The methods of distributing results in exploratory partnerships

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Abstract:
Development partnerships enable companies to develop new products and/or processes whilst at the same time sharing costs. Apart from their high degree of uncertainty and increased risk, these partnerships also necessitate the setting up of adapted management techniques. One of the central questions for the partners concerns the distribution of results and their methods of distribution. Our contribution aims to show the different types of results obtained in a development partnership and to analyse the methods of distribution. A qualitative study of three exploratory projects developed in the MINATEC IDEAs Laboratory® was analysed in order to gain a better understanding of the methods chosen and the factors influencing this choice. Before the collaboration, the partners seemed to prefer egalitarian division, as it was difficult to identify the resources and the skills which would be necessary in the project. On the other hand, this method of distribution appeared to provide less incentive than an equitable distribution. Also, the structural dimensions (number of partners, degree of maturity of the partnership and similarity with core professions) and the behaviour of partners (level of implication and interest in the project) seemed to influence the method of distribution that was implemented.

Key words: Exploratory partnership, distribution of results, innovation
INTRODUCTION

In organisational relationships, partners are incapable of forecasting the risks that are in principle associated with alliances. This is particularly true in the context of exploratory partnerships, which are, by nature, uncertain (Segrestin, 2006). Before the project, the partners cannot foresee all the risks, the difficulties and the results associated with this.

It appears difficult to define *ex ante*, the way of distributing the results (Jap, 2001). However, such a distribution appears essential for encouraging the partners to collaborate. The rules for sharing responsibilities, resources and the quasi-rent have to be defined, in order to encourage the members to transfer key knowledge for the project and to maximize the chances of success. This incentive is achieved through the *prior* definition of the general rules for sharing the output. However, in the literature, these rules regarding sharing are rarely evoked or this is done in an extremely summary way (Bhaskaran and Krishnan, 2009). However, collaboration between several independent organisations necessitates a definition of the way in which the potential results will be distributed, so as to protect the contributions of each of them (Catelin, 2002).

Two main methods of distributing results can be implemented. Egalitarian distribution (each of the partners obtains an equivalent result) or equitable (the distribution will be proportional to the resources and the skills contributed by each partner). The question is thus one of knowing what the dimensions are that have an influence on the choice of the method of distribution. Therefore, this contribution aims to analyse in which situations it is preferable to use egalitarian distribution and in which situations equitable distribution is preferable.

The article is thus divided into three parts. The first makes a summary of the literature on the specificities of exploratory partnerships, the types of results that can be produced and the possible methods of distributing these outputs. The second part presents the three projects of exploratory innovation developed in the partnership in the MINATEC IDEAs Laboratory, and the data collected to analyse them. The results, given in the third part, deal with the methods of distributing the results that were adopted by the partners in these projects, and the dimensions that influenced these choices.
1. FROM EXPLORATION TO THE METHODS OF DISTRIBUTING RESULTS

This article focuses on a form of collaboration in Research and Development (R&D): an exploratory partnership. Section 1.1 describes the exploratory partnership, its specificities and its significance for the study of the distribution of results. Section 1.2 brings up the question of the incentive role in this distribution in an exploration situation.

1.1. THE SPECIFICITIES OF AN EXPLORATION PARTNERSHIP

For the last fifteen years, more and more forms of collaboration between companies have been noted. (Doz et Hamel, 1998), as is witnessed by the number of forms called ‘hybrid’ (alliances, consortiums, joint venture, agreements). Collaboration, is designated in this article by “a situation in which two organisations or more share resources and activities in order to follow a strategy” (Johnson, Scholes and Fréry, 2002 : 461). These alliances are set up in order to respond to, and anticipate the needs and evolutions of the market. They can also be motivated by a wish to share the risks and the costs associated with developing a new product. They appear to be the means of development that are the most adapted to innovating.

The new models of what is called ‘open innovation’ (Chesbrough, 2003), leads companies to undertake a part of their R&D efforts in partnership with others. These partnerships lead to the establishment of new organisational forms: research consortiums, co-development projects, joint-ventures and exploration partnerships (Segrestin, 2006). An exploration partnership corresponds to a form of collaboration between companies in the fields of innovation consisting “of this investigation activity and recognition of new fields of action, or more specifically, “fields of innovation” (Segrestin, 2006 : 6). It is a simultaneous investigation of the technical possibilities and value spaces (Le Masson et al., 2006).

It is therefore not a simple co-development of a product or an innovative service. An exploration activity implies that the partners involved do not have any concrete idea of what the final result of their collaboration will be. These partners construct, all along the way, the very object of their collaboration or ‘common purpose’ (Segrestin, 2006). The exploration can therefore be distinguished from the systems of conception in which the specifications are defined, the characteristics of the product or service are known, and the experts identified. Because of this, there is considerable inherent uncertainty in exploration.

An exploratory partnership, a modern form of R&D collaboration, can take different forms according to the type of structure adopted (see table 1). It can be an alliance (or a joint
venture), a consortium or even a project team seconded to one of the partners. According to the type of structure, the mechanisms for coordination and control will be different. (Segrestin, 2006). Therefore, the choice of profile of the partner is crucial. (Todeva and Knoke, 2005 ; Emden et al., 2006). Is it preferable to choose complementary partners or radically different ones (in terms of skills, markets etc)? The responses to this question are contrasting. For Bierly and Gallagher (2007), a partner is mainly selected according to the resources and the skills which are necessary in the collaboration. For Nooteboom et al. (2007), the partners involved must have a particular compatibility. This directly depends on the degree of similarity between the partners. If these latter are greatly alike (equivalent financial weight, skills and similar managerial practices), there will be a high level of action potential in the alliance but the exploratory potential will be impaired. Inversely, if the partners are radically different, the cognitive distance that exists will cause difficulties in understanding, common language and culture problems which will undermine the management of the alliance, but will be favourable for the exploration.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Type of structure} & \text{Joint Venture} & \text{PLC} & \text{Partnership} & \text{Collaboration Agreement} \\
\hline
\text{Control} & \text{Joint} & \text{Key person} & \text{Key person} & \text{Co-gouvernance} \\
\hline
\text{Power of décision} & \text{Multiple Voting Rights} & \text{Voting Rights proportional to the amount of shares} & \text{Unanimity} & \text{Multiples Voting Rights} \\
\hline
\text{Methods of distribution of the results} & \text{A proportion of the shares} & \text{A proportion des parts} & \text{A proportion of the shares} & \text{Defined a priori} \\
\hline
\end{array}
\]

(adopted from Segrestin, 2006 : 133)

A central characteristic can be distinguished in an exploratory partnership: its intrinsic instability in connection with the exploration activity. This characteristic causes certain tensions and seems to make the methods of distributing the results more complex. The intrinsic instability of an exploratory partnership is connected with its flexibility. In order to respond to the technological and commercial uncertainties, an exploratory partnership has to adapt to its environment. The innovation created by the activity of the exploratory partnership is a major source of sustainable competitive advantage which nowadays does not need to be proved. (Nelson and Winter, 1982). On the other hand, researchers are still wondering about
the way to develop these competitive advantages. Numerous works have show the importance of an organisational variable (Griffin and Page, 1993; Yap and Souder, 1994) and more and more researchers have now become interested in the internal functioning of alliances (Dhanaraj and Parkhe, 2006; Rothaermel and Deeds, 2004).

Setting up exploratory partnerships seems to improve the chances of success of an innovative project, thanks to the risk sharing and the exchange of information and know-how (Spencer, 2003). They also enable training, and are more conductive to the development of innovation than individual companies. (Powell, Koput and Smith-Doerr, 19961). As a strategic tool, an exploratory partnership is here seen by the partners as a solution to succeed in rapidly acquiring new skills and/or developing new technology. To these ends, the different partners can share the risks connected with the project to a greater or a lesser extent, using the different ways available to them and exchange resources and skills. (Goes et Park 1997; Nohria and Eccles 1992; Powell 1987). Other advantages can be remarked, such as an increase in profits, and the satisfaction of potential clients. It also seems that the creation of a partnership enables the time taken for development to be reduced, as well as the costs connected with this. However, despite the enthusiasm created, certain researches on innovation alliances lead one to think that these latter do not have any guarantee of success (Karlsson, 1997). The inherent tension in all collaborative relations can lead to high functioning and collaboration costs, which could endanger the innovation activity. (Cooper, 1999). The distribution of results would appear to be an important incentive system for minimizing the risks of malfunctioning (Jap, 2001; Leiblein and Madsen, 2009).

Because of its high level of uncertainty and its increased risk, the specificities of exploratory partnerships have led us to question the methods of distributing the results between partners. In fact, although it is difficult to instigate cooperation from the onset, this appears to be absolutely essential to encourage partners to collaborate (Segrestin, 2006).

1 Our translation: “the locus of innovation will be found in networks of learning, rather than in individual firms” (p. 116).
The possible results in an exploration partnership can be of a varying nature and be the subject of bimodal distribution. The different outputs and forms of distribution are shown in this section.

The decision to undertake a collective exploratory project corresponds to the strategic logic of constituting a portfolio of real options (McMillan et McGrath, 2000). The real options are “limited investments that generate several opportunities for future development” (Johnson et al., 2008: 407). Three types of options can be determined: options of positioning, springboard options and the exploration options that can be characterized according to the degree of technical uncertainty and the degree of market uncertainty (see figure 1).

The exploration options correspond, in this article, to the exploration logic of Segrestin (2006). They are experiments whose main objective is to define innovative concepts even when the market and the technology are not known beforehand: they can be considered as entrepreneurial experiments. They are carried out with the intention of discovering and/or creating new markets for the products and services by using abilities used in other fields of
The choice of exploration option means for the company, that an innovative project is launched in a dedicated and independent structure, the isolate, so that it is not subjected to the constraints of internal development. The exploratory partnership represents this isolate.

The exploratory activities correspond to the activities through which the company is led to develop new skills, register new patents, construct models and tackle new concepts: “the form of innovation which, in a significant way, moves away, from the company’s existing central skills based on clients or technology (Chanal and Mothe, 2005 : 5). In fact, the exploration must not be strictly understood as an activity aiming to produce an innovation that answers needs that has not been up until then, unidentified. Therefore, the exploration activity generates a certain amount of learning and leads to the development of new skills: “the field that the explorer discovers obviously depends on how his career path has advanced, the instruments that he has created for himself and the way that he has taken” (Segrestin, 2006 : 34).

The results for this activity are therefore distributed, whether they are in financial terms or not (training, new know-how). This latter is an essential factor for motivating members (Sakakibara, 1997). Surprisingly, very few authors have proposed solutions for their distribution. (Catelin, 2002 ; Kumar and Nti, 1998). Our research has tried to find out if it preferable to have an equal system of remuneration according to the contributions of each of the partners. The way of distributing the results is complex. (Blanchot, 2006). It depends on the norms of justice that vary from one group to another and from one culture to another. It is not necessarily the case that equity is universally considered as a norm that is superior to equality. “in the collaborative relations where economic productivity is the first objective, equity rather than equality tends to be the principle directive force in distributive justice” (...) With the aim of encouraging and rewarding the contributions of those who are most capable, results are distributed according to the inputs”. (Kabanoff, 1991 : 417).

The equitable distribution of the results before the collaboration is seen as an encouragement for the members of the network to make an effort, thereby favouring its success. (Kabanoff, 1991, Jap, 2001). The assessment of the ratio of distribution is often

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*2 “They can be considered as entrepreneurial experiments. They are investments made with the intention of discovering and/or creating markets for products and services by deploying capabilities that you have (perhaps recently) developed in potential arenas”.*
influenced by the perception that the key person has of the members of his team (Adams, 1963). Different elements can diminish or increase their potential retribution:

- The sharing of tasks (Arino and De La Torre, 1998; Inkpen and Beamish, 1997; Kogut, 1989; Larsson, Bengtsson, Henriksson and Sparks, 1998);
- The sharing of information (Borys and Jemison, 1989; Mohr and Spekman, 1994);
- The commitment (Anderson and Weitz, 1992).

If the distribution seems inequitable to its members, the results of the alliance will be affected by it. (Kumar et Nti, 1998). In the case where they perceive that they are being treated unequally, the level of commitment and implication of the injured parties diminishes and has an effect on the alliance. Systems based on equitable distribution develop competition between members and encourages them to take risks to increase their profits. Therefore when rivalry appears, it can paralyse collaboration (Catelin, 2002). For these reasons, equalitarian distribution can appear to be preferable, in certain cases.

An equalitarian distribution of the results means that there is uniformity and a lack of differentiation between the members of the network. It is not always synonymous with equity, since the different members obtain an equivalent share of the results, whatever resources and skills are contributed (equal shares that are independent of the investment made) (Jap, 2001). The possible injustice of this distribution is a risk factor altering the functioning of the network. However, the implementation of such a system has the advantage of creating collaborative and non-competitive behaviour (Brickley, Smith and Zimmerman, 1997).

To sum up, the imperfect character of these two means of distribution does not make it possible to retain one more than the other. In the exploratory analysis, detailed below, we have proposed studying several projects which, while they share sufficient common points were different enough to enable dimensions to be revealed that influenced the choice of method of distribution.
2. THREE EXPLORATION PROJECTS CARRIED OUT IN THE MINATEC IDEAS LABORATORY®

The phenomenon studied concerned the methods of distribution of results in a specific context: the exploration activity in a collaborative situation. Section 2.1 describes the methodology implemented. Section 2.2 gives details of our case study, the MINATEC IDEAs Laboratory partnership and the three exploration projects that we studied.

2.1. EXPLORATIVE STUDY OF THREE PROJECTS

This research aims at a better understanding of the methods of distribution that were in place in the exploration partnership and the dimensions influencing these choices. Therefore, the exploratory study gave us the possibility of studying the phenomenon, taking the context into account. It also provided a more complete view of the different causes of a phenomenon and possibly their interactions. (Miles and Huberman, 2003). Finally, it made it possible to respond in a way that was adapted to the objective of contextualizing the research.

This research, of a prescriptive and exploratory nature, necessitated the study of different cases. It was therefore important for them to be comparable. The innovation projects retained had to be sufficiently close (the three projects were carried out in the same exploratory partnership) to enable a relevant comparison, whilst at the same time having enough distinctions to enable a generalization to be made. The large number of differences (the partners varied according to the projects, the number of partners varied, as well as the duration of the project and the objectives of the partnership etc) between each project made it possible to verify the idiosyncratic influences of each of them and therefore to generalize the scope of our results.

We carried out twenty semi-directive interviews lasting, on average, one and a half hours, with different members of the exploration partnerships (those legally responsible for the partnerships, project leaders) (see table 3) These interviews had the objective of understanding the methods of distributing the results and the dimensions which influenced this choice. Each interview concentrated on the characteristics of the partnership, the collaboration between the members, the incentive mechanisms that were implemented and

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3 MINATEC IDEAs Laboratory and MINATEC are the names registered by the CEA.
focused on the means of distributing the results. For this approach, we systematically questioned the project leaders as well as those legally responsible for the partnership. In fact, none of the people interviewed were against there being a digital audio recording made of the interview. The preamble explaining the way that the interview was to be carried out and in particular the rule confirming the confidentiality of the remarks made, certainly enabled the exercise to go smoothly. A summary and a complete transcript were made of each interview. This transcript was made immediately after each interview. These interviews were supplemented by secondary internal data (minutes of meetings, partnership contracts, and documents presenting innovation projects) and external (press extracts). Each interview and the secondary data were manually coded. A dictionary of themes was created (based on the two methods of distribution and the distinctive characteristics of the projects, (see the next section) and constituted the material for the analysis.

2.2. PRESENTATION OF THE EXPLORATORY PARTNERSHIP AND THE THREE PROJECTS STUDIED.

A Memorandum Of Understanding (M.O.U.)\textsuperscript{4} between the CEA-Leti, France Telecom, ST Microelectronics and Hewlett Packard was signed in 2001, which prefigured the creation of the MINATEC IDEAs Laboratory partnership in the ecosystem of Grenoble. The partnership was not made public until two years later in 2003, when the name was registered at the ‘Institut National de la Propriété Industrielle’ and changed from a simple multilateral agreement to a real detailed contractual alliance agreement. MINATEC IDEAs Laboratory defines itself as a “platform whose mission is to imagine new frequently used objects and services based on advances in micro and nanotechnologies”\textsuperscript{5} (see table 2). The declared ambition reveals the exploratory nature of its profession (in the sense of discovering technological fields and new applications) and not simple technological development. The specificity of the partnership is that it works with state-of-the-art technology and micro and nanotechnologies. These latter are technologies whose objective is to design, characterize and produce mechanisms and systems by controlling the form and the size on a nanometric scale.

\textsuperscript{4} This memorandum of understanding was a document that describes a multilateral agreement between many parties. It expressed an intention to undertake common actions and had the principal advantage that it was a more flexible alternative to a firm legal commitment. In the case of MINATEC IDEAs Laboratory, this memorandum of understanding constituted a step prior to the definitive signing of a contract associating the founder partners.

\textsuperscript{5} Source: Press Release (mars 2004) \url{http://www.minatec.com/actualite/articles/Minatec_IDEAsLab_FR-03-2004.pdf}
These technologies originated from the activities of the different partners making up the partnership.

**Table 2: Descriptive Summary of the MINATEC IDEAs Laboratory partnership in 2009**

<table>
<thead>
<tr>
<th><strong>MINATEC IDEAs Laboratory®</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statute</strong></td>
</tr>
<tr>
<td>Partnership between companies and universities implying the creation of an <em>ad hoc</em> structure</td>
</tr>
<tr>
<td><strong>Year of creation</strong></td>
</tr>
<tr>
<td>2001</td>
</tr>
<tr>
<td><strong>Profession</strong></td>
</tr>
<tr>
<td>To imagine, propose and validate by the use of new applications and objects integrating micro and nanotechnologies</td>
</tr>
<tr>
<td><strong>Number of partners</strong></td>
</tr>
<tr>
<td>7 partners</td>
</tr>
<tr>
<td><strong>Size</strong></td>
</tr>
<tr>
<td>~ 60 individuals</td>
</tr>
<tr>
<td><strong>Form of authority</strong></td>
</tr>
<tr>
<td>Centralised: decisions taken by an executive authority (management committee)</td>
</tr>
<tr>
<td><strong>Division of work</strong></td>
</tr>
<tr>
<td>Professional Groups</td>
</tr>
</tbody>
</table>

In 2009, MINATEC IDEAs Laboratory had seven members, they were Bouygues, Renault, EDF, the CEA, Isere County Council and two Grenoble Universities (Pierre Mendès France: Human and Social Sciences / Stendhal: Literature, Languages and Communication). Since its creation in 2003, the partnership has included amongst its company partners, Hewlett Packard, Essilor, France Telecom, Rossignol, STMicroelectronics and Teamlog, as well as other partners that for strategic reasons have wished to remain anonymous. The current partners do not have the same characteristics. MINATEC IDEAs Laboratory can thus be qualified as an asymmetric⁶ partnership in as far as an asymmetric factor exists between the partners (size, resources). This factor can lead to difficulties such as a lack of confidence between the partners (Sarkar et al., 2001), a delicate development of the results obtained (Smith et Barclay, 1997) and conflicts as to the sharing of results (Das and Teng, 2001).

The heterogeneousness of the partners resulted in a deliberate choice on the part of the management of MINATEC IDEAs Laboratory to include organisations originating from

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⁶ We have reused the concept of asymmetry used by Chrysostome et al. (2005) for alliances between small and medium-sized companies.
different sectors. It was instituted at the origin of the creation of the partnership that the innovations would be situated in different sectors (research, optics, sport, and telecommunication). These differences were to stimulate the innovation process through sharing, by making the experience and expertise available and by the creation of common synergies (thanks to projects carried out jointly). MINATEC IDEAs Laboratory has made cross-fertilisation a major asset in its activity. This has been made possible by the lack of competition between the partners.

The partnership is legally coordinated by all the contracts between the different partners. These contractual agreements fix the methods of participation in the partnership and distinguish the three statutes for the partners: main partners: partners-projects and occasional partners. The main partners are all part of the management committee (CODIR), they have a right of veto on the admittance of new partners within the partnership and on the enlargement of the circle of main partners. The partner-projects have the same rights as the main partners but these are limited to the project. The occasional partners are admitted into MINATEC IDEAs Laboratory for a precise short-term mission, this was the case for example for the ‘Ecole Nationale Supérieure en Création Industrielle’, a partner in 2008 for setting up design workshops. The strategic decisions and the running of the partnership are undertaken by the executive authority which is the management committee. This committee decides on and validates the future research and the future partners. Thus the laboratory is not managed by one partner in particular but collectively. This differentiates it from structures (that are not partnerships) such as the Medialab du Massachussetts Institute of Technology, Interuniversity Microelectronics Centre (IMEC), I-Lab or even the California Institute for Telecommunications and Information Technology (Cal(it)²). We can also distinguish MINATEC IDEAs Laboratory from the internal research and development structures in companies such as Orange Lab (Orange), e-lab (Bouygues), Philips Home Lab (Philips), Cre@team (EDF), Palo Alto research Center (Xerox Corporation) and Sony CSL (Sony). In effect, MINATEC IDEAs Laboratory is not an internal research laboratory but a common structure between companies and universities.

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7 Let us note that a direct industrial competitor of one of the partners present in the partnership can in fact apply to enter it. The admittance is validated by a unanimous vote on the part of the representatives of the partners present in the management committee.

8 This list is not complete.
Organised in a project mode (Midler, 1998), the research within the partnership implies that there are different disciplines whether in social sciences (sociology, anthropology, ergonomics, and the economics) or in engineering sciences (programming, engineering). Many large domains concerned with various elements and services have been ‘imagined’ by the laboratory: the automobile sector, health, telecommunications, textiles but also leisure sectors. The projects carried out in the partnership are small ones (two to three people), and are managed by a project manager who answers directly to the Orientation Committee. Three projects were followed in this study. They were the MagicBall, Map Mobile and Interfaces Visuelles projects. These projects were chosen because, whilst they evolved in the same structure, they differentiated themselves in numerous ways: the length of the project, the number of participating partners, the objectives pursued, and the technologies used, etc. (see table 3).

Table 3: Nature of the exploratory projects studied

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Magicball</th>
<th>Mapmobile</th>
<th>Interfaces Visuelles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reception Structure</td>
<td>MINATEC IDEAs Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maturity of partnership</td>
<td>Creation</td>
<td>Maturity</td>
<td></td>
</tr>
<tr>
<td>Expected Results</td>
<td>Models Studies of usage</td>
<td>Models Studies of usage</td>
<td>Concepts Models</td>
</tr>
<tr>
<td>Number of partners</td>
<td>6</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Basic technology used</td>
<td>Accelerometer</td>
<td>Accelerometer</td>
<td>Photochromic Glasses</td>
</tr>
<tr>
<td>Length of project</td>
<td>2 years</td>
<td>3 months</td>
<td>3 ans</td>
</tr>
<tr>
<td>Partner providing technology</td>
<td>CEA</td>
<td></td>
<td>Essilor</td>
</tr>
<tr>
<td>Number of interviews</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>People interviewed</td>
<td>Prescribers of project (1)</td>
<td>Prescribers of project (1)</td>
<td>Prescribers of project (1)</td>
</tr>
<tr>
<td></td>
<td>- Those legally responsible (5)</td>
<td>- Those legally responsible (3)</td>
<td>- Those legally responsible (8)</td>
</tr>
<tr>
<td>Internal Data</td>
<td>participation Contracts + projects specifications + minutes of meetings + summary of activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Data</td>
<td>Internet Site + specialised and et general press articles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The MagicBall and Map Mobile projects were initiated during the period before the partnership, (that is to say 2002 and 2003), and continued after its official creation. They are
comparable because of the technologies included in them and their main objective (virtual displacement in space). The MagicBall project had the aim of constructing a prototype of a 3D mouse whose objective was to facilitate navigation with three dimensional images. The principle was based on intuitive gestures making it possible to move in virtual space. All the partners took part in achieving this prototype. Several applications were envisaged and tested, in particular a game of skill and navigation in space using multimedia data.\footnote{An example of multimedia data bases: IGN® maps.}

The second project Map Mobile, was launched in 2003 on the initiative of the founder partners (CEA, ST Microelectronics, France Telecom and Hewlett Packard). This concerned proposing a system for interactive localization inside and outside buildings. The Map Mobile project lasted three months between the definition of the concept in Spring 2003 and the construction of the first functional prototype in 2003.

Finally, the Interfaces Visuelles project started in 2006 at the initiative of the Essilor company, then was followed up by all the partners (CEA, France Telecom, EDF, UPMF, U3, Teamlog, Rossignol and a confidential partner). The main objective was to determine concepts based on elements in the personal sphere, using emerging technologies which made it possible for new visual interactions within the world. This project lasted three years (2006-2008). The presentation of the details of the results (following part) takes into consideration the differences between the projects, in order to analyse the dimensions influencing the choices of distribution.

3. HETEROGENEOUSNESS OF THE FORMS OF DISTRIBUTION

Monitoring the three projects carried out in the MINATEC IDEAs Laboratory exploration partnership, led us firstly to consider the question of the incentive role of the distribution of results (3.1). Secondly, we discuss the results presented (3.2)

3.1. THE INCENTIVE ROLE OF THE DISTRIBUTION OF RESULTS

The methods for distributing the results for the three projects were specified in the contract of standard participation. Two alternatives were identified. The first concerned the development of ideas and the knowledge produced in the partnership. They could be integrated and reused by all the partners except two. One (main) partner was not able to have access to the knowledge and ideas produced before officially entering into the partnership
An occasional partner only has access to ideas and knowledge produced within the project on which it he is working, and because of this, has no right of access to the other results. The second case is that of industrial property when there is a patent. As a partner MINATEC IDEAs Laboratory has made the choice of a co-property regulation implying the distribution of:

“The rights to equal shares of the invention, whatever the means that are implemented, and rights to the resulting Patent will belong to each party in equal shares”


The exploitation of the results differs according to whether the new knowledge created is a property of one of the partners or of all the partners. In the first situation, each party is free to exploit (or to have exploited) its own results and/or its intellectual property rights that are acquired or achieved during the execution of the contract without providing financial returns to the other parties. In the second situation, each of the parties can exploit the results without having to compensate the other parties.

Arbitration between equitable and egalitarian distribution: in the case of the Magicball and Mapmobile projects, the partnership opted for egalitarian distribution. In the two cases, the inventions originating from the partnership activities were the property, shared equally, of the different parties that had invested in the project. Therefore, these latter were all owners of the inventions created and the requests for patents were registered at shared costs and with equal shares. The partnership was then in the process of being structured and the two projects were its first collective creations. The partners involved had core professions that were relatively close, (embedded microelectronics and telecommunications). The interests shown by these latter were similar. Therefore all the partners involved appeared, during the interviews, to be satisfied with the results obtained and validated the choice of egalitarian distribution.

“I found it a very good thing. That’s to say that there was a part with a common core, where we shared the industrial property. And then, at a certain moment, there was concrete material consisting of models and returns on the experiences gained in the experimenting which each company could make use of. Therefore, if there were patents to be registered for the Lab, they would be just basic elements in the sector, after that each company could work on his own part with things that were quite clear”. (Mapmobile, project leader).

It should be noted that these two projects were constituted by the same partners. The interviews illustrated a collective work situation and considerable implication in these two projects. The choice of an egalitarian distribution of the results was justified by certain people interviewed as being:
“The means adapted to situations in which the partners learn to work together and in which the different professions encounter one another (sociologists, engineers, etc.) and different markets”. (Magicball, manager of legal department)

The dependence of partners on the technologies proposed by the CEA was presented as the reason motivating the choice of egalitarian distribution.

“The only partner that cannot leave is the CEA. We can try it: we can remove any one of them and the system still survives. I think that if we removed the CEA, the system would survive but there wouldn’t be the same orientation. From this point of view, the other partners have a limited margin for manoeuvre with regard to the results obtained”. (Magicball, manager of legal department)

On the other hand, in the case of the project ‘Interfaces Visuelles’, an evolution in the means of distribution of the results was observed. Unlike for the two other cases, there was a sizeable number of partners involved in the partnership, as there were nine at the beginning of the project. In this way, the partnership could be considered to be mature in as far as it had already existed for 5 years and that the Interfaces Visuelles project was not the first project launched by the partnership. The effect of experience was therefore observed. The partners participating in this project were used to working together and the operational team was stable, both in its composition and in its organisation. Unlike for the Magicball and Mapmobile projects, the partners opted for an equitable distribution of the results at the end of the project. This choice was motivated by the fact that the fields of application for the project did not concern all the partners involved in the partnership at this time. Therefore, the idea showed through in the interviews carried out, that there was an average level of satisfaction; that is to say with results obtained that were below the level that had been hoped for.

“I saw the short film on the visual interface models, it was very nice, it was sold quite well, it was well done, but in the end, if we measure the difference between our intentions in the beginning and the results, there was quite a flagrant gap. We have progressed on interesting concepts, but in its current state, it still isn’t as prolific as it could do”. (Interfaces Visuelles, Manager of legal department)

The types of results to be distributed: it appears in the ‘Interfaces Visuelles’ project that the expectations mentioned were extremely varied and different according to the partners. These expectations concerned the new usages, the new concepts and the models. These different expectations had an effect on the level of implication of the partners:

“To create new usages or interesting concepts for my company, to register 20 to 30 patents, to create an innovative product, to create a real success story, to produce realistic models for the partners’ R&D departments to use in their works and to find a breakthrough idea for a simple universal product, with a high added value”. (Interfaces Visuelles, activity summary, 2006).
Two main difficulties were identified by the partners and it seems they were caused by the choice of an equitable division. The first difficulty was the fact that the project was relatively distant from the different professions and markets of the partners in the project:

“The difficulty for Rossignol concerning the Interfaces Visuelles project was that it was far removed from its professions and activities. We are interested in certain themes including nanomaterial in general and things such as the security of the products. At the same time, we can’t and don’t want to impose specific projects!” (Interfaces Visuelles, Project manager).

This difficulty brought into question the significance of the projects undertaken by each of the partners.

“I am totally aware that the research activities in my company can’t benefit directly from the results of the projects carried out within the laboratory. There are choices to be made and the investments vary according to these choices. It’s mainly for this reason that we accepted the equity principle for the distribution of results.” (Interfaces Visuelles Manager of legal department).

The second difficulty was concerned with performance metrics. Certain interviewees evoked the difficulty of establishing performance indicators in the case of exploratory projects in which all the partners do not have an evident interest:

“I think that the performance metrics of the projects carried out really cause a problem. They need to be invented. And therefore the common objection is to say “ah yes but that doesn’t exist”. So, if they don’t exist they have to be invented. All systems are measured. Perhaps the measure should simply be made in this case with an elastic measure, but the elastic measure that measure still needs to be invented”. (Interfaces Visuelles Manager of legal department).

The effect of this absence of performance metrics was that it was more difficult for certain partners to identify the results that were potentially relevant in their respective activities:

“How can I understand the results obtained if I can’t qualify and quantify the results? In fact, the problem is that the results obtained are the basic ones and it is up to each of the partners to work on these results in house” (Interfaces Visuelles, project leader) and “As long as there are no metrics, we can’t use a rational means of assessment. And we need to create a relational assessment method which will adapt to irrational results in the Laboratory. All the classical measures won’t work. This is due to the variety of profiles of the partners. They don’t fit into the same cycles of research and development, I am particularly thinking of Rossignol” (Interfaces Visuelles, Manager in legal department).

Table 4 summarizes the methods for distributing results in the three projects studied.

<table>
<thead>
<tr>
<th>Structural component</th>
<th>Magicball</th>
<th>Mapmobile</th>
<th>Interfaces Visuelles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of partners</td>
<td>6</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Level of maturity of partnership</td>
<td>Creation</td>
<td>Maturity</td>
<td></td>
</tr>
<tr>
<td>Behaviour of partner partenaire</td>
<td>Heterogeneousness or similarities in core professions</td>
<td>Similarity</td>
<td>Similarity</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Implication in the project</td>
<td>Strong</td>
<td>Strong</td>
<td>Strong</td>
</tr>
<tr>
<td>Interest in the project</td>
<td>Strong</td>
<td>Strong</td>
<td>Medium</td>
</tr>
<tr>
<td>Tangible/intangible results expected</td>
<td></td>
<td>Models</td>
<td>Studies of usage</td>
</tr>
<tr>
<td>Results obtained</td>
<td></td>
<td>Models</td>
<td>Studies of usage</td>
</tr>
<tr>
<td>Level of satisfaction of partners</td>
<td>Strong</td>
<td>Strong</td>
<td>Medium</td>
</tr>
<tr>
<td>Distribution of results</td>
<td>Egalitarian/Equitable</td>
<td>Egalitarian</td>
<td>Egalitarian</td>
</tr>
<tr>
<td></td>
<td>Stable / évolutif</td>
<td>Stable</td>
<td>Stable</td>
</tr>
</tbody>
</table>

The MINATEC IDEAs Laboratory structure opted *ex ante* for an egalitarian distribution whatever the characteristics of the projects and partners involved. However, in the case of the Interfaces Visuelles project, the method of distribution changed to one that was equitable. In fact, in this case, there was a larger number of partners than in the other two projects, the partnership was no longer in a creation phase and the core business was heterogeneous. Moreover, the implication and the interest of the partners differed greatly according to the organisations. These multiple differences led to the choice of equitable distribution. In this case, the resources and skills provided by each party were too heterogeneous to envisage the sharing of output. The following section discusses the actual results.

### 3.2. Discussion

The literature on exploratory partnerships remains relatively evasive as to the methods of distributing results. Apart from the high degree of uncertainty and the high risk, the methods of distribution are often perceived as being difficult to set up *ex ante*. In fact, this distribution is difficult as certain results can occur during the alliance (in fact, the exploratory
activity can make it possible to identify a new opportunity and the R&D undertaken during the project can lead to the emergence of new business opportunities) or the quasi-rent in the alliance cannot be calculated beforehand. However, in these two situations it is possible:

- Either to forecast, before the alliance, the way in which the property rights, connected with these emerging opportunities during the alliance will be distributed;
- Or to determine the percentage of remuneration and envisage a specific clause enabling unexpected factors to be apprehended. For example, when there is collaboration with equivalent proportions (50-50), the members can create a reserve for contingencies in equal proportions that can be used in case of an unexpected risk.

Therefore, even though the distribution of results must not be rigidly defined in the alliance proposition (which may have a counter-incentive effect on the partners), the principles of collaboration must be discussed beforehand. (Segrestin, 2006).

The types of results to be distributed: in the context of development partnerships, two main types of results will be distributed:

- Property and the development rights of patents and/or drawings and models: there is a tendency not to distribute them to a single actor in order to avoid the emergence of tests of strength.
- The potential financial results generated by the market launch: contrary to other types of inter-organisational relations, such as franchise networks, it seems that the quasi-rent is rarely used by partners in innovation (De Guilloux, Gauzente, Kalika and Dubost, 2004).

The incentive nature of distribution: the distribution of the alliance’s quasi-rents\(^\text{10}\)(Quélin, 1996) is the principal motive for the existence of development partnerships. Because of its importance, it is often the reason for debates, as it is necessary to decide on the type of distribution. (equitable or egalitarian). We pointed out, in part 1, that there is no universal rule as to the distribution of value, as resources and skills are difficult to measure (Das and Teng, 2000). The contribution of each member is complicated to consider as, for an innovation project, numerous intangible resources are necessary (technique knowledge, knowledge of the market etc). These can be measured in an objective way (unlike a financial investment) and are based on the arbitrage of each project. The partners can assess the contribution of the other

\(^{10}\) A Method of distributing the quasi-rents of cooperation, that is to say, the surplus profit made by the members because of their relation. The quasi-rent is therefore the spread of the two profits: that which would have been made without the alliance and that which is made thanks to it (Brousseau, 1993; Klein, Crawford and Alchian, 1978).
members compared to their financial investments, but cannot assess in an objective way, the value of the intangible contributions, such as the brand image of the partner. (Urban and Vendemini, 1994). Despite the uncertainty inherent in all partnerships and the possible failure of the project, our research shows, in the same way as the literature (Larson, 1992), that it is better to define *ex ante* the rules for the distribution of results, without, at the same time, rigidly setting them. (see Interfaces Visuelles case study). They must be redefined depending on the advancement of the project and the precise identification of the necessary resources and skills. The causes for renegotiation are, for example, a weak implication on the part of certain partners or the advent of alternative technology.

**Arbitration between equitable and egalitarian distribution:** at the beginning of the partnership, the partners decide on what each will obtain at the end of the project. We confirm the works of Lucas and Piron (1998), and their research on the European Tactical Missiles Alliance between Matra and Bae Dynamics "*equity seems to be the only means of creating a certain legitimacy when allocating resources. This question is often wrongly reduced to a problem of ‘just returns’, that is to say, a financial proportionality between the contribution in market terms and the contribution in terms of tasks. For the prescribers or the negotiators of the alliance, the question of just returns was worked out, once and more all, before the conclusion of the alliance, and this was in financial terms. However equity was still a question during the structuring of the project, and even beyond it*" (Lucas an Piron, 1998 : 5). This citation highlights the importance of the relation between the contributions and the compensations of the members and the influence of this relation on the members’ feeling of distributive justice. However equitable distribution is difficult to establish. It depends on the norms of justice which vary from one group to another and from one culture to another. Equity does not appear to be preferable to equality everywhere: “When economic productivity is the first objective in the relations of collaboration, equity rather than equality tends to be the guiding principle for distributive justice. (Kabanoff, 1991 : 417-418). The results are distributed according to the outputs in order to encourage and recompense the contributions of the members who have invested the most in the project.

Moreover, when a company makes an investment in an exploratory activity and this exploration is close to the activities of the other partners, then this company is more inclined to assign its rights. (Vassolo, Anand, Folta, 2004). By extension, our research confirms the idea that the more the exploratory results are close to a company’s core activities, the more the company is reticent to share the results with the partners who are only slightly implicated.
CONCLUSION

This article has focused on the types of results and the associated methods of distribution. These elements are inherent in all partnership relations and are particularly difficult to implement in the context of an exploratory partnership, which is, by nature, risky and uncertain. Three main contributions have emerged from this research:

- The choice of methods of distributing results is influenced by the three principal structural dimensions. In the case of Mapmobile et Magicball, the methods were defined from the beginning of the creation of the partnership. The number of partners was limited and the core professions were close, even complementary. On the other hand, in the case of Interfaces Visuelles, the partnership was already well established at the time when the project was launched. There were a large number of stable partners (few new members and members leaving). Therefore, equalitarian distribution seems to be preferred when a partnership is in the preliminary stages, and there are a small number of partners and the fields of activity are close. On the other hand, equitable is preferred when the exploratory partnership includes a large number of partners and their core professions are very different.

- The methods also diverge according to the behaviour of the partners. The level of implication, as well as the interest shown in the project, has an influence on the methods chosen. In fact, a partner who is able to directly reappropriate the results of the exploration for his activities will tend to prefer equitable distribution, considered, in this case as being more just.

However, the current study has its limitations. The first is connected with the characteristics of the projects studied. In fact, this research has focused on an asymmetrical partnership where the partners have varied profiles. It would be interesting to study exploratory partnerships between competitive companies, in order to analyse the possible repercussions of these similarities on the distribution of results. In such a context, the partners are in a competitive situation (Nalebuff and Brandenburger, 1996), and the partnership presents a high risk of opportunist behaviour and conflict. The second limitation relates to the fact that only one incentive mechanism has been analysed: the methods for distributing the results. However, it is possible that a simultaneous study of several mechanisms would make it possible for other dimensions to emerge that would influence the type of distribution. In fact, the degree of contractualization, or even the level of confidence between the partners can influence the choice of distribution methods.
In an intuitive way, one can imagine that when the partners trust each other, the risk of opportunism, and obtaining a quasi-rent, is reduced. Thus, the partners will be less reticent when opting for an egalitarian distribution if they have a heterogeneous level of commitment.

BIBLIOGRAPHY


