996) proposed that the failure rate of strategic alliances has been at around 60 percent. In the literature, this high failure rate has been used as a benchmark to characterize alliance termination (see Kok & Wildeman 1997; Dacin et al., 1997). More optimistic studies have postulated that only half of all strategic alliances fail (Brouthers et al. 1997, Douma 1994, Bleeke & Ernst 1993). Or as Pekar and Allio (1994) have pointed out that this rate might even still be lower. In their study they concluded that only 40 percent of the firms surveyed judged their strategic alliance experiences as a failure. Interestingly, distinctions between strategic technology alliances and other forms (e.g. marketing) alliances have rarely been made in this literature.

In linking the experiences with strategic alliances to the literature on corporate growth, Lorange and Roos (1993) have argued that academic authors tend to overemphasize the problems of strategic alliances. They contend that there is no hard evidence that the failure rates of alliances exceed the normal level of corporate failure of comparative single-owner ventures. If consumers do not accept a new product or service in the market, the activity is seen as a failure no matter if it was introduced by single-owner venture or a strategic alliance. In general, it can safely be assumed that the percentage of strategic alliances that fail is about 50 to 60 percent, which is a rate between the optimistic and pessimistic predictions. From the limited evidence available it seems that failure rates for strategic technology alliances are on the higher end of the scale. We conclude that the variation in failure rates can not only be attributed to different performance measures used (Park and Ungson 2001), but also to the different forms of alliances investigated in the studies.

3.1 The Problem of Achieving Sufficient Performance in Strategic Technology Alliances

Gulati (1998) has argued that the performance of strategic alliances has received less attention compared to other areas in management theory because of some onerous research obstacles, which include measuring strategic alliance performance and the challenges of collecting data necessary to assess these issues in greater detail. It seems rather strange that not much attention has been devoted to strategic alliance performance, especially because of the startling observations on alliance failure.

Park and Ungson (2001) even concluded that there currently is no systematic and comprehensive framework of strategic alliance failure due different

interpretations (measures) of alliance failure and the lack of cross-fertilization between different theoretical approaches in the area. In their survey of the literature on performance measures of strategic alliance termination, they found that empirical studies have focused at the alliance level on measures such as survival (or stability), duration, financial performance or different subjective or corporate indices. On the partner level, the focus has been on the achievement of individual goals and learning (Park and Ungson 2001). They conclude that there is an emerging preference of dissolution as the appropriate measure of alliance instability and that instability of a strategic alliance may be signalled by an unexpected termination (Park and Ungson 2001). In our analysis we asked managers who have personally been involved in a strategic technology alliance to characterize if the alliance was terminated unexpectedly. They had to answer the question "Was the termination unintended because the goals were not achieved?". Afterwards a number of questions were asked related to reasons for termination with respect to the alliance itself and the partner level. (see Appendix 1 for detailed questionnaire). In the following we discuss some of these reasons for alliance termination as found in the literature.

3.2. Reasons for Strategic Alliance Termination

Since the 1980s, a growing number of studies has dealt with the issue of termination of strategic alliances with only a few focusing on strategic technology alliances. An overview over these mostly empirical studies shows some interesting commonalities with respect to the analysis of reasons for alliance failure. First, a shift in the theoretical analysis from more static approaches towards a more process oriented perspective on alliance termination. Second, an emerging interest in examining the

technology component underlying termination. Table1 provides an overview of the literature, taking on a dyadic point of view on strategic alliances. Traditionally, the alliance performance literature has focused on partner fit. Partner fit is often operationalized in terms of strategic fit, operational fit, technological fit or cultural fit. In focusing on the strategic fit, Niederkofler (1991), for example, postulated that joint goals should be set by top management to create compatible interests and complementary resources which form the fundamental basis for satisfactory performance of the alliance. By the selection of the (right) partner, firms should not rely on 'love at first sight'. Short-run alliance strategies and single partner alliances do not present a realistic starting point for the selection of suitable partners. Flexible and experienced management of a strategic alliance is during the whole evolution of the alliance essential for the partnership to be successful. Most reasons for strategic alliance failure have their origin in a badly managed partnership in which no trust and goodwill is created between the partners involved. Different management styles can be due to differences in corporate and national culture. Cultural differences should not be neglected as they can lead to unnecessary failure. An important factor that influences success and failure of strategic alliances is control and ownership. The analysis in Table 1 shows the importance of 'partner and partnership', 'strong-weak and weak-weak partnerships', 'trust', and 'culture' as reasons for failure (Duysters, de Kok & Vaandrager, 1999). Recent studies on strategic technology alliances have emphasized the importance of firm-specific capabilities (for an overview, see Heimeriks and Duysters, 2005). Authors have pointed at the importance of various micro-level mechanisms such as functions (e.g. alliance department), tools (e.g. alliance training), control and management processes (e.g. alliance metrics) and

external parties (e.g. use of external consultants) that can play a significant role in alliance success (Dyer et al, 2001; Lambe et al, 2002).

Insert Table 1 about here

Alliances and innovation

Alliance failure of technology alliances has also been described from a number of theoretical perspectives (see Duysters and Kumar, 2005). From a learning perspective, termination of an alliance has been attributed to the problem that one or more of the alliance partners either lacked the motivation and/or the ability to learn (Hamel, 1991). As the existence of superior learning capability of one partner can lead to a better appropriation of results of an alliance, the company might be satisfied with the outcome of the alliance and terminate it prematurely (Inkpen and Beamish 1997). There might also be an option in which the other partner in an alliance might be discarded after the relevant technology has been absorbed by the partner with superior learning capability (Hamel 1991). Also the issue of absorptive capacity has achieved prominent attention in the literature (Cohen and Levinthal, 1990). Firms that do not have sufficient capabilities to absorb the knowledge of their partners will be likely to fail. Alliances are most effective when there is common basic knowledge (sufficient absorptive capacity) and differentiated specialized know-how. Moreover, companies

can only successfully tap into other companies' technology base if they have sufficient absorptive capacity (Lane and Lubatkin, 1998). In its turn, absorptive capacity results from investments in internal technological know-how. Hence, internal technological knowledge and external technology acquisition via alliances are considered complements.

From an alliance capability tradition, it has been proposed that alliance survival depends on the parent company capability to manage a strategic alliance (e.g., Draulans, DeMan & Volberda, 2003; Duysters & Heimeriks, 2002; Ireland, Hitt, & Vaidyanath, 2002). In this context, alliance capability has been defined as a set of organizational mechanisms that are used by partnering firms to develop a set of routines for managing alliances (Kale, Dyer, & Singh, 2002). The organizational mechanisms have been linked to the use of alliance training, the use of an alliance specialist and/or the use of an alliance evaluation mechanism (Draulans, DeMan & Volberda, 2003). Given that companies can utilize these alliance capabilities, the chances of success of strategic alliance are higher. Conversely, given that these alliance capabilities are less developed, the chances of termination increase. These alliance capabilities consists of different components such as control and management processes or the use of external parties that increase the chances of success of a strategic alliance. Increasingly these alliance capabilities have been linked to the innovation process within companies, i.e. processes of exploration and exploitation of new knowledge and in particular to their innovation performance.

In a review of the more recent empirical literature on the effect of strategic alliances on innovative performance of companies de Man and Duysters (2005) found that 73 percent of the quantitative empirical studies on alliances found a positive relationship between the use of strategic alliances and innovative performance. Only

10 percent of the studies reported a negative significant effect. This provides a much more optimistic view of the performance results of alliances than the grim picture that is displayed in the alliance literature in general.

The use of success measures used in these studies varied from input measures (R&D expenditures), to output measures such as patents, patent citations and new product announcements. There seems to be however a very high correlation among these measures (Draulans, De Man and Volberda, 2003; Hagedoorn and Cloudt, 2003)

Two observations stand out from this review. First, alliance capabilities of companies enables them to significantly increase alliance success (Anand and Khanna, 2000; Gray, Lindblad and Rudolph, 2001; Powell, Koput and Smith-Doerr, 1996; Takeishi, 2001). Second, firms that have sufficient absorptive capacity and overlapping knowledge bases outperform alliances in which shared knowledge bases are lacking (Chan et al., 1997; Koh and Venkatraman, 1991; Lane and Lubatkin, 1998; Mowery, Oxley and Silverman, 1996).

Another conclusion that can be drawn from the empirical literature is that more intensive cooperation modes have a more positive impact on innovation than looser forms of cooperation such as licensing agreements (Anand and Khanna, 2000; Hagedoorn and Schakenraad, 1994; Dyer, 1996, 2000). Furthermore, it has been found that the network level perspective is also an important determinant for alliance success. Some network positioning strategies prove to be more successful than others (Powell, Koput and Smith-Doerr, 1996; Rowley, Behrens and Krackhardt, 2000).

There have been a number of attempts to consolidate the different theoretical traditions and provide a more coherent framework for analysing termination of strategic alliances (Yan 1998; Yan and Zang 1999; Das and Teng 2000; Park and Ungson 2001). The different approaches have shared the assumption that strategic

alliances are inherently instable, i.e. they involve major structural changes and dissolutions that are unplanned and premature from one of the partner's perspectives (Inkpen and Beamish 1997). Structural instability has been related to unexpected (external) contingencies of a strategic alliance (Yan 1998), inter-firm rivalry and coordination of (increasing) complexity within an alliance (Park and Ungson 2001). The structural instability perspective on strategic alliances has some intuitive appeal as it attempts to integrate different theoretical traditions while providing some common ground in the area of strategic alliance termination. However, as strategic technology alliances are a new and a relatively stable organisational phenomenon in themselves, their sources of instability seem to differ from more traditional strategic alliances (Hagedoorn and Sadowski 1999; Douma, Bilderbeek et al. 2001).

In our conceptual framework, we approached the termination of strategic technology alliances by utilizing these three levels of instability related to unexpected (external) contingencies, inter-firm rivalry and problems of coordination of (increasing) complexity within an alliance. We characterized unexpected external contingencies as the degree to which companies were able to alter the configuration of the alliance to fit to the changing environment. Problems of alignment to external conditions such as changes in the technological or commercial environment can cause termination of a strategic technology alliance as these changes might not be anticipated at the establishment of an alliance.

With respect to inter-firm rivalry (i.e. the dynamics within the strategies and priorities of partnering firms), we related the success (or failure) of a strategic alliance to the process of collective alignment, i.e. to the (in-) effective and (in-) efficient alignment (i.e. fit) between the partners involved. As in strategic alliances partnering firms remain independent (in contrast to merger and acquisitions), the balance of the

interests and background of the partnering firms involved becomes central. Fit in strategic alliances is related to concepts such as complementary balance, mutual benefits, harmony and dependency (Douma, Bilderbeek et al. 2001). In order to examine the extent to which parent dissatisfaction can lead to the termination of a strategic technology alliance, we utilize the distinction between organizational and technological fit. As organizational fit characterizes the extent to which a strategic alliance can rely on existing firm-specific capabilities and competencies (Douma, Bilderbeek et al. 2001), technological fit defines the level of compatibility between the knowledge bases of cooperating partners in a strategic alliance. Lack of organizational fit increases the chance that the alliance becomes terminated without providing alliance partners with the expected gains. The availability of alliance capabilities and competencies within the partnering firms such as management and communication skills can improve organizational fit. Similarly, a lack of technological fit can lead to unintended termination of the alliance. With divergent knowledge bases, the chance that both partners appropriate equal benefits from a strategic technology alliance diminishes, increasing the probability of alliance failure.

In order to characterize the skills of managing the complexity of the alliance, we focused on the contributions of partnering firms to the strategic alliance. As firms involved in a strategic alliance differ with respect to market positioning, organizational structure or management style, a "balanced" and continuous contribution of alliance partners to the alliance is necessary. This contribution is rooted in the firm strategy and requires commitment, financial capabilities and trust. Unequal contributions increase the chance of unintended termination of a strategic alliance. In our study we related success (or failure) of a strategic alliance to the degree to which the underlying objectives of the companies for the alliance were (not)

achieved. If the objectives of the partnering firms were not achieved, the termination of the alliance was unintended, i.e. resulted in a failure.

4. Methodology and dataset

4.1. Selection criteria and description

The dataset contains 48 strategic technology alliances in the industries in which the development of new technologies has been important e.g. information technology and software. Table 2 shows the distribution of strategic alliances according to the different industrial sectors.

insert Table 2 about here

The data were collected based on a standardized questionnaire, which asked participants apart from firm and industry-specific information, detailed questions on the specific alliance. The interviews were undertaken face to face. Some filled-in questionnaires were sent back after the interviews, but the different questions were at least explained. There were two major criteria for selecting appropriate interviewees: Firstly, they had to be personally involved in the formation of a specific strategic technology alliance at the strategic management level. Secondly, the alliance in question needed to be terminated. During the search procedure, we had to acknowledge that these two criteria were rather difficult to fulfill due to a number of firm internal and external factors such as job changes or promotion. In order to gather

the relevant information we extensively used trade fairs in the area of new technologies to establish initial contacts with managers and undertake the interviews.

The selected interviewees provided detailed information on 48 alliances. In the sample, 43 alliances (89.5 percent) were established in order to achieve technological goals. Four did not state these goals explicitly, and for two alliances we did not receive the appropriate information. The majority of these technology-oriented alliances also followed commercial goals (37 firms or 77 percent).

A typical strategic alliance in the sample would have the following characteristics: Two international partnering firms did engage in an strategic alliance that had explicit technological and commercial goals where different reasons related to the structure and evolution of the alliance as well as to strategies of the partnering firms would lead to the termination of the alliance even if its goals were not achieved (For the detailed questions in the questionnaire, see Annex 1). For example, in the case of DAF and Renault the commercial and technological goals were related to the joint development of a van for which a 50/50 percent joint venture that was established in 1990 and lasted for three years. The joint venture was terminated because the cost of maintaining the venture became too high and there was a lack of financial capabilities to further sustain the venture. But more importantly the priorities of the firms engaged in the venture changed.

4.2. Reasons for strategic alliance failure

In our sample, the failure rate was rather high. For 38 alliances the termination was unintended because they did not achieve the intended goals (failure rate: 79 percent). Just nine alliances were terminated because the intended goals were achieved. For four alliances no information was provided. This is in line with research on strategic

alliances and innovation which has demonstrated that failure rates for strategic technology alliances are slightly higher than for more traditional (strategic) alliances .

A possible explanation for the high failure rate can be related to the prominent presence of international alliances in the sample whereby in 29 cases the partnering firms had different (and in only seven cases similar) nationalities. For two alliances no information was provided on the country of origin of the partnering firms.

In general, we attained the following distribution of reasons for unintended termination in our sample (see Table 3).

Insert Table 3 about here

As expected a primary reason for terminating the alliance prematurely was related to the fact that the alliance did not achieve the expected performance. In 25 cases managers indicated as reason for terminating the alliance that the alliance did not generate the expected commercial results. For example, in the case of a research and development (R&D) agreement established in 1993 by Card Services International with a Japanese partnering firm that was aimed at developing an interface for a payment system. The agreement was terminated after three years because - as indicated in the questionnaire - it was difficult to adapt it to the changed commercial conditions and to generate the expected commercial results.

We then examined the extent of organizational and technological fit. As has been suggested in the literature, the most desirable alliance arrangement has with partners that are approximately equivalent in terms of size, country of origin, industry, and costs structure. In order to analyze these factors, we focused on issues such as

organizational and technological fit as well as financial capabilities of the partnering firms. In our sample, managers indicated that from the perspective of their company the following reasons were responsible for the alliance failure (see Table 4).

Insert Table 4 about here

By looking at the results from our sample, we did not find that lack of technological and organizational fit as well as financial capabilities have been major reasons for managers to terminate the alliance. These results received further support from Table 3, in which the issue of 'high costs of maintaining the alliance' was not considered by managers as a major reason for the termination of the alliance.

In other words, the reasons for the termination of the alliance from the company's perspective varied widely. In the joint venture between Ericsson and Ascom, for example, established in 1984 and aimed at introducing SDH (synchronous digital hierarchy) in switching equipment, the adaptation of the alliance to a changing market environment was considered as a main reason for the termination of the venture. In the joint venture between Siemens and SMH of Switzerland established in 1995 and aimed at producing a high fashionable consumer telecommunication goods the reasons for the termination were linked to problems in the adaptation of the venture to changing market conditions, but also to the lack of finance and the lack of communication within the alliance. .

Another problem area in alliance failure has been related to changes in the external environment. In the questionnaire, we examined reasons related to changes in

the market and technological environment. Our results showed that these reasons have not been as important for the termination of the strategic alliances as assumed in the literature (see Table 5).

Insert Table 5 about here

In general, we can conclude that reasons for failure of strategic technology alliances have in particular been linked to the commercial motivations of the partnering firms. This included problems in adaptation of the alliance to changing commercial conditions or an unsatisfactory level of commercial results generated by the alliance. One surprising result was that despite a variety of reasons for alliance termination, the majority of respondents indicated that they would again engage in an alliance with the partner in the future.

5. Summary and Conclusions

The growth in strategic technology alliances since the 1970s has been accompanied by intense discussion on failure rates without having led to a more coherent approach towards alliance termination. The different theoretical traditions in the alliance area are still very much dispersed ranging from learning based to transaction costs accounts, which evolved to include more process explanations and included more recently also alliance-capability explanations. The common denominator in this

literature has been that strategic alliances are inherently unstable, i.e. that alliance termination are often unplanned and premature from the partner's perspective. However, this instability characteristic has critically been examined in the literature with respect to strategic technology alliances as these alliance forms seem to represent a more stable organizational form. With our framework, we accounted for different levels (external contingencies, inter-firm rivalry and managerial complexity) at which instability in strategic alliances could be originated.

In our study we found a failure rate which has been considerably higher than the failure rates reported in the existing literature. We attributed this to the fact that the alliances under study were international by nature. However, the extent to which the (different) nationalities of partnering firms, for example in international joint ventures increases the chances of alliance failure requires some further analysis. Furthermore, the strategic alliances examined had a technical component and have been industries characterized by a faster rate of technological change than normally observed in slower moving industrial sectors. In these industries, the evolution and stability of strategic alliances is governed by other mechanisms compared to traditional sectors as knowledge generation and sharing is central to their establishment. Other mechanisms leading to the establishment (and termination) of strategic technology alliances are becoming important such as exploring and exploiting new technologies.

Overall, we found that reasons for strategic alliance failure have in particular been related to the various commercial motivations of partnering firms. Firms were dissatisfied by their (and their partner's) ability to adapt to changing conditions and the lack of a satisfactory level of commercial results as generated by the alliance. Surprisingly the majority of respondents were willing to engage in future strategic

alliances with the (initial) partnering firms in the failed alliance in the future. We would explain this (apparent) paradox by characterizing the establishment and evolution of strategic alliances as one (of the many) projects strategic management is actually pursuing. Therefore the unsuccessful termination alliances seems well to be considered by managers as an failed project but not as a (systemic) failure of the partnering firm. However, this phenomenon definitely should receive some more attention in the future.

We are aware that due to the sample size and the variety of firms involved in the questionnaire, our results can only be considered as tentative and indicative. However, as our results support a number of intuitive conclusions from the literature, we consider them as a first and initial step towards further more in-depth analysis on alliance failure.

References:

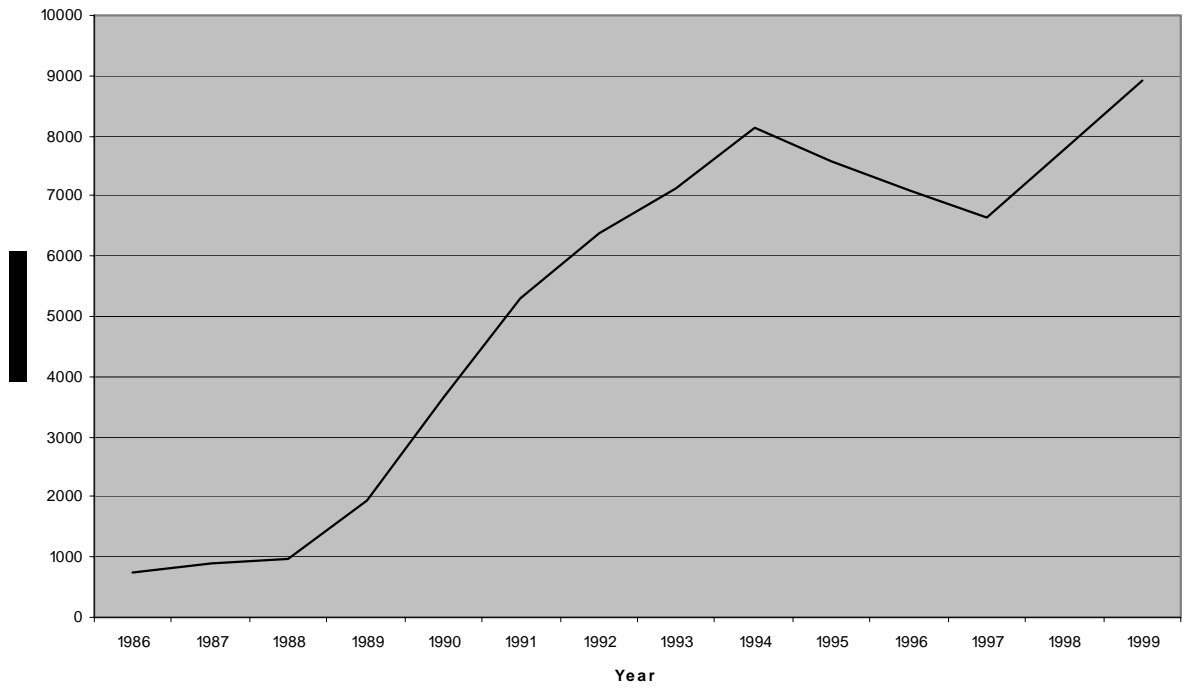
- Adarkar, Ashwin, A. Adil, D. Ernst and P. Vaish. 1997. "Emerging Market Alliances: Must They Be Win-Lose?." The McKinsey Quarterly. 4:120-137.
- Anand, B.N., and T. Khanna, 2000, Do firms learn to create value? The case of alliances, *Strategic Management Journal*, vol. 21, pp. 295-315.
- Baden-Fuller C, Maljers, F. and van den Bosch, F. (1996) Maintaining Strategic Momentum: The CEO's Agenda, European Management Journal 14 (6) , 555-561.
- Baum, J., Calabrese T. and B. Silverman (2000), Don't go it alone: Alliance network composition and start ups' performance in Canadian biotechnology", Strategic Management Journal, Vol. 20, No. 3, pp. 267-294.
- Beamish, P. and A. Delios (1997), Improving joint venture performance through congruent measures of success. In P. W. Beamish and J. P. Killing, editors, Cooperative Strategies: North American Perspectives. San Francisco: The New Lexington Press.
- Bleeke, J. and D. Ernst (1993), Collaborating to compete: using Strategic Alliances and Acquisitions in the Global Market Place e.d., McKinsey & Co., Inc.
- Bleeke, J. and D. Ernst, "The Way to Win in Cross-Border Alliances," Harvard Business Review, Nov-Dec 1991, pp. 127-135.
- Brouthers Keith D, Brouthers, L., and Wilkinson, T. (1995), "Strategic Alliances: Choose Your Partners," Long Range Planning, 28 (3), 18-25.
- Brouthers, K.D., Brouthers L.E. and P.C. Harris (1997), The Five Stages of the Co-operative Venture Strategy Process, Journal of General Management, vol. 23, no.1.
- Bierly, P. and J. Coombs (2004). "Equity Alliances, Stages of Product Development, and Alliance Instability." Journal of Engineering and Technology Management 21(3): 191-214.
- Burton, J. (1995), Partnering with the Japanese: Threat or Opportunity for European Businesses?, European Management Journal, vol. 13, no.3.
- Chan, S.J., A. Kensinger, Arthur Keown, and J. Martin. 1997, "Do Strategic Alliances Create Value?" Journal of Financial Economics, Vol. 46, No. 2, pp. 199-222.
- Chevalier, J. (1998) "Building an Empire- why do managers undertake acquisitions", Capital Ideas, vol. 1, no. 4.
- Dacin, M.T., Hitt, M.A. and E. Levitas (1997), Selecting Partners for Successful International Alliances: Examination of U.S. and Korean Firms, Journal of World Business, vol. 32(1).
- Das, T. and B. Teng (2000). "Instabilities of Strategic Alliances: An Internal Tension Perspective." Organization Science 11(1): 77-101.
- Das, T. and B. Teng (2002). "Alliance Constellations: A Social Exchange Perspective." Academy of Management Journal 27: 445-456.

- Douma, M. (1994), Strategische samenwerking: fit of falen, *Holland Management Review*, no. 41.
- Draulans, J., A.P. de Man and H.W. Volberda, 2003, "Building alliance capability: management techniques for superior alliance performance", Long Range Planning, April.
- Doz, Y. and G. Hamel (1998). Alliance Advantage. Boston, Harvard Business School Press.
- Duysters, G. and B. Sadowski (1999). The External Technology Acquisition by Dutch MNEs. Multinational Enterprises from the Netherlands. v. R. Hoesel and R. Narula. London, Routledge.
- Duysters, G, G. Kok and M. Vaandrager (1999), Crafting Successful Strategic Technology Alliances (1999), R&D Management, Vol. 29, nr 4, pp. 343-351.
- Duysters, G and A-P de Man (2005, Forthcoming) Collaboration and innovation: a review of the effects of mergers, acquisitions and alliances on innovation, Technovation, vol 25, nr.
- Dyer, J.H., 1996, 'Specialized supplier networks as a source of competitive advantage: evidence from the auto-industry', Strategic Management Journal, 12 (4), pp. 271-291.
- Dyer, J.H. 2000, Collaborative Advantage, New York, Oxford University Press.
- Ernst, D., T. Halevy, J.J. Monier and H. Sarrazin, 2001, A future for e-alliances, The McKinsey Quarterly, Nr. 2.
- Gulati, R., Alliances and Networks (1998), Strategic Management Journal, vol 19, 293-317.
- Gulati, R., T. Khanna, and N. Nohria. "Unilateral Commitments and the Importance of Process in Alliances." Sloan Management Review 35, no. 3 (spring 1994): 61-69.
- Hagedoorn, J. and M. Cloudt (2003), Measuring Innovative Performance: Is there an advantage in Using Multiple Indicators?, Research Policy, Vol.32, pp. 1365-1379.
- Hagedoorn, John and Jos Schakenraad. 1994. "The Effect of Strategic Technology Alliances on Company Performance," Strategic Management Journal, Vol. 15, No. 3, pp. 291-309.
- Hagedoorn, J. and G. Duysters (2002). "External Appropriation of Innovative Capabilities: The Choice Between Strategic Partnering and Mergers and Acquisitions." Journal of Management Studies 39(2): 167-188.
- Hamel, G. (1991). "Competition for Competence and Inter-partner Learning within International Strategic Alliances." Strategic Management Journal 12: 83-103.
- Harrigan, K. (1986). Managing for Joint Venture Success. Lexington MA, Lexington Books.
- Harrigan, R. (1988). Strategic Alliances and Partner Asymmetries. Cooperative Strategies in International Business. F. Contractor and P. Lorange. Toronto, Lexington Books.

- Inkpen, A. and P. Beamish (1997). "Knowledge, Bargaining Power, and the Instability of International Joint Ventures." Academy of Management Review **22**: 177-203.
- Khanna, T., Gulati, R. and N., Nohria (1998), The Dynamics of Learning Alliances: Competition, co-operation, and relative scope, Strategic Management Journal, vol. 19.
- Koh, J. and Venkatraman, N. 1991. "Joint Venture Formation and Stock Market Reactions: An Assessment in the Information Technology Sector," Academy of Management Journal, Vol. 34, No. 3, pp. 869-892.
- Kok, G. and Wildeman, L. (1997), Leren van allianties: een marktgedreven noodzaak, Holland Management Review, nr. 55, pp.62-69.
- Kumar, R. and K. Nti (1998). "Differential Learning and Interaction in Alliance Dynamics: A Process and Outcome Discrepancy Model." Organization Science **9**(3): 356-367.
- Lane, Peter J. and Michael Lubatkin 1998; "Relative absorptive capacity and interorganizational learning", Strategic Management Journal, Vol. 19, pp. 461-477.
- Lorange, P. and J. Roos (1991), "Why Some Alliances Succeed and Others Fail," Journal of Business Strategy, (January/February), 25-30.
- Lorange, P. and J. Roos (1993), Strategic Alliances -Formation, Implementation, and Evolution, Blackwell Publishers, Cambridge.
- Madhok, A. and S. Tallman (1998). "Resources, Transactions and Rents: Managing VALUE Through Interfirm Collaborative Relationships." Organization Science **9**(3): 326-339.
- Medcof, J.W. (1997) "Why Too Many Alliances End in Divorce." Long Range Planning, 30(5), 718-732.
- Mowery, D.C., J.E. Oxley and B.S. Silverman, 1996, Strategic alliances and interfirm knowledge transfer, Strategic Management Journal, vol. 17, pp. 77-91.
- Nair A.S., Stafford E.R. (1998) 'Strategic Alliances In China: Negotiating The Barriers', Long Range Planning, Volume 31, 1, pp. 139-146.
- Niederkofler, M. (1991) "The Evolution of Strategic Alliances: Opportunities for Managerial Influence", Journal of Business Venturing, 6:4, pp. 237-257
- Park, S. and G. Ungson (2001). "Interfirm Rivalry and Managerial Complexity: A Conceptual Framework of Alliance Failure." Organization Science **12**(1): 37-53.
- Pekar, P. and R. Allio (1994), Making Alliances Work- Guidelines for Success, Long Range Planning, vol. 27, no. 4.
- Powell, Walter W., Koput, K.W. and Smith-Doerr L. 1996; "Interorganizational collaboration and the locus of control of innovation: Networks of learning in biotechnology", Administrative Science Quarterly, 41(1), pp. 116-145.
- Reuer, J. and M. Zollo (2005). "Termination Outcomes in Research Alliances." Research Policy **34**: 101-115.

- Rowley, T., D. Behrens and D. Krackhardt, 2000, Redundant governance structures: an analysis of structural and relational embeddedness in the steel and semiconductor industries, Strategic Management Journal, vol. 21, pp. 369-386.
- Schuler, R., Tarique, I and Jackson, S. (2004) Human Resource Management Issues in Cross-Border Alliances, in Advances in Mergers and Aquisitions, 3.
- Spekman, R.E., Lynn, A.I., MacAvoy, T.C. and T. Forbes III (1996), Creating Strategic Alliances which endure, Long Range Planning, vol. 29, no. 3.
- Spekman, R., T. Forbes, et al. (1998). "Alliance Management: A View from the Past and a Look to the Future." Journal of Management Studies **35**(6): 747-771.
- Spekman, R. and L. Isabella (2000). Alliance Competence. London, John Wiley & Sons.
- Stafford, E. (1994), "Using Co-operative Strategies to make alliances work", Long Range Planning Vol 27, n°3, p. 64-74
- Takeishi, A., 2001, Bridging inter- and intra-firm boundaries: management of supplier involvement in automobile product development, Strategic Management Journal, vol. 22, pp. 403-433.
- Vanhaverbeke, W., G. Duysters, et al. (2005). "Technological Capability Building Through Networking Strategies within High Tech Industries." Strategic Management Journal (forthcoming).
- Wildeman, L. and F, Erens (1996), Alliances and Networks: the Next Generation, *KPMG Survey*, Amstelveen.

**Figure 1: Number of newly established strategic alliances per year (1985-2000),
3-year moving averages,**



Source: Thomson Financial, 2003.

Table 1: Reasons for Strategic Alliance Termination

Authors	Alliance Complexity			Inter-firm rivalry									
	Personnel	Complexity	Alliance evolution	Partner / Partnership	Goals and Strategy	Nationality	Commitment	Strong-weak/ weak-weak partner	Geographical/ operational overlap	Asymmetric Incentives	Uneven Learning	Expectations	Trust
Beamish & Delios					⊗								
Lorange & Ross					⊗		⊗	⊗		⊗	⊗		
Brouthers et al.	⊗												
Schuler et al	⊗			⊗			⊗						
Chevalier		⊗	⊗	⊗	⊗		⊗		⊗				⊗
Wildeman & Kok				⊗		⊗	⊗						⊗
Stafford					⊗	⊗		⊗				⊗	
Douma					⊗	⊗		⊗		⊗			
Maljers						⊗	⊗	⊗	⊗				⊗
Adarkar								⊗					
Bleeke & Ernst								⊗	⊗			⊗	
Niederkofler		⊗	⊗		⊗	⊗	⊗					⊗	
Khanna et al.			⊗							⊗			⊗
Medeof				⊗	⊗								
Dacin & Hitt				⊗					⊗				⊗
Kanter				⊗									

(Source: various articles are combined, see authors)

Note: authors should have analyzed a reason for failure in order to be added to the table. Authors who only have mentioned some failure reasons are not taken into account in this comparison.

Table 2: Distribution of Strategic Alliances According to Industrial Sectors

NACE	Description	Terminated alliances	Total
17-19	Textiles	5	6
23, 24	Petrols and Chemicals	6	8
30 -33	Electronics e.g. Telecom	10	13
34, 35	Cars e.g. automotive	2	3
72	Computer and related activities e.g. software	10	12
92, 93	Information Technology	5	6
Total		38	48

Table 3: Reasons for unintended termination

Reasons for unintended termination of alliance	Was a reason	Was not a reason	No answer	Total
Difficulties to generate the expected technological results.	13 (34.21%)	23 (60.52%)	2	38
Alliance did not generate the expected commercial results	25 (65.79%)	10 (26.31%)	3	38
Problems related to communication within the alliance.	20 (52.63%)	14 (36.84%)	4	38
Management of the alliance became too complex.	12 (31.58%)	22 (57.89%)	4	38
High costs of maintaining the alliance.	13 (34.21%)	21 (55.26%)	4	38
Goals of the alliance remained unclear.	15 (39.47%)	21 (55.26%)	2	38

Table 4: Reasons for termination according to company perspective

Your own company's perspective on the alliance failure	Was a reason	Was not a reason	No answer	Total
Lack of technological fit	10 (26.31%)	26 (68.42%)	2	38
Lack of organizational fit	17 (44.74%)	19 (50.00%)	2	38
Lack of financial capabilities	12 (31.58%)	25 (65.79%)	1	38
Lack of commitment	18 (47.37%)	19 (50.00%)	1	38
Change in your priorities and strategy	20 (52.63%)	18 (47.37%)	0	38
Lack of trust on your side	20 (52.63%)	17 (44.74%)	1	38
A threat to your core competencies	7 (18.42%)	30 (78.94%)	1	38

Table 5: Reasons for termination based in the broader environment

Changes in broader environment causing termination	Was a reason	Was not a reason	No answer	Total
Changes in technological environment effected termination.	14	24	0	38
Changes in relevant markets caused termination.	14	23	1	38
Cultural backgrounds of partners effected termination?	14	20	4	38
Would you consider cooperating with the partner(s) in the future?	22	13	3	38

Annex 1: Questionnaire on Termination of Strategic Alliances

General Information on the Firm:

Name of partners

Address of firm

Form of co-operation

Field of technology/industry

Starting date of co-operation

for joint venture equity distribution in %

General Information on the Alliance

Is the alliance still existing?

When was the alliance terminated?

Was the termination planned because goals were achieved?

Was the termination unintended because goals were not achieved?

Planned termination of the alliance

Did both partners appropriate the results of co-operation?

Did your company appropriate the results of co-operation?

Did your partner(s) appropriate the results of co-operation?

Do you expect future co-operation with the same partner?

Reasons for unintended termination of alliance

Difficulties to adapt the alliance to technological conditions.

Difficulties to generate the expected technological results.

Difficulties to adapt alliance to commercial conditions.

Alliance did not generate the expected commercial results.

Organisational problems within the alliance.

Problems related to communication within the alliance.

Management of the alliance became too complex.

High costs of maintaining the alliance.

Goals of the alliance remained unclear.

Your own company's perspective on the alliance failure

Lack of technological fit

Lack of organisational fit

Lack of financial capabilities

Lack of commitment

Change in your priorities and strategy

Lack of trust on your side

A threat to your core competences

Changes in broader environment

Did changes in the broader environment affect termination?

Was termination caused by changes in technological environment?

Was termination caused by changes in relevant markets?

Did cultural backgrounds of partner companies affect termination?

Would you consider cooperating with the same partner in the future?

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