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# Using strategic partnerships to create a sustainable competitive position for hi-tech start-up firms

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## 1. Introduction

Over the last ten years I have had the privilege to observe in depth the creation and development of several hi-tech companies. I observed that in most cases these companies chose or were forced to engage in a technology partnership in order to develop and survive. As one would expect, some of these partnerships succeeded whilst others failed. With hindsight it occurred to me that success or failure was not necessarily a random event, or idiosyncratic to one particular company, but that there seemed to be a pattern. Some partnerships failed because they were a strategic misfit, others probably because they were badly implemented. Based on these clinical case studies, I would like to address the questions: when and under what conditions a partnership is needed; what form should it take; and what observations can be made about the successful management of these partnerships?

## 2. Empirical base

The observations in this paper will be based on five clinical case studies. I have been able to follow closely each of these cases studies over virtually the whole period of their development until fairly recently. Some of these cases started more than fifteen years ago, others are more recent developments. Two of them are published as case studies by INSEAD and will be described by their name: Plant Genetic Systems and Lernout and Hauspie Speech Products.<sup>1</sup>The three others will be designated as company A, B and C.

For several of these cases studies I had the privilege to be close to the management and for all of them I had the opportunity to interview many relevant people inside and outside these organisations over the years, and to have regularly informal contacts with them.

## 3. Short description of the case studies

In the following paragraphs I will provide a short description of each of these cases and highlight where partnerships played a role. Over the period I will describe, all of these companies were considered to be successful as measured by profit and/or share price evolution. Yet all of them

had failing partnerships (i.e. where the partnership was stopped). They also had successful partnerships (i.e. where the CEO considered that the partnership had reached its objectives).

### *3.1. Plant Genetic Systems (PGS)*

Plant Genetic Systems was created in 1983 as a joint venture between three industrial companies in the agro-industry, an American based genetic engineering company, and a government sponsored development and investment fund. The aim was to commercialise the scientific results obtained by a research team at the University of Ghent (Belgium). After about five years the new company had achieved several technical breakthroughs in terms of herbicides or pesticide resistant crops. Having neither the financial nor managerial resources to go into the seed business they looked for industrial partners in the seed industry who could help them to do the field tests and distribute the new seeds. They intended in the late 1980s to steer away from the big agrochemical companies, suspecting that these companies might slowdown the introduction of new seeds, which could affect the sales of their chemical products. Instead they favoured partnerships with first and second tier seed production and distribution companies. In 1996 they were acquired for about US\$500 million (for 80% of the shares) by AGREVO, a joint venture between Hoechst and Schering AG, who produce some of the main herbicides in the world. Currently they continue to successfully develop new products within the AGRE-VO context; and remain a major player in the sector of genetically improved seeds (De Meyer and Van Hooland, 1992).

### *3.2. Lernout and Hauspie Speech Products (L&HSP)*

L&HSP was created in 1986 to respond to a clearly perceived need in the computer industry to facilitate interaction with computers through voice. The necessary technologies of voice recognition, digitalization and compression were available, but required a great deal of development for example in order to cope with different languages or to be able to store voice in an efficient way (De Meyer and Pycke, 1998).

L&HSP realised very quickly that partnerships and acquisitions would be needed to cope with at least two issues:

- (a) Its product would probably not be bought as a stand-alone product, but would always be a component in another product or software. Therefore partnerships with large telecommunication companies such as ATT or software providers such as Microsoft were negotiated and led in some cases to these companies joining as minority shareholders in the company's equity.
- (b) L&HSP's competitive advantage lay in its data- base of the infinite numbers of sounds, used in different languages and spoken in different ways, as opposed to the software. Therefore partnerships were created with (mainly) translation companies throughout the world.

### *3.3. Company A*

This company has developed a series of educational software for individualised management education. The development of this software is pretty straightforward, but there was not (and of as today there is still no) successful formula for distributing the software as well as convincing potential customers to pay for it. The company has developed in its home market a profitable

distribution formula, based on a yearly subscription, but it has failed to export successfully this formula to other markets. Most of its international sales are opportunistic. It has tried and keeps on trying to set up partnerships in other markets in order to adapt its success formula to these markets. Most of these partnerships have failed or do not live up to the company's expectations.

### *3.4. Company B*

This company is a spin-off of a large chemical company and has developed a machine that allows customised printing of high quality and at relatively low prices. The company has sought partnerships in two areas:

- (a) The market for these customised print presses is global. Not being able to build up a global sales and service organisation it has created partnerships and joint ventures with distributors (of which several are potential competitors);
- (b) They have discovered that many of their customers did know how to use the possibility of their machine and reverted back to using it as a normal print press. They need to develop partnerships with some lead customers in order to 'invent' the market possibilities of customised printing.

### *3.5. Company C*

This is the youngest of the five companies and it is still in its early development. It produces specialized modems to connect all kind of stand-alone equipment to the GSM network. Applications are of course PCs but also isolated vending machines, transport equipment, etc. Again the company is confronted with several pressures to enter into partnerships, because the modem is very often integrated into other equipment for which the communication capability and further applications still have to be developed. They also prefer to outsource some of the production because the market develops so fast that they need to focus all their attention on rapid product development.

## **4. Why enter into partnerships?**

In order to understand why these companies needed partnerships and in which area, I find it useful to consider the decision tree which I developed based on the work by Teece (1986) and other results published over the last 20 years. In my interaction with these five companies, as well as many other small organisations, I have come to the conclusion that the development of a strategy for the economically successful exploitation of technology requires that the company formulates answers to the following five questions:

- (a) How easily can one can protect know-how and thus appropriate easily the benefits of the work in the form of rents? The form of protection can be very varied: patent protection, trade secrets, monopoly on critical resources, speed in development, etc.
- (b) Is there a dominant design, in the way it is described by Utterback and Abernathy (1975)?
- (c) What is the speed with which a prototype can be developed? Iansiti (1995) has clearly indicated that the performance of R&D and the improvement of the company's competitive advantage is strongly influenced by the speed with which prototypes can be turned around. The daily build and the wish to have every day a shippable product, as Selby and Cusumano (1994) have described for Microsoft, points in the same direction.

- (d) How important are complementary assets (Doz and Hamel, 1998)? These are the other assets that a company needs to have access to in order to commercialise its product, process or system.
- (e) Finally, are these complementary assets specialised, or available on a competitive basis? Can the company put the suppliers of complementary assets in competition with each other? (Teece, 1986)

It is in my hypothesis that these five questions have to be answered in a particular sequence. This sequence leads to the decision tree which is shown in Figure 1.

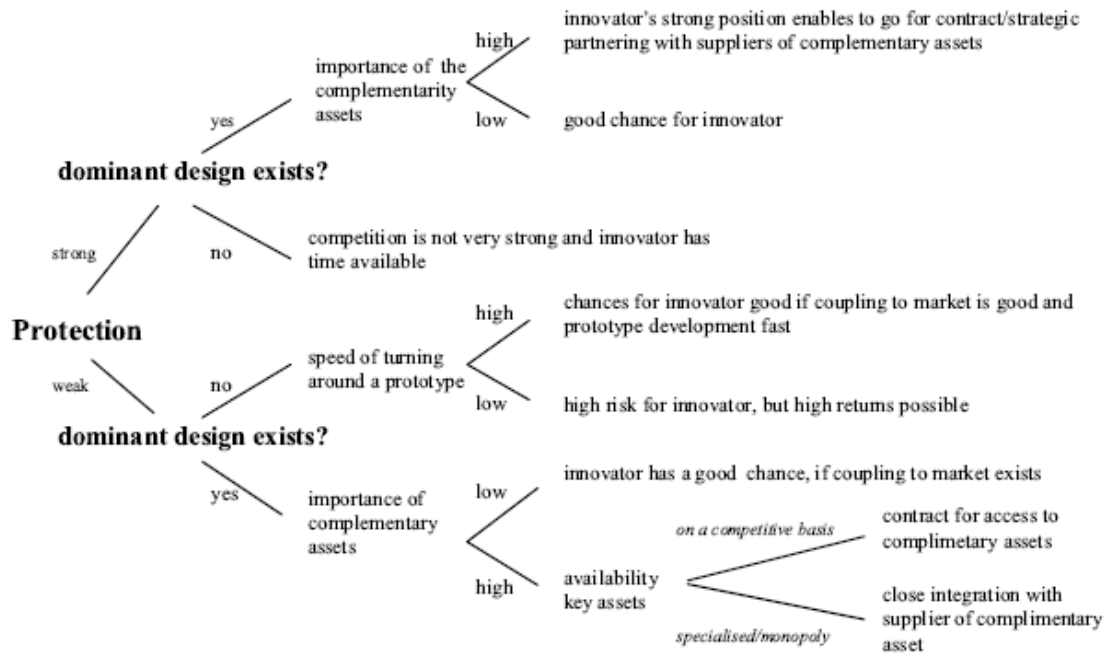


Figure 1

Let us explore a few paths on this decision tree. Assume that one can easily protect one's know-how and that the dominant design is not yet known. In this case complementary assets do not or cannot play a significant role and the innovator has time to develop its concepts and has a very good chance to be successful, on condition he is well-connected to the market. If the dominant design is known, then we have to focus on the complementary assets. If those are not important, the innovator is in the driving seat. If they are important, the innovator will probably have to contract for access, or enter into a partnership, but he can do it from a position of strength.

If on the other hand, the know how is difficult to protect - which is the most frequent case for small hi-tech companies - and the dominant design is not yet known, the question about the speed of prototype development becomes important. If the innovator succeeds in developing very fast successive prototypes, there is a very good chance to succeed, on condition that good contact with the market exists. This is needed in order to develop the dominant design through the sequence of prototypes and pilot products. This path is illustrated by the development of a lot of internet-based products or services (Iansiti and McCormack 1997).

If the development time is long (and costs probably high), the innovator has very little chance. This can be a high risk, high return strategy.

Following the path of weak protection, but with an existing dominant design, we have to consider the importance of complementary assets as well as their availability. If the complementary assets are not important, a good interaction with the market may create the conditions for success. If they are important and freely available on a competitive basis you may Strategic partnership for hi-tech start-up firms contract to get access to those, though your negotiating position is far less good than in earlier cases. If they are specialised, you are in the hands of those who control the complementary assets and there is only one piece of good advice: integrate with them!

Let us be careful. I do not see this decision tree as a quasi-deterministic model, but rather as a tool for analysis. It is a model that may help us think about how to get out of a 'dead end' or unfavourable outcomes. One will also understand that none of the questions can be answered by a simple yes or no, and that appropriate management action may help us to move a company's position from 'rather more' yes to 'rather more' no and vice versa. In fact the most important value of this decision tree is probably that it indicates where management has to put its efforts in order to get out of unfavourable outcomes.

Let us explore a few examples.<sup>2</sup> PGS had developed very good technologies at the end of the 1980s, but at the time they were very difficult to protect. Indeed in the 1980s it was far from clear that one would ever be able to obtain patents on genetically engineered products. Moreover some of the products (genetically improved plants) had the characteristic of reproducing themselves and thus obstruct all protective measures. Moreover PGS was in a field without a dominant design and with lengthy prototyping. This was clearly a high risk, high return strategy. In order to escape this dangerous route it implemented two development strategies.

- (a) invest in hybridisation of all plants through genetic engineering so that it would become more easy to protect them, and
- (b) lobby to create as soon as possible a few dominant designs.

In this case the complementary asset seemed to be the distribution, which was available on a competitive basis. Contracting in one form or another with distributors was the logic next step. The second example is company A. Software is difficult to protect and suppliers of software content are not very loyal. Moreover there are hundreds of different ways to offer management education. There is in this case very little protection, no dominant design, but on the other hand a relatively fast cycle to try and to bring out more products. The strategy based on the decision tree seems to be clear: a combination of very good (often opportunistic) links with the market, combined with efforts to increase the degree of protection as well as the creation of a dominant design. The often opportunistic link to the market works well. But until now the company has failed to succeed with the two last items. Protection may come in the future from a few production competencies, and in its home market it has created a unique design of distributions through yearly subscriptions. But it has failed to export this outside its niche market. Partnerships have been tried but do not play a significant role in this. In fact each time the company entered

into a major partnership, it failed because the strategic necessity was not strong enough to overcome the managerial difficulties.

The third example I would like to explore is L&HSP. From the outside it appears that in the middle of the nineties L&HSP had a portfolio of technologies which were very difficult to protect. On the other hand it is clear that their product would probably not be sold as a standalone product, but rather as a component embedded in another product. Complementary assets are thus important. In some sectors, such as the PC market, these complementary assets are very specialised. Indeed Microsoft's position is very powerful, and the L&HSP component would typically have to be incorporated in a PC's system software. From the point of view of our decision tree it appears that integration would thus be necessary. But the published case study suggests that L&HSP took several strategic steps to create options for itself. First it understood that its protection may come from its database of sounds in different languages, as opposed to the algorithms embedded in the software. Acquisitions of, and joint ventures with translation companies were a logical step to increase the speed with which these database could be constructed. Secondly by designing complete dictation products for niche markets, it attempted to reduce the weight of complementary assets. Finally recognising the importance of providers of complementary assets, it invited some of those (e.g. Microsoft) to 'integrate' by inviting them to become a shareholder.

The decision tree and the examples show a few simple conclusions with respect to partnerships:

- (a) Partnerships are not always needed: in many cases the innovation can be harvested without setting up complicated partnerships;
- (b) Partnerships can be used to escape 'dead ends' in the decision tree;
- (c) Small hi-tech ventures use partnerships to get access to complementary assets and to develop dominant designs;
- (d) Partnerships may take different forms depending on the type of complementary assets and the design of their accessibility: in some cases, they are contracts negotiated from a position of strength, in others they are a way of looking for close integration.

## **5. Managing partnerships for hi-tech companies**

After having evaluated the strategic reasons why a hi-tech start-up would enter a partnership, I share a few ideas on how to manage these partnerships. My observations are from the point of view of a small organisation. Obviously they have to be formulated as hypotheses, given the small empirical basis. They are however in line with some of the observations made by Doz and Hamel (1998) and I refer to their work for more general comments on how to manage technological partnerships and alliances.

In particular I would like to emphasise the need to constantly look for the value that the partnership creates.

- 5.1. Many of the partnerships in which these five companies are engaged are with large organisations. The decision on the partnership is taken at the strategic level. The implementation of a partnership is at an operational level. In the small company there is often not more than one level difference between strategic and operational level. In the large

company there may be four or five. Assume that there is a conflict at the operational level, and that the decision making level has to be involved. One can immediately guess the difference in speed in conflict resolution (if it is ever solved in the large organisation) and the frustration this may create. A mutual understanding and monitoring of structure and procedures may help. Doz (1988) has observed that asymmetries in structures and perception about responsibilities may have devastating effect on the success of a partnership.

- 5.2. A second level of frustration and difficulty is due to the lack of managerial resources available in the small hi-tech company. Partnerships do require a lot of management involvement. With the available resources a small organisation quickly reaches the limit on the number of partnerships it can manage. Several of the partnerships I have observed in the five companies that I have described and which were sound from a strategic point of view, failed because of the lack of management attention. A constant matching of available management resources with the number and complexity of the partnerships is needed.
- 5.3. In several of the partnerships I have observed that the contribution that the hi-tech company brought to the partnerships consisted of technology. The contributions from the other parties were often managerial resources, distribution systems or capital. We know that technology is inherently difficult to value. As many authors have described, one has to reveal technology in order to value it, but this revealing reduces immediately its value. The small company has to find a way to obtain a reasonable value for its contribution. A lot of frustration often arose over the valuation process. Finding independent trusted advisors to do this for both parties may help.
- 5.4. Getting married with a giant always entails the risk for the small hi-tech company of being absorbed. For several companies this may in fact not be a bad outcome, on condition that the absorption process is recognised from the beginning as a possibility, and equitable procedures for it have been established. This becomes particularly important if partnerships entail exchanges of shares. If one wants to protect oneself against absorption, the small company may have to go for a portfolio of partnerships where each of these is not of overwhelming importance. This has of course to be checked with the available managerial competence as is described under 5.2.
- 5.5. While the entrepreneurial hi-tech company often may have remarkable stability in its top management team, the large organisation may suffer from periodical reorganisations and job rotations, in particular at the operational level. This is part of the regular career management evolution in large organisations. The new team may not understand the logic of the partnership nor share the same enthusiasm and commitment. In order to cope with this, I suggest that the small organisation must ensure that it gets the commitment from the top of the large organisation. Moreover it may have to plan a continuous 'educational' effort towards the operational level of the large organisation.
- 5.6. Hi-tech fast growing organisations often suffer from an overestimation of the capabilities of their partners. Name and image of a large organization are seen as a sufficient guarantee for the capabilities of the partners. But two elements may lead to a negative experience. First the large partner may simply turn out not to be that good. But secondly and perhaps more importantly, it may not consider the partnership to be that important and may not dedicate its best resources to it. To put it more bluntly, I have seen cases where the partnership failed because the large partner assigned underperforming managers to it.



5.7 Doz and Hamel (1998) make the distinction between partnerships for getting access to complementary assets and learning partnerships. While making this distinction may make a lot of sense for large organisations, as well as for the conceptual understanding of the management of partnerships, I would argue that for the small high tech firm the access to complementary assets is the objective, but the overall spirit should be one of constant mimicking, learning and absorption of know-how. This learning capacity requires resources, not only lip service. Yet it often does not go beyond that lip service in the cases I have observed.

## 6. Conclusion

Partnerships play an important role for small organisations. Yet quite a few of these partnerships fail, because they are either created for the wrong reasons, or are managed badly. On the basis of my own clinical case study, as well as models provided by the literature, I have attempted to provide a concise model to decide in which partnerships to invest. I also provided as hypothesis a few additional insights on how to manage partnerships from the perspective of the small company.

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## Notes

1. These case studies are available through the European Case Clearing House.
2. The analysis of PGS and L&HP is based exclusively on published data. The interpretation of the cases is the sole responsibility of the author.