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Business development and opportunity identification in global markets.

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Abstract
In the biopharmaceutical industry, the identification and management of new business opportunities through Business Development activities is a common and relevant practice for corporate renewal and survival of firms. The term “Business Development” (BD) is known within many corporations, and while there might be individual definitions in the minds of various practitioners, the concept of BD has little presence in the literature on both organizational theory and strategic management. In order to capture how firms successfully identify and manage opportunities, this paper takes some insights from studies on Entrepreneurship and analyses the BD functions of eight small and large biotech and pharmaceutical companies operating in different segments. Results of the case studies suggest that effective knowledge management practices, technical systems, skills and values are fundamental in order to create a firm’s BD capability and overcome the challenges imposed by fast paced and rapidly changing environments. The selection of BD managers with both business and scientific background, the set up of a clearly defined BD process, the balance of qualitative and quantitative incentives and the entrustment of BD managers are particularly important to this end.

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Business development and opportunity identification in global markets.

The case of the biopharmaceutical industry

1. Introduction

The success of a firm depends on its actual revenue-generating capability and potential growth. In the biopharmaceutical industry, the high levels of scientific and technological complexity along with extremely uncertain and long R&D processes make firms growth a particularly tough goal to pursue. In addition, the early stage of exploration and exploitation of the biotechnological platform implies that knowledge bases are still heterogeneously dispersed among diverse organizations (Malerba and Orsenigo, 2001; Pisano, 2007) spread all over the world. In such an environment, the identification of new business opportunities becomes highly relevant for corporate renewal and survival (Sorensen, 2012; Doz et al., 2001).

In the biopharmaceutical industry, firms use a specific “Business Development (BD) process” to identify and manage new business opportunities. Nowadays this term is known within many corporations, and while there might be individual definitions in the minds of various practitioners, the concept of business development has little presence in the literature on organizational theory. Although there are articles that help identify a possible range of activities that fall under the category of Business Development (Kind and Zu Knyphausen-Aufseß, 2007; Austin, 2008; Giglierano et al., 2011), they do little to help us understanding the enabling factors of a BD capability (Davis and Sun, 2006).

The purpose of the research reported here is (i) to capture the most comprehensive and effective definitions of BD among those discussed in the literature, and against such background (ii) identify BD best practices through the analysis of BD functions in eight case-study firms operating in the biopharmaceutical industry.

2. Theoretical framework

Business Development as a systematic process for identifying opportunities

Business Development is a concept that has received limited direct attention in the academic literature (Davis and Sun, 2006). However, many high tech companies devote part of their organizational structure to BD. While the definition varies from company to company, BD has generally involved activities and processes related to the identification and management of new business opportunities. When Kind and Zu Knyphausen-Aufseß (2007) tried to clarify the nature of BD in the biotech industry, they identified many tasks, processes, and human resources issues related to it; in this case, BD turned out to be a specific business function, rather than a synonymous of “business operation”. According to the authors, the BD process includes merely the following phases: 1) the identification of new business opportunities – such as a licensing partner and companies to acquire - through a screening of market information and networking activity; 2) evaluation of the most profitable opportunities, by analyzing potential partner profiles and markets, financial evaluations and strategic fit with the company; 3) negotiation of terms and conditions and
adaptability of internal resources to enable implementation. They also identified three levels of BD function configurations: implicit, established, and institutionalized (Kind and Zu Knyphausen-Aufseß, 2007). Similar definitions have been given by the few other authors who have written on the BD topic (Sorensen, 2012; Austin, 2008; Uittenbogaard et al., 2005); they, too, emphasized the systematic scouting and searching phase at the beginning of the process. In particular, Sorensen (2012) considered BD as a set of “tasks and processes concerning analytical preparation of potential growth opportunities and the support and monitoring of the implementation of growth opportunities”, excluding from BD the decisions on strategy or implementation of opportunities.

Davis and Sun (2006), conducted an exploratory study involving a survey of 26 IT SMEs in Canada and demonstrated that BD was a recognized concept in the population surveyed. They documented BD functions and tasks, and initiated the conversation on BD as a set of “routines and skills that serves to enable growth by identifying opportunities and guiding the deployment of resources” (Davis and Sun, 2006). Giglierano et al. (2011) used the same definition when they tried to understand the impact of BD on the early commercialization of disruptive innovations. According to these studies, BD serves to extend the value creation activities of the firm into technological or market areas that are relatively new to the firm and may be useful to support the practice of co-creation of value with customers. However, they found that BD, as a corporate entrepreneurial capability, is mostly expressed through highly unstructured routines, which may cause a decrease in the effectiveness of the capability itself on firm’s growth (Davis and Sun, 2006).

Overall, the above theoretical elaborations on BD can be divided into two separate categories. A group of authors sees BD as a corporate entrepreneurial capability performed through a set of unstructured activities, whose effectiveness depends upon personal skills of entrepreneurs (Davis and Sun, 2006, p. 148; Giglierano et al., 2011). A second group of authors concentrates on the primary importance of BD process and specific practices (Sorensen, 2012; Uittenbogaard et al., 2005; Kind and Zu Knyphausen-Aufseß, 2007; Austin, 2008), for the development of a BD capability. Consequently, a clear tradeoff between break up and stabilization of routines emerges. In fact, entrepreneurship literature associates corporate entrepreneurial capabilities with the entrepreneurial orientation construct, which reflects the firm’s tendency to depart from established practices (Lumpkin and Dess, 1996; Jantunen et al., 2005). On the contrary, other literature frameworks such as the resource-based view and capability based view sustain that a capability should be reflected in tangible processes of the firm (Barney, 1991; Eisenhardt and Martin, 2000).

Other authors have studied aspects that may be connected to the BD process. Merrilees et al. (1998) explain SMEs’ international market selection by proposing a similar multiple stage process: 1) networking, i.e. the participation to formal and informal meetings through which entrepreneurs open their outlooks and get the chance to identify new potential opportunities; 2) identification of emerging opportunities; 3) a quick response to pivotal opportunities; 4) adaptation of resources to external environment. This is much in line with the progression of BD activities, but still lacks formalization in terms of “dedicated organizational function”, which entails specific activities, practices, and routines (Nelson and Winter, 1982). More in line with the latter concept, Kale et al.’s 2002 seminal work describes the concept of alliance capability, which has empirical meaning only when we find what they call “dedicated alliance function” within the firm. This unit/department constitutes a device for learning, observing the markets, mobilizing internal resources and evaluating the performance of alliances. The dedicated alliance function has only been studied in
big organizations and may constitute a part of a BD function in a biopharmaceutical context (Kale et al., 2002). A study by Keil et al. (2008), concerning established companies, considers BD as a synonymous of external venturing operations: corporate venture capital, mergers, acquisitions, and strategic alliances. This is a common perspective on BD, largely subsumed in the literature on strategic alliances in large and established companies; while in smaller firms BD activities usually involve lesser degrees of risks and organizational change (Davis and Sun, 2006). According to Fine and Deegan (1996), the concept of recognizing opportunities and being ready to take advantage of them encompasses elements that we can also find in the BD process: a temporal element (being in the right place at the right time), a relational element (the building of social networks), and an analytical element (the ability to establish connection between data and theory). In order to detect new business opportunities in dynamic markets - in which windows of opportunity rapidly open and close (Nordman and Mélen, 2008) - a good BD function should, in fact, systematically screen business domains in line with the corporate strategy. The importance of the concept is also emphasized by Iansiti (1997) and Arora et al. (2001), who claimed that, in high tech industries, firms’ competitive advantage is rooted in their ability to monitor and quickly seize business opportunities. In order to do so, it is important for a BD manager to possess a rich business network (Davis and Sun, 2006) and have a mix of knowledge about products, technologies and industry dynamics that enables conceptual and abstract elaborations and thoughts (Sorensen, 2012).

In conclusion, previous work generates an understanding of BD as the systematic seeking, identification, and development of new business opportunities (licenses, partnerships, acquisitions, corporate VC, etc.) through the combination of internal and external information, resources, and capabilities. But the relatively young and scarce literature on BD offers only some insights on its nature and characteristic elements. In order to overcome this limitation, I decided to also draw from entrepreneurship literature, where conceptions of new business opportunities have been more widely explored.

**Opportunity identification and entrepreneurship literature**

In a rapidly changing world, organizations need to continually identify new opportunities beyond existing competencies if they want to survive and prosper (Hamel & Prahalad, 1989; McGrath et al., 1996). The identification of opportunities has been recognized as one of the most important abilities of successful entrepreneurs (Ardichvili et al., 2003), and consequently has become an important element of the scholarly study of entrepreneurship. Gaglio and Katz (2001) sustain that “understanding the opportunity identification process represents one of the core intellectual questions for the domain of entrepreneurship.” The research of Alvarez and Busenitz (2001) on entrepreneurship and resource-based theory has extended its boundaries to include identification of opportunities as a resource that, through the process of exploitation, can lead to competitive advantage (Shepherd and DeTienne 2005). A recent definition of International Entrepreneurship literature also emphasized the opportunity-centered aspect of internationalization: “International entrepreneurship is the discovery, enactment, evaluation, and exploitation of opportunities - across national borders - to create future goods and services” (Oviatt and McDougall, 2005). According to this definition, entrepreneurial firms must be successful in how quickly, efficiently, and holistically they sense and act upon opportunities abroad (Crick and Spence, 2005; Dimitratos and Jones, 2005). Consistent with that, many authors have been interested in the motivations, methods and
circumstances underlining the ability to identify opportunities, that only certain individuals possess (Shane & Venkataraman, 2000).

The topic of opportunity discovery and exploitation per se, is explored in literature mostly from the perspective of entrepreneurial behavior and characteristics, leaving instead aside issues related to firm-level factors. Opportunity identification is in fact considered a task of the entrepreneur and/or the entrepreneurial team, and its effectiveness depends upon entrepreneur-specific factors, (Zucchella, 2005; Oviatt and McDougall 2005; Hagen and Zucchella, 2011). McDougall et al. (1994), Spence (2003) and Crick (2009), sustain that the entrepreneur is an individual who is more aware of opportunities than others, more capable of taking advantage of internal and external information and capabilities to create competitive advantages before others become aware of such opportunities. In fact, entrepreneurial opportunities exist primarily because different agents have different beliefs about the relative value of resources when they are converted from inputs into outputs (Schumpeter, 1934; Kirzner, 1979; Shane & Venkataraman, 2000). Previous research suggested that opportunity identification may be related to, among other factors, prior knowledge (Shane, 2000), social networks (Singh, et al., 1999), and potential financial reward (Schumpeter, 1976). Prior knowledge is related to an individual’s unique information about a specific area of interest and enable the capacity to recognize certain opportunities (Venkataraman, 1997; Shane, 2000). Social networks are essential means to access and substantially reduce the costs of key resources (Cromie et al., 1994; Portes, 1998; Lin et al., 1981); they are exploited to get updated information on new opportunities and contribute to make entrepreneurial action more financially rewarding (Birley, 1985; Burt, 1997; Johannisson, 2000). Potential financial reward is the monetary end that explain individuals’ motivation to identify opportunities (Venkataraman, 1997).

Although Entrepreneurship research helps us to clarify some key aspects related to opportunity identification, there is still a urgent need for academic research on the subject (Dimitratos and Jones, 2005; Styles and Seymour, 2006). Therefore, empirical evidence needs to be found about other best practices that may increase the effectiveness of opportunity identification and management processes.

### 3. Research design and methodology

Among other factors, The value of a business opportunity depends upon the industrial context in which a company operates (Andersson, 2004), and it can also be assumed that the opportunity identification logic of firms may be different across industries. This study looks at the Biotechnology industry, a global, science-based industry which is also considered as entrepreneurial, innovative, rapidly changing and knowledge-intensive (Brännback et al., 2007). Biotechnology covers a diverse range of fields, including therapeutics, agriculture and environment, industrial and ICT (Hine and Kapeleris, 2006). Our focus is on biotechnology applied to human health (sometimes called ‘Red biotechnology’ including applications such as diagnostics, biopharmaceuticals, and regenerative medicines). Regulatory controls and high uncertainty over product success makes it particularly difficult for large and small firms to innovate successfully without partnerships to access expertise and hedge risks (Powell, 1998; Powell et al., 1996). Here BD appears to be an increasingly essential strategic function, diffused across firms of different segments and sizes.
With few academic studies on BD it is necessary to undertake an inductive approach to generate a more basic understanding of the nature of BD before more specific hypotheses can be developed and addressed. To this end, semi-structured interviews with BD managers with past and/or present BD responsibilities and roles have been undertaken, and documentary sources reviewed, analyzed and systematically compared with the actual theoretical contributions (Glaser and Strauss, 1967). At the second step, I have used case-study methods to develop a more solid theoretical understanding of factors enhancing BD (Pettigrew, 1990; Eisenhardt, 1991; Yin, 1994).

In this study, I analyzed BD functions of eight small and large international corporations of the biopharmaceutical sector, operating in several segments. It was essential to cover several segments because differences exist in the business models of biotech and pharmaceutical companies, for example. Cases were chosen from firms with headquarters in Europe and the U.S. All but one company accepted to be identified via their real names. The case in which the interviewee refused to disclose the company’s identity is referred to as “Bionium Pharmaceuticals”. Table 1 presents basic information about the case-companies.

Table 1: Key characteristics of the case companies

<table>
<thead>
<tr>
<th>Company’s Name</th>
<th>Sector</th>
<th>Size</th>
<th>Home country</th>
<th>Employees</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dompé Pharma</td>
<td>Pharma</td>
<td>medium</td>
<td>Italy</td>
<td>700</td>
<td>550 mln</td>
</tr>
<tr>
<td>Eudax Biotech</td>
<td>Biotech</td>
<td>small</td>
<td>Italy</td>
<td>10</td>
<td>1.1 mln</td>
</tr>
<tr>
<td>Bionium Pharmaceuticals</td>
<td>Biotech</td>
<td>large</td>
<td>US</td>
<td>1300</td>
<td>872 mln</td>
</tr>
<tr>
<td>Shire Plc</td>
<td>Pharma</td>
<td>large</td>
<td>Ireland</td>
<td>5000</td>
<td>4.3 bln</td>
</tr>
<tr>
<td>Merck</td>
<td>Pharma</td>
<td>large</td>
<td>US</td>
<td>86000</td>
<td>48 bln</td>
</tr>
<tr>
<td>Janssen – Cilag</td>
<td>Pharma</td>
<td>large</td>
<td>Germany</td>
<td>700</td>
<td>537 mln</td>
</tr>
<tr>
<td>Genextra</td>
<td>Biotech</td>
<td>small</td>
<td>Italy</td>
<td>19</td>
<td>499,249</td>
</tr>
<tr>
<td>Crown bioscience</td>
<td>Biotech</td>
<td>large</td>
<td>US</td>
<td>520</td>
<td>210 mln</td>
</tr>
</tbody>
</table>

The empirical data was collected from 2009 to 2012. The main source of data was face-to-face and telephone interviews with key decision makers (CEOs, top management representatives, BD vice presidents, BD managers) in the case companies. All of them were considered as key informants because strategic processes reflect the corporate strategy, which is based on their decisions. The average interview lasted about one hour with some interviews lasting as long as three hours. During the interviews I used a semi-structured interview guide with thirteen open-ended questions. The
respondents were also agreeable to speak about particular episodes and experiences related to the company’s life and behavior, which increased the validity of the research. The questions covered different topics, such as business development practices, the strategic orientation of the company and the decision making process. Interviewees authorized the recording of the interviews, which were conducted in English, except for Dompé, Genextra and Eudax, which were conducted in Italian. The data obtained was analyzed in several phases (Yin, 2009). First, the recordings were transcribed and a within-case analysis of each company was conducted (Eisenhardt, 1989). In order to increase the reliability and validity of the study, I triangulated the data collected from the interviews with additional primary and secondary data: consulting and financial reports, press releases, trade journals, industry reports and process documentation, etc. As suggested by previous work (Eisenhardt, 1989, Miles and Huberman, 1994, Strauss and Corbin, 1998, Yin, 1994), I developed a brief description of each case, which was then turned into a full description of the whole case (Yin, 1994). The way opportunities were identified and managed, along with the consequent relationship between specific aspects of BD and BD effectiveness were described with critical-event analysis.

4. Case summaries and evidences

**Dompé.** Dompé is one of Italy's leading biopharmaceutical companies, with a solid history of developing innovative drugs for illnesses of high social impact. The company focuses its offer on the Primary Care and rare and orphan disease areas. Business Development activities at Dompé respond directly to the R&D department and are carried out by one senior manager who has two other people responding to her. The senior manager has a degree in organic chemistry; since 2006, she gradually abandoned the lab for more managerial roles. Above all, Dompé considers the most important skill of a Business Developer the ability to put together and coordinate a team. People from other organizational functions who are “called” to join the team, need to feel respected by the BD manager, who must take into account their daily commitments; at the same time, they also must be stimulated to feel their responsibility. The BD process starts with systematic opportunity-searching activities supported by different knowledge sources. Afterwards, keeping in mind the CEO’s strategic directions and indications, the BD manager identifies the most profitable opportunities for the company, puts together a team with the appropriate competencies and coordinates the evaluation and negotiation phase. During the entire BD process, the most important and strategic information are shared with the CEO through regular contacts. In cases where the BD manager supports the pursuit of an opportunity that is in contrast with top management’s strategic guidelines, she should challenge the management. This is a good practice at Dompé and contributes to increase the renewal and alignment of strategy with the market environment. In order to detect knowledge on new business opportunities, the BD manager looks at industry specific databases and reports, goes to conferences and meetings and, sometimes, is helped by specialized consultants. The BD manager also uses her personal business network in order to access more sensitive information on interesting facts and trends. Making the BD manager responsible of her actions and decision is a very important aspect for Dompé; that’s why there is a specific evaluation system for this function, which include two different dimensions. A quantitative one, which varies with the number of opportunities that reach the evaluation phase and the number of closed deals; and a qualitative one, related to the ability to efficiently manage the team.
**Eudax.** Founded in 2005, Eudax is a company operating in the biopharmaceutical sector that provides strategic support and services for the development of companies operating in the pharmaceutical, biotechnological, and biomedical fields. The BD manager at Eudax has a Degree in Medical Chemistry and also a very rich experience in management roles within the industry. This is a competence that sometimes Business developers in small firms don’t have and, according to the CEO, this is the reason why so many start-ups or spin-offs in the industry have a low survival rate. The BD manager must be able to understand science without necessarily being an expert in the opportunity offered within a specific therapeutic field; he or she must instead be able to cooperate and coordinate with experts inside the company at the right moment of the opportunity management process, i.e. evaluation and due diligence. In Eudax, the BD function provides the management and, in particular, the CEO, with two important types of information. First, the data necessary for evaluating the market, the competition, and the new emerging trends; second, the quantitative and qualitative data on the probability of success of a new idea, project, venture, in line with the corporate strategy. This information becomes available through a systematic process of market scouting and analysis, which is made effective by the capability of identifying appropriate business opportunities. The evaluation of information, resources and competences within and outside the firm may influence the BD manager in choosing one or another opportunity. In order to transfer the BD-related knowledge from the individual to the firm level, three important procedures are followed: constant relation, direct contact, and information sharing. An efficient way to evaluate the BD manager is to link his pay to the number of deals he closes and to the economic value of those deals. In this way, the Business development manager is motivated to pursue the most profitable opportunities for the firm, that indirectly become the most profitable opportunities for himself. Overall, BD at Eudax has a very important and strategic role not only for the opportunity identification process but also for the strategy formation. The information that the BD manager gets from the market are in fact precious factors in the definition of the overall strategy.

**Bionium.** Bionium is a biotechnology subsidiary of a Japanese pharmaceutical company. The most important cancer drug made by the company is approved as a treatment for a blood cancer and a diaphragm lymphoma. Bionium has more than a dozen other drug candidates in the pipeline, most of them cancer-related. At Bionium, the best BD people do not have necessarily a specific knowledge, but have instead general knowledge in the field in which the company operates (e.g. oncology), and other business skills such as in sales management, negotiation, and interpersonal communication. The head of the BD process is the “seeker” function. A typical seeker profile is a researcher with some managerial skills, who wants to become more operative. Seekers scout the market in search of opportunities, and make a first evaluation. In addition, they must be able to understand strategically what the company needs; in order to do so they regularly attend conferences in order to find opportunities that fit those strategic needs. When seekers find particularly interesting opportunities, they bring them to the company, and a committee with BD management is formed. If the opportunity passes this stage, scientific specialists will be increasingly involved, and some detailed scientific meeting may be set up. The following phase is the due diligence, where the opportunity is discussed in depth from all possible points of view. If it is convincing, the negotiators/transactions team begins to discuss the Term Sheet with the counterpart, where legal and commercial issues (such as the type of payments, amount of royalties, milestones, etc.) are discussed. Since this is sometimes a very complex and delicate phase (e.g. in case of an acquisition, or of a big co-development deal) top management is usually involved. If the
agreement is signed, BD still has to put efforts in making it work well and manage the relationship through the Alliance management function. In Bionium experience, if things went wrong after the deal was done, it was usually because of biases in communication between companies.

**Shire Plc.** Shire is a global specialty biopharmaceutical company with major operations in the US, UK, and Switzerland. The company operates in 29 countries and is organized into three divisions: the Specialty Pharmaceuticals division, Human Genetic Therapies (HGT) business, and Shire Regenerative Medicine. Business Development at Shire is headed by a vice president who reports directly to the CEO and has three senior vice presidents reporting to him. Each of the vice-presidents is responsible for one division. In general, one of the most strategic tasks of BD is to constantly monitor new technologies and products in the company’s therapeutic areas of current interest and identify new areas for business models expansion. “If developing new drugs is about Research and Development, finding new business opportunities for Shire is about Search and Development” (VP). In order to do so, all people in charge of BD activities at Shire have an extensive network and come with a lot of experience in Business Development from other companies. Usually this means ten years for the newest persons and up to more than twenty five years for the most experienced people. They are also involved in the industry organization called the “Licensing Executive Society” (LES) and interact with other BD people at conferences like Pennsylvania Bio, California Bio, the JP Morgan Conference. BD people have to be aligned with what the company is looking at and how the company is going to commercialize it, develop it or develop and sell it. Internal communication practices are the biggest issue, since they must ensure that Business Development and the Commercial and the R&D departments are all aligned. Complex communication rules are followed. This is also a good way to control the BD output, and be sure that what they select and put forward in the BD process is a profitable opportunity for the company itself; not solely pursued for granting a better bonus at the end of the year. This contributes to explain the need for a scientific, and not just a business background. The BD team benefits from direct access to internal expertise across the full range of functions, from initial scientific review through to full commercial evaluation.

**Merck&Co.** Merck is one of the largest global health care company. Its operations are principally managed on a products basis and consist of four segments: the Pharmaceutical, Animal Health, Consumer Care, and Alliances segments. The BD department at Merck is divided into two main functions: one works out in licensing products, and the other one is responsible for commercial partnerships. In general, BD is always on the lookout for new opportunities - that may encompass in- and out-licensing, collaborative research, co-development, and co-promotion agreements - and formally reviews and responds to every opportunity that might complement company programs or might help to increase the competitiveness of the firm. The partnership process is particularly efficient: for each opportunity they pursue, they assign an expert team to support negotiations, alliance structure and alliance management. A first step involve the connection: worldwide scouts are in charge of building relationships and seeking out opportunities by speaking with companies, going to conferences, looking on secondary data. After the opportunity is identified, the opportunity needs to be understood more in depth, through an initial non-confidential review of the counterpart by the Review and Licensing Committee and internal face-to-face scientific meetings. If this phase is passed, the BD function starts the due diligence and the term sheet negotiations. Finally - excluding cases of mergers and acquisitions - the alliance management unit is appointed to monitor progress throughout the agreement and ensure the good implementation of the collaboration.
**Janssen-Cilag GmbH.** Janssen-Cilag GmbH (Janssen-Cilag) is a pharmaceutical company based in Germany that focuses on the research, development and manufacture of drugs. The company has expertise in various therapeutic areas and it classifies products in four divisions according to their applications: Internal Medicine, Central Nervous System, Biotechnology and Virology. The formal BD department at Janssen is headed by a BD manager supported by three other people. The BD manager responds directly to a Board member, the head of marketing and sales. In the BD unit it is important to have both scientists and business people, so that they can compensate each other’s lack of knowledge; anyways, everyone has in general some experience in both subjects. In order to be able to properly carry out the BD function, BD people have also access to other specialized experts inside the company. In this case, the coordination of the team became increasingly delicate because it asks for more flexibility and respect of other colleagues’ priorities. The BD process at Janssen starts with a strategic gap analysis: according to the overall strategy that the Board regularly communicates, the BD manager identifies the major strategic gaps to fill and the strategic timeline to be followed. Afterwards, the team proceeds with the screening of existing and emerging business opportunities through the internet, open source databases, or with the help of consultants, depending on the quantity and type of information needed. This phase produces an opportunities “short list” and, after going through some strategy fixed criteria, BD people contact the most interesting potential partners to evaluate more in depth the potential opportunities. If all the requisites are met, the deal management phase follows, involving due diligence and negotiation. The alliance function is separated from the formal BD Unit, and it is dedicated for global deals; whereas for small alliances/deals alliance management practices are done within the BD department.

**Genextra.** Genextra is a holding firm created in 2004 by a group of Italian entrepreneurs and financial institutions in partnership with leading scientists from the European Institute of Oncology (IEO). Its main goal is to identify innovative research in life science and to develop new therapies and tools by creating performing business initiatives. Genextra develops its products through four companies which maintain the flexibility of individual organizations, but share in Genextra common strategic guidelines and pivotal resources. For Genextra, BD activities are the heart of the firm, along with R&D. The company has one corporate BD manager, who is responsible for the identification of new opportunities for three out of four companies of the Holding. Intercept Pharmaceutical, a US based firm, is the only exception: here the role of BD is still covered by the CEO, also because there are many people in the Board who worked in BD roles. In this case, the BD is not a formalized function, but rather implicitly carried out by the entire Board. The BD process initiates the research, including the scouting, analysis and evaluation of projects of interest to be acquired within the holding structure. In a second phase, once a project – or part of it - is selected and acquired, the BD manager starts scanning the environment again, to identify new opportunities that help develop the project itself. The final goal is to make it reach a level of maturity such that it can then be licensed-out or sold. The BD manager, who had both business and scientific/technical background, dedicated a lot of his time to attend conferences and industry specific events in different countries, where he could get updated information on the market and maintain/create business contacts. At Genextra the BD role is considered of high responsibility, since the BD manager operates a first selection of possible strategic choices the group may follow. The evaluation of BD deals is based on both quantitative and qualitative criteria. The quality of a deal is reflected by the quality – in terms of market power and share - of the partner. From the side of compensation, BD receives bonuses according to the number and the condition of deal closed.
**Crown Bioscience.** Founded in 2006, Crown Bioscience is a premier drug discovery company providing cutting-edge translational platforms and cost-effective drug discovery solutions for its biotech and pharmaceutical partners in dedicated therapeutic areas: Oncology and Metabolic Disease. The BD function is carried out by four people, each assigned to a particular geographical area (Europe, China, Japan and USA). They are all relatively senior and respond to the CSO (Chief Scientific Officer). All of them have both knowledge of science and management. When more specific knowledge support is needed, BD involves colleagues from the R&D or any other particular company’s function. In the past, the BD and the R&D departments have had some major misunderstanding, mostly because of discontinuous communications and poor alignment on each other’s goals and priorities. That is why Crown is setting up very specific coordination mechanisms, such as shared online blogs, where each party keeps track of the most important activities on a regular basis. BD at Crown may involve the identification of different kind of business opportunities, that may turn into technology licensing deals, collaboration deals, partnerships with local companies to increase the local presence and M&A activities. Before starting the opportunity management process, these growth options are presented to the CSO for approval; then the BD proceeds with the evaluation, due diligence, and final negotiation phase. Furthermore, the goal of BD is to provide to the CSO any relevant market info that the CEO and the Board may need in order to grow the company. The evaluation of BD performance is based partly on a quantitative evaluation of the deals closed, and partly on measurement of what is maintained over time. This practice relates to whether BD is purely a prospective functionality that looks for opportunities and brings opportunities in, or it also includes maintenance of relationships and of collaborations. Overall, BD people at Crown have a high level of autonomy within each geographical area, and very good communication between each other. When the opportunity entails the acquisition of another company, the Board is much more involved.

5. Empirical findings and discussion

The case-study analysis has identified specific and common BD features that help firms to effectively perform a BD function and successfully identify and manage new business opportunities. This may suggest the emergence of a new organizational capability. Many authors identify capabilities as clearly defined processes that can be found across companies (Eisenhardt and Martin, 2008), and mostly investigate the managerial processes, skills, procedures, and values that lead to capability building (Keil, 2004; Leonard-Burton 1992). In fact, an analytical and empirical understanding of these aspects is necessary to exploit the sources of competitive advantages deriving from capabilities (Keil, 2004). Given the importance of capabilities for the success and growth of firms (Chandler, 1992, Barney, 1992; Teece et al., 1994; Lado and Wilson, 1994), it seems worthy to identify the best BD practices that may help consolidate this capability at a firm-level. In order to do so, I adopt a knowledge-based view of the firm and consider an organizational capability as the sum of four broad dimensions: employee knowledge and skills, technical systems, managerial systems, and values and norms associated to the content and structure of knowledge (Leonard-Burton, 1992).

**Skills and knowledge dimension: science, business and team management**
Prior research has suggested that the capability to identify opportunities is attributed to the entrepreneur and/or the entrepreneurial team and its effectiveness depends upon entrepreneur-specific factors, (Zucchella, 2005; Oviatt and McDougall 2005; Hagen and Zucchella, 2011). McDougall et al. (1994), Spence (2003) and Crick (2009), sustain that the entrepreneur is an individual who is more aware of opportunities than others, more capable of taking advantage of internal and external information and capabilities to create competitive advantages before others become aware of such opportunities. The data from this research indicate a different view. In the biopharmaceutical industry, in fact, people in charge of opportunity identification and management are not necessarily the entrepreneurs or members of the entrepreneurial team. Rather, they often are employees/managers who possess multiple skills that enable them to detect the best opportunities emerging from the market. These skills primarily relate to personal knowledge background and team management. According to Venkataraman (1997) and Shane (2000), prior knowledge refers to an individual’s distinctive information about a particular subject matter and provides him or her with the capacity to identify certain opportunities. In this case, it is very important for a BD person to have background knowledge in both business and science. In addition, substantial coordinating and team working abilities are necessary, because BD may involve the setting up of a team of complementary people with different skills and objectives. Depending on the company, this team may be dedicated to BD full time (e.g. Janssen and Merck), or may be called upon from other company’s departments when needed (Crown, Dompé).

Table 2: Evidence regarding Skills and knowledge dimension

<table>
<thead>
<tr>
<th>Company</th>
<th>Evidence</th>
</tr>
</thead>
</table>
| Dompé | When you are not able to anticipate the needs, to involve and make people in the group feel important, you will lose them and won’t be able to effectively carry on the BD process;  
Our BD manager has a degree in organic chemistry. She has always worked in pharmaceutical firms’ R&D laboratories until 2006. After some experience in managerial roles, she is now ready for a business development position. |
| Eudax | Our BD manager has a Degree in Medical Chemistry and an experience of more than 30 years in the pharmaceutical industry. He covered managerial positions in many multinational companies such as Boehringer Mannheim and Roche, and mid-size international companies such as Recordati and Poli (Licensing). |
| Bionium Pharmaceuticals | The BD team must be heterogeneous in order to have different experts for different situations. |
| Shire Plc | They all come with a lot of experience in Business Development from other companies: 10 years for the newest persons up to 25+ years for the people with the most experience. They all possess both science- and market-based knowledge. |
| Merck | Aside from their knowledge of technologies, markets and industries, deal structuring and partnering, BD managers need to have a great team coordination capability. |
| Janssen – Cilag | In our case, my background is more of a business background, but it is of course also important to have scientists in the group that can compensate the knowledge one doesn’t have;  
The coordination of the resulting team is also very important. You have to be flexible and respect other colleagues’ priorities. |
The capacity of coordinating a team is a very important skill that enable the BD manager to easily manage shared responsibilities.

Science only doesn’t grow the business. It may be the sexiest molecule on the planet, but it doesn’t automatically lead to growth. That’s why BD managers must have also some business knowledge.

The technical systems dimension

According to Davis and Sun (2006), the capability to “enable growth by identifying opportunities and guiding the deployment of resources” is mostly expressed through highly unstructured routines, which may cause a decrease in the effectiveness of the capability itself (Davis and Sun, 2006). On the contrary, our case studies show that embedding knowledge in specific systems support the creation of a BD capability. This knowledge is supplied through learning associations that have been made between a firm’s past actions, the effectiveness of those actions, and future actions (Fiol and Lyles, 1985). In particular, organizational capabilities are developed through embedded processes that result from this learning (Kale et al., 2002). The procedures that contain the most important knowledge related to BD can be found in the BD process itself. For example, control systems during the opportunity management life cycle in Crown are very “light” and flexible and allow the company to proceed faster toward the negotiation phase. The creation of personalized ICT is also a valuable tool for knowledge and information accumulation. Bionium uses an ad hoc Corporate Intranet solution to enrich and consolidate knowledge databases, that function as virtual spaces for exchange of ideas and as a knowledge repository. The importance of coordination praxes is usually learned through past experience (Sitkin, 1992). For example, the previous BD manager at Dompé had a perfect background in terms of business and scientific skills, while she performed poorly in the tasks related to the coordination of the team. This caused several problems in BD effectiveness, like slowdowns in the opportunities management process on account of sporadic intra-team communications and unclear responsibilities along the process. Today, the new rules that drive the shared and systematic coordination process performed by the BD manager have led to increased efficiency of the overall BD function. Clearly, these procedures exist and are consolidated thanks to the accumulation of previous experience, skills and knowledge (Leonard-Barton, 1992). Table 3 shows the evidence related to the technical systems dimension, while Figure 1 shows the typical BD process emerging from the case study.

Figure 1: a typical BD process
Table 3: evidence regarding technical systems dimension

<table>
<thead>
<tr>
<th>Company</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dompé</td>
<td>Everyone in the company may be of help in the opportunities searching phase. But as soon as the opportunity is identified, the BD manager takes control of the situation and starts doing her job following the consolidated procedures”.</td>
</tr>
<tr>
<td>Eudax</td>
<td>BD managers keep track of the most important knowledge on shared documents in order to translate individual knowledge on a company level.</td>
</tr>
<tr>
<td>Bionium Pharmaceuticals</td>
<td>Our IT resources are set up on our needs: BD people save everything on shared files, never on their own PC. The fact that electronic supports are shaped on our needs and experience is extremely important for accumulation processes and increase overall firm-level knowledge.</td>
</tr>
<tr>
<td>Shire Plc</td>
<td>After every meeting or conference, BD people must enrich a shared “contacts database”: this is an important way to embed the value of those contacts within the firm.</td>
</tr>
<tr>
<td>Merck</td>
<td>We have an efficient partnership process. For each opportunity we pursue, we assign an expert</td>
</tr>
</tbody>
</table>
team to support negotiations, alliance structure and alliance management.

<table>
<thead>
<tr>
<th>Company</th>
<th>Evidence</th>
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<tbody>
<tr>
<td>Janssen – Cilag</td>
<td>Today the BD process is the result of past experiences and mistakes.</td>
</tr>
<tr>
<td>Genextra</td>
<td>Without the formal BD process the company’s business model would have been incomplete. This is the tool through which we build everything.</td>
</tr>
<tr>
<td>Crown bioscience</td>
<td>If Crown tomorrow cuts its BD function completely, this wouldn’t be impacting the company until a few months later. Revenue will in fact continue to come because, after the deal is made, partners formally have a relationship with the Company, not with the particular BD. And so it is not just a question of what does BD brings, is what it maintains and the longer that you remove BD then you damage that phase.</td>
</tr>
</tbody>
</table>

The managerial systems dimension

Firms will likely to be more effective at capability development when they develop mechanisms or routines that are purposefully designed to create and control relevant organizational knowledge (Leonard-Barton, 1992). The BD managerial system has two dimensions, one concerning the creation of knowledge and the other the control of knowledge. In order to create knowledge, BD people need both formal and informal means. The challenge here is to create communication structures that enhance knowledge exchange without creating information overload. In this context, the case study firms rely on a mixture of formal tools and an informal network of contacts for increasing their knowledge of new opportunities (as shown in Table 4). Among the formal means, the most commonly used are access to industry specific databases, participation to Conferences and meetings, access to information on the internet, and use of external consultants. Informal knowledge creation happens instead through social networks, which are particularly important for reducing the costs of resources necessary for knowledge creation and organization (Cromie, Birley, & Callaghan, 1994; Portes, 1998; Lin, Ensel, & Vaughn, 1981). The derived knowledge on environmental and market trends as well as on new opportunities, make the Business Developer’s activity more financially rewarding (Birley, 1985; Burt, 1997; Johannisson, 2000). While formal events provide a regular basis for the exchange of information, the risk exists that too frequent exchange may be resource intensive without creating much additional knowledge (Keil and Autio, 2001). It is thus important to balance the two different knowledge sources. In order to control BD knowledge, companies also set up particular incentive mechanisms, that help to ensure the bond between what the BD considers to be strategic for the firm and what is effectively the best opportunity for the firm. These mechanisms are usually in both qualitative and quantitative forms, in order to direct the motivation towards the pursuit of firm’s objectives (Venkataraman, 1997) and not only personal returns.

Table 4: evidence regarding managerial systems dimension

<table>
<thead>
<tr>
<th>Company</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dompé</td>
<td>In order to detect knowledge on new business opportunities, the BD manager looks at industry specific databases and reports, goes to conferences and meetings and, sometimes, is helped by specialized consultants;</td>
</tr>
<tr>
<td></td>
<td>During the entire BD process the most important and strategic information are shared with CEO.</td>
</tr>
</tbody>
</table>
through meetings, phone calls, or emails.

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Eudax</strong></td>
<td>If the opportunity turns out to be bad, your career will be limited. So the BD manager is evaluated not only on the number of opportunities he identifies, but also on the quality of each deal. On the other side, if the project is good, BD is proportionally rewarded; Sensible information must be constantly transferred to the CEO and other members of the Board, if involved in the particular opportunity.</td>
</tr>
<tr>
<td><strong>Bionium Pharmaceuticals</strong></td>
<td>There are formal channels where companies have to disclose all the information and typically companies these days advertise their pipeline because that accounts a lot for the share price, but as I said there are also informal channels where you get to know other companies…. It has become like speed-dating!</td>
</tr>
<tr>
<td><strong>Shire Plc</strong></td>
<td>BD constantly monitors new technologies and products in our therapeutic areas of current interest and identifies new areas for expansion of the Shire business model. Monitoring procedures have been improved during the years thanks to the systematic reporting from and to all the members of BD team.</td>
</tr>
<tr>
<td><strong>Merck</strong></td>
<td>We spend a lot of time in getting to know other scientists and doctors, because all companies have to work with them. Contacts with Star scientists are particularly important for the company; in fact, a doctor may provide some interesting and rare information; Then you go to big conferences and accumulate other knowledge on what is going on in research.</td>
</tr>
<tr>
<td><strong>Janssen – Cilag</strong></td>
<td>The network is the most important means to share and create new knowledge for the company. It is very important to communicate both formally and informally, with external business contacts and partners and internally. Usually, the greater the variable pay of the BD managers, the more effective the contribution of BD to the firm.</td>
</tr>
<tr>
<td><strong>Genextra</strong></td>
<td>If the Business Developer is able to raise the interest and close the deal with a big multinational company like Pfizer or Novartis, he demonstrates his talent and will be proportionally remunerated.</td>
</tr>
<tr>
<td><strong>Crown bioscience</strong></td>
<td>The most effective way for a BD manager to get new and sensible knowledge on emerging opportunities and market trends is to develop business networks with other Business developers, opinion leaders and star scientists.</td>
</tr>
</tbody>
</table>

**Values dimension**

The value assigned to knowledge creation and content, constantly reinforced by corporate leaders and embedded in management practices (Leonard-Barton, 1992), is an important factor in affecting BD process effectiveness. Leaving BD managers relatively free in their decisions make them feel entrusted. Consequently, they clearly perceive the value they bring to the company in terms of opportunities and potential growth. This is a key incentive to pursue an excellent personal performance, which automatically corresponds to an excellent performance for the firm, as reported by the majority of the interviewees. At Crown and Merck, for example, the fact that BD people feel that their activities and knowledge greatly influence the overall performance of the firm, constitutes a powerful motivation to work as if the company belonged to them. Being in close contact with strategic decision makers such as the CEO or members of the Board, also influences positively the motivation of BD managers, because it becomes an automatic sign of high status. At Shire and
Bionium the will of BD managers to maintain such a status becomes one of the strongest motivation to carry out their activities in a very accurate and productive fashion. They feel their contribution is extremely important for the decision making process and this encourage them to think entrepreneurial and operate accordingly. Table 5 shows the evidence of factors characterizing the values dimension.

Table 5: evidence regarding values and norms

<table>
<thead>
<tr>
<th>Company</th>
<th>Evidence</th>
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</thead>
<tbody>
<tr>
<td>Dompé</td>
<td>BD is a very rich, difficult and sophisticated job, that is respected at all Company’s levels.</td>
</tr>
<tr>
<td>Eudax</td>
<td>BD does not create the strategy, but it does influence it and makes sure that the strategy is a realistic one.</td>
</tr>
<tr>
<td>Bionium Pharmaceuticals</td>
<td>BD manager is more similar to the CEO than any other member of the board, because he has the responsibility to bring to the company’s attention a potentially interesting opportunity or not. In this sense, he has something in common with an entrepreneur.</td>
</tr>
<tr>
<td>Shire Plc</td>
<td>The Business Development team helps Shire realize its goals by supporting continuous growth and evolution; We try to stimulate their ability by making them feel their contribution is extremely important for decisions we take about strategy.</td>
</tr>
<tr>
<td>Merck</td>
<td>BD is not only about finding the best promising molecule; BD is about strategically where the company wants to be in a few years from now. That’s why our BD people may be assimilate to some extent to entrepreneurs.</td>
</tr>
<tr>
<td>Janssen – Cilag</td>
<td>BD is a key function for the company because it gets an updated overview of the market, providing valuable and rare information to strategic decision makers.</td>
</tr>
<tr>
<td>Genextra</td>
<td>Without the BD the Company’s business model would be incomplete.</td>
</tr>
<tr>
<td>Crown bioscience</td>
<td>We have a great autonomy in the opportunity management process. For example, if I see an opportunity for a collaboration for a co-marketing agreement or a licensing deal, it is basically left entirely after me to evaluate and negotiate the deal in the my territories. That’s why I feel my work is extremely valuable for the company’s future strategic choices.</td>
</tr>
</tbody>
</table>

6. Conclusions

A central theme of the ‘knowledge-based view’ is that individually and organizationally held knowledge acts as a basis for creating firm-level capabilities that become source of competitive advantage (Grant, 1996).

In this paper, we set out to investigate the best practices that firms operating in the biopharmaceutical industry adopt to identify and manage new business opportunities. Using a multiple case study design, we focused on the Business Development functions of eight small and large biotech and pharmaceutical firms operating in different segments. The results of the study suggest that effective knowledge management practices, technical systems, skills and values are fundamental in order to increase a firm’s capability to identify and manage new business
opportunities and to overcome the challenges imposed by fast paced and rapidly changing environments. First, BD managers should possess both business and scientific background and must be able to coordinate teams of heterogeneous resources. Although some personal-specific factors may contribute to enhance BD capability in line with an entrepreneurial approach, additional firm-embedded knowledge is necessary for developing it at a corporate-level. In fact, there must be a clearly defined BD process within the firm; a systematic scanning process is particularly important to detect unstable windows of opportunities and evaluate the external environment. In addition, BD managers must keep frequent contacts with internal (top mgmt and functional mgmt) and external (other companies, personal network, consultants) subjects, and should be made responsible with particular incentive mechanisms. Last, BD managers must be felt entrusted and listened to the key strategic decision makers of the company, because the information they provide are uniquely updated, sensitive, and useful for the strategy formation process. All these points could profitably be taken into account by firms that need to build their own BD units or need to make changes in poorly performing ones.

The work presented in this paper was limited in scope and method. My study focused on the biopharmaceutical industry only because fast and often dramatic changes in this environment make the enhancement of a BD capability particularly salient, although BD functions are also observable in the ICT industry (Davis and Sun, 2006). The type of information I collected was not amenable to statistical evaluation. Future studies should expand and diversify the collection of information, and bring it to quantitative testing. In particular, one could set out to identify different learning processes across different type of firms and measure if and how much the BD capability impacts on the firm’s performance, and also attempt to identify ways to measure the BD performance itself. At this time, the findings of the study clearly indicate that more fine-grained research of BD processes would enrich the capability to improve them and generate models for practical use by new firms.
References


