

# Business relations and external players in the innovation process

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In the last twenty years we have experienced a steady multiplication of research on innovation in companies. Researchers have been dealing from different perspectives with how innovation processes in companies are organised and work. We know that there are no stringent nor universal models of the process as such but we also do know that it is indispensable that the innovation process works to keep competitiveness.

## Introduction

In this article we will focus on a part of this process: the role of business relations and external players, that is, the inclusion of ideas or the adoption of external innovation so the company is able to enrich and accelerate the innovation process within the innovation department.

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In fact, literature on innovation has been dealing abundantly with sources of ideas to innovate ever since the historic studies of the Sappho project were published. The OECD Oslo Manual is, since its first edition in the early 1990s, a tool for analysing innovation patterns rather than for innovation as such. This orientation has contributed to consolidating some items of innovation pattern analysis, among which are sources generating ideas to innovate. Within this external dimension there are the relevant pioneering works by Von Hippel (1976, 1988) as they show how in certain industries users play a key role not only in generating ideas but also in developing innovation. There is also research on concrete aspects of integrating the customer in the initial stages of the innovation process. Related to this, Brockhoff (2003) analyses the role of the customer, Enkel et al. (2005) study the risks and Von Hippel (2005) does so with opportunities. A typical case in literature is the development of scientific and medical tools and equipment (Shaw, 1998), an innovation that makes such interaction indispensable for serving the market with a truly competitive product based on its properties.

Along the same lines, the contributions of some neo-Schumpeterian authors of the Danish school (e.g. Lundwall, 1993) are to be mentioned, who in the early 1990s pointed out the importance of so-

called user-producer interactions and the relevant role of cooperation with other companies for the sake of innovation.

Since then, interaction between a company and external players of all kinds has become obvious in any thought about the role of innovation for keeping and improving business competitiveness. The environment is complex, markets are global and life cycles become shorter. It is here where external R&D and relations play a major role and become indispensable to meet these three challenges. Internal R&D is important but so is also external R&D, as shows the increasing importance of expenditure on outbound R&D in overall R&D expenditure. The relations and interactions with external players allow to accelerate innovation processes. In other words, the borders of a company are opening up to external innovation.

In its latest edition (2005) it analyses the subject under the title *linkages or flows of knowledge and technology between organisations and external players*.

In this sense, Henry Chesbrough (2003), professor at the University of California, made a reinterpretation of the subject that has enjoyed a significant echo in the last years. The term he suggests is that of open innovation. To this author, there are two core issues in competitive advantage related to the business environment: on the one hand, the need for companies to adopt developments and innovations from external players as they are not able to base their innovation on their R&D department only; and, on the other, the increasing importance of finding external organisations having more adequate business models than the own company to sell one's own innovations.

The relevance of these relations with external players is linked to another important matter of innovation process development: the problems to set the limits between innovation types and pro-

gressive acknowledgement of innovations in marketing and organisation. The growth of players taking part in the process and the complexity and multidimensionality of relations has led to a decisive feedback between both as well as their gradual inclusion into the analysis of the relation between innovation and competitiveness in spite of evident problems to measure it.

In its latest edition (2005), the Oslo Manual analyses the subject under the title linkages or flows of knowledge and technology between organisations and external players. It is known that business innovation terminology is not very homogeneous. Like we have been talking about linkages or flows, or sources, we could also use terms such as knowledge or technology transfer or transmission to be included into the innovation process. Or we could talk about relations, interactions and collaborations – all this to refer to the role of external players in business innovation.

## Sources of ideas to innovate

One first key point to be analysed is the characteristics of these activities. The aforementioned Oslo Manual considers three source types:

- ▶ *Free information sources.* Such are information and data that do not require any acquisition of technology or intellectual property rights by the company nor any kind of interaction with the source.
- ▶ *Acquisition of knowledge and technology.* Purchase of external knowledge or knowledge and technology as part of goods and services (machinery, equipment, hardware etc.) or both, which does not require interaction with the source.
- ▶ *Cooperation in innovation.* Active cooperation with other companies or research institutions for carrying out innovation activities (it may require the acquisition of technology or knowledge).

Community Innovation Survey (CIS)	
Last Updated:	24/9/02
Contacts:	General enquiries: <a href="#">enquiries</a> <a href="#">enquiries</a> <a href="#">enquiries</a>
Sections:	<ul style="list-style-type: none"> <li>General Information</li> <li>Summary of Data Coverage</li> </ul>
Title:	Community Innovation Survey (CIS)
Summary Description:	<p>The Community Innovation Survey collects data on the innovative characteristics of UK firms.</p> <p>The data include measures of innovation-related expenditures, rates of innovation and factors which have either encouraged or hindered innovation.</p> <p>Similar surveys are being conducted in other EU member states using the same methodology; as a result, it will be possible to benchmark the performance of UK firms against that of their EU competitors.</p>
Sponsor:	Department of Trade and Industry (DTI) (TS/TESE)
Contractor:	ONS (BSG)
Size of data collection:	6000 firms from which a 40 per cent response rate was achieved
Linked surveys/sources:	N/A
Method:	Other large-scale (Sample) Survey
Status:	Ongoing
Frequency of collection or compilation:	Other periodic
Reference period:	1996
Timeliness:	Approximately nine months after the end of the survey.
Year data first available:	1996
Year of latest available data:	1996
History of data collection / breaks and discontinuities:	The first sample survey took place in 1997 and is likely to be repeated over 3-16 years.

- ▲ Innovation enquiry made by different EU countries within the joint project called *Community Innovation Survey (CIS)*.

Chart 1 shows the list of players and their fitting into these three categories. In fact, it covers the innovation source items asked for in innovation enquiries made by different EU countries within the joint project called Community Innovation Survey (CIS). The relations put together in chart 1 under the title external trade sources and public sources are those that have been paid most attention by researchers in recent years. The reason behind this is their multidimensionality: a) they can be geared to mere information exchange, b) formal processes to acquire knowledge and/or information may occur, c) they can be implemented within more or less formal cooperation agreements and d) it is both frequent and possible to combine two or three of these options when interacting. Generally speaking, their role in creating competitive advantages is more relevant.

We will focus our comments on the first of these two groups, namely that of external trade sour-

Chart 1. Sources of knowledge and technology transfer

	Free information sources	Acquisition of knowledge and technology	Cooperation partners
<b>Internal sources</b>			
R&D	•		
Production	•		
Marketing	•		
Distribution	•		
Others	•		
Other companies within the group	•	•	•
<b>External trade sources</b>			
Competitors	•	•	•
Other companies in the industry	•	•	•
Customers	•	•	
Consulting firms	•	•	
Suppliers of equipment, materials, components, hardware or services	•	•	•
Commercial labs	•	•	•
<b>Public sources</b>			
Universities and other higher education institutions	•	•	•
Public research institutions	•	•	•
Non-profit research institutions	•	•	•
Public or semi-public institutions and services supporting innovation	•	•	•
<b>General information sources</b>			
Patents	•		
Professional conferences, meetings, specific literature	•		
Trade fairs	•		
Professional associations and trade unions	•		
Informal contacts and networks	•		
Standards and standardisation agencies	•		
Legislation (e.g. environment, safety)	•		

Source: OECD, 2005

▲ This classification by the OECD contains four groups of sources of ideas to innovate.

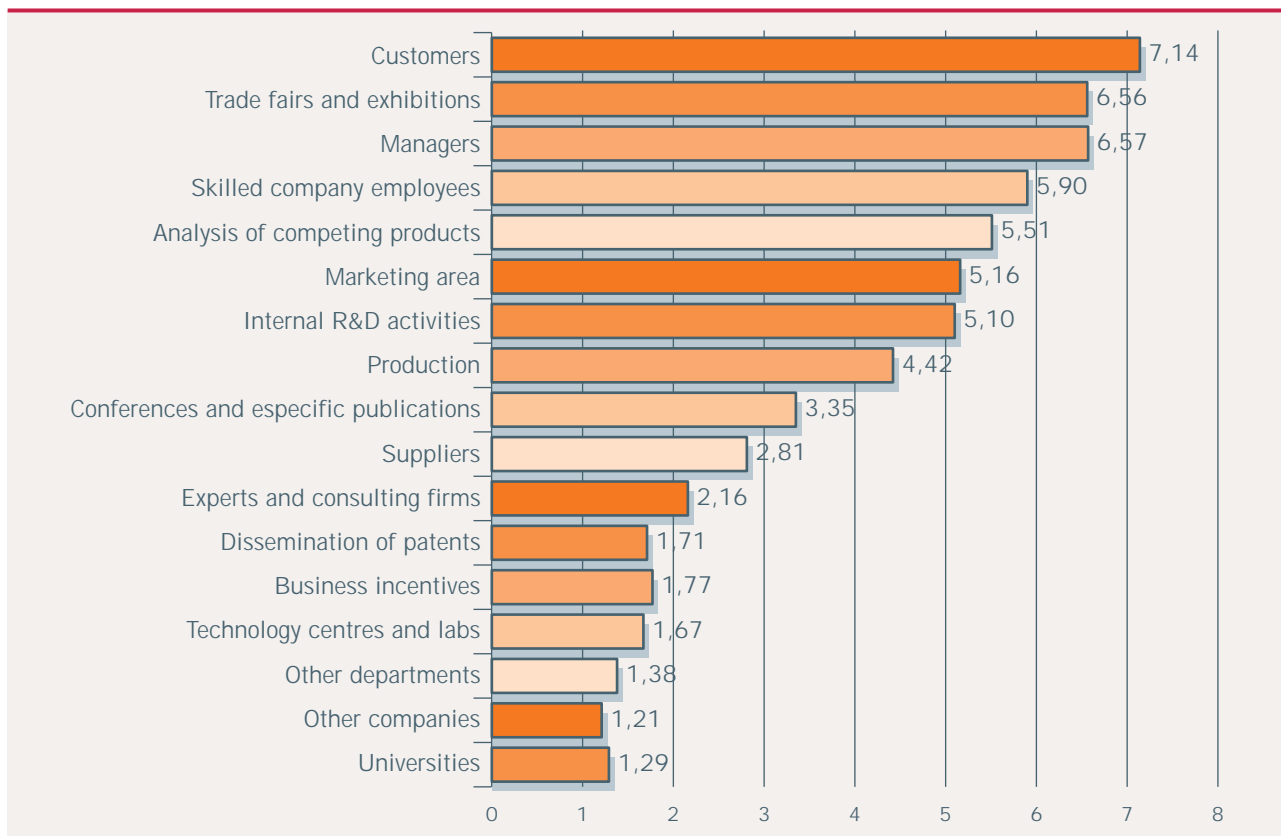
ces. The second group, related to involvement by public organisations in business innovation, is already analysed by other articles in this monograph.

## Customers, consultants, suppliers and competitors

Let us now comment the four players we consider to be the most prominent within this group of non-public external sources: customers, consulting firms, competitors and suppliers. They are players of very differing nature that require different innovation management processes.

An analysis of the INE (Spanish National Institute of Statistics) innovation enquiry shows, with all reservations, that the rate of companies having formally cooperated in R&D and innovation with some of these (external) sources is very low. Data available from the CIS enquiry by the INE in 2000 (Valls et al., 2004) show that the rate of innovating SMEs having done a cooperation project in R&D and innovation in Catalonia was only symbolic, be it with customers (3.15%), suppliers (3.37%), competitors (3.77%) or consulting firms (2.77%). This formal cooperation rate was higher in the case of companies with more than 250 employees (17.5% with customers, 25.86% with suppliers, 22.52% with competitors and 16.12% with consulting firms).

**Graph 1. Importance of sources of ideas to innovate**



Source: Solé et al. (2003)

- ▲ Customers, trade fairs, managers and skilled workers are the four most important sources of ideas for detailed analysis on innovation in Catalan SMEs.

This low prevalence of formal relations does not mean that there are not any nor that they are considered unimportant by companies. Taking a different perspective, a deep analysis of the innovating behaviour of 59 innovating SMEs carried out within a survey for CIDEM a few years ago (Solé et al., 2003) shows the importance of these external factors in generating ideas to innovate. Graph 1 shows the average score (out of ten) given by interviewed managers. External sources are marked in light and internal ones in dark in order to better visualise the importance of both source types.

According to the categories in chart 1, this role of the customers has two dimensions: information and cooperation. As to the former, the fact that customers are considered very important does not mean that companies do a systematic management of their needs nor that customers are included into the innovation process in a formal way. The same applies to consultants, suppliers and competitors. However, this need to include relations management into a highly elaborate innovation strategy is precisely one of the challenges for modern innovation management. In a context of competitive intelligence, the systematic collection of information and opinions needs to be organised and their inclusion into the innovation process managed. There are few formal collaborations both from a customer and a supplier perspective.

**Despite the difficulties to formalise innovation within a company, the existence of a department explicitly in charge of new innovation projects is very important to take advantage of external relations.**

Conversely, specialised consulting is formalised by definition and has been growing significantly. If it was unthinkable that SMEs made use of them still a few years ago, now “servuction” (creation and development of new services) processes

in economy, growing technological complexity and thus increasing specialisation have led to a stronger prevalence of this task in innovation processes. In industries with a low technological intensity, such as furniture and textile, the role of the external designer or the engineering firm giving advice for designing a machine relates to this profile by which interaction with the company helps improve product differentiation.

There are numerous interaction mechanisms related to information and acquisition of knowledge with suppliers and competitors, but growth of such relations within the innovation process is especially related to the advent of technological cooperation since the 1990s.

Such collaboration requires funds, well elaborate processes to assess potential partners, inclusion into the overall company strategy and clearly defined targets. It can lead to changes in the activity chain and the company language, so fitting it into existing business culture may not always be easy. Those in charge of each project will need to be able to interact with the employees involved in its development.

Any of these four relations requires its own targets and a management model, adequate measurement patterns and a strategy to solve conflicts (Davila et al., 2006). The role of such external relations depends on many factors. Despite the difficulties to formalise innovation within a company, the existence of a department explicitly in charge of new innovation projects is crucial to take advantage of external relations. In fact, research on innovation organisation almost always points out the existence of a department in charge of R&D, innovation or both as a key factor to success.

The steady process towards opening barriers thanks to the revolution of new technologies in the last twenty years does not mean that a company can externalise everything for the sake of innovation. Additional external resources, outside experience and the inclusion of different approa-

ches to develop a project may be a good contribution to the innovation process but will not replace the company's own core competencies, to put it in a resource and capacity terminology.

## Trends of open innovation

Research on open innovation, to which we referred at the beginning, points out that it is all about the intensive use of internal and external flows of knowledge in order to accelerate internal innovation and have potential sales markets grow. However, this is a view especially focused on technology innovation that allows thus for slight differences according to whether it is related to SMEs or more or less technology-intensive industries. Besides, there are industries keeping low-key relations with suppliers and customers due to their historical evolution or structural specifics.

Gassman (2006) summarises the current situation related to this issue. His analysis gives food for thought aimed at guiding the reader as to what is going on and where trends are heading to.

First of all, globalisation of the economy cannot be detached from externalisation of some parts of the innovation process. Globalisation has contributed to reduce access barriers for new competitors thanks to reducing the cost pressure but has also created opportunities for the most dynamic companies to innovate faster by taking advantage, if necessary, of expertise from all over the world.

A second important aspect is the role of technological intensity. In industries usually considered as hi-tech, technological intensity has drastically increased, as shows the evolution of the indicator relating R&D expenditure with sales in recent years. In these industries, network innovation, externalisation and outsourcing, that is, interaction with all kinds of external players to innovate has become indispensable to follow the pace set by technological development.

Thirdly, there are the effects of technology merger processes. Technologies are merged and recombined to create "new" new technologies such as mechatronics and optoelectronics (a combination of mechanical and electronic and of optical and electronic technologies respectively). The limits between fields are blurring. Therefore the need for interdisciplinary R&D also leads to higher collaboration levels between the different players involved in the process. This is not only up to hi-tech industries. Textile, for instance, is undergoing a revolution with smart tissues and many other technologies (Llach et al., 2006). If interdisciplinarity grows, a company has less capacity to take on necessary R&D for innovation on its own.

**Research points out that it is all about the intensive use of internal and external flows of knowledge in order to accelerate internal innovation and have potential sales markets grow.**

Another aspect is that of new business models. As changes in properties of industries and technologies increase, new areas of activity appear that generate new relation networks to develop innovations in that industry. This is happening in areas such as multimedia and nanotechnology. The need for information on these new business realities is obvious.

Finally there are the mobility changes of skilled workforce in new technologies. In many industries, especially information and communication technologies, mobility of people due to the development of telecommunications and the internet is altering innovation strategies of companies. Knowledge-intensive workers having acquired a high degree of expertise prefer now to work freelance and be suppliers of companies requiring their services, taking partly advantage of the opportunities offered by virtual mobility. This strategy has former internal R&D partially but significantly relocated to external R&D.



Everything indicates that these five trends will not diminish. It is needless to say that the ability of companies to organise themselves and take them on successfully will determine their future competitiveness considerably.

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