THE GROWING MARKET OF PRODUCT DEVELOPMENT SERVICES: THE ITALIAN LANDSCAPE

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INTRODUCTION

Over the last few years, the increasing market turbulence and competition, the time reduction of products life cycle and the increased variety of products and services have required companies to be more flexible in order to respond effectively to market requirements. In today global competitive environment, one of most important decision that managers deal with is the innovation and developing of the technology: inside o trough external organisations?

In this perspective, nowadays companies aim at developing only their own core competences and to outsource no-core activities, even commonly considered strategic, like R&D [25]. According to this, a "market for technology" is growing [1], in which companies offer (a set of) services supporting the R&D process of other companies. Within this framework of studies an increasing trend in outsourcing activities linked to the new product development have been explained [30]. However, most of the available contributions are more focalised on factors which can explain the reasons and benefits to access to external sources for innovation and less on the suppliers of these services.

This paper seeks to inform these concerns, specifically an analysis of Italian firms supplying services for product development, under specific hypothesis, concentrating on the managerial aspects and implications - especially on (i) the interactions among the company and clients - during the new product development process - with the aim to identify their criticalities, and (ii) the identification of the technological solutions or tools adopted by the company in order to support the NPD process: i.e. fax, phone, file data exchange, e-mail and so forth, aspects which literature indicates as potentially relevant. In this perspective, the article is organised into four different sections: (II) literature review: description of the conceptual context of this study, giving the basic theoretical background, concepts and definitions; (III) research objectives and methodology: assessment of the possible open areas of research and definition of the paper's objectives. Moreover, this section provides the description of the methodology followed: case study; (IV and V) Results: analysis of the results collected through:

- a “data bank” that cover all the Italian firms supporting the entire new product development process,
- a significative number of case studies, in order to provide some organisational features characterising the Italian NPD market;

(VI) Conclusions: final considerations and definition of the following steps of the research.

STATE OF THE ART AND AIMS

To explain the observed and discussed birth and growth of the firms supplying technological competences, the literature indicates many different reasons; even it isn’t aim of the paper to provide a wide and comprehensive overview on the literature, these can be summarised as following: (i) a growing need for innovation with an high level of quality, little cost and short time. and (ii) consequent necessity of an high level of efficiency needed for internal R&D and innovative development teams: these need methods and an organization to be efficient [15], [23]. The decision to externalise partially o totally the R&D and innovation activities has been explored by several authors, from different viewpoints [2], [12], [14], [15], [21].

In reason of achieving several aims (shorten developing time, share technical risks, accessing higher competencies in a specific field, reducing development time and costs [2], [4], [15]; an important and growing role is played by external organisations supplying some kinds of high knowledge level services on which, among the others, our attention will be focalised. This tendency has been confirmed by [11] that notes the growth in the use of external networks by firms of all sizes, and moreover, *the alliances have shifted from being regard as a peripheral aspect to a cornerstone of the firm’s technological strategy* [20].

This trend creates a new category of services and suppliers called KIS – knowledge intensive services [29] – or KIBS – knowledge intensive business services [19] – characterised by a high innovative level and scientific intensity of the outputs.

The definition of a KIS firm is *private sector organisations that rely on professional knowledge or expertise relating to a specific technical or function domain. KIS firms may be primary sources of information and knowledge or else their services form key intermediate inputs in the products or production process of other business* [29]. This kind of services can be applied on several sectors: from banking to real estate, from market research to insurance services. These services are deeply analysed by several authors.

Later a more specific subset, called TSS – technical and scientific services – IS considered a part of the KIS (OR KIBS) sector. TSS are services which lye upon technical and scientific knowledge and give an output that is, again, technical and scientific knowledge. A framework about the classification of TSS is proposed [4], especially the role played in the innovation process of a new product development (NPD).

Several authors have developed many deep studies aimed to examine: (i) the contribution of the TSS suppliers to the innovation process of the client firm, (ii) the ways to realise the profitability and (iii) the reasons and the determinants of this steady evolution (among the others [2], [3], [14], [16], [25], [26]. Furthermore, the increasing relevance of these firms has been analysed in different regional/national contexts [13], [17], [28], have been demonstrated their importance in the country/region economical development confirming that the presence of these kinds of companies allows a more emphasised growth of the observed areas and, consequentially, the growing importance of these firms. A study on the product development firms has been conducted to understand, even approximately, the borders and the wideness of the

phenomenon [6]. In the same research the authors have highlighted deeply the organisational features about a product development firm. Before them, several authors have faced, mostly from service buyer's perspective, the organizational topic: [3] how to exploit successfully *external sources of technology* and later [2] how to access these sources and the problems encountered. The relationship criticalities and the *necessity of a suitable internal structure to absorb the external technology* emerged also in the contribution of [15], [28] discussed the learning process and organization which the exploitation of an external source of innovation requires. On the other hand few authors tried to draw the organizational and management structure of high technology small firms [20], more focalised over the NPD firms are the studies of [17] and especially [11] whose have illustrated broadly a product development firm, its role as technology broker and emphasising some management and organisational issues: above all, they described the internal routines for acquisition and storage of competencies and solutions, coming from a network of knowledge formed by clients in different industries and the memory of past projects, in terms of solutions, materials, design and technology adopted.
So, although this widening discussed significance what can be observed is that, anyway, services supporting the whole product development process, or part of, are not well known yet, as are the actors of the context: few are the elements trough which the literature characterised these firms.
In fact, what can be argued is that the majority of studies:

(i) analyse the services for R&D from the point of view of the innovator - the client of the service - without exploring the world of the supplier of these services;
(ii) provide a first overview on the market of R&D services, without analysing in depth the tie among the providing firms and the clients they operate with [6].

This study attempts to make a further step in this direction, focalising over Italian companies that provide services for the product development, by an approach articulated into two aims.
First, a analysis of the landscape of the Italian NPD firms is provided, specifically describing the level of diffusion of Italian companies offering services to support the entire product development process, highlighting the consequences of the lack of a widespread taxonomy. Some common features, of these firms, are also identified.
Second, an investigation of the role, for these R&D firms, of ICT – based technologies in supporting integration, coordination and collaboration among the different actors involved in the process, is given.
This seems to be critical in order to understand whether they can foster and improve the effectiveness and efficiency of the TSS market. Different Web-based solutions, enabling coordination and collaboration among the different actors involved in the NPD process, are available: the recent literature contributions are wide, and explain (Seth *et al*., 2003) how a company can use the Web in the NPD process *at varying levels of functionality and sophistication ranging from a tool for automating manual tasks and exchanging data to a means of integrating*. Among the contributes: [24] who highlighted the opportunities of Internet during all new product development phases: from idea generation to locate suppliers, from coordination of NPD activities to product customers testing; [27] whose provided for a complete conceptual framework over the Web – based systems to integrate *various intra and inter – organisational NPD functions and processes (…) between different stages of the NPD process and with the processes of its suppliers, technology providers, etc.* In the same field, some other articles present the impact on the NPD process of specific solutions: [7] has

examined the *introduction of integrated software technologies in product development,* and, in particular, the role of the virtual prototyping in facilitating multi – functional process coordination; [18] presented a case study on how a firm used Web application to interact with their counterparts like designers or [10] describes how Internet can be used to exchange CAD data files.

The identification of these solutions is functional to understand the level of diffusion of these tools among the NPD firms and their clients., in the perspective of the potential development of the market of TSS. These contribution underline both an internal and external utilization of ICT tools in order to support the entire (part of) NPD activities; in our opinion the same tools can guarantee a form of effective and efficient long distance collaboration between supplier of product development services and their clients, to bring parts of the NPD process outside the company or, in some way, to contribute in widening and improvement of company's action range (spatially and in terms of services level).

RESEARCH QUESTIONS, METHODOLOGY AND HYPOTHESIS

As pointed out in the introduction, the study is articulated into two distinct logical parts: the first one concerns the extensive analysis of the Italian market of companies offering services able to support the entire product development process, that is exploit to the second one, the intensive analysis on some managerial and organisational features of the companies operating in such a market.

As far as the first part is concerned, the extensive analysis was aimed to capture some general characteristics of the market of new product development and to find the companies operating in such a market. To give a picture of the Italian market of new product development services, the topics, on which the study concentrates, are:

- diffusion of NPD enterprises
- aspects related to the localisation of these firms;
- the way they manage the relationship with the client (from acquisition to new product development) and support offered by web-base tools;

The problem in organising such an analysis was that the market itself is quite new, databases are not available, the competitive arena is not clearly defined, there is a lack of common definitions and concepts.

In fact, the 2002 census for Industry and Services of the Italian companies, made by ISTAT (National Statistic Institute) and Chamber of Commerce for Industry, Agriculture and Handcraft (CCIAA) listings – on which all the firms are obliged to register in – weren't able to give any information to find the NPD firms. The reasons have to be found in the classification adopted (the National Statistic Institute has prepared a classification of Economic Activities - ATECO 2002 - to adopt in the statistic surveys. It is the national version of the NACE - Rev. 1.1 - classification, planned in the EU offices and approved with Commission rule n. 29/2002, published on Official Journal in 1/10/2002) that doesn't include the NPD services as a separate category but it sets these activities into several different categories mixed with other knowledge intensive services.

After consideration of these difficulties, and due to the lack of databases, and reliable sources, we decided to concentrate our research in a market's slice and to:

⇒ base our extensive research upon the web, searching for the web sites of companies offering services for new product development. The underlying idea was that the (supposed) competencies and culture of companies offering high tech services for product development should undoubtedly force them to introduce the web as a mean of communication. In terms of localisation, we decided to consider just Italy;

⇒ start our study in a selected and coherent subset of these firms. This subset, presented in table 1, has been chosen in relation to these parameters:
  - firms that have declared able to support the whole product development process;
  - firms that are not specialised in supporting NPD within a specific industry; this choice is aimed to avoid results that are significantly biased by industry-specific factors.

Beyond the identification of companies, i.e. the definition of the actors operating in the market of product development, the aim was to analyse the web sites in order to find some general information useful for the understanding of the market as a whole, such as:
- The companies' dimensions (employees and sales);
- The main activities conducted;
- The localisation;
- The birth year;
- The main clients.

The second part is aimed to deepen some of the most relevant managerial and organisational features of the Italian firms offering services for product development. According to this aim, an empirical study has been based upon a multiple case study, in which managerial and organisational issues are analysed in depth.

More than 3 semi-structured telephone and in-person interviews were conducted with all the top – or project – managers of 12 companies (plus 3 without in-person interviews), which gave availability to be interviewed during 2003, trough a questionnaire, specifically designed (which is too wide to be included in this paper). Respondents were asked questions related to three main issues:

a) company's business system characteristics: general features of the enterprise;
b) company's resources and infrastructural characteristics: organisational structure; offered services; markets, clients and marketing issues;
c) Product development process and client relationship management, ICT tools used to support relationships.

Then a structured cross – case analysis was carried out, in order to point out analogies, differences and logical connections among firms and organisational characteristics, related to the methods followed to manage client relationship.

The interview was integrated, whenever possible, through the use of both internal and public data. In fact, all the documents and studies available have been collected, as well as all the firms' public document and presentations connected with innovation issues.

This empirical study allows discussing some conclusion on the Italian market of new product development service companies and, in particular, on the problem of organising and managing companies operating in such a market.

RESEARCH FINDINGS: THE ITALIAN MARKET OF NEW PRODUCT DEVELOPMENT SERVICE COMPANIES

As pointed out in the previous paragraph, the Italian landscape of NPD firms appears at a first sight fragmented and not clearly defined. It have been hypotised that the main cause can be found in the lack of a widespread taxonomy and the mentality that fails to recognize the real value of this recent type of business. From this perspective, creating a complete database of NPD firms using the Web as the main mean of research requires a previous definition of precise and selective parameters and hence a strong selection of results. More specifically, the companies considered are those that can be considered *complete*-NPD companies, able to offer services in terms of:

- *strategic marketing*, focusing on clients' needs and on the analysis of their competitors activities and offers, aimed to define a strategy of growth and product positioning;
- *market analysis*, i.e. data gathering and analysis, concerning a special field of activity or market;
- *feasibility study*, i.e. any study concerning economic, financial and production feasibility, in order to find out possible threats and risks;
- *industrial design*, determining the quality of the industrially produced object. It includes:
    - *strategic design*, that is, the attempt of unifying within the same process market researches, marketing and the design itself;
    - *product design, i.e.* external and internal shape and colours of the product;
    - *graphic design*, i.e. design of leaflets, pamphlets, exhibitors, etc.
    - *brand development*, i.e. conception, definition and design of a company's identification symbols;
- *mechanical design*: design of the mechanical parts of the products;
- *electronic design*: design of the electronic parts of the products;
- *software and firmware development*;
- *engineering*, definition of processes and production systems for the creation of a new product (it includes material, technology and industrial plant selection, technical element definition, etc.);
- *rapid prototyping*, that consist in a combination of systems that reproduce an object out of its mathematic definition;
- *pre - production*, that allows the check of the product, of the productive structures and of the definition of producing cycles;
- *testing*, product check, in order to define its performances and the suitability to precise qualitative standards.

Within the loosest definition of "outsourced new product development", Italy contains hundreds of companies that deal in some way with it (more than 300 have been found). With such a large sample of companies included, there is too great a variation in the type of NPD that is conducted, where a range may go from a single phase to the whole process and from a single field to *any* field. It is thus clear that creating a database out of this sample would be a pointless task. Therefore, a fast screening is required in order to have a slightly more coherent document.

With a light selection obtained by simply eliminating those firms that evidently concentrate on only *one* field or development phase, the first number already drops drastically to 70. To give an idea of such a selection, it can be noticed that there are a few groups of firms that are clearly out of target, such as those dealing only with *home accessories/furniture* or *transportations means*; these were therefore immediately discarded. Even still, there is a high heterogeneity in the obtained selection of companies. Continuing thus with the selective process and taking into consideration just those firms that *cover more than one field and perform the entire development process* , the number reduces to 28 companies. Moreover, the list has been completely confirmed by the interviewees: it has been asked them to specify which are their competitors (or other NPD firms known) and everyone have indicated one (or more) company still in the sample.

These companies are situated mostly in northern part of the country (24 enterprises corresponding to 86% of the sample; the remaining 4 enterprises (14%) are situated in the central part of the country. None has been found in the southern part neither in the islands.

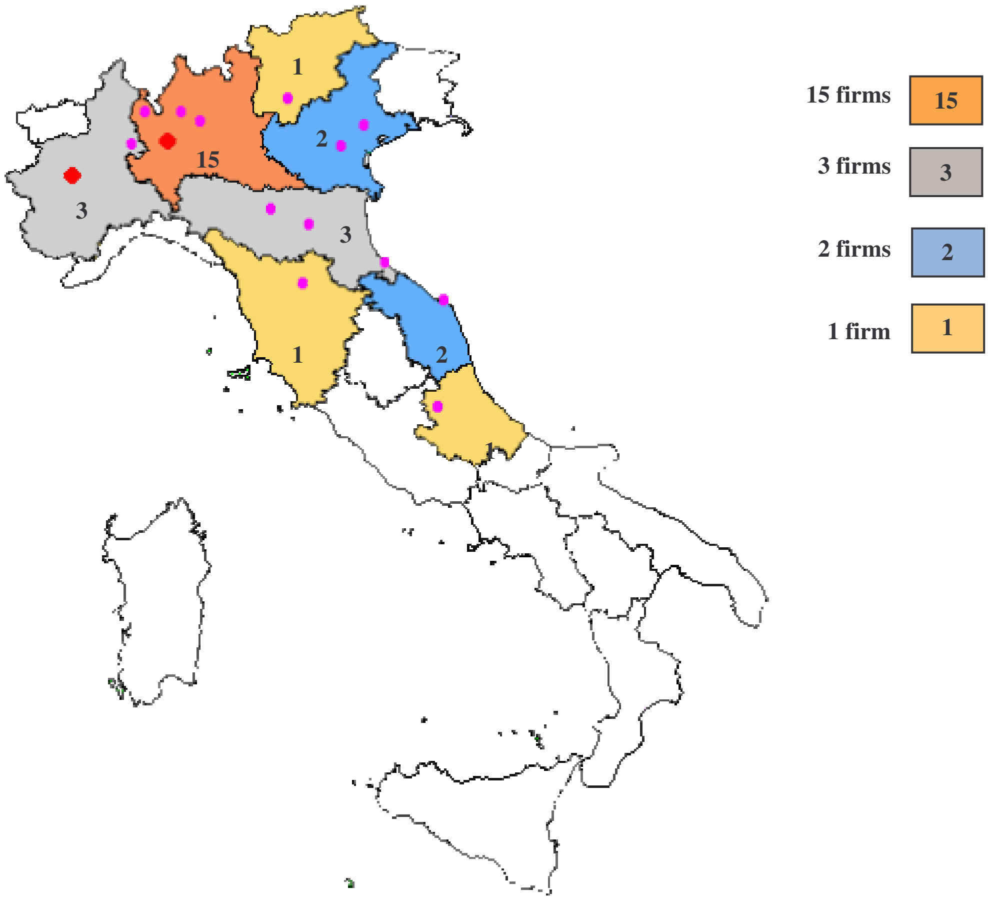


Figure 1: the location of the NPD firms in Italy

Among the directly interviewed companies, we have found one that, despite its declared level of services offered, has to be considered a Prototyping company. For this reason it has been excluded from the sample.
The sample of the 12 firms was reduced, after the interviews, to 11 because one firm has been disclosed as covering just one phase of the new product development. These 11 directly interviewed firms analysed demonstrate on average 18,18 employees per firm, where 63,63 % have less than 10 people, 9,09 % between 10 and 20 9,09 % between 20 and 30, and 18,18 % over 30 (the biggest staff being of 70 people).

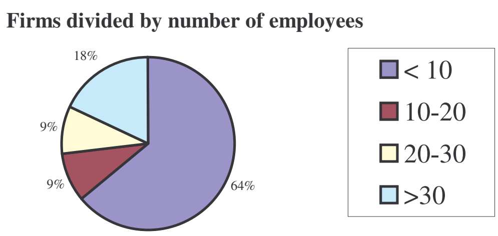


Figure 1: the firms interviewed directly, divided by number of employees

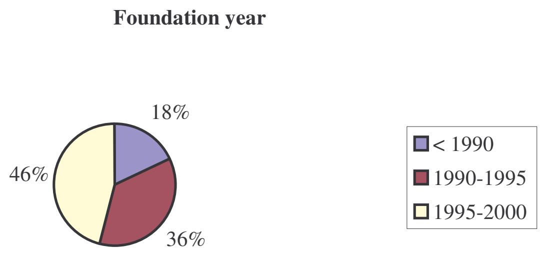


Figure 2: the firms interviewed directly, divided by foundation year

Design firms can be considered a tradition within the Italian culture. Yet, proper NPD companies appeared just on the late ’80, with 5-10 years delay as compared to the North-American market. The data gathered demonstrates indeed that only 18% of the firms studied were founded before 1990, while 36% of them were instituted between 1990 and 1995 and the last 46% between 1996 and 2000. Such simple information shows clearly the recent birth of the NPD market and its growing trend during the last years, having nearly 82 % of its companies founded after 1990.

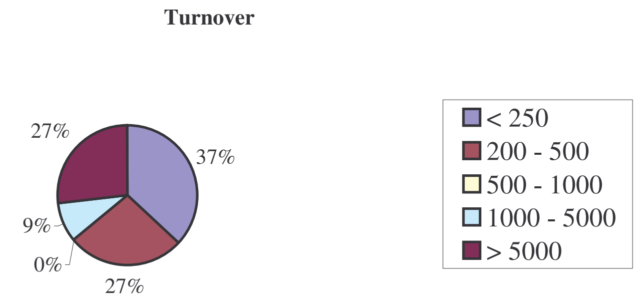


Figure 3: the firms interviewed directly, divided by turnover (in thousand €)

To complete the description of the sample, the following figure 4 illustrates the industries to which NPD firms clients belong to: from industrial vehicle industry – served by the 9% of the interviewed firms – to the medical equipment industry served by the 73% of the interviewed firms.

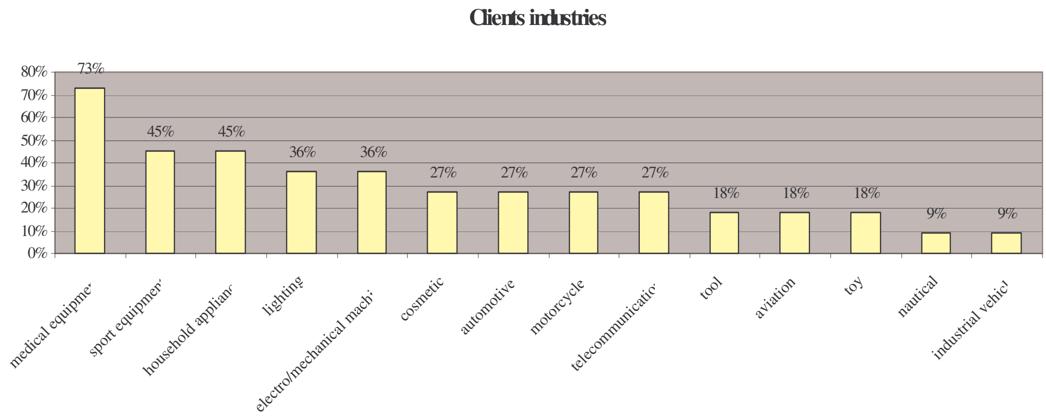


Figure 4: the industries served by NPD firms interviewed

A range of sales figures can be associated to sets of companies. These ones, together with related percentages, can give an approximate idea of the potential value of the market.

- Small studios constituted by a maximum of 5 employees (inclusive of proprietors) usually do not exceed 200.000 €/year and differences, due to design or technical orientation, can be observed. The former type of firm, in fact, tends to be close and, during time, exceed this range limit (e.g. Bonfanti). The latter type produces instead lower incomes, usually around 100.000 € ± 25.000 € (e.g. Pro Design, VIP Technologies)
- Firms with between 6 and 10 staff members usually present incomes within the 250.000 € - 500.000 €/year range (e.g. Attivo Creative, Studio Primalinea) and the differences due to the company's design or technical orientation seem to be less significant. Some slight variations might be due to the firm's northern or centric location
- Larger and usually older companies with 15 to 20 employees register an income range of 1.000.000 € - 5.000.000 €/year (e.g. Design Group Italia). Within this group, firms with a prestigious brand can be found, and this is the cause of higher applied fees (e.g. Pininfarina, Giugiaro)
- The largest companies usually have more than 50 staff people and register incomes greater than 5.000.000 €/ year (e.g. MR&D, Design Continuum).

Some percentages on the dimensions of these sets of companies will help to give an idea of the distribution of the wealth within such a market:

- Companies that stay under the 200.000 €/year limit constitute the 36,36 % of the sample. As already stated, such firms have usually up to 5 staff and could be considered more like *studios*.
- 27,27 % of the companies studied register an income range of 250.000 € - 500.000 €/year. Usually they have 6 to 10 employees and demonstrate an initial inner structure.
- 9,09 % of the sample present incomes between 1.000.000 € - 5.000.000 €/year. These mid-range companies have usually 15 to 20 staff, organized in small teams.

The last 27,27 % is made up of the biggest firms, that surpass the 5.000.000 €/year limit. Such companies usually have 50 to 70 staff members, organized in proper specialized teams that combine to create inter-functional work groups for each project.

RESEARCH FINDINGS: THE MANAGERIAL AND ORGANIZATIONAL FEATURES

This section includes some of the observations emerged from an in-depth and intensive analysis of the case studies, concerning the management and organisation of companies offering services for complete new product development. These observations mainly concern:

- The geographical location of companies;
- The internationalisation strategy;
- The way of managing the relationship with the clients and the organisation of the firm's activities;
- The marketing of services offered and the problem of external communication.

The geographical location

Working in an economically important area means to these companies working among their clients and being close to potential customers represents an advantage. Even if medium/small firms didn't point out the proximity to one's partner as a determinant factor in the selection process by the client – probably due mainly to the not-too-complex entity of their average project – the possibility of having easily a direct contact represents a synonymous of simplification of an eventual (and probable) problem solving process. Furthermore, having a near a national economic neuralgic centre allows a company to be better and faster informed about their working field. Conferences, seminaries and other similar activities are held usually in such economic centres, and the *proximity* to these ones represents the *access availability* to the diffusion channels of one's work. This statement is coherent with the geographical distribution of these firms (see previous paragraph), mostly in the northern part of Italy, and very high percentage of GDP created in this region.

The internationalisation strategy

The internationalisation strategy of companies seems to be a critical point, since globalisation allows to significantly widen the potential market.

Having a geographically wide market immediately points out the *distance* problem. C*ultural*, *legislative* and *linguistic differences* and the *need of a direct contact* with its own customers are factors that tend to undertake growing importance, and above all when it comes to covering different *continents* (MR&D Institute). Interviews proved that *European* clients' projects rarely present managing problems for Italian NPD firms. Considering in fact the average collaboration – based on periodical meetings and the telematic sending of documents - such *remote* cooperation implicates at most a few displacements by either part. Rarer cases of customers belonging to different continents are usually dealt with through *internships*.

Furthermore, an international market can be accessed only by bigger complete new product development firms. As a matter of fact, bigger dimensions seem to attract better skills, which, in turn, influence the diffusion of the firm's work. Generally, it has been observed that companies with similar skills but different dimensions cover different sizes of markets, where the main distinction is between *intra* (Fardesign, Bonfanti) and *inter*-continental ones (Design Group Italia, Attivo Creative Resource). When the intercontinental market starts instead to become consistent, local needs start to emerge and thus have to be faced eventuality opening new offices abroad (MR&D Institute). This results in a strategic step: new seat openings are constrained to the firm's will of deeply penetrating the respective markets and their surroundings.

Physical proximity obtained through new seats will answer the aforementioned needs of filling cultural, linguistic and legislative gaps. De facto, new seats are never as big and structured as the headquarter and don't possess all the skills of the latter either. They'll focus mainly on marketing, market analysis and design activities - that is on those factors that are more *distance-sensitive* - while the more technical phases of each project will be forwarded to the head office (Design Group). Thus the observed tendency does not affect those firms whose can count on a world – known brand, as pointed out afterwards.

From this point of view, another factor seems to affect the internationalisation strategy: the firms' main focus of activity, i.e. the phase, within the NPD process, to which the company dedicates its main resources and/or those in which it is able to be "excellent". Particularly:

1. an orientation to the design aspect of NPD seems to experience a wider geographical feedback than technical one; meaning that design activity has a larger potential market just when activity focuses mainly on *style*, *elegance*, *interface innovation* (Pininfarina Extra, Giugiaro Design, Zagato) and whatever else gives a positive image of the product and consequently of its user.

2. In contrast, an orientation to technical contents – except for big innovations - tend to become anonymous, as often lacking of a proper image. Without the necessity of looking for a certain *line* or *style*, the need to face more expensive and difficult collaborations with distant partners disappears (Pro Design, VIP Technologies). This, of course, limits the possibility of proposing one's outputs to geographically distant companies. Moreover, the very technical part of the project is often developed in collaboration with the client itself (technical know-how of its products is hardly surpassed by the NPD firm's one), this part of the process would actually push the client to look for a geographically closer partner rather than one which is further away.

Design oriented firms will thus tend to have a more geographically heterogeneous market, while Technical oriented ones will basically work with national or even regional clients.

The relationship with the client and the organisation of the company's activities

The inter-functional teams within an NPD firm are a direct consequence of its structure and, hence, of its dimension; it's verified by the information gathered, how:

– smaller companies (of maximum 4-5 employees) carry forward projects committing them to a single internal person - or a couple at most - and organising at times inter-functional teams together with part of its client's staff (Fardesign, Bonfanti, Gloss Design). Also firms constituted by a range of 6-10 people work in a similar way, having 2-people teams supervised usually by one of the company managers or seniors (Attivo Creative Resource, Studio Prima Linea). This is a consequence of small firm dimensions and of homogeneous internal skills (at these levels, the company structure is flat and similar skills are present)), which obstacles the creation of structured teams. Project complexity is usually *coherent* with these firms' capabilities, and excessively long and complicated developments are carried forward together with the customer's personnel.

– Differently, it is with a more consistent, structured and heterogeneous staff that specific-competence-mixed internal workgroups start to be observed. Joint-work together with the client doesn't disappear in these cases (MR&D Institute, Design Continuum).

Communication and collaboration tools, in these cases, emerge as relevant.

The level of computer-aided support reached in the last years, above all concerning innovative solutions for remote collaboration, makes one think of an overcome of problems connected to the development of projects by distant designers and thus on a large use of such solutions by NPD firms.

Project-enhancing potentialities permitted by new technologies are remarkable. To adopt effectively these new functionalities there must be the proper company "culture": the staff will have to work in tight collaboration with others, not autonomously anymore, as its contribution will both constrain and be constrained by those of the other team-members. However, traditionally within Italian NPD firms work is initially carried out on an individual basis, and only checked and compared at a later time. If then, theoretically, the advantages delivered by the aforesaid technologies are innumerable, their use is actually inexistent. Company "culture" – above all on the customer's side – doesn't allow at the moment such a qualitative leap, which confines collaborative development within more traditional methods. Clients' company philosophy is usually not accustomed to NPD outsourcing; it follows that they're not opened yet to new forms of external collaboration.

For these reasons, mainly the Italian reality still presents co-operations based on periodical meetings/contacts with the customer in order to define the concept (through the due brainstorming), consult together with the technicians and present the work in progress and the finished project. Also within the NPD firm itself such radical changes won't be undertaken, and traditional updates and periodical meetings among members of the inter-functional team will instead take place (every firm of the sample agreed on these statements). Hence, ICT means provide hence a good potential support, but email, telephone and fax still remain by far and away the most used data communication tools, as confirmed by *every* interviewed company. No one of the ICT tools, individuated through literature analysis, even known, is still commonly used.

The marketing of services offered and the problem of external communication
As already pointed into evidence in previous sections, the market of services for NPD is still unknown, even if the externalisation of NPD seems to be increasingly relevant. This main consequence of this lack of knowledge and of a shared language and definitions is that the marketing of the services offered is a very difficult task for NPD service companies.
All of the interviewed companies – about 50% of the selected sample - have described themselves more or less explicitly, through words and images, as capable of performing any necessary activity to create a functioning product out of an idea. But, what is a completely developed new product? Which are the tasks of a service company that pretend to bring whatever idea into a commercial product? And, which are the activities and skills needed to bring whatever idea to a commercial product? The lack of a common and shared answer to these two questions leads to great ambiguity, which concerns basically two points:

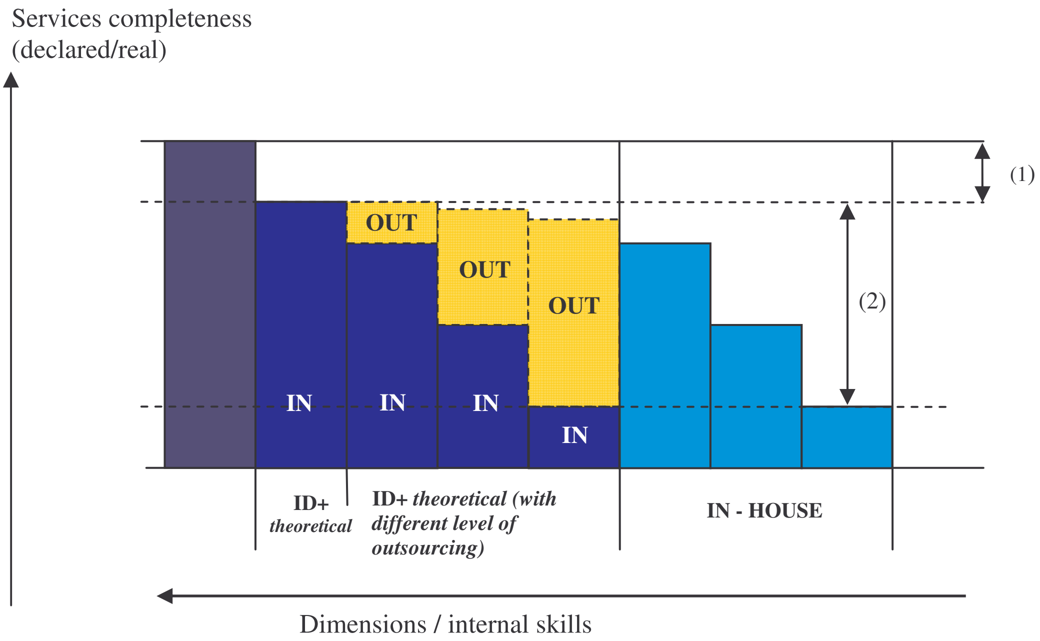
1. the activities and skills needed: In order to completely develop a new product an NPD firm should at least be skilled in the market analysis, industrial design, mechanical, electric and electronic design and software development areas. But only two companies, from the whole sample, trace the described profile, while the rest are made up of several shades of NPD firms, that cover just a part of the complete development process
2. the variety of the products developed: even those companies able to support a whole development process, cannot actually deal with *any* product, i.e. with any idea. The most widespread – actually almost totally - missing skills of such companies are the electric/electronic/software development ones. This means they will be able to conceive and design a certain variety of products, but won't be able to *complete* (not autonomously nor through their nets of collaborators) the development of an object that would require even the simplest of the electronic or software applications.

Lacking of one or more skills to be considered a *complete* NPD firm, they appear to be indeed as several variations of *Integrated Industrial Design* companies (**ID+** in figure 1) (Ferrari *et al.*, 2003).
The *gap* between the declared and proven activities performed by those companies immediately raises the problems of the:

- *reliability* of the research tools and the
- *credibility* of the firms themselves.

Yet, with deeper analysis one can assign this incoherence to the already highlighted *lack of a sufficiently precise and widespread classification and vocabulary*, which would define each kind of company along with the respective required skills.
Generally, it can be said that deeper information concerning *complete* product development appears to be necessary. The "complete NPD firm" self-definition was

almost always *intentional*, being such a statement confirmed by the firms themselves during the interviews. Companies, in fact, were and *still* are convinced that the services they offer, deliver a product that is *complete in all its parts*.
Lack of spread and detailed information appears thus to be the main cause of the existing gap between declared and offered services by Italian NPD firms. Additionally, a second factor that must be taken into consideration is the *omission* or *distortion* of published information by companies. The statement made by these companies themselves during interviews that they are only involved with just a part of the development process makes it clear that occasionally a second factor contributes to widen the informative gap between declared and real services. This one though, affects only the firm-customer channel, distorting the information the latter perceives. Figure



1 summarised the effect of lack of definitions and clustered firms into categories according to their level service and gap between declared and offered services. It highlights also the more are firm dimensions less in the level of outsourcing needed.

(1) gap caused by distortion of information and lack of common definitions
(2) gap caused by information asymmetry firms – clients

Figure 5: The lack of common definitions and firms' category

In this context, which is the role that may be played by the web site, as a marketing channel?
NPD service companies usually have to rely on their own capability of self-introduction to the market, in order to overcome the resistance caused by the lack of information present nowadays regarding outsourced NPD. In Italy especially, a real culture that pushes towards these kinds of services doesn't exist yet, which makes it difficult for such firms to communicate properly and efficiently their activities. As a consequence, information given on the web sites is usually rich, detailed and well structured. However, some relevant differences emerge between big, structured companies and the small ones.
In big and structured NPD companies, information is given through pictures, animations and high quality graphics, providing the visitor with every detail about the company.

Among these, the following sections are unavoidable:
- *Mission / Method*, where company targets and working philosophy are specified
- *Skills / Resources*, that is knowledge and equipment possessed for the NPD
- *Portfolio*, which includes some amongst the most significant products developed by the firm (often using 3D interactive graphics)
- *Development process / Tem*, that is all the details regarding development steps, internal teams and specific skills of each of these
- *Contacts*, clear information about how to get in touch with the firm and to get there
- *Awards / Acknowledgements*, necessary for consolidating the company's image among the public

Information about news, new projects, pictures, and curious things about the staff can also often be observed. Such kinds of NPD firms illustrate coherence between declared and actual services offered to the client, as well as constitute a point of reference for other NPD firms' website evaluation.
Considering the rest of the NPD companies, i.e companies with little dimension and few resources, a deeper analysis has showed that they basically divide into two main groups:

1. A first group is characterised by small companies (generally, up to 10 employees) that *will to offer a complete product*, through exploiting their internal resources but also through accessing to external sources of competencies. In this case, the distortion of the information gathered through the websites is mainly due to the aforementioned *lack of a detailed and consolidated taxonomy*, that acts both on the firm itself and, especially, on the visitor. In fact, websites on their side report accurately the activities performed inside the firms, so the gap between declared and actual services can only be found in the *meaning* of their *complete*-product-development assertion, or at most in the equivocal presentation of their output (where it is not specified *which* part of those products was developed by the firm), where with "complete development" they mean a set of activities sufficient to completely create *some* products, but not *any* kind of product. Overall, these sites appear to be qualitatively high, with care for the layout, design and communication. Compared to the previously analysed websites, these present a less detailed and structured vision of the company, concentrating more on an "overall" picture of it, which reflects the inner structure and reality of the firm itself.
2. The second group is composed by companies that *concentrate their work on part of the process*, i.e. that declare to be specialised in a specific phase of the NPD process (even if able to support the whole process) and that rely on just internal skills. This second group of firms is characterized by a *second* component of *informative distortion*, related to the lack of internal resources and, contemporarily, to the lack of collaboration with external sources of competence. It has been observed that, in this second case, the assertion of being able to completely project a new product appears *more and more deceptive*. This furthermore reduces the visitor's capability of exactly understanding the actual firm activity.

In both cases, the consequence of these distortions is that it's not always possible to get the real identity of the firm until a direct contact takes place.

FINAL REMARKS

This study has been based upon a limited segment of the Italian market of companies supporting the whole new product development process of innovators and, as such, allows describing the Italian landscape of such a market as well as some managerial and organisational characteristics. More in detail, several observations have been drawn concerning:

- The geographical location of companies;
- The internationalisation strategy;
- The way of managing the relationship with the clients and the organisation of the firm's activities;
- The marketing of services offered and the problem of external communication.

The main focus of the company's activity acts as a potential action radius, while the actual one is determined by the combination of two parameters: geographical location and internationalisation strategy.

Conclusions drawn, in most cases, do not seem to be affected by country-specific factors and, hence, can be generalised to similar market segments in other countries.

However, starting from these points, the investigation could be extended so as to come to a more general picture of the market of new product development service companies, through analysing:

i. Firms operating in one specific industry (the first phase of the extensive analysis shows that home furnishing and automotive seems to be very interesting in the Italian landscape, as well as biotech, chemical and software firms);
ii. The impact on the organisational features and relationships management, of the NPD firms, of clients belonging to such different industries, as presented in the extensive analysis (figure 4);
iii. Firms covering one phase of the new product development (design companies, engineering companies, prototyping companies etc.);
iv. Firms belonging to other countries.

These studies (which represent the future steps of this research) would offer the opportunity to conduct cross-industry and cross-country comparisons and to deepen the analysis of the main organisational and managerial features highlighted in this paper.

NOTE

The paper has been written jointly by the authors. However Raffaella Manzini wrote section 1, Emanuele Pizzurno wrote sections 2, 3, 5.3, 5.4 and 6, Paola Monetti wrote section 4 and Lucas Canevaro wrote section 5.1, 5.2, 5.5 and 5.6.

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