GOING BEYOND THE OUTSOURCING DUTY LINE

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ABSTRACT

According to the mainstream literature, outsourcing has alternatively been considered as one of the possible ways to access to “non core competencies” (Prahalad, Hamel, 1990), to acquire and maintain needed external resources (Pfeffer, Salancick, 1978; Ulrich, Barney 1984; Penrose, 1959; Rumelt, 1984; Barney, 1986; Prahalad, Hamel, 1990) or a strategy to keep cost under control (Williamson, 1975; Jensen, Meckling, 1976).

However, we believe that in certain contexts, firms should conveniently consider the possibility to go beyond the stipulation of a conventional outsourcing contract and create inter-firm relationships viewed and managed as strategic alliances (Willcocks, Choi, 1995).

This paper proposes an alternative (maybe complementary) theoretical framework, far away from the mainstream, based on the knowledge-based view (Kogut, Zander, 1992; Grant, 1991; Amin, Cohendet, 2004) and evolutionary economics (Nelson, Winter, 1982). According to these assumptions, it is our intention to demonstrate that in certain situations to preserve and enhance resources, knowledge and capabilities it is much more productive to create and actively manage an inter-firm long lasting relationship rather than simply stipulate conventional outsourcing contracts.

Our aim is to identify under which circumstances and why firms should prefer to handle this kind of deeper relationships, that is when they prefer to give birth to cooperative arrangements that evolve through a progression of exchanges - facilitated by the use of IT tools and suitable HRM policies - with steadily increasing trust in and commitment.

The empirical section proposes an explorative case study (Yin, 2003) related to a research center specialized in biotechnology. Indeed, this sector seems particularly interesting in order to provide an analytical generalization of the theoretical framework mentioned above.
INTRODUCTION


For this reason, section No. 2 highlights that in certain contexts where investments in high specific technology (not IT – Information Technology – but technology) are required, the environment is upheaving, and firms to survive need to be always on the apex of innovation, it should be appealing to consider and approach the externalization as a deliberate strategy not only to reduce costs and access non core competencies but also to strengthen, reinforce and enhance their core ones (Willcocks, Feeny, Islei, 1997; Willcocks., Fitzgerald, Feeny, 1995). In this case, we have the feeling that it should be convenient - under different points of view - to create an alliance (between the firm and the supplier) that goes beyond the conventional outsourcing contract and the line of duty and consequently we strongly believe that this interfirm relationship should be viewed and managed as a “strategic alliance” (Willcocks, Choi, 1995). Indeed, this paper try to use a theoretical framework where the externalization is considered as a way to integrate internal and external resources - as an ensemble of technological, intangible and human assets – in order to empower core capabilities. The construct we rely on is based on the integration among the dynamic capability model (Teece, Shuen, Pisano, 1997; Eisenhardt and Martin 2000; Schreyögg, Kliesch, 2005), the alliance capabilities approach (Foss, 1999; Kogut, 2000) and the social network theory (Burt, 1992; Kilduff, Tsai, 2003). Indeed, many theoretical contributions and empirical researches highlight the opportunity to access new resources and learn by networking strategies (Dodgson, 1996; Kogut, 2000; Kale, Dyer, Singh, 2002). In particular, this paper addresses a special attention on the role played by IT and human resources in facilitating and maintaining a strategic long lasting relationship.
The empirical section, that is No. 3, proposes an explorative case study (Yin, 2003) related to a research project at a University Research Center of the Catholic University specialized in biotechnology is nowadays following. This sector seems particularly interesting to provide an analytical generalization of the theoretical framework mentioned above. Indeed, biotechnology firms often externalize research and development activities strictly related to their competitive advantage, to be competitive with the environment’s turmoil, to be always on the edge of innovation and have the attitude to cooperate and maintain relationships also when the specific research program that originated the cooperation is over.

Discussions will follow in section No. 4, and brief conclusions will be outlined in section No. 5.

2. TOWARD A DIFFERENT PERSPECTIVE FOR CONSIDERING THE OUTSOURCING CHOICE

The mainstream literature proposes different approaches to explain the reasons why some activities or processes are externalized and others kept “in house” (see table 1). Fundamentally, each point of view shows the following crucial question: “which activities should be conveniently maintained inside the firm’s boundary and, on the other hand, when it is better an externalized solution?”

However – in the high turbulence environment and, in general, in the contemporary “knowledge economy” (Lundwall, 1992) – the above mentioned approaches show some strong limitation in the attempt to explain outsourcing choices. In particular, TCT is one of the most spread and adopted point of view in the related academic debate. It relies on the hypothesis of bounded rationality where organizations and networks are conceived as devices aimed at coping with market failures. The purpose is to create incentive schemes that align behaviour of organization members and/or network agents toward a clear objective. The assumption of bounded rationality can not cope with an efficient exploitation and exploration of knowledge because agents’ cognitive abilities are considered unchanging through time: this is clearly incoherent with learning frameworks. Secondly, the coordination of activities based on the appraisal of transaction cost and opportunistic behaviour might be efficient in a static environment, while they become very complex in case of high turbulence context and causal ambiguity.
Moreover, points of view related to the Strategic Management perspective (i.e. competence based view), even tough are radically different to TCT, show some weakness in order to explain contemporary outsourcing strategy. Strategic management perspective is typically based on the top-down organizational design which is a very complex activity in absence of hierarchy (Hamel, Prahalad, 1994), such as in business network among independent agents. Secondly, many recent researches highlight how inter-firm relation is one of the main mechanisms to developed and share new knowledge in order to reinforce/renew core-competence (Argyris and Schôn, 1978; Cohen and Levinthal, 1990; Nooteboom, 2002; Meeus, Oerlemans, Hage, 2001), instead of a way to integrate complementary know-how.
| Transaction cost theory | Transaction costs consist of costs incurred in searching for the best supplier/partner/customer, the cost of establishing a supposedly "tamper-proof" contract, and the costs of monitoring and enforcing the implementation of the contract.  
Transaction cost theorists assert that the total cost incurred by a firm can be grouped largely into two components—transaction costs and production costs. Transaction costs, often known as coordination costs, are well defined as the costs of "all the information processing necessary to coordinate the work of people and machines that perform the primary processes," whereas production costs include the costs incurred from "the physical or other primary processes necessary to create and distribute the goods or services being produced".  
Transaction cost economics suggests that the costs and difficulties associated with market transactions sometimes favor hierarchies (or in-house production) and sometimes markets as an economic governance structure. An intermediate mechanism, called hybrid or relational, between these two extremes has recently emerged as a new governance structure. |
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<td>Agency theory</td>
<td>Agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to another (the agent), who performs that work. Agency theory is concerned with resolving two problems that can occur in agency relationships. The first is the agency problem that arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principle to verify what the agent is actually doing. The problem here is that the principal cannot verify that the agent has behaved appropriately. The second is the problem of risk sharing that arises when the principal and agent have different attitudes towards risk. The problem here is that the principle and the agent may prefer different actions because of the different risk preferences.</td>
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| Resource-dependence theory | RDT rests on some assumptions:  
- organizations are assumed to be comprised of internal and external coalitions which emerge from social exchanges that are formed to influence and control behaviour;  
- the environment is assumed to contain scarce and valued resources essential to organizational survival. As such, the environment poses the problem of organizations facing uncertainty in resource acquisition;  
- organizations are assumed to work toward two related objectives: acquiring control over resources that minimize their dependence on other organizations and control over resources that maximize the dependence of other organizations on themselves. Attaining either objective is thought to affect the exchange between organizations, thereby affecting an organization’s power. |
| Resource-and competence-based view | RBV and CBV rest on some assumptions:  
- firm as a “bundle of resources and competencies”;  
- competence as a superior ability to mobilize and combine resources;  
- resources and competencies must be simultaneously Valuable, Rare, Inimitable and Nonsubstitutable; these features are the source of the “competitive advantage” (internal development and control);  
- other resources and non core-competencies (imitable, substitutable, … ) could be outsourced. |

Table 1 – Synthesis of main traditional approaches to outsourcing

We believe that static models cannot fully fit with the dynamicity of the environment and the technologies, to explain the choice between inside and outside, the reasons some choices are made and their triggers. For these reasons,
we prefer to shift our attention on a different perspective, not sufficiently
considered in the literature: inside this paper we would like to explore the reasons
why sometimes it should be convenient for both the parties to go beyond the
conception of outsourcing as a legal contract to give birth to a long lasting alliance
strategy in order to externalize non core-activities.

Similarly to the framework of evolutionary economics (Nelson, Winter, 1982),
this paper considers organization as embedded in a social network communities,
overlapped with firm boundaries, in which different agents (employees,
organizational units, firm as a whole, and so on) and social knowledge are
transformed and refreshed to continuously develop new products and routines by
the application of high-order organizational practices. Under this perspective, the
dichotomy between activities inside and outside the boundaries, between
competence internally controlled and the outsourced ones is quite “blind”, because
some capabilities are based, at the same time, both on internal and external
resources. An outsourcing agreement - if related to a critical topic - should lead to
a significant knowledge sharing activities and inter-firm learning processes among
partners.

The difference compared the traditional perspective is that, often, an important
gap between what a firm makes and what the firm know exits (Brusoni, Prencipe,
Pavitt, 2006). For instance, if the firm is a manufacturer that operates in a
traditional industry, it doesn’t necessary means that its main core-competencies
are production and/or logistics. “Ikea”, the well known Swedish company, born as
a manufacturer in a capital intensive sector – low price furniture – but its core-
competencies now are marketing and customer services. The ensemble of main
“managerial and operational activities” of an organization is not its
“capability/strategic know-how inventory” (Grant, 2005; Argyris, 2005). The TCT
approach, above all, uses what a firm makes as a proxy for what firm knows.
Thus, decision process about outsourcing policy should take into account this
difference, in order to design adequate organizational learning tools. The deep
appraisal of strategic know-how owned and the rethinking of learning policies -
based on the gap between knowledge possessed and firm’s activities - become
fundamental steps in the strategy and organizational design process, at the
network level too.
Strategic outsourcing, by using this framework, is a sort of dynamic capability based on network practices and alliance management. According to Teece, Pisano and Schuen (1997), a dynamic capability is “the firm’s ability to integrate, build and reconfigure internal [and external] resources and capabilities to address rapidly changing environments” (ibid., p.334). Moving from the static to the dynamic processes perspective, this point of view explicitly recognises the key role of the inter-firm learning within the externalization relationship. The externalization itself is viewed as a way to increase learning ability in firm’s critical know-how and/or to understand “what” the critical know-how will be in the future.

Network management and alliance capabilities enhance the value added “embedded” in the inter-firm relationship. Alliance capability (Kogut, 2000), or relational capability (Dyer, Singh, 1998) focuses on the ability to capture, share and disseminate the network value added (Kogut, 1989; Kale, Dyer, Singh, 2002). Prior experience in outsourcing agreements plays a very important role (Anand, Khanna, 2000; Child, Yan, 1999): the firm gains experience in alliance management over time as a consequence of learning processes (Helfat and Peteraf, 2003). Both positive and negative (externalization) experiences feed alliance capabilities (Simonin 1997; Argyris, 2005). In order to develop alliance capability, Kale, Dyer and Singh (2002) found that a better alliance performance is obtained by concentrating alliance experience, knowledge and accountability into a unique organizational unit explicitly oriented to network management. This assumption addresses a crucial role to organizational structure and routines for network success (Kogut, 1989; Grandori, 1999).

This paper wishes to analyse more in depth the crucial role assigned to the network structure, by adopting some principles of social network theory (Knoke, Kuklinski, 1982; Krackhardt, 1990; Burt, 1992; Perrone, 2001; Kilduff, Tsai, 2003). In particular, network structure – for example in terms of centrality, density and strong/weak ties (Soda, 1998; Kilduff, Tsai, 2003) - differently influences the exploration and the exploitation of knowledge (Nooteboom, 2004), with different impact on the development of core-capabilities. Literature review on these topics suggests two main kind of relation between network structure and capabilities development: a synthesis is proposed in table 2.
Network FEATURES | EXPLORATION | EXPLOITATION
---|---|---
Density | high | low or intermediate
Centrality | low | often high
Stability | low | high
Strength of ties | weak | strong
Potential influence on core-capabilities | renewal | consolidation

Table 2 - Networks for exploration and exploitation (adapted from Nooteboom, 2004).

According to the assumptions mentioned above, the research question arises as follow: how do network capability affects the choice in terms of outsourcing? And, in particular, what is the role played by IT and HR to enhance core-capabilities? Literature proposes some coherent concepts compared to the above proposed new approach to outsourcing. In particular, this paper underlines two streams: “dual firm” and “combinative capabilities”.

According to the “dual firm” perspective (Amin, Cohendet, 2004), nowadays firms often operate in a “interpretative ambiguity” (Fransman, 1994), which is a situation where the decision maker’s information set generates contradictory inferences about the correlation between “cause” and “effect”. Then, the challenge stems from management of high complexity and causal ambiguity, instead of the development of information-handling abilities of the decision maker. It means “to have good cognitive models to interpret events” instead of “good information about events”. On the other hand, tacit knowledge and inimitable capabilities are based on skills difficult “to explain and codify”, instead of a rational clear set of rules and routines linking input and output. Thus, in high turbulence context and according to the dual firm perspective, different capabilities do not have the same weight regarding outsourcing choices, as in the traditional approaches. Firm, after a good knowledge/resources appraisal - is able to create a sort of rank of their capabilities according to the “distance” from the core-business. This distance is dependent also by difference between what the firm makes and what a firm effectively knows. Thus, related to this distance, Amin and Cohendet (2004) suggest two governance approaches and two organizational principles. In the core-competence domain (low distance), the risk of opportunism is low because management is able to monitor and evaluate both internal and external activities (Langlois and Foss, 1996). In this domain, outsourcing and networking is a way to
learn, to hold significant pieces of external knowledge and to explore new opportunities. Secondly, in a peripheral domain (high distance to core-competence), the TCT approach is still a good approach. According to this point of view, it is possible to draw the following Research Propositions (RP):

**RP1:** In environments characterized by a high level of turmoil and where investments in “high specific” technologies are requested, firms consider and approach outsourcing as a deliberate strategy not only to reduce or keep costs under control but also to strengthen, reinforce and enhance their core competence;

**RP2:** The distance of capabilities from core-competence [as a imitable combination of internal and external resources: technological (A), intangible and human assets (B)] influences the establishment and maintaining of a strategic partnership between the vendor and the customer and the related organizational principles.

Another interesting perspective refers to the so called “combinative capability” (Kogut, Zander, 1992), which is the intersection of the capabilities of the firm to exploit its knowledge and the unexplored potential of the external knowledge and technology, possessed by rivals and network partners. From this perspective growth occurs by building on inter-firm relationships that currently exist in a firm and the cumulative knowledge of the firm provides options to expand in new markets in the future. In this sense firms learn new skills by recombining different knowledge bases partially deriving from the group they belong to and partially deriving from the interactions with the environment. Under this perspective, make or buy choices is dependent on three element: firm’s effective know-how (not “what a firm makes”), how firm is able to learn from partner and environment, the value of emerging capabilities in the emerging markets. Thus firms:

- internally develop the capabilities that require a knowledge similar to their current organizing principles and prior knowledge;
- create a collaborative [inter-firm] platform of knowledge development when supplier have superior knowledge which is complex and difficult to imitate/codify;
• create a collaborative [inter-firm] platform of knowledge development in order to create new market and find new opportunities;

• immediate survival pressure encourage firms towards a policy of outsourcing.

According to this point of view, it is possible to draw the following research proposition:

**RP3: The outsourcing strategy which involves core-capabilities and/or venture project generates an inter-firm platform of knowledge development.**

The authors would like to explore and verify some of these aspects by describing a case study they find particularly interesting for the aims of the paper.

3. **CASE STUDY**

The Zootechnics Institute (ZI) is one of the ten Institutes of the Faculty of Agriculture of the Catholic University in Piacenza. The Institute studies the physiological bases of the animals, in details ruminants, with the aim to understand the relationships between feeding (and other factors i.e. the climate), endocrine-metabolic conditions and productive answer (amount and quality of the milking production, health, fertility etc.). Moreover, the Institute follows some researches aimed at finding - inside the DNA - the genetic bases for different productive ability (milk amount and quality). The main aim is to help technicians and farmers in finding a solution for the most relevant problems in the zootechnic production by the introduction and employment of some managerial techniques and intervention and to supply objective criteria for a more effective selection.

The main core-competence of ZI is the “Research and Development”, even though actually it is moving its knowledge to managerial capabilities. At the same time, the vision of this organization leads to the development of new capabilities – related to new materials and new chemical analysis methods - in the medium-short period.

For the purpose of our paper, we strongly believe that the description and interpretation of the most representative project the Institute is currently working on, should be helpful.

3.1. **Project description**

The ECONOGENE project is funded by the European Union within the Quality of Life V framework programme, a programme that comprises six key actions aimed
at enhancing the quality of life of European citizens and to improve the competitiveness of European industry\textsuperscript{1}. ECONOGENE combines a molecular analysis of biodiversity, socio-economics and geostatistics to address the conservation of sheep and goat genetic resources and rural development in marginal agrosystems in Europe. To assist in situ conservation and address the relevant socio-economic factors, a co-ordinated approach will be developed to define strategies of genetic management and rural development. Knowledge of sheep and goat genetic diversity will be greatly extended at the molecular level, examining many unstudied, local breeds, and identifying gene pools to map conservation priorities. A map of development perspectives will be produced, to identify areas where sustainable conservation of valuable populations could succeed. Maps of conservation and development priority will be overlayed and the value of biodiversity estimated, to justify economic intervention, and suggest appropriate guidelines and actions.

The major objectives addressed in the project are as follows:

- to extend previous knowledge of sheep and goat biodiversity using new molecular technologies and examining many unstudied marginal breeds (50 sheep and 40 goats);  
- to investigate geographic patterns of genetic variation with and without the classification of breeds and populations;  
- to identify populations deserving high conservation priority and to map conservation priorities;  
- to investigate the socio-economic conditions where these breeds are raised, constructing a map of development perspectives;  
- to identify areas where the sustainable conservation of the most valuable populations has a high chance of success, overlaying the maps of conservation priority and development perspectives;  
- to obtain an estimate of the economic value of biodiversity for these species, in order to justify specific management or conservation actions from an economic point of view;

\textsuperscript{1} ECONOGENE fits in Key action 5 “Sustainable agriculture, fisheries and forestry, and integrated development of rural areas including mountain areas”, thematic area 5.1.1 “Sustainable Agriculture”
• to suggest guidelines and actions for an economically viable conservation of local breeds.

3.2. Some though cues

The ECONOGENE project originates from and lives thanks to the ability of a coordinator (the person interviewed, Prof. Paolo Ajmone Marsan, Associate Professor in Zootechnics and Genetic Improvement), 12 partners (10 from abroad and 2 from Italy)\(^2\), 11 subcontractors (only 2 of them are Italians) with scientific and operative roles. The consortium is composed of 79 researchers and scientists belonging to different countries and universities (Departments or Institutes)\(^3\). This is a broad network mainly based on many strong ties between “sub-teams” of agents, while the density at network level as a whole is medium-low. The nature of the project leads to an \textit{ex-ante} agreement about the partners involved, thus, in that sense, the network of ECONOGENE is quite static.

The project is though of esteem because of the \textit{super partes} abilities of the coordinator able to make different researchers - with widely different backgrounds - able to work together at a profit, by creating a climate of complementarity and reciprocity. The coordinator, in that sense, plays a role of inter-firm integration mechanism and it is a sort of “catalyser” of knowledge and experience in terms of network management, with a positive effect on the project as a whole. Secondly, the presence of a formal coordinator leads to a medium-high degree of network centrality, even tough each agents have a very good degree of authonomy.

The project has made experts in biodiversity, socio-economics and geostatistics able to continuously learn from each other. This evidence assures a good degree of knowledge diversity due to the network ties. Kick off meetings have been scheduled to facilitate the mutual acquaintance and the sharing of a common language between researchers coming from different sciences. Results in progress are disseminated through some scientific publications ([http://www.econogene.eu/publications.html](http://www.econogene.eu/publications.html)) and meetings approximately every 6 months facilitate comparisons and arguments (knowledge sharing). The monitoring of the progress is facilitated by the fact that a section of every

\(^{2}\) [http://lasig.epfl.ch/projets/econogene/partners.html](http://lasig.epfl.ch/projets/econogene/partners.html)

scheduled meeting is dedicated to the presentation of partial results. Planned knowledge sharing among partners and scheduling procedure are two of the most important practices in order to manage the network created by Zootechics institutes.

Formalized procedures, norms and rules including also external actors (es. writing of a report with prefixed characteristics with the direct involvement of the partners, procedures regulating the external activities of data and information exchange between each research center and actors, etc.), plans and programs drawn in agreement with strategic external partners slims the intergroup communication and avoids (or at least reduces) the possibility to conflict.

The existence of a Consortium Agreement whereas the parties agreed to work together, bounded by the terms and condition of the Agreement itself, helps as a guidance for the project and finance management, the definition of the ownership and exploitation rights, the management of intellectual property rights, the confidentiality of the results, the liability and insurance, eventual warranties and the publications of the scientific results. The “termination clause” deserves particular attention because of the confidentiality of knowledge and information shared.

The signature of this Consortium Agreement has granted to all the parties to possibility to develop a strongly interdisciplinary nature and has given a great creative push. Nowadays, the ZI can boast a wide opening of horizons in the fields of economics and computer science beyond the abilities strictly inherent the main research fields. Given the premises, the capabilities developed and improved during the length of the project that probably distinguish the Research Centre in approximately 3-5 years will the ability to use sample materials with new methods of DNA analysis.

During this project and also others completed during past years, a network of social relationships based on mutual trust and demonstrated competencies/abilities, emerged. These relationships\(^4\) at the end of the project will

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\(^4\) between University, Institutes and Research Centres like Roslin Institute Edinburgo (UK), INRA (Jouy-en-Sosas) (FR), CNRS et Joseph Fourier Université, Grenoble (FR), Universiteit Utrecht (NL), Universidad Complutense de Madrid (ES), Justus-Liebig-Universität Gießen (DE), Cardiff University (UK), Kiel University, Losanna Polytechnique (CH), INRI (Kenya), ILRI (China), Università della Tuscia (IT), Università di Bologna (IT), Parco Tecnologico Padano (IT)
probably lie dormant but they will be revived each time a member give birth to a new research project.

According to the inter-firm features of ECONOGENE (stability of partners, medium degree of centrality, strong ties, medium-low density), this project is a network for exploitation, even tough some characteristics are more consistent with a network for exploration. In particular, the heterogeneity of knowledge leads to diversity-based learning processes, thus to the exploration of new know-how.

4. DISCUSSION: THE DEVELOPMENT OF ALLIANCE CAPABILITIES FOR OUTSOURCING MANAGEMENT

Empirical issues proposed in the previous paragraph permit to improve the theoretical background above mentioned and to suggest a new conceptual framework in order to develop a better understanding about the externalization choices and mechanisms in the contemporary economics.

First of all, the case shows a very interesting case of dynamic capability and this represents one of the main findings. The recent history of the Zootechnics Institute shows how core-capabilities mainly located in primary activities (Porter, 1980) [Research & Development] evolve into very different support activities (managerial, economics and computer science skills) while actual investments are directly oriented to develop core-capacities again into primary activities, but in a complementary area compared R&D (new materials and innovative DNA analysis techniques). A very broad and heterogeneity spectrum of capability evolution over time. On the other hand, many empirical evidences show how this dynamic rate of capacities significantly stems – even thought not completely – from externalization choices and inter-firm organizational learning. According to Teece, Shuen and Pisano (1997), dynamic capability of the firm – and then the competitive advantage - lies with its strategic positioning in terms of resources, its managerial processes (coordination, learning and change) and the paths available to it.

4.1. Determinants of outsourced activities and outsourced core-competencies

The determinants of an outsourcing capability, by using the suggested approach, are the internal resources, the external resources, the environment, and the need of high specific technological investments.
To achieve a satisfactory alliance performance, the effort of network partners, in terms of providing strategic resources - especially knowledge – which cope with partnership goals, is fundamental. On the opposite, if a firm tries to internalize the partner’s knowledge while it strongly defences the know-how owned, then the relationship usually fails (Gulati, 1995). In synthesis, this means that outsourcing project should, first of all, create an explicit pool of both internal and external strategic resources. Indeed, in the case of the Zootechnics Institute every party has contributed giving and sharing their own best competencies/abilities: i.e. the Cardiff University proves to have excellent competencies in the socio-economical field, while Losanna Polytechnique in GIS.

In terms of kind of resources, human capital is a first crucial assets. Culture of trusting and open relationship, open communication, minimal conflicting in goal setting, decision making, and action-taking, effective commitment to collaborate, flexibility in terms of change and experimentation (Powell, Dent-micallef, 1997), prior experience in outsourcing and, in general, individual/collective knowledge (Anand, Khanna, 2000; Child, Yan, 1999), are seven precondition of success in order to develop a human capital-based competitive advantage (Powell, Dent-micallef, 1997). Empirical issues confirm that those are very relevant topics also in the case of outsourcing project.

Secondly, the technological platform – IT resources - facilitates the effective collaboration among people and organizational units which are geographically dispersed and often involved in different projects with different partners. Thus, to outsource an activity means also to negotiate IT features in order to develop a sort of “shared” technological resources, principles and rules; the complexity of the collaboration, the temporal horizon of the partnership and the relevance of the alliance drive these choices. According to these variables, the range of complexity of the inter-firm IT platform moves in a continuum of solutions between a simple agreement in terms of habits/standards (i.e. e-mail protocol, common chat tools) and the development of a dedicated IT architecture for networking. In this case, it has been proven to be satisfactory the creation of a web site (http://www.econogene.eu/) with a part open to everybody and one whose access is strictly reserved to the partners.
Environment is an another relevant determinant. Dynamic capability and combinative capability highlight the relevance of an alignment between core-competencies and competitive scenario by using a proactive approach. According to this point of view, the challenge is to “anticipate and/or create” future markets instead of to “adapt” organizational structure and strategy to actual environment. The degree of environmental turbulence influences the dynamicity ratio of capability renewal (Eisenhardt and Martin 2000).

In the case of the ECONOGENE project, an high turbulence of the scenario, as discussed in paragraph 3, leads to the need for an high degree of capability dynamicity, which is achieved by an inter-firm learning strategy. Secondly, the knowledge network was directly designed to reinforce core-capabilities and to develop strategic capabilities for the future. It seems very coherent with RP1.

4.2. Development of a “strategic outsourcing capability”

Determinants are the source of outsourcing capability development, which is directly influenced by three managerial processes (Teece, Shuen, Pisano, 1997): coordination of internal and external resources (a), inter-firm learning (b), network change management (c).

The presence of a dedicated unit for alliance management efficiently supports the mobilization and the integration of both internal and external know-how (Kale, Dyer, Singh, 2002). However, ZI case suggests how also other coordination tools are very useful in that sense (a). Moreover, a mix of different organizational tools could be a less expensive and more flexible solution, compared to a dedicated full time unit, especially in the case of small/medium sized agents. According to this evidence, figure 1 shows a taxonomy of network coordination tools based on the traditional one (Thompson, 1967; Lawrence, Lorsch, 1967) and shifted at the network level.

Figure 1 establish a relation between outsourcing complexity and proximity to core-competencies of capabilities involved (Nooteboom, 2004). In the case of ZI, the choice for a medium-high complexity of network tools is coherent with the outsourcing focus on strategic capabilities (low distance from core-competence).

In particular, it is very interesting how the case study highlights two main functions of the meetings among network agents. The first one is well known:
knowledge sharing among partners (Argyris, 2005); the aim is problem solving, transfer know-how, share experiences, socialize knowledge, and so on. The second one is related to the fine-tuning of cognitive distance; this concept indicates the distance between partners in terms of knowledge owned (Weick, 1979, 1995), system of meanings (Smircich, 1983), organizational “focus” (Nooteboom, 2002), organizational culture (Schein, 1984). Empirical analyses show how the relation between cognitive distance and inter-firm learning, especially in order to generate innovation, is an inverted-U shaped function. In the case of ZI, a kick-off meeting lasting seven days was directly aimed at reducing cognitive distance – too high at the beginning of the project - in particular in terms of language and scientific approach.
The second fundamental process is the inter-firm learning (b). Learning renews knowledge and increases the dynamicity rates of capabilities (Argyris and Shoen, 1978). Dynamicity, in general, is a peculiar characteristic of inter-firm network organizations when compared with stand alone hierarchical organizations (Powell, 1990; Mody, 1993; Gulati, 1999; Håkansson, 1993). The evolution of outsourcing over time has consequences for the variety of knowledge shared/transferred, especially in networks for the exploration (Kogut, 2000). Many theoretical and empirical studies focus on the powerful role played by outsourcing networks in renewing knowledge and promoting learning, due to the likelihood to change over time and to the diversity of the knowledge shared (Kogut, Bruce, 1988; Hagedoorn, Schakenraad, 1990; Eisenhardt, Schoonhoven, 1996; Mowery, Oxley, Silverman, 1996; Cioccarelli, 2003).
Thirdly, reconfiguration/transformation process (c) effectively implements the change suggested by learning processes (Tushman, O’Reilly, 1997; Sundbo, 2001). The removal of organizational barriers and a well defined common set of alliance objectives are the main factors of success for that kind of inter-firm processes (Christensen, 1997).

Finally, path dependence of each involved agents influences the development of outsourcing capabilities. The effective strategic and organizational trajectories that firm and the network could follow is influenced by path dependence in terms of past choices, history, technological and cultural lock-in (Arthur 1988; Antonelli, 1997). Under path dependent knowledge-based perspective, over time firm knowledge accumulated by learning processes is embedded into bundles of routines that become the genetic material of the firm (Nelson, Winter, 1982). On the other hand, turning points (Abbott, 1997; Gleick, 1987; Lorenz, 1963) such as market opportunities, market crises or new strategic alliances could lead the network/firm to a new evolutionary path. In particular, cultural lock-in should create an organizational barrier to include core-capabilities in an outsourcing project. Secondly, technological lock-in, for instance in terms of habits with some IT devices and applications, could have significant impacts on the development of a common inter-firm technological platform for outsourcing.

In the case of ZI, the ECONOGENE project is another piece of knowledge and experience in order to develop an outsourcing capability, which is different every times for each different projects. The main empirical issue is that network coordination tools, inter-firm learning mechanisms and alliance change management policies was design, above all, in order to reinforce capabilities with a low distance to core-competence. It is coherent with the second research proposition:

the distance of capabilities from core-competence [as a imitable combination of internal and external resources: technological (A), intangible and human assets (B)] influences the establishment and maintaining of a strategic partnership between the vendor and the customer and the related organizational principles.

This issue is particularly evident in the case of coordination tools, it is quite clear in the case of learning mechanisms, while we have not sufficiently evidences to
confirm this research proposition also in the case of change management at the network level. Probably, at the ECONOGENE project level, partners focus on the static dimension of inter-firm structure – coordination processes - in order to manage an high complexity, instead of its dynamic dimension (learning and change processes). However, learning and dynamic capabilities are generated by the continuous sequence of different projects, such as ECONOGENE, at the ZI level as a whole.

4.3. Outsourcing as a dynamic platform for inter-firm knowledge management

ZI case shows how the “harmonic loop” between the three main inter-firm processes – coordination, learning and change – leads to development of dynamic capabilities based on outsourcing project where core-competence are developed both on internal and external resources. If this true, core-competencies of ZI are not completely “located” within firm borders, but they are also embedded in the ties of network. This issue highlights the inadequateness of traditional approaches to outsourcing based on the governance perspective, such as TCE, or on the key-role of strategic management, such as competence-based view. This paper suggests how, in environments characterized by a high level of turmoil, firms consider and approach outsourcing as a deliberate strategy to strengthen, reinforce, enhance and finally - as suggested by ZI – to learn and to increase dynamicity of capabilities.

The case studies describe a non flexible network (no entrance/exit of partners, well defined and formalized aims, and so on), which seems a contradictory issue compared the theoretical framework proposed. However, ZI is involved in many different “static networks” related to different innovative projects: under this perspective, ZI is embedded in a “dynamic magma” of different projects and networks, where each temporary projects develop an own clear outsourcing strategy, which is coupled with a new network every times. Secondly, each project represents a inter-firm platform of knowledge development. This statement is coherent with RP3.

The creation of different “static” network designed around many innovative projects, which continuously change over time, is a common situation for many contemporary firms and represent a possible response to the paradox of ambidextrous organization at the network level. This paradox refers to the need
for efficiency and effectiveness at the same time as a precondition of success, instead of a trade-off between the two parameters such as in the traditional contingency theory (Burns and Stalker, 1966).

Figure 2 shows a graphical synthesis of the arguments discussed in paragraph 4.

5. CONCLUSIONS

The authors, have the feeling and demonstration that the research aims depicted at the beginning of their work have been fully exploited.

The intention to validate that in certain situations to preserve and enhance resources, knowledge and capabilities it is much more productive to create and actively manage an inter-firm long lasting relationship rather than simply stipulate conventional outsourcing contracts has been formulated in RP1 and RP2 and then demonstrated with the ZI case study.

Also the aim to identify under which circumstances and why firms should prefer to handle this kind of deeper relationships has been satisfactory achieve.
Moreover, the authors have formulated a third research proposition (RP3) regarding the need to create an inter-firm platform of knowledge development validated in par. 4.3.

At the end of their work, the authors believe that they will continue this research by testing the 3 RPs on other case studies to vouch and corroborate the preliminary results.
REFERENCES


Fransman, M (1994), Information knowledge, vision and theories of the firm. *Industrial and corporate change*, 3 (2), 1-45.


Hagedoorn, J., Schakenraad, J. (1990), Inter-firm partnerships and co-operative strategies in core technologies, In Freeman, C., Soete, L. (Eds.), *New Explorations in the Economics of technological Change*.


Sunbo J. (2001). The Strategic management of innovation, Edward Elgar, Northampton, MA.


