

Partner or perish : surviving the network economy

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technische universiteit eindhoven

Inaugural lecture
22 June 2001

prof.dr. G.M. Duysters

**partner
or perish**

surviving the network
economy

/ department of technology management

Inaugural lecture

Given on 22 June 2001
at the Eindhoven University of Technology

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surviving the network
economy

Prof.dr. G.M. Duysters



Introduction

Mr Rector, ladies and gentlemen,

Over the past decades we have witnessed an unprecedented growth in the use of alternative forms of organization. Within five years from now, the value of alliances is projected to be in the range of \$30-\$50 trillion (Booz-Allen Hamilton, 2000). In similar vein, mergers and acquisitions have reached levels of over \$ 4 trillion in the past years (Thomson Financial, 2001). As a result, the traditionally independent self-contained organization seems to have evolved into an organization that replaces part of its internal growth by growth through means of mergers, acquisitions and strategic alliances. The rise of these particular forms of organization has created many opportunities for companies, while at the same time posing major threats to these same organizations as well. Mergers and acquisitions and strategic alliances have been instrumental in many firms' ability to access new markets and to absorb new technologies but at the same time have shown extremely high failure rates. Quite paradoxically, the more worries expressed in the literature about the viability of these modes of organization, the higher their growth rate. In spite of the reported failure rates of about 70 percent, strategic alliances and mergers and acquisitions have never been more popular.

In this lecture I will argue that:

- Innovation can no longer be seen as the sole outcome of internal accumulation of know-how. In today's turbulent business environment innovation comes about by the interplay of two distinct but related factors: endogenous R&D efforts and (quasi) external acquisition of technology and know-how.
- In the network economy, strategic alliances can no longer be considered as second best options to stand-alone alternatives or mergers and acquisitions. I will argue that strategic alliances can provide flexible and efficient, fast-to-build solutions for the acquisition of new technologies in today's turbulent environment.



- As the network economy unfolds, firms can no longer rely on their traditional alliance- and M&A practices. To survive the network economy, firms should increasingly engage in a new breed of alliances, so-called @lliances.

I will first start with a brief discussion on the use of mergers and acquisitions and strategic technology alliances as external and quasi-external means of technology acquisition. Strategic technology alliances can be described as cooperative efforts in which two or more separate organizations team up in order to share reciprocal inputs while maintaining their own corporate identity. Mergers and acquisitions, on the other hand can be considered as cases of joint activities where two, once separate companies are combined into one company. Such a combination can refer to the merging of two more or less equal companies as well as to acquisitions where one company obtains majority ownership over another company (Hagedoorn and Duysters, 2002). In spite of the unprecedented popularity of these modes of organization I will then argue that firms should increasingly engage in a new form of alliance, so-called @lliances. This lecture will be concluded by an overview of critical success factors and a discussion of possible future research areas.

Acquisition of know-how

External and quasi-external acquisition of know-how

Over the past decades, firms have constantly struggled to deal effectively with their rapidly changing environment. Especially in high tech industries, costs of research and development have rocketed, whereas steep learning curves and ever shortening product and technology life cycles have reduced the time to recoup these costs significantly. These developments urge firms to share development costs and to reduce lead times for their innovative products. A reduction in lead times allows organizations to preempt emerging markets and enables them to move faster down the learning curve. Furthermore, the ongoing complexity of products and technologies increases the need for flexibility in order to respond quickly to changing market needs and to new technological opportunities. The emergence of the network economy has not only accelerated these forces but also established a whole new business paradigm that rendered a number of existing skills and know-how useless. Whereas, for a long time, firms have relied heavily on the internal accumulation of know-how, firms have come to realize that internal development is no longer sufficient to deal with their changing technological environment. A rapidly increasing number of firms seems to recognize that external technology acquisition can help them to increase their flexibility and allows them to move swiftly from one technology to another in rapidly changing competitive and technological settings. In the next paragraphs I will discuss the two basic modes of (quasi) external knowledge acquisition as they are discussed in the innovation literature. I will first discuss the importance of strategic alliances for quasi-external knowledge acquisition. Then I will focus more in-depth on a mode that, in spite of its long-standing history, has only recently emerged in the innovation literature; i.e. mergers and acquisitions.

Strategic alliances

Although the concept of inter-organizational relationships has already been introduced in organizational literature in the late 1960s, firms have only recently become aware of the potential of strategic alliances

as a means of quasi-external acquisition of technology. In the more traditional literature, strategic alliances were typically regarded as second-best options compared to stand-alone alternatives or mergers and acquisitions. However the rapid increase in the number of newly established strategic alliances in the 1980s unleashed a rapidly growing body of literature on the use and structure of such agreements. Today, strategic alliances have become one of the most featured themes in the fields of strategic management, international business studies, industrial economics as well as in organization studies. Strategic alliances seem to have moved from peripheral activities of companies in the 70s and 80s to core activities today.

Before the 1980s R&D intensity of sectors and the propensity to engage in strategic alliances were inversely related to each other. Today, firms in high technology sectors have a much higher propensity to undertake alliances as compared to their counterparts in low- and medium tech sectors. There seem to be two fundamental structural and technological factors accounting for these fundamental shifts in the importance of strategic alliances for high-tech sectors. Fierce competition, the homogenization of markets and ongoing globalization tendencies account for most of the structural changes, whereas rapid growing capital and R&D costs, the ever-increasing complexity of products, the emergence of the internet, and a significant increase in the speed of technological developments are important drivers from a technological point of view. Nowadays, technology access seems to have replaced market access as the main motivation of companies to enter into strategic alliances. Overall, I will argue that the combination of those driving forces has accounted for most of the increase in alliance activity over the past two decades. Over this period the growth in the number of newly established strategic technology alliances has been very high, especially in the early and late 1990s (figure 1).

Mergers and Acquisitions

Apart from the use of strategic technology alliances as a means to externally acquire innovative capabilities, full integration of innovative capabilities through mergers and acquisitions remains another option. Recent contributions in the innovation literature have clearly pointed at the growing importance of mergers and acquisitions in the knowledge acquisition process. Whereas strategic alliances started to emerge in the

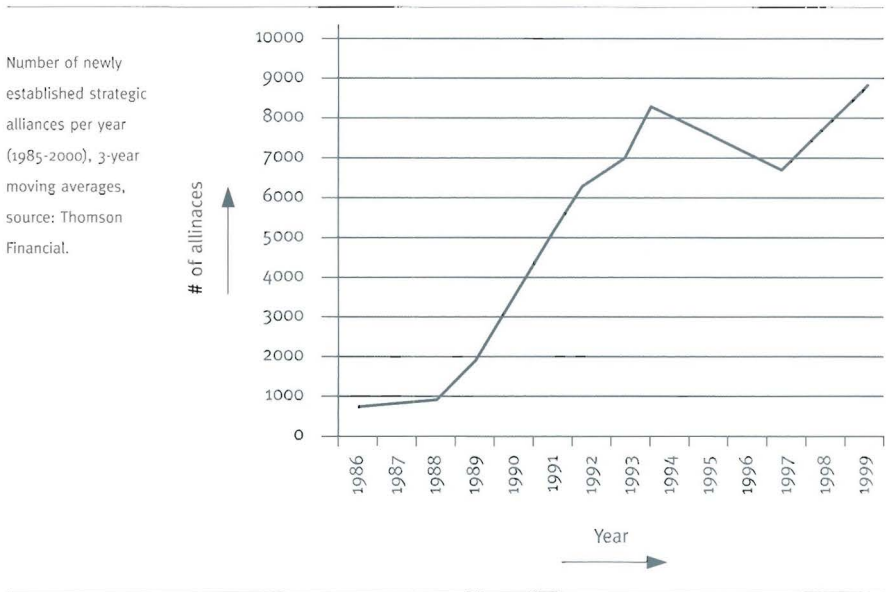


figure 1

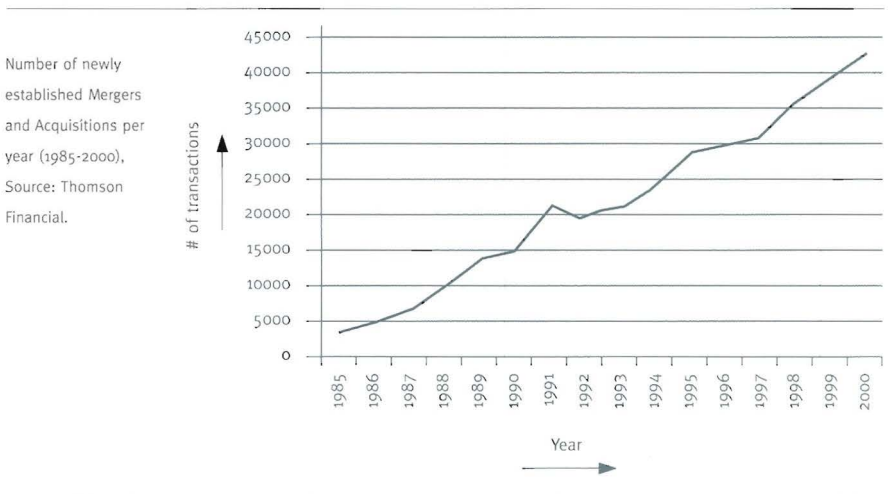
1970s, mergers and acquisitions have a much longer-standing history. The first M&A wave can be traced back to the turn of the century in the United States. The second wave took place in the late 1920s whereas the third and fourth wave peaked in 1968 and the mid 1980s respectively. Today we are in the middle of a new and probably most significant merger wave (figure 2).

We are currently witnessing unprecedented growth levels in the number of M&A transactions per year. Within 5 years the total transaction value of M&As has gone up from an already impressive \$ 1 trillion in 1995 to over \$ 4 trillion in the year 1999.

Throughout the twentieth century the primary motivation of companies for entering into M&As has changed dramatically. Whereas, during the first M&A wave, firms were primarily trying to achieve market domination, the second wave was clearly characterized by a move towards vertical integration and product-line extension. During the 1950s tougher U.S. antitrust laws set the stage for a new era in which conglomerate mergers replaced vertical and horizontal mergers.

In the 1980s and 1990s, vertical integration and diversification became in vogue again. The most recent merger wave is sparked by the emergence of the Internet, the growing importance of biotechnology and a relaxation of anti-trust policies. Although the role of innovation as a motive for mergers and acquisitions has been largely neglected in the older literature, more recent work has addressed the growing importance of this motive for companies engaged in M&As. Today it is argued that M&As are increasingly used to absorb complementary external technological capabilities in many industrial sectors.

figure 2



Choice

The choice between mergers and acquisitions and strategic alliances

In spite of the vast and rapidly growing body of literature on the use and structure of strategic alliances and mergers and acquisitions, there are hardly any empirical studies in the innovation literature concerning the choice between these two knowledge acquisition modes. Recently, researchers in, among others, Eindhoven and Maastricht have tried to fill this void.

Research on the choice between mergers and acquisitions and strategic alliances has traditionally been undertaken from a transaction cost perspective. One of the main arguments, rooted in the measurement branch of transaction cost economics, is the so-called information asymmetry argument (see VanHaverbeke et al, 2001). It addresses the problem of valuing a possible candidate for acquisition. Many authors have advocated that adverse selection problems are caused because information about relevant technological assets is often tacit and not readily available, and that the information provided by the acquisition target may be opportunistically biased. The more information asymmetry problems are faced, the more difficult the process of partner valuation will be. This will make companies particularly careful in undertaking acquisitions. Another transaction-cost based explanation of the choice between mergers and acquisitions and strategic alliances arises from the asset specificity branch of transaction cost economics. This so-called indigestibility argument deals with the difficulties associated with disentangling needed and undesired assets. In general, an acquisition including unwanted assets might lead to higher costs and lower synergy effects.

Because the existing body of innovation literature is quite inconclusive about the importance of these arguments, research teams in Eindhoven and Maastricht have joint forces in order to shed some more light on the importance of these issues. First, we explored the factors that might influence the choice between different knowledge acquisition modes in a one-sector environment. The results of this study (table 1) show that firms tend to favour alliances over mergers and acquisitions in the case of strong indirect ties among those companies. This might suggest that



network reputation effects provide confidence to companies that even without full ownership they are able to gain sufficient coordination and control. Also, ties within the same industry but within different segments make alliances more likely when compared to ties across industries. This is in line with previous research, which showed that alliances are most effective when there is common basic knowledge (sufficient absorptive capacity) and differentiated specialized know-how. Finally, we found that in international ventures, firms also prefer alliances over mergers and acquisitions. This is in line with the information asymmetry argument that overseas pre-merger inspections are found to be even more problematic than domestic ones. Mergers and acquisitions on the other hand are found to be the preferred mode in domestic environments and in mature industries. Overall, this study indicates that, although studies from a transaction cost economics perspective are able to explain a number of important determinants of the choice between M&As and STAs it does not sufficiently explain issues related to different environmental conditions in which companies operate. We therefore decided to complement these findings with a moderate resource-based approach where, as also suggested by the classical resource dependency approach, alternative organizational forms have to be evaluated against the background of different environmental conditions.

In this recent study (Hagedoorn and Duysters, 2002) we studied the environmental conditions that influence the general preferences of companies, and the firm specific conditions that lead to a particular group of relationships. In this study we found clear evidence that under turbulent environmental conditions firms clearly favored the flexibility as found in alliances over more formal control through full ownership. However, in cases in which there is a strong risk of uncontrolled transfer of knowledge and capabilities to a partner, like in the case of joint development of core technologies between competitors, mergers and acquisitions are found to be the preferred form of organization. In line with these findings we observe that firms that create a portfolio of alliances with complementary partners perform significantly better than firms which concentrate their alliances in fields in which a firm already has established core competencies. Overall, these findings seem to suggest that complementarity is the major driver of strategic alliances.

Results of the
Random Effects
Probit analysis.

Probability of a Strategic Alliance	
Variable	Random Effects Probit
Constant	-1.376*** (-2.735)
Prior Ties	-1.058** (-2.075)
Distance	-0.206** (-2.075)
Industry	0.975*** (3.355)
Inter-Triad	0.607** (2.508)
Centrality1	0.079** (2.129)
Centrality2	-0.044* (-1.779)
Growth	0.037** (2.371)
Rho	0.043 (0.101)
N	209
Log-L Chi1	-127.04
Log-LRE Chi2	0.28
Legend	*** 1% significance ** 1%-5% significance * 5%-10% significance
T-statistics in parentheses	

table 1

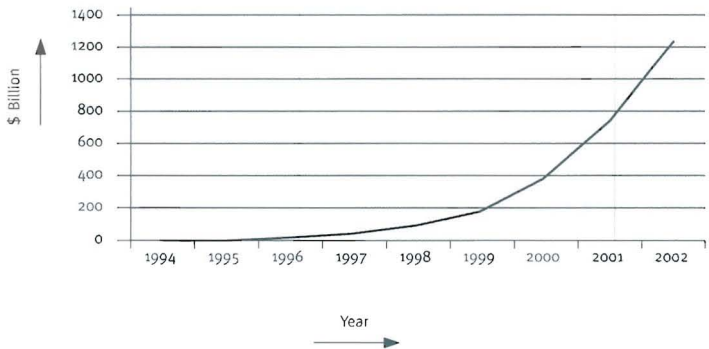
Appropriation of technology

External appropriation of technology in the network economy

Technological changes are sweeping through the economy. In vein with Schumpeter's notion of 'creative destruction' technological changes are continuously destroying existing industry structures and creating new ones. Firms better equipped than others to meet these environmental changes may grow, while other less successful firms decline. However, unlike in orthodox theories, competitive forces do not establish a static equilibrium in which successful firms achieve their optimal size, and unsuccessful firms disappear, the industry is in a constant disequilibrium moving from one state to the other. Especially, the emergence of the Internet has radically changed the competitive landscape in which firms are acting. Recent statistics show a dramatic increase in the revenues generated from the Internet (figure 3).

figure 3

Internet Generated revenue (1996-2002), source: ActivMedia



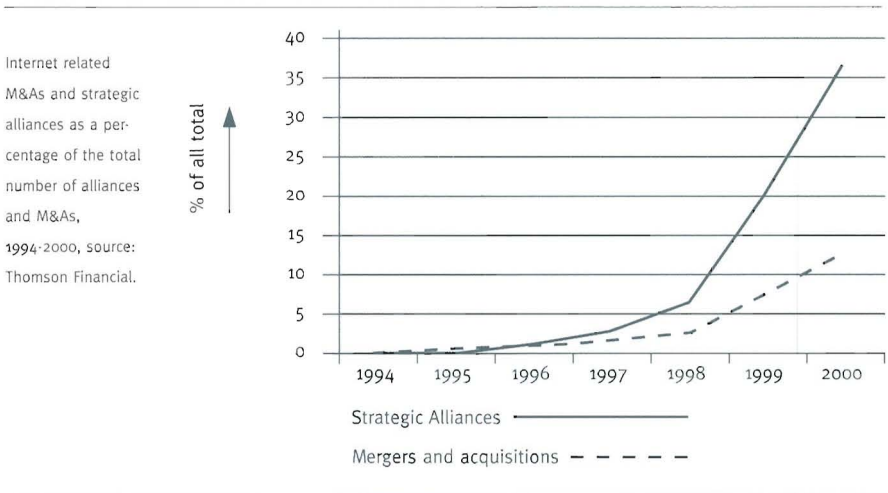
The advent of the new economy was first noted by Peter Drucker in the late 1960s in his reflection on the arrival of knowledge workers. The important role of information has led others to refer to this phenomenon as the Information Economy. In order to characterize today's economy, I would like to use the term Network Economy because the sole importance of information is not sufficient to explain the major

discontinuities we currently observe (see also Kelly, 1997). In my view physical (Internet) and non-physical (relationship) networks are much more important in shaping the economy than information as such. Although the importance of the Internet has recently been downplayed by many critics, I will argue that the Internet has dramatically altered the forces of competition in the economy; for the first time in history it is possible to create a global presence almost instantaneously at very low costs (Bailey, 1997). The emergence of the Internet has therefore initiated a situation in which competition no longer comes from incumbent organizations, but increasingly from forces outside a company's core-industry. The Internet can also be seen as a powerful driving force for innovation. On a daily basis new technologies emerge that may trigger off new technological paths. These radical technological innovations often drastically alter the price/performance ratio of high-technology products and often act as driving forces of 'creative destruction', which threatens incumbent industry leaders and opens up opportunities for new firms. Under these circumstances it might be sensible for any organization to shift its attention towards the new technological paradigms. However, most incumbent firms are characterized by a strong inertia, which prevents them from transforming their current products and technologies. Their position as reliable and accountable organizations, as well as their sunk costs in equipment and personnel prevents them from redirecting their focus to the new (often more promising) paradigm. It is found that under these conditions incumbents even tend to increase investments in the old technologies rather than to switch to the new technological regime. Firms with a relatively successful background are often even more resistant to change than other firms. This so-called 'success breeds failure syndrome' (Starbuck, Greve and Hedberg, 1978) is often observed by established industry leaders. However, the likelihood of successfully switching to a new technology is not only a function of willingness to change but can also be seen as a factor of the competence to change. Such a competency is based on the ability to move into new opportunities quickly. Continued reliance on existing internally developed core competences makes firms extremely vulnerable under conditions of radical change.

Many authors have argued that, in the network economy, firms will therefore show a growing preference for more flexible forms of organization such as alliances (figure 4). Mergers and acquisitions are

generally considered to be less equipped to deal with such a turbulent environment and would be increasingly geared towards low-tech sectors in which learning and flexibility are less important. In similar vein, Figure 4 shows that, most recently, almost 40 percent of all alliances are Internet related whereas Internet related mergers and acquisitions account for only 13 percent. In the face of recent developments in the worldeconomy that thrive on flexibility, experimentation and speed, M&As are often compared to oil tankers in a rafting river. Under such conditions, in which control through hierarchy is less important than learning and experimentation, alliances seem to be the mode of choice. This is in line with early organization theory from the 1960s (e.g. Lawrence and Lorsch, 1967), which predicts that loose organizational structures are better suited to deal with environmental turbulence than integrated organizational structures.

figure 4



Strategic alliances seem to provide flexible, fast-to-build knowledge acquisition solutions at very low costs. In spite of the marked advantages of alliances over other knowledge appropriation modes, alliances are still conceived by many companies as second-best options compared to internal accumulation of knowledge and to mergers and acquisitions. Even in the network economy firms still often resort to their existing practices of internal development and M&As. Most recently, however,



we are witnessing the emergence of a new breed of alliances that may challenge the domination of the more traditional knowledge acquisition modes. These so-called @lliances have distinct features that are specifically geared towards the demands of the network economy. Although this alternative form of organization shares many of the features of traditional strategic alliances we will show that they can be considered as a separate form that can be used as a successful alternative to other external knowledge appropriation modes.



@lliances: A new breed of alliances

@lliances can be defined as particularly short-lived alliances that focus on completing narrowly defined tasks in a very short time frame. Recently, this kind of alliances seem to have replaced traditional partnerships as the most dominant form of alliances in rapidly changing markets such as the Internet sector (Spekman and Isabella, 2000). Although they are related to their predecessors, they have a number of distinct features that clearly separates them from traditional alliances (table 2).

table 2

@lliances
versus traditional
partnerships

Traditional alliances		@lliances
Market access, efficiency	Motives	Learning
Slow, long	Speed and Planning horizon	E-speed, short
Individual fit	Partner fit	Network fit
Familiar sectors	Partner type 1	Unfamiliar quarters
Established	Partner type 2	Entrepreneurial
Trust	Commitment	Aligned objectives
Many tasks	Focus	Few, specific tasks

Motives: market access versus technology access

Traditionally, most alliances were undertaken between large companies in order to gain access to foreign markets or to improve scale of operations. Even in dynamic high technology sectors, alliances were rarely used for innovative purposes. External acquisition of technology by alliances was considered to be difficult and rarely a necessity. The vast economic and technological developments in the last decade have, however, overthrown traditional thinking about alliances. Today, knowledge acquisition has become the predominant motive to engage in alliances.



Because of their particular fast-to-build and flexible nature, @lliances are better equipped to deal with knowledge acquisition in turbulent environments than more traditional alliances.

Speed: careful planning versus fast-to-build, short-lived alliances

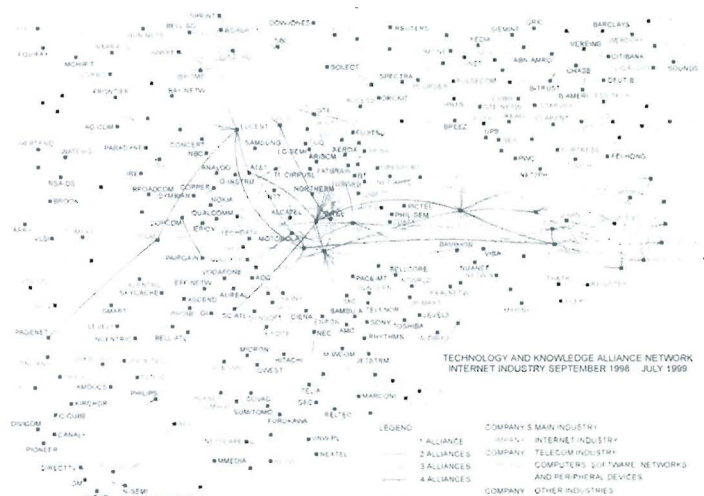
Because in high-tech sectors time-to-market is the single most essential competitive factor, @lliances are often established without careful preparation and clear long-term goals. Especially in the Internet sector, the existence of network externalities urged firms to cooperate in order to reduce lead times for their innovative products. The discussion about network externalities has become a common theme in economics. It suggests that the value of a connection increases exponentially as the number of connections increases arithmetically. Although network externalities exist in many 'old economy' contexts such as railroads and telephone networks, the economics literature has often quoted the Internet and related services and products as typical examples (Shapiro & Varian, 1998). One of the basic laws of the network economy seems to refer to a vicious cycle in which the total value of a product or service exponentially increases with the number of clients, while this value increase attracts even more clients and creates lock-in effects. It is well known from the economics literature that the existence of strong network externalities can lead to 'natural monopolies' in which the market is dominated by a single firm. Firm's pursuing such a position have moved very aggressively in the early Internet years in order to become the dominant player in specific market segments. Because windows of opportunity in the network economy are closing fast, a reduction in lead times also allows firms to pre-empt the market and enables them to move faster down the learning curve. Because speed is the most prominent factor influencing performance in the network economy, firms cannot afford to engage in long and extensive planning and negotiation processes. It's like Mario Andretti once said: "If everything seems under control – you're not going fast enough." Instead of careful strategic planning and extensive partner selection processes firms tend to enter into short-lived alliances on a trial and error basis. The typical time-horizon of @lliances is therefore generally measured in weeks or months instead of years.

Partner fit: network versus dyadic fit

Because of the lack of time to get to know each other well, and because past-experience is often lacking, (network) reputation effects have become the most essential means of evaluating a partner. Because firms are increasingly embedded in social networks (see figure 5) they often short-cut the partner selection process by using their network partners as main sources of information about potential partners. As indicated by Gulati (1998) the embeddedness of firms in social networks increases the propensity of firms to engage in new alliances by means of providing information on the credibility and competencies of potential partners. Whereas traditional partner selection focused solely on researching the fit between two parties, firms engaged in multiple @lliances now start to focus on network fit.

figure 5

Strategic Technology Alliance Network, Internet sector, September 1988-July 1999



In a network environment characterized by a mix of cooperation and competition, it is not sufficient to manage alliances at a dyadic level. The position of an organization in its network has become an important variable in determining the firm's ability to compete. The nature of the network surrounding a company, determines its ability to

control information flows, knowledge flows and financial flows. Building the right relationships with the right partners, thus becomes a key managerial challenge. In today's network economy bilateral fit is not sufficient anymore: the fit in the overall alliance portfolio should be looked into as well. A relevant question in this respect is whether a prospected partner improves the mix of the network. Partner selection from a network perspective involves finding key strategic partners (traditional alliances) and browsing for short-term partnerships focused on narrow scope objectives (@lliances). In this way, access to different kinds of resources can be gained. To make sure the optimal set of partners is assembled, it needs to be investigated what a new partner can contribute to the network. The most successful companies establish a 'radar function' which ensures that new developments are identified and innovative companies are approached. Partner selection therefore, should not only include an analysis of bilateral fit, but should also inquire into the prospected partner's contribution to a healthy mix of the network (Duysters, et al. 1999).

Partner types: familiarity versus complementarity

A complicating factor in the partner selection process is that @lliance partners typically come from unfamiliar quarters. For a very long time technological developments in high tech sectors have followed very distinct trajectories. Today, the basic design parameters, which form the core of technological regimes, have become increasingly similar. Digitalization of telecommunications and computer equipment has broadened the existing technology base and facilitated the emergence of large-scale communication networks that carry voice, data and images. As computers are increasingly accommodated within those telecommunications networks, previous existing technological and market boundaries have become vague. Many authors envision that all the different IT markets will eventually melt into one giant 'information and entertainment industry' and that firms will react to the new opportunities by lateral entry into each other's markets. A relatively stable environment that characterized many industries in the past induced firms to develop a stable set of routines to deal with their environment. Today such routinized behavior does not seem sufficient to deal with the technological convergence process in the network economy. Unexpected combinations of companies have therefore emerged. Notable examples in this respect are Lego and Microsoft who



decided to team up in order to develop internet-based computer games and Deutsche Bank and Nokia who joined forces to develop new services for the mobile Internet (de Man et al, 2001). In similar vein, we see unexpected combinations in which small companies have become extremely important partners for large incumbent organizations in their role as incubators of new technologies.

Commitment and focus: Trust versus aligned objectives

Because of the short-lived character of @lliances, partners generally lack the time to build commitment and trust in their relationship. Cooperation between partners is therefore increasingly based upon well-aligned objectives and mutual goals (Spekman and Isabella, 2000). Goal complementarity seems to have replaced partner fit as the key success factor of alliances. Misalignment of objectives or goals immediately leads to the discontinuation of alliances. In contrast to previous alliances in which the degree of success is often measured by the duration of the alliance, today's @lliances are successful when specific tasks are accomplished. Because of the lack of contracts it is quite common in Silicon Valley to consider alliances terminated at the moment that e-mails are not promptly returned anymore (Spekman and Isabella, 2000).

From the above, it is clear that, as the network economy unfolds, firms are forced to redirect their attention away from traditional knowledge acquisition modes towards new forms of alliances. The emergence of the network economy not only affects the type of alliance used but also requires firms to re-organize for cooperation. In the next section I will discuss some key issues from a practical point of view that should be included in every firm's 'network economy survival kit'.

Surviving the network economy

Key lessons for surviving the network economy

From the vastly growing but still very incomplete body of literature on the use of new alternative forms of organization in the network economy, we can discern some common themes, which could help firms survive the network economy.

- Make the most of the inherent flexibility and speed of alliances by separating alliances from the bureaucratic structure of the parent organizations and add flexibility to your organization by using non-equity alliances instead of traditional joint ventures. For a long time, joint ventures have been the most preferred mode of alliances. Because equity participation creates mutual dependence among the participating companies, the chances of cheating on the other partner are reduced significantly. If one of the partners does not behave responsibly, then the whole venture suffers and equity diminishes for all participants (Buckley and Casson, 1988). However, in spite of the advantages associated with these higher levels of commitments those ventures seem to present greater risk in turbulent changing environmental conditions (Duysters and Hagedoorn, 2000; Spekman and Isabella, 2000). Under these conditions, the flexibility and speed associated with non-equity alliances far outweighs the benefits associated with improved commitment. Furthermore, building all the required skills and know-how internally is simply too time-consuming to be effective.
- Improve your alliance success by building advanced alliance capabilities in your organization. Recent research has shown that companies that have incorporated a high degree of alliance capabilities in their organizations have a significantly higher success rate than other firms. New theoretical approaches studying the success of alliances have therefore moved away from studying individual alliances. Instead, they focus on the internal organization of the alliance partners and the accumulation of alliance knowledge inside the individual organization (de Man et al., 2001).

Alliance capabilities can be built in a broad variety of ways. It is found that in particular the use of alliance training, alliance specialists and different methods of evaluating alliances have a profound impact on the performance of a company's alliances (Draulans et al., 1999).

- Increase your partnering options by building a reputation of credibility. As described above, (network) reputation has become the prime partner selection criterion. A reputation of being a responsible and cooperative partner opens up numerous new partnering opportunities for companies. This allows companies to build a portfolio of preferred partners.
- Include learning as an explicit goal for your alliances. In a recent Accenture Survey (2000) learning was cited as a critical goal in 41 percent of alliances, a percentage that is expected to exceed 50 percent by 2003. The same survey showed that successful alliance firms are almost five times more likely than non-winners to include learning as an explicit goal for their alliances. Companies that have formulated explicit learning objectives generate twice the market value compared to those of non-learning-oriented alliances.
- Build an optimal portfolio of alliances and M&As. Whereas M&As can be used effectively to strengthen existing core technologies, strategic alliances can be used to learn about new technological directions. Alliances enable companies to monitor several technological developments and at the same time, let them concentrate on a few, most promising, projects internally. If certain technologies turn out to be less successful, then alliances can be terminated with only a relatively small loss. These options can be used to respond successfully to unfolding opportunities when those events are likely to destroy your current competencies.
- Focus on a few specific tasks. This keeps the alliance structure uncomplicated and allows companies to make use of the specific know-how and competencies of various individual partners rather than engaging in a few broad ranging partnerships with one specific partner. Think of this as partnering behavior in our personal life. Our tennis partner is generally a different person as our math teacher.

Choose a partner whose abilities in one specific field are perfectly geared towards your needs and try to develop an optimal portfolio of partners with distinct competencies.

- Build a strong and coherent internal knowledge base. It is often noted that a firm's capability to absorb externally generated knowledge is to a large degree dependent on the degree of knowledge in a specific field. Therefore we might argue that if the core of a company's technology base is not sufficiently developed or adapted to the new technology, then the absorption of newly acquired external technological knowledge within the technological core of a company is very difficult. The cumulative and path dependent character of technological knowledge seems to favor a strong and coherent technology base. Although path dependency, at first sight, seems to be a handicap for rapid technological progress because it limits the options open to companies, it often turns out to be an essential condition for the effective development of a certain technology. Due to this particular character, technological change can rapidly expand technological frontiers while it is concentrated on a continuous process of relatively small changes in separate component parts with individual research projects focusing on improvements in small elements of the technology.

Future research

A critical analysis of the innovation literature shows that, despite the rapidly growing body of literature on the use and structure of alternative forms of organization, there seems to be a number of relatively unexplored but important venues for future research.

- The innovation literature has been rather neglecting the ex-post innovative performance effects of different forms of organization. Even in more recent theoretical contributions, the role of M&As and strategic alliances on the innovative performance of companies remains unclear. More studies on the use and effect of strategic alliances and M&As for innovative renewal are needed to support general suggestions in the literature about the growing impact of M&As on the innovative activities on companies.
- Future research should not only include traditional knowledge acquisition modes but should also be geared towards understanding the distinct features and nature of newly emerging modes such as the new breed of @lliances. Most authors consistently apply 'old' theoretical concepts to new forms. This is unlikely to be an effective way to deal with the particular nature of these new forms of organization. The embeddedness of these new forms in existing organization structures calls for new ways of internal organization to facilitate the successful execution of external or quasi-external knowledge acquisition processes. More research on building alliance capabilities in organizations is essential to improve the track record and image of strategic alliances and mergers and acquisitions.
- Another important factor stimulating future research in alliances is provided by the emergence of complex inter-organizational networks. In such a context in which all firm are linked to each other by means of direct or indirect ties it is not sufficient to study alliances at a dyadic level. A network perspective should therefore accompany the traditional dyadic level perspective. There is, especially, a strong need for theory on network embeddedness and network evolution. In



particular about the way in which organizations themselves are seen as key actors influencing the future shape of the network.

- Research on alliances has primarily focused on questions related to why and when alliances are formed. More recently, research has also focused on the understanding of 'with whom' firms are cooperating. In terms of the competitive implications of alliances our knowledge is much more limited. The explosive growth in the number of alliances has, however, not only led to the emergence of complex inter-organizational networks but also fueled the emergence of a new form of competition, so-called group-based competition. Today, a rapidly growing number of 'constellations' consisting of densely cooperating clusters of firms are found to compete against other groups of organizations. A typical example is found in the airline industry, where e.g. the 'Star alliance' is fiercely competing against the 'Qualifier alliance'. Despite the growing importance of this new form of competition we still lack a theoretical framework that is able to integrate collaborative and competitive behavior. Another related feature that requires extensive study relates to the determinants and the (performance) effects of the formation of technological clusters in alliance networks.
- From a more managerial perspective it is important to study how firms build an optimal portfolio of alliances and mergers and acquisitions. Most management tools are still based on the assumption that a company acts autonomously. In a network economy however, this view becomes increasingly inadequate. In the network economy, managing a portfolio of inter-firm relationships seems to be the key to successful strategy. Eventually, we should be able to come up with a model that is context sensitive in the sense that the effects of firm- and market specific factors are incorporated in the composition of the optimal portfolio.

Overall, I would like to argue that new developments such as the emergence of new forms of organizations, the materialization of networks and the need for improved alliance capabilities should trigger of new organizational theories that are better equipped to deal with the particular nature of these developments.

Conclusion

After 40 years, Marshall McLuhan's vision of the emergence of the 'Global Village' has finally been realized in this new era of the economy. Hundreds of millions of people can now interact, and share information with each other in a real-time environment. As the network economy unfolds, the pivotal role played by mergers and acquisitions as the main vehicle to access new technologies or markets is increasingly challenged by new organizational forms. Whereas M&As can provide scale economies to organizations they hamper flexibility, efficient knowledge transfer and speed, the capabilities needed most in the network economy. As in the case of strategic alliances, recent studies have shown that, in spite of the unprecedented increase in the number of M&As, their overall contribution to firm's performance is very poor. The success-rate of mergers and acquisitions is so poor that in a recent issue of the Economist mergers and acquisitions were compared to second marriages: "a triumph of hope over experience. A stream of studies has shown that corporate mergers have even higher failure rates than the liaisons of Hollywood stars" (Economist: July 22, 2000). Their poor track record is primarily due to the massive integration challenges that arise after the acquisition in combination with the high acquisition premiums. The most significant problem, however, seems to be that the high costs associated with the merger or acquisition and the correspondingly high exit costs diminish the flexibility of firms to quickly adapt to turbulent changes in the economy.

To survive the network economy, firms are forced to offer integrated flexible solutions to their customers which can most easily be obtained by teaming up with a set of competent partners. Firms cannot afford the time-consuming and difficult integration activities required by mergers and acquisitions. In turbulent environments innovative capabilities could have become obsolete by the time the integration process has finished. Mergers and acquisitions can still be important in sectors in which economies of scale are more important than flexibility and innovativeness. But even in traditionally scale intensive sectors, such as the steel industry or financial markets, responsiveness to customer needs



is quickly becoming more important. Given the turbulent changes in virtually all markets it seems to be a matter of time, until these markets cannot cope with the inflexibilities of M&As any more. In fact, eight out of ten executives believe that alliances will become the prime vehicle for corporate growth (Accenture, 2000). In this lecture it is argued that this growth, most likely, does not come from traditional alliances but from a new breed of alliances, so-called @lliances which are particularly suited to deal with the specific requirements of the network economy. In terms of theoretical approaches I argue that significant new developments such as the emergence of new knowledge acquisition modes, the materialization of networks and the need for improved alliance capabilities should be included into new organizational theories that are better equipped to deal with the particular nature of these developments. Organizing for cooperation therefore requires an extensive reorientation away from existing practices towards the incorporation of new organizational concepts and alternative knowledge acquisition modes.

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