

# Università degli Studi di Cagliari

Dottorato di Ricerca in Economia e Gestione Aziendale

Ciclo XXVII

## The nature of corporate entrepreneurship: theoretical and empirical insights

---

*Autore:*

Enrico Angioni

*Tutor:*

Prof. Francesca Cabiddu

A thesis submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy in

*Economia e Gestione delle Imprese*

Esame Finale Anno Accademico 2014 - 2015

*“My fellow innovators, ask not what your favorite company can do for you,  
ask what you can do for that company.”*



# Abstract

This thesis consists of three essays linked to each other by perspectives of entrepreneurship, openness, and innovation, through which I sought to give an answer to a specific research question. Starting from the premise that corporate entrepreneurship should be understood as a renewal process of the existing organization that is aimed at maintaining and improving the competitive potential of a company in its environment, I have developed my research in order to give an answer to the following question: how does the evolution of the relationship between a company and external agents effect the inclination of the first one to innovate? According to this premise, in the first essay I analyzed the conceptual structure of corporate entrepreneurship in order to discover the core themes and limitations. In the second essay, according to results that emerged from the previous research, I have delivered a theoretical framework aimed to fulfill the limitations that emerged. In the third and last essay, I sought to demonstrate empirically the theoretical results that emerged in the previous essays, analyzing how relationships with external agents could affect the strategic innovation of a company.

More specifically, the first essay aimed to reveal the conceptual structure map of the corporate entrepreneurship research field during the period 1992-2015. By adopting a co-word analysis approach and following the most rigorous methodological prescriptions, 43 main concepts were detected by filtering the co-occurrence of 654 normalized author's keywords extracted from the Scopus database. Cluster analysis and multidimensional scaling (MDS) were applied in order to gather and detect the concepts' positioning, densities, distances, and gaps cartography. Based on these multivariate analyses, the following conclusions can be drawn: (i) the five main keyword groups of concepts are located in three areas: central, semi-peripheral and peripheral; (ii) innovation and strategy related concepts are central in the field; (iii) entrepreneurial leverages and entrepreneurialism focused on SME's concepts are semi-peripheral; (iv) organizational concepts related to learning and absorptive capacity, culture, human resources and cognition are largely decentralized and represent the emerging, hidden or peripheral topics.

The second essay deals with the collaborative nature of corporate entrepreneurship and deepens the limitations that emerged from the previous analysis. In particular, the starting point has been the perspective that collaborative innovation with customers or external agents is increasingly important for the development of company innovation processes. Despite this critical role, how a customer's collaborative relationship with a firm can be used to manage the innovation processes has received relatively little attention in the current corporate entrepreneurship literature. This analysis aims to reveal a theoretical framework that helps to fill a specific gap that has emerged in previous studies in this field, offering a theory of innovation that links this field of study with value co-creation and open innovation. By adopting a bibliometric analysis approach and following the most rigorous methodological prescriptions, the main concepts have been detected by the literature review of each field of study and a frequency of keywords analysis has been applied. Based on these analyses, the essay is divided into two

studies. The first study provides a review of the literature from three existing fields of studies: corporate entrepreneurship, value co-creation, and open innovation, placing emphasis on how companies engage in collaborative innovation with external agents. The second study, using a multiple qualitative case study, shows how companies' innovations are shaped by relationships with customers.

The goal of the last essay is to demonstrate empirically the results that emerged in the previous essays in the field of companies' openness. Since the last century, the increasing adoption of more open approaches to innovation has required firms to revise their traditional views of strategy. However, relatively little is known about how managers can go about achieving this transformation, and how—and to what extent—strategy should be adapted. This study, using a grounded-theory approach, investigates how and why forms of open strategy occur as a result of open innovation approaches. In particular, we identify the key dimensions that underpin open strategy. We discuss them in terms of innovation strategy, business complementarities, strategic fit and bidirectional communication. We also identify three different possible levels of open strategy: corporate, functional and business area. The results of our analysis: *(i)* highlight that the open innovation approach is a starting point for the process of open strategy, *(ii)* show to what extent an open innovation approach tends to influence and shape the strategy of a firm, and *(iii)* provide researchers with a framework that seeks to explain the key dimensions of open strategy.

# Contents

<b>Abstract</b>	<b>IV</b>
<b>Contents</b>	<b>VI</b>
<b>List of Tables</b>	<b>IX</b>
<b>List of Figures</b>	<b>X</b>

## **1. Drawing the Conceptual Structure of Corporate Entrepreneurship: a Co-Word**

<b>Analysis</b>	<b>1</b>
1.1 Abstract	2
1.2 Introduction	2
1.3 Corporate Entrepreneurship	3
1.4 Method	5
1.4.1 Co-word Analysis	5
1.4.2 Units of Analysis	5
1.5 Results	7
1.5.1 Frequency of Analysis	7
1.5.2 Cluster Analysis	8
1.5.3 Multidimensional Scaling	11
1.6 Conclusions	15
1.7 Limits and Future Directions	16
1.8 References	17

## **2. Corporate Entrepreneurship and Customer: the Missing Link for Firm's**

<b>Innovation Process</b>	<b>24</b>
2.1 Abstract	25
2.2 Introduction	25
2.3 Overview of the study	26
2.4 Study 1	27
2.4.1 The framework	27

2.4.2	Method	27
2.4.3	Units of analysis	28
2.5	The state of the art	29
2.5.1	Corporate entrepreneurship	29
2.5.2	Value co-creation	30
2.5.3	Open innovation	32
2.6	Findings	33
2.7	Discussion	35
2.8	Study 2	35
2.8.1	Research method	35
2.8.2	Overview of the firm	36
2.8.3	Data collection	37
2.8.4	Data analysis	38
2.9	Findings	38
2.9.1	Involvement	39
2.9.2	Competences	40
2.9.3	Innovation	41
2.10	Discussion	44
2.11	Conclusions, limits and future directions	46
2.12	References	48
<b>3.</b>	<b>Open Innovation: a Pathway Toward Open Strategy?</b>	<b>52</b>
3.1	Abstract	53
3.2	Introduction	53
3.3	Literature background: from open innovation to open strategy	54
3.4	Method and research design	56
3.4.1	Overview of the companies	56
3.4.2	Data collection	57
3.4.3	Data analysis	59
3.5	Findings: Overview	62
3.5.1	Innovation strategy	62
3.5.2	Strategic Fit	63
3.5.3	Bidirectional communication	65
3.5.4	Open strategy	66
3.6	Discussion	67
3.6.1	Innovation strategy	68
3.6.2	Strategic fit	69

3.6.3	Bidirectional communication	69
3.6.4	Open strategy	70
3.7	Conclusions and limitations	71
3.8	References	73



# List of Tables

1.1	The most frequent keywords (frequency of at least 3) for the period 1992–2015	7
1.2	The five clusters of the keywords emerged	8
1.3	Frequency and co-word data of each cluster	9
2.1	The most frequent keywords in corporate entrepreneurship for the period 1992–2015	29
2.2	The most frequent keywords in value co-creation for the period 1992–2015	31
2.3	The most frequent keywords in open innovation for the period 1992–2015	32
2.4	Description of Cases	37
2.5	Customer’s involvement dimensions	39
2.6	Customer’s competences dimensions	41
2.7	Customer’s innovation dimensions	42
2.8	Customer’s driver of innovation C1	43
2.9	Customer’s driver of innovation C2	43
3.1	Description of the pilot case studies	57
3.2	Description of the case studies	57
3.3	Data summary of open strategy's label emerged	59
3.4	Representative quotes and archival entries underlying second-order themes	61
3.5	Open strategy dimensions	71

# List of Figures

1.1	Cluster analysis of Corporate entrepreneurship (1992 - 2015)	10
1.2	Multidimensional Scaling of Corporate entrepreneurship (1992 – 2015)	12
2.1	Comparison of corporate entrepreneurship, value co-creation and open innovation keywords	33
2.2	Dichotomy between the customers	44
3.1	Analytical coding process	60

# Essay 1

## **Drawing the Conceptual Structure of Corporate Entrepreneurship: a Co-Word Analysis**

## 1.1 Abstract

This study aims to reveal the conceptual structure map of corporate entrepreneurship research field during the period 1992-2015. By adopting a co-word analysis approach and following most rigorous methodological prescriptions, the 43 main concepts has been detected by filtering the co-occurrence of 654 normalized author's keywords extracted from Scopus database. Cluster analysis and multidimensional scaling (MDS) were applied in order to gather and detect the concepts positioning, density, distances and gaps cartography. Based on these multivariate analysis, the following conclusions can be drawn: (i) the five main keyword groups of concepts are located in three areas: central, semi-peripheral and peripheral, (ii) innovation and strategy related concepts are central in the field, (iii) entrepreneurial leverages and entrepreneurialism focused on Sme's concepts are semi-peripheral, (iv) organizational concepts related to learning and absorptive capacity, culture, human resources and cognition are largely decentralized and represent the emerging, hidden or peripheral topics.

## 1.2 Introduction

Over the years, practitioners and scholars have begun to pay increasing attention to the dimensions of entrepreneurship within existing organizations. Firms, on the one hand, have singled out corporate entrepreneurship as an organizational process that contributes to firm survival (Barringer & Bluedorn 1999) and the most effective method to achieve high levels of organizational performance (Garvin and Levesque 2006; Kuratko 2009; Morris et al. 2011; Kuratko & Audetresh 2013). Scholars, on the other hand, continue to examine and deepen this field of study as an important potential growth strategy (Lin & Lee 2011; Goodale et al. 2011), in order to configure an effective pattern of resources as the way to build a competitive advantage and flourish in the competitive environment (Sharma & Chrisman 1999; Phan et al. 2009; Morris et al. 2011; Kuratko & Audetresh 2013; Kuratko et al. 2015).

However, despite the recent developments in corporate entrepreneurship, the theoretical knowledge about the core themes of this field of study and the dimensions on which it is based represent key issues that warrant further, deeper understanding (Hornsby et al. 2002; Dess et al. 2003; Hornsby et al. 2009). It is possible to read that there exists a fundamental ambiguity (Meyer & Heppard 2000; Kuratko & Audetresh 2013) that emerges from the different scopes that have been deepened over the years, such as profitability (Vozikis et al. 1999; Zahra 1993), strategic renewal (Guth and Ginsberg 1990), innovativeness (Baden-Fuller 1995), knowledge gain (McGrath et al. 1994) and risk taking (Zahra et al. 2009). The corporate entrepreneurship literature is fractured in part because these individual streams of literature have emerged separately (Nason et al. 2015). Accordingly, this abundance, together with some variability of the perspectives and, mainly, the vocabulary employed, led a number of scholars to express concern about the lack of a universally acceptable picture and about the issues of identifying single themes within the whole picture of the field. According to these premises, we must find a pathway to answer and understand what the scientific knowledge strengths are and which themes could constitute the knowledge core of this field of study, in order to make a comprehensive and overall picture of the field.

Answering these questions demands sophisticated methods that make it possible to map knowledge on a specific subject and analyze it in depth. For this purpose, science mapping analysis (Borner et al. 2003; Cobo et al. 2011b) provides a powerful bibliometric method (Morris & Van Der Veer 2008) that allows discovery of the social, intellectual and conceptual aspects of a field of study. It focuses on monitoring a scientific field and delimiting research areas to determine its structure (Cobo et al. 2011b).

To aid this purpose, different approaches have been developed according to the unit of analysis. The most common units of analysis are journals, documents, cited references, authors and descriptive terms or words (Börner et al., 2003). Following Cobo et al. (2011a) and due to the aim of our article, we focus on words. The latter can be selected from the title, abstract, or body of a document or some combination thereof. Furthermore, it is possible to extract the original keywords of the documents (author's keywords) or the indexing ones provided by the bibliographic data sources (e.g., ISI Keywords Plus) as words to analyze.

In various economic fields, several researchers have analyzed keywords as a methodological approach to understanding the structure of a field of study. Examples include research on financial marketing (Munoz 2013), family businesses (Imes et al. 2013) and corporate social responsibility (De Bakker & Hellsten 2013). Nevertheless, a keyword study using a broad and comprehensible vocabulary is an obstacle that corporate entrepreneurship has still not managed to overcome. While prior analyses have examined the rise, contextual influences, issues and current domains of specific themes within corporate entrepreneurship (Stopford & Baden-Fuller 1994; Sharma & Chrisman 1999; Zahra & Covin 1995; Kuratko & Audetresh 2013), a study about the structure of keywords has not yet been delivered. In response to this situation, we developed a research study based on the study of keywords by applying a specific technique.

Using keywords, researchers have developed the technique of co-word analysis, an effective method that uses patterns of co-occurrence to provide an immediate picture of the actual content of a research field (Callon et al. 1991; Cambrosio et al. 1993; Ding et al. 2001). In this study, we mapped the conceptual structure (Cobo et al. 2011) of corporate entrepreneurship using a co-word analysis. We applied this method for the author's keywords associated with the papers, which represent a sample of this field of study from 1992 to 2015. The remainder of this paper is organized as follows. First, we introduce the research topic along with the developments in corporate entrepreneurship; then, we explain the methodology of this paper, including the methods of data collection, data analysis and data processing; finally, we conduct a descriptive statistical analysis, cluster analysis and multidimensional scaling to analyze the dataset, and the results are interpreted to reach a reasonable conclusion.

### **1.3 Corporate entrepreneurship**

Corporate entrepreneurship is a field of study that refers to the process of organizational renewal (Sathe 1989) and is aimed to explain those processes that contribute to firm survival and performance (Barringer & Bluedorn 1999; Covin & Slevin 1989; Lumpkin & Dess 1996; Zahra 1993). In particular, it

focuses on the renewal of established organizations, thereby facilitating their viability and competitiveness through the utilization of various innovation-based initiatives.

Research on entrepreneurship originated with the works of economist Joseph Schumpeter (1883-1950). In his writings, Schumpeter argued that the main agents of economic growth are entrepreneurs, who introduce new products, new methods of production and other innovations that stimulate economic activity (Schumpeter 1934).

According to these premises, over the last few decades, the scope of corporate entrepreneurship domains has significantly evolved, and perspectives have varied considerably over time (Kuratko 2010; 2012). Scholars have often adopted specific but heterogeneous views about the domains of corporate entrepreneurship, recognizing it as a field of study that encompasses multiple categories and themes and that promotes entrepreneurial actions by which companies seek to exploit entrepreneurial opportunities that rivals have not noticed or exploited. These domains were mainly formed in the early nineties based on the inheritance from entrepreneurship scholars of the previous decade (Miller 1983; Burgelman 1983; Pinchot 1985; Hisrich & Peters 1986), who were helpful in developing the first and current pioneering and comprehensive definitions of corporate entrepreneurship. Guth and Ginsberg (1990) have stressed that corporate entrepreneurship encompasses two major types of phenomena: new venture creation within existing organizations and the transformation of ongoing organizations through strategic renewal. In line with this perspective, Zahra (1991) confirmed that corporate entrepreneurship includes activities aimed at creating new businesses in existing organizations through process innovations. Finally, according to this renewal thought, Sharma and Chrisman (1999) suggested that corporate entrepreneurship is the process whereby the components of an existing organization create a new organization or instigate renewal or innovation within the same organization. As can be seen by these definitions, scholars have developed their perspectives about corporate entrepreneurship around the concept of renewal, which can be seen as the first main dimension of this field of study. However, these considerations of corporate entrepreneurship often encompass other dimensions in addition to these concepts of renewal. As stated by Covin and Slevin (1991), several key dimensions emerged from the corporate entrepreneurship studies of the nineties: innovation, risk-taking and proactiveness.

In the early 21st century, scholars are pursuing this line of research and considering corporate entrepreneurship as a field of study based on several dimensions. These are concerned with various forms of novelty, such as organizational renewal, innovation and establishing new ventures, even to reach a sustained competitive advantage (Dess et al. 2003; Kazanjian et al. 2001). Thus, increasingly, corporate entrepreneurship is found to affect firm performance (Zahra & Covin, 1995; Zahra & Nielsen, 2002), driving scholars to examine significant elements of internal corporate entrepreneurship (Hornsby et al. 2009; Kuratko et al. 2001, 2005) and the strategic aspects of external corporate venturing (Schildt et al. 2005; Keil et al. 2008; van de Vrande et al. 2009). Indeed, the recent conceptualizations have further expanded its scope. Morris et al. (2011) and Phan et al. (2009) proposed a vision of the corporate entrepreneurship through two different categories of phenomena that represent the domains of this field

of study. Research activities in this field, as previously stated, have begun through the considerations of simple domains, or rather, keywords such as renewal and innovation. Nowadays, the current domains can be considered sub-domains (almost fields of study) that include all previously studied keywords. As can be seen in Kuratko and Audretsch (2013), the current features of corporate entrepreneurship are two distinct categories of phenomena that represent the domains of this field of study: corporate venturing and strategic entrepreneurship.

## **1.4 Method**

### **1.4.1 Co-word analysis**

Co-word analysis is an established bibliometric approach that is widely used in scientometric research to map and interpret the structure of knowledge in a scientific discipline. Cobo et al. (2011) defined this approach as a technique that combines both performance analysis tools and science mapping tools to analyze a research field and detect and visualize its conceptual structure, such as particular topics/themes or thematic areas.

Co-word analysis draws upon the assumption that a paper's words constitute an adequate description of its content. Two words that co-occurring within the same paper are an indication of a link between the themes to which they refer (Cambrosio et al. 1993). The presence of many co-occurrences around the same word or pair of words points to a locus of strategic alliance within papers that may correspond to a research theme (Ding et al. 2001). The use of words through this technique allows the researcher to overcome limitations resulting from other bibliometric techniques, which are caused by the inability to quote outside of scientific publications or where mention is almost irregular or absent (Rip & Courtial 1984). Indeed, the main advantage in the use of co-word analysis is given precisely by the power of the words, which are understood as the most important vector of the concepts of science (Engelsman & Van Raan 1994). Words are the most important research elements in co-word analysis. They can be extracted from the title, abstract, keywords proposed by the authors or by the scientific databases, and full-text documents. Regardless of the source, this kind of unit of analysis allows scholars to apply this method in many subjects and disciplines, such as information retrieval (Ding et al. 2001), nanotechnology (Kostoff et al. 2006), international scientific studies (Hou et al. 2006), human genomics (Musgrove et al. 2003), medical informatics (Wagner & Leydesdorff 2005), management science (Yue 2012) and knowledge management (Ponzi 2002; Hou et al. 2006; Sedighi & Jalalimanesh 2014).

In this paper, we conduct a co-word analysis utilizing the methods of cluster analysis and multidimensional scaling in order to identify the conceptual structure of corporate entrepreneurship in the last twenty-five years.

### **1.4.2 Units of analysis**

The data used for this paper were taken from Elsevier's Scopus database, which is one of the world's largest multidisciplinary databases of scientific literature (Bar-Ilan 2008) and has been widely used as the

data source in studies depicting scientific dynamics (Gupta & Dhawan 2009). The use of Scopus guarantees a selection of journals with a high level of selected literature coverage and the possibility to apply advanced research according to the topic, time frame and unit of analysis (Falagas 2008).

We set a query in order to extract documents according to a unique search term, “corporate entrepreneurship,” without considering a specific type of document. This query retrieved a set of 229 documents about corporate entrepreneurship covering a time frame from 1992 to 2015. Then, based on this sample, we applied word extraction. There are two ways to extract words from documents: non-parametric and parametric (Ding et al. 2001). Non-parametric extraction deals with manual efforts to collect keywords given by keyword lists (the author’s keywords or the database’s keywords), title, abstract and sometimes even classification codes. On the other hand, the parametric method implies data collection through the extraction of words directly from full-text documents. The non-parametric method of keyword extraction was used in this study, and we took into account only the keywords added by the authors because they are the descriptive words most commonly selected as the type of item to analyze (Börner et al. 2003; Cobo et al. 2011). Furthermore, they provide a more detailed description to improve the data quality and avoid bias in the indexing process (Romo - Fernandez 2013).

A total of 1.137 unique keywords emerged from this research, and after they were selected, it was necessary to standardize them. This process is used to remove all synonyms, ambiguity, general terms and variant forms of words (Ding et al. 2001) to resolve problems such as distortion or noise. In the corporate entrepreneurship literature, some related concepts are represented by different words or phrases; thus, such words were standardized by an appropriate process of merging. The following examples illustrate the process:

- Acronyms: Corporate entrepreneurship + CE = Corporate entrepreneurship;
- Plurals: Entrepreneurs + Entrepreneur = Entrepreneurs; Corporate ventures + Corporate venture = Corporate ventures;
- Synonyms: Corporate venturing + Internal venturing = Corporate venturing;

Further, it is important to consider the keywords that we did not merge even though they had the same prefix, such as corporate venturing and corporate ventures. We argue that these must be not merged because they do not have the same meaning or are more precise separately. In addition, merging them would not have been useful for the purposes of the study. For example, innovativeness and innovation, respectively, refer to the strategic and competitive orientation of an organization and the vehicle that the organization uses to achieve its competitive advantage (Manu 1992). Finally, we did not consider the keyword “corporate entrepreneurship” because multivariate analysis highlights how related words in this field of study are distributed in a multidimensional geometric area. Furthermore, according to the previously stated research keyword (“corporate entrepreneurship”), it appears in all the papers considered and would not have added value to this research. After this processing, we were left with 654



keywords; starting from this sample, we set the next steps of the co-word analysis. Using Bibexcel and SCIMAT, we analyzed the period concerned and, to promote data smoothness, the best option was to choose a unique period.

## 1.5 Results

### 1.5.1 Frequency of keywords

Following most rigorous methodological prescriptions, we standardized the sample of 654 keywords that emerged in the previous step and applied a 2-threshold and extracted 43 keywords. We chose them because we argue that are able to represent the main characteristics of corporate entrepreneurship. Table 1 displays the most frequently used keywords:

**Table 1.** The most frequent keywords (frequency of at least 3) for the period 1992–2015

Keyword	Frequency	Keyword	Frequency
Innovation	31	Absorptive capacity	4
Intrapreneurship	16	Proactiveness	4
Entrepreneurial orientation	14	Global entrepreneurship monitor	3
Entrepreneurship	14	Nigeria	3
Corporate venturing	13	Opportunity	3
Strategy	8	Organizational culture	3
Organizational performance	7	Entrepreneurs	3
Sustainability	6	High-performance human resource practices	3
Middle managers	6	Radical innovation	3
Entrepreneurialism	6	Technological distinctive competencies	3
Firm performance	5	Entrepreneurial intensity	3
Innovativeness	5	Organizational context	3
Organizational learning	4	Ambidexterity	3
Strategic renewal	4	Training	3
Corporate ventures	4	Corporate entrepreneurship strategy	3
Risk-taking	4	Corporate innovation	3
Entrepreneurial behavior	4	Knowledge management	3
SMEs	4	Venture capital	3
Corporate governance	4	Spain	3

Performance	4	Strategic entrepreneurship	3
GEM	4	Top management support	3
Case study	4		

As can be seen in Table 1, the most frequently used keyword was “innovation” (31), followed by “intrapreneurship” (16), “entrepreneurial orientation” (14), “entrepreneurship” (14) and “corporate venturing” (13). Notice that these keywords have the higher frequency of occurrence and co-occurrence, indicating that these research topics are major focuses and bridges connecting other research topics in the field of study of corporate entrepreneurship.

### 1.5.2 Cluster analysis

In this study, we conducted a hierarchical cluster analysis with Ward’s method, which allowed the categorization of the keywords according to co-word values. The 43 keywords were classified into five clusters (Cluster 1 to Cluster 5). We found these five groups of keywords to be the best fit for representing the current status of corporate entrepreneurship and the current sub-areas of this field of study in a more comprehensive way. The keywords of each cluster are shown in Table 2.

**Table 2.** The five clusters of the keywords emerged

Cluster 1	Cluster 2	Cluster 3
Innovation	Organizational Performance	Innovativeness
Intrapreneurship	SMEs	Risk Taking
Entrepreneurship Orientation	Entrepreneurialism	Strategic Renewal
Entrepreneurship	Strategic Entrepreneurship	Proactiveness
Corporate Venturing	Corporate Ventures	Nigeria
Strategy	Entrepreneurs	Organizational Context
Sustainability	Corporate Innovation	Performance
Middle Managers	Spain	Entrepreneurial Intensity
Firm Performance	Training	Knowledge Management
Entrepreneurship Behavior		
Case Study		
Corporate Governance		
Absorptive Capacity		
Ambidexterity		
Radical Innovation		
Opportunity		
VC		
Organizational Culture		

Cluster 4	Cluster 5
GEM	Organizational Learning
Global Entrepreneurship Monitor	Technological Distinctive Competencies
High Performance Human Resources practices	Top Management Support

As can be seen in Table 2, the five clusters have several dimensions and type of content. In order to achieve an in-depth understanding of each cluster, we calculated the total co-word frequency of each cluster, as well as the other dimensions (Table 3); further, each cluster was assigned a name in order to distinguish them according to the most relevant theme. In Table 3, the average data were treated as an essential index for distinguishing each topic cluster.

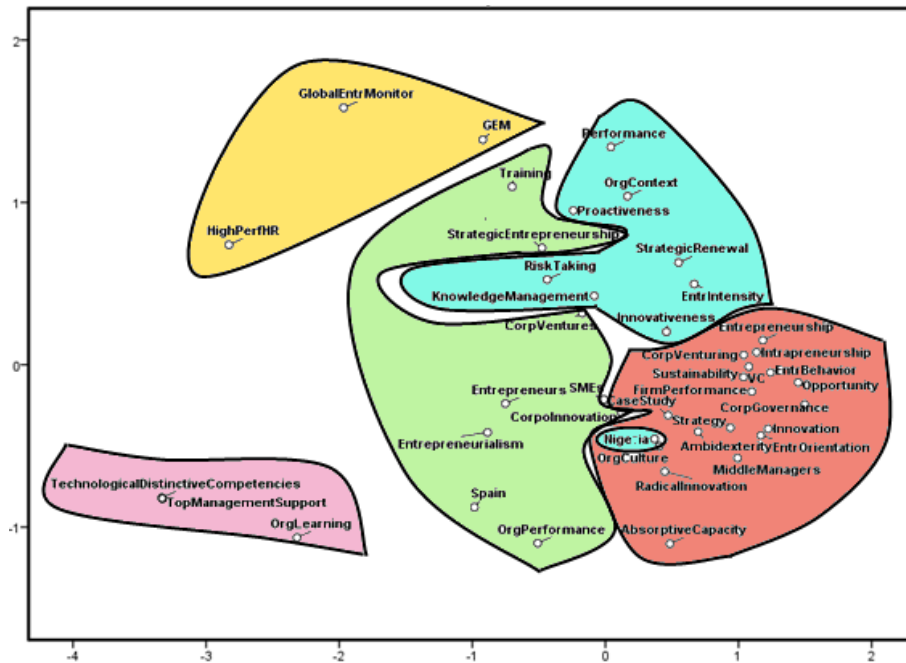
**Table 3.** Frequency and co-word data of each cluster

Cluster	Name	N° of keywords	Total frequency	Average frequency
Cluster 1	Innovation and Strategy	18	141	7,42
Cluster 2	Entrepreneurialism and SME	9	36	4
Cluster 3	Entrepreneurial leverages	9	33	3,66
Cluster 4	GEM	3	10	3,33
Cluster 5	Organizational learning	3	10	3,33

As Table 3 shows, the keywords in each cluster reflect the corresponding theme as well as the structure of corporate entrepreneurship. This analysis shows that Cluster 1 is the largest, including a total of 18 keywords, while the smallest clusters are 4 and 5, each of which includes 3 keywords.

Cluster 1 shows the highest average frequency and the highest total frequency, indicating that it receives a lot of attention and has the most centralized themes of this field of study. Clusters 2 and 3 represent the middle ground between the core and the edge of corporate entrepreneurship. Both clusters include keywords that are focused on activities that are complementary to corporate entrepreneurship, which have been studied by the scholars to support the themes included in Cluster 1. Finally, the indexes in Clusters 4 and 5 are low, and this is due to the weak attention received by these research activities in the range of time considered. Thus, we argue that the themes in these two clusters are relatively isolated and are not the focus of the field of study or are a marginal aspect of corporate entrepreneurship. Further, this means that they are keywords that represent emerging, neglected or specialized themes.

Figure 1. Cluster analysis of Corporate entrepreneurship (1992 - 2015)



The position of each cluster is decided according to its representative keywords and, as can be seen by the figures shown above (Figure 1), it is possible to draw some conclusions:

- According to Figure 1 and Table 3, Cluster 1 (red), named *Innovation and Strategy*, includes keywords with a high degree of centrality, such as “entrepreneurship,” “corporate venturing,” “innovation” and “strategy.” Conforming to its position, it shows high frequency and high density, which implies that the words included in this cluster are considered the core keywords and are known as the principal themes, or the motor themes (Dehdarirad et al. 2014), of corporate entrepreneurship. The word list produced by the analysis shows that the word “innovation” appears with the highest frequency. Its collocation suggests that is the central topic of the cluster and is linked with topics such as entrepreneurship and corporate themes (e.g. “strategy,” “firm performance” and “corporate governance”). Topics are mainly focused on corporate themes, revealing that the core of the corporate entrepreneurship field is the reach of innovation of the firm and its strategy through the creation of new businesses or processes. In short, these keywords were the focus of discussion in the literature pertaining to this cluster for the years concerned, meaning that they refer to areas in which researchers worked in a significant way;

- As shown in Figure 1 and Table 3, Cluster 2 (green), named *Entrepreneurialism and SME*, is dominated by keywords such as “organizational performance,” “entrepreneurialism,” “strategic entrepreneurship,” “corporate ventures” and “SMEs.” The word list generated from the analysis shows that the word “organizational performance” appears as a high-frequency indicative word in the documents. Its collocation indicates that the cluster is built around relations with topics related to SMEs

and entrepreneurialism. In short, topics in this cluster are mainly focused on entrepreneurialism, which is associated in the literature with freedom to conduct experiments and renewal (e.g., “entrepreneurs,” “corporate ventures”) with more extensive experimentation by groups (Stopford & Baden - Fuller 1994). In particular, this perspective is related to the SME environment and SMEs’ attempts to achieve innovation (“SME” and “corporate innovation”);

- According to Figure 1 and Table 3, cluster 3 (blue sky), named *Entrepreneurial Leverage*, includes keywords such as “innovativeness,” “risk taking,” “strategic renewal” and “proactiveness.” The keyword list drawn from the analysis shows how the word “innovativeness” appears frequently in the documents analyzed. The collocations indicate that the central topics in the cluster are related to individual leverage and capabilities with the aim of reaching good performance (e.g., “risk taking,” “proactiveness” and “performance”). In brief, the innovativeness skill is linked to all capabilities with the aim to achieve high performance and strategic renewal according to the competitive orientation;

- As shown in Figure 1 and Table 3, Cluster 4 (yellow), named *GEM*, shows keywords such as “GEM,” “global entrepreneurship monitor” and “high performance human resources practices.” The word list drawn from the analysis reveals that the word “GEM” appears with high frequency, indicating its importance in the documents. However, due to the limited size of the sample, it is not possible to define a significant structure of the other keywords. The other terms show low levels of frequency, pushing this cluster to the edge of the corporate entrepreneurship research. In short, these themes are focused on general entrepreneurship topics or human resources, which do not reveal specialized features of the cluster;

- According to Figure 1 and Table 3, cluster 5 (purple), named *Organizational Learning*, includes keywords such as “organizational learning,” “technological distinctive competencies” and “top management support.” The word list drawn from the analysis reveals that the term “organizational learning” appears with high frequency, indicating its importance in the documents. The rest of the keywords show a low degree of frequency. The collocations reveal close internal connections between the keywords, emphasizing themes focused on management and organization topics in general (e.g., “top management support”). This kind of internal structure reveals how this cluster includes highly specialized themes that barely have a connection with other clusters.

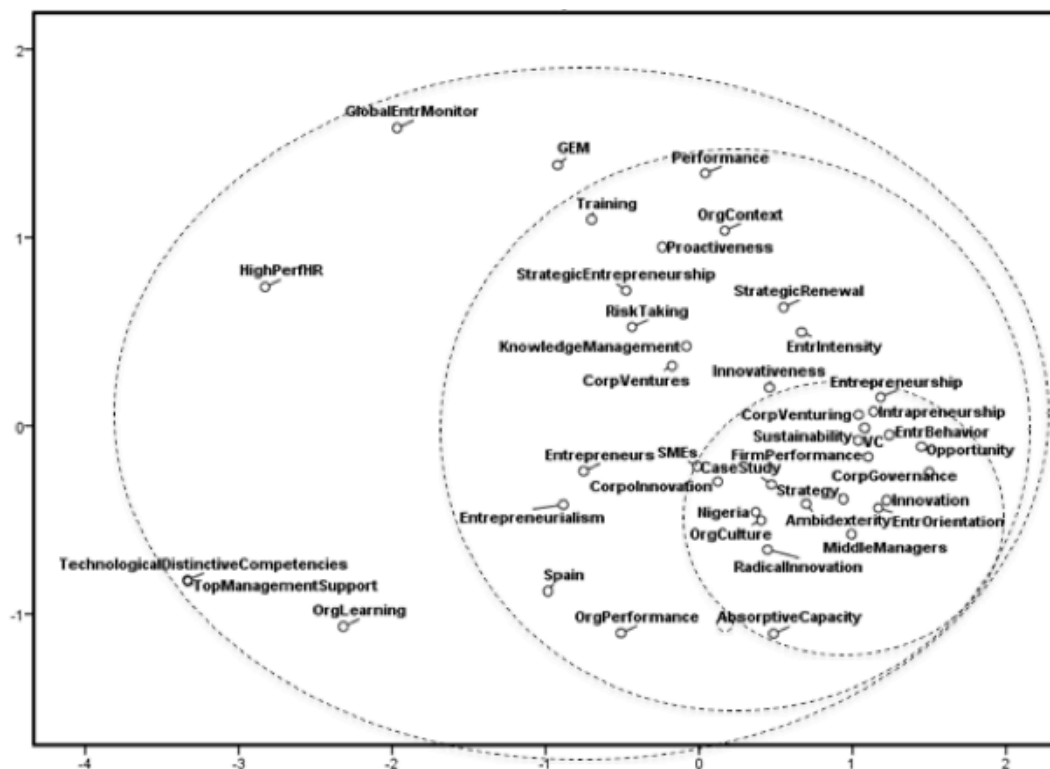
Subsequently, the clusters of keywords analyzed in this section will be taken into account to develop a general overview using multidimensional scaling (MDS), a technique useful to represent the overall positions of these five clusters in the corporate entrepreneurship field.

### 1.5.3 Multidimensional scaling

In order to analyze the most highlighted themes and to develop an intuitive understanding of the correlations among themes, we analyzed the keywords of each cluster (a total of 43 keywords) through a two-dimensional map using multidimensional scaling (MDS).

In particular, we used this kind of analysis to study the degree of similarity (dissimilarity) between the keywords that emerged. According to the mapping principle, the higher the proximity, the more similar two keywords are (Leydesdorff 2006). The map generated can indicate the degree of correlation, research emphasis and directions through the location of research topics. Through the MDS, two dimensions can be identified and used to describe the themes of corporate entrepreneurship. As shown in Figure 2, Dimension 1 (from left to right) represents the degree of frequency, and Dimension 2 (from bottom to top) represents the degree of density of themes and measures the strength of internal ties among them.

Figure 2. Multidimensional Scaling of Corporate entrepreneurship (1992 – 2015)



According to Figure 2, the keywords in the MDS follow a specific collocation. The scatterplot reveals a structure of a pathway from the top to the bottom right part. Figure 2 shows the conceptual structure of corporate entrepreneurship and the position of the keywords, revealing well-defined semantic fields according to three areas of the network: central, semi-peripheral and peripheral:

- The *central area* shows themes that are deeply rooted in corporate entrepreneurship, such as “innovation,” “intrapreneurship,” “entrepreneurship orientation,” “entrepreneurship” and “corporate venturing.” These are considered core keywords of corporate entrepreneurship that are focused on pure corporate topics that emphasize the centrality of the processes and ventures to the organization. The findings show that these themes demand a careful analysis, in order to compare them with the findings of

previous studies. First of all, we have partly confirmed past terminology studies (Sharma & Chrisman 1999) that emphasized the hierarchies of the central terms such as corporate venturing and innovation. We found, through this study, that these themes occupy a core position in the corporate entrepreneurship due to their position in this specific area. Secondly, deepening the findings and peculiarities, some different perspectives have emerged. Past researches have argued that corporate entrepreneurship was mainly composed by specific domains (Kuratko & Audretsch 2013), according to which corporate venturing has been recognized as the first major theme of this field of study and includes various methods for creating, adding to or investing in new businesses (Covin et al. 2003; McGrath et al. 2006; Kuratko et al. 2009). As shown in Figure 2 and Table 1, through this study it was possible to deeply analyze the conceptual structure of corporate entrepreneurship, which led us to achieve a contribution that we added to the perspective mentioned above. The analysis revealed that innovation is the major theme of corporate entrepreneurship, from which it is possible to build up a web of connections with other themes. Indeed, specific connections emerged among the frequent keywords according to their positions. First, the proximity between “innovation,” “entrepreneurial orientation” and “strategy” emphasizes a classical domain of corporate entrepreneurship in which firms with an entrepreneurial orientation are innovative and are able to continuously identify and exploit opportunities (Lumpkin & Dess 1996). This culture sometimes tends to influence the “strategy” of the firm. Secondly, a close proximity emerged among “intrapreneurship,” “entrepreneurship” and “corporate venturing.” This relationship emphasizes and confirms the roots of corporate entrepreneurship through actions of intrapreneurship, which implies the development of independent units designed to create and innovate within the organization, and actions of corporate venturing, which implies activities of units whose purpose is to develop profitable positions in external markets (Nielsen et al. 1985) and involves corporate involvement in the creation of new business (Kuratko & Audretsch 2013);

- The *semi-peripheral area* includes themes such as “organizational performance,” “SMEs,” “entrepreneurialism,” “innovativeness,” “risk taking” and “strategic renewal.” This zone presents topics mainly focused on specific trends and leverages, involving both the entrepreneur and the organization in support of the core themes of the central area. The findings reveal that this area embraces two distinct perspectives. First, the top part of this zone includes themes that emphasize the leverage exploitable by the entrepreneur in order to achieve performance (“proactiveness,” “innovativeness,” “knowledge management” and “risk taking”). These are focused on features of innovativeness, knowledge and risk taking in order to play a proactive role in the strategic renewal of the firm, even with a view of the context. However, it is important to deepen these findings in order to compare the current collocations of themes with past perspectives. Guth and Ginsberg (1990) offered a definition of corporate entrepreneurship involving types of entrepreneurial activities engaged in by the firm in order to reach a strategic renewal. According to Kuratko and Audretsch (2013), strategic renewal represents one form of strategic entrepreneurship, which differs from the corporate entrepreneurship or venturing forms because it leads to the reconfiguration (rather than creation) of existing businesses within a corporate setting

(Sharma & Chrisman 1999) and allows the firm to more profitably exploit product-market opportunities (Dess et al. 2003). As shown in Figure 2, the position of the keyword (“strategic renewal”) suggests a good connection with core entrepreneurship themes (“central-area”); on the other hand, it is placed in a semi-peripheral area, which confirms a difference from these themes. This finding differs from the past perspectives about strategic renewal, which, as stated by Sharma and Chrisman (1999), has been considered equal to core themes such as innovation and corporate venturing. Therefore, it has emerged a decentralization of this theme in comparison to previous studies (Sharma & Chrisman 1999), revealing a support to the core themes. In short, strategic entrepreneurship emphasizes an opportunity-driven mindset or management that seeks to achieve and maintain a competitively advantageous position for the firm (Kuratko & Audretsch 2013). Secondly, the bottom part of the semi-peripheral zone includes topics mainly focused on entrepreneurialism. This means there is freedom to conduct experiments and renewal with more extensive experimentation by the entrepreneurs (Stopford & Baden - Fuller 1994) and, in this case, in the SME context of organization in general (“entrepreneurs,” “SMEs” and “organizational context”). These findings reveal and confirm that in this area, there is a strong connotation of individual leverages focused on performance. Finally, another finding is given by the centralization that these themes have had in Spain, emphasizing a good level of research activities about organizations and entrepreneurialism;

- The *peripheral area* includes themes such as “GEM,” “global entrepreneurship monitor,” “organizational learning” and “top management support.” They are positioned in the external area, and this condition implies their status of isolation in comparison to the other themes of corporate entrepreneurship. Organizational concepts related to learning and absorptive capacity, culture, human resources and cognition are largely decentralized and represent emerging, hidden or peripheral topics. At the top of the area there are themes of human resources or about global entrepreneurship, which show low internal connections, implying a vast space for further development of this branch (Zong et al. 2013). In contrast, the bottom part of the area shows themes of organizational concepts, following trends of the semi-peripheral area in the bottom part of the MDS. In brief, these topics are located at the edge of the whole field of study, showing very weak connections with other areas but well-developed internal connections. This implies stable and specialized themes that are not closely related with core corporate entrepreneurship topics.

To sum up, according to the positions of the keywords, it has been possible to understand the real dimensions of the MDS (Figure 2) and, accordingly, of the field of study. We argue that the current and main dimensions of corporate entrepreneurship can be discerned based on corporate themes (Dimension 1) and strategic entrepreneurship themes (Dimension 2). The analysis helped us grasp the current status and conceptual structure of this field of study, and two results deserve particular emphasis: first, innovation as the major theme of corporate entrepreneurship; and second, the decentralization of strategic renewal, which was considered to be equal to the previous one (innovation) in the past.



## 1.6 Conclusions

In this study we conducted a co-word analysis exploiting two specific types of software, Bibexcel and SCIMAT, to provide a description of the conceptual structure of the field of corporate entrepreneurship. This article reports on a science mapping analysis of this field of study over the period of 1992-2015 in order to help future researchers of corporate entrepreneurship to embark on research based upon conceptual structure studies. Accordingly, providing cartography of the field from the perspective of frequently appearing keywords by using co-word analysis, hierarchical clustering and multidimensional scaling, we sought to take a picture of this field of study. Our approach confirms and extends prior statements about corporate entrepreneurship, providing clear and reasonable results, mainly about the correlation among research topics and the current status in the field.

First of all, the frequent analysis of the keywords reveals the main themes of these twenty-five years. The analysis shows a tendency of research scholars to focus mainly on innovation followed by intrapreneurship, entrepreneurial orientation, entrepreneurship and corporate venturing. This suggests a great interest on factors related mainly to the processes of the firm, and the keywords mentioned above show a strong focus on those processes that imply a correlation to the internal developments of the organization. Accordingly, we set the hierarchical cluster analysis for keywords with a high frequency in order to detect the areas of interest. This analysis suggests that the research fields of corporate entrepreneurship can be divided into five clusters that show various levels of development and interest. The majority of them (Clusters 1, 2 and 3) and their themes are concentrated in a specific zone of Figure 1. These are focused on pure corporate themes and leverage aimed at firm performance and strategic renewal; in contrast, the minority of these clusters (Cluster 4 and 5) are marginal and far from the core. The latter are focused on human resources or general entrepreneurship themes.

According to their themes, these clusters, thanks to MDS analysis, can be divided into three specific areas: a central area, a semi-peripheral area and a peripheral area. The central area includes the core keywords, such as “innovation,” “intrapreneurship,” “entrepreneurial orientation,” “entrepreneurship” and “corporate venturing,” which are discerned according to their frequency, co-word values and cluster analysis. These are the main topics, the core themes, of corporate entrepreneurship, which have caught the attention of researchers in the last twenty-five years and emphasize a strong focus on the internal themes of a firm. The main topics are mainly focused on innovation and intrapreneurship, and this finding allowed us to add a further contribution to past perspectives according to which corporate entrepreneurship was mainly focused on corporate venturing (Kuratko and Audretsch 2013). The proximity between innovation, entrepreneurial orientation and strategy emphasizes the domains of corporate entrepreneurship, as firms with an entrepreneurial orientation are innovative and are able to continuously identify and exploit opportunities even at the strategic level. The semi-peripheral area shows topics mainly focused on specific trends and leverage, involving both the entrepreneur and the organization. Entrepreneurial leverages are those features related to individual capabilities that are

intended to achieve performance or strategic renewal through a proactiveness approach based on innovativeness and risk taking. These trends lie even within the organization, as entrepreneurialism implies the freedom to renew tendency within the SME context. This area also showed how past studies have been reconsidered and, particularly in regard to the centrality of strategic renewal (Guth and Ginsberg 1990; Sharma and Chrisman 1999), which resulting more decentralized than the past researches. Finally, the peripheral area shows two kinds of specific situations: the bottom part appears isolated and very focused, which implies a highly specialized group of keywords. Furthermore, according to their position in the MDS, the keywords did not show a strong connection with other corporate themes; on the contrary, the top part appears in a peripheral zone but is not isolated like the previous part. This position means that there is a better connection with core themes of corporate entrepreneurship, especially themes that will become potential research topics in the future.

Above all, based on co-word analysis, this study reveals the main research topics of corporate entrepreneurship. The analysis helped us grasp the current status and conceptual structure of this field of study through explicit description and reasoned interpretation of results. As previously stated, two of the results of this research deserve to be emphasized: first, the innovation as the major theme (category) of corporate entrepreneurship; and second, the decentralization of strategic renewal, which was considered as an equal of the previous one (innovation) in the past researches.

## **1.7 Limits and future directions**

Finally, some methodological limitations to this study should be pointed out, in order to make the right suggestions for future studies. This research tried to thoroughly investigate the conceptual structure of corporate entrepreneurship. This field of study and co-word analysis represent a combination of two issues, promising real potential developments for the future; on the other hand, this task is not free of difficulties. The first is that this study is focused on a unique period (1992-2015), which precludes the possibility to deepen the dynamic trends of the keywords over the years; the second is that the analysis focuses on a priority research key (“corporate entrepreneurship”), which inevitably excludes those of a secondary nature, which would imply a bigger range for the sample; the third is the unit of analysis, the author’s keywords, which led us to reach a good external validity. Nevertheless, we argue that, in order to reach a higher level of data sources, it would be better to gather the units from the whole corpus; accordingly, the fourth and last limitation is linked to the period analyzed, which could be bigger through another unit of analysis, which would allow us to refer to even older documents.

## 1.8 References

- Bar-Ilan, J. (2008). Which h-index?—A comparison of WoS, Scopus and Google Scholar. *Scientometrics*, 74(2), 257-271.
- Barringer, B. R., & Bluedorn, A. C. 1999. The relationship between corporate entrepreneurship and strategic management. *Strategic Management Journal*, 20(5), 421-444.
- Birkinshaw, J. 1997. Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives. *Strategic management journal*, 18(3), 207-229.
- Borch, O. J., Huse, M., & Senneseth, K. 1999. Resource configuration, competitive strategies, and corporate entrepreneurship: an empirical examination of small firms. *Entrepreneurship Theory & Practice*, 24(1), 49–70.
- Börner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. *Annual review of information science and technology*, 37(1), 179-255.
- Brazeal, D. V. 1993. Organizing for internally developed corporate ventures. *Journal of Business Venturing*, 8, 75–90.
- Burgelman, R. A. 1983. Corporate entrepreneurship and strategic management: Insights from a process study. *Management science*, 29(12), 1349-1364.
- Callon, M., Courtial, J. P., Turner, W. A., & Bauin, S. 1983. From translations to problematic networks: An introduction to co-word analysis.
- Cambrosio, A., Limoges, C. A. M. I. L. E., Courtial, J. P., & Laville, F. 1993. Historical scientometrics? Mapping over 70 years of biological safety research with coword analysis. *Scientometrics*, 27(2), 119-143.
- Cartes-Velásquez, R., & Manterola-Delgado, C. 2014. Bibliometric analysis of articles published in ISI dental journals, 2007–2011. *Scientometrics*, 98(3), 2223–2233.
- Caruana, A., Morris, M., & Vella, A. 1998. The effect of centralization and formalization on entrepreneurship in export firms. *Journal of Small Business Management*, 36(1), 17-29.
- Cobo, M. J., Chiclana, F., Collop, A., de Ona, J., & Herrera-Viedma, E. 2014. A bibliometric analysis of the intelligent transportation systems research based on science mapping. *Intelligent Transportation Systems, IEEE Transactions on*, 15(2), 901-908.
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. 2011. An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the fuzzy sets theory field. *Journal of Informetrics*, 5(1), 146-166.
- Covin, J. G., & Slevin, D. P. 1989. Strategic management of small firms in hostile and benign environments. *Strategic management journal*, 10(1), 75-87.
- De Bakker, F. G., & Hellsten, I. (2013). Capturing online presence: Hyperlinks and semantic networks in activist group websites on corporate social responsibility. *Journal of business ethics*, 118(4), 807-823.

- Dehdarirad, T., Villarroya, A., & Barrios, M. (2014). Research trends in gender differences in higher education and science: A co-word analysis. **Scientometrics**, 101(1), 273-290.
- Dess, G. G., Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P. J. 2003. Emerging issues in corporate entrepreneurship. **Journal of management**, 29(3), 351-378.
- Ding, Y., Chowdhury, G. G., & Foo, S. (2001). Bibliometric cartography of information retrieval research by using co-word analysis. **Information processing & management**, 37(6), 817-842.
- Drucker, P. F. 2002. The discipline of innovation. 1985. **Harvard business review**, 80(8), 95-100.
- Engelsman, E. C., & van Raan, A. F. 1994. A patent-based cartography of technology. **Research Policy**, 23(1), 1-26.
- Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses. **The FASEB journal**, 22(2), 338-342.
- Gao-Yong, L., Ji-Ming, H., & Hui-Ling, W. 2012. A co-word analysis of digital library field in China. **Scientometrics**, 91(1), 203–217.
- Garvin, D. A., & Levesque, L. C. (2006). Meeting the challenge of corporate entrepreneurship. **Harvard Business Review**, 84(10), 102-12.
- Goodale, J. C., Kuratko, D. F., Hornsby, J. S., & Covin, J. G. (2011). Operations management and corporate entrepreneurship: The moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance. **Journal of Operations Management**, 29(1), 116-127.
- Gupta, B., & Dhawan, S. (2009). Status of India in science and technology as reflected in its publication output in the Scopus international database, 1996–2006. **Scientometrics**, 80(2), 473-490.
- Guth, W. D., & Ginsberg, A. 1990. Guest editor's introduction. **Strategic management journal**, 11, 5-15.
- Hanan, M. 1976. Venturing corporations-Think small to stay strong. **Harvard Business Review**, 54(3), 139–148.
- Healey, P., Rothman, H., & Hoch, P. K. 1986. An experiment in science mapping for research planning. **Research Policy**, 15(5), 233-251.
- Hill, R. M., & Hlavacek, J. D. 1972. The venture team: A new concept in marketing organization. **The Journal of Marketing**, 44-50.
- Hisrich, R. D., & Peters, M. P. 1986. Establishing a new business venture unit within a firm. **Journal of Business Venturing**, 1(3), 307-322.
- Hitt, M. A., Nixon, R. D., Hoskisson, R. E., & Kochhar, R. 1999. Corporate entrepreneurship and cross-functional fertilization: Activation, process and disintegration of a new product design team. **Entrepreneurship Theory and Practice**, 23, 145-168.
- Hornsby, J. S., Kuratko, D. F., Shepherd, D. A., & Bott, J. P. 2009. Managers' corporate entrepreneurial actions: examining perception and position. **Journal of Business Venturing**, 24(3), 236–247.

- Hornsby, J. S., Naffziger, D. W., Kuratko, D. F., & Montagno, R. V. 1993. An interactive model of the corporate entrepreneurship process. **Entrepreneurship Theory and Practice**, 17(2), 29–37.
- Hu, C. P., Hu, J. M., Deng, S. L., & Liu, Y. 2013. A co-word analysis of library and information science in China. **Scientometrics**, 97(2), 369-382.
- Huang, M. H., & Chang, C. P. 2014. Detecting research fronts in oled field using bibliographic coupling with sliding window. **Scientometrics**, 98(3), 1721–1744.
- Imes, D., Mumm, P., Böhm, J., Al-Rasheid, K. A., Marten, I., Geiger, D., & Hedrich, R. 2013. Open stomata 1 (OST1) kinase controls R-type anion channel QUAC1 in Arabidopsis guard cells. **The Plant Journal**, 74(3), 372-382.
- Jennings, D. F., & Lumpkin, J. R. 1989. Functioning modeling corporate entrepreneurship: An empirical integrative analysis. **Journal of Management**, 15(3), 485-502.
- Jennings, D. F., & Young, D. M. 1990. An empirical comparison between objective and subjective measures of the product innovation domain of corporate entrepreneurship. **Entrepreneurship Theory and Practice**, 15(1), 53–66.
- Kanter, R. 1986. Supporting innovation and venture development in established companies. **Journal of business venturing**, 1(1), 47-60.
- Kazanjian, R. K., Drazin, R., & Glynn, M. A. (2002). Implementing strategies for corporate entrepreneurship: A knowledge-based perspective. **Strategic entrepreneurship: Creating a new mindset**, 173-199.
- Keil, T., Maula, M., Schildt, H., & Zahra, S. 2008. The effect of governance modes and relatedness of external business development activities on innovative performance. **Strategic Management Journal**, 29(8), 895–907.
- Keupp, M. M., Palmié, M., & Gassmann, O. 2012. The strategic management of innovation: a systematic review and paths for future research. **International Journal of Management Reviews**, 14(4), 367-390.
- Kostoff, R. N., Stump, J. A., Johnson, D., Murday, J. S., Lau, C. G., & Tolles, W. M. (2006). The structure and infrastructure of the global nanotechnology literature. **Journal of Nanoparticle Research**, 8(3-4), 301-321.
- Kuratko, D. F. (2009). The entrepreneurial imperative of the 21 st century. **Business Horizons**, 52(5), 421-428.
- Kuratko, D. F. 2012. Corporate entrepreneurship. In D. Hjorth (Ed.), *Handbook on organizational entrepreneurship*. Northampton: Edward Elgar Publishing.
- Kuratko, D. F., & Audretsch, D. B. 2013. Clarifying the domains of corporate entrepreneurship. **International Entrepreneurship and Management Journal**, 9(3), 323-335.
- Kuratko, D. F., Hornsby, J. S., & Hayton, J. (2015). Corporate entrepreneurship: the innovative challenge for a new global economic reality. **Small Business Economics**, 45(2), 245-253.

- Kuratko, D. F., Ireland, R. D., & Hornsby, J. S. 2001. The power of entrepreneurial outcomes: insights from Acordia, Inc. **The Academy of Management Executive**, 15(4), 60–71.
- Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. 2005. A model of middle-level managers' entrepreneurial behavior. **Entrepreneurship Theory & Practice**, 29(6), 699–716.
- Kuratko, D. F., Montagno, R. V., & Hornsby, J. S. 1990. Developing an entrepreneurial assessment instrument for an effective corporate entrepreneurial environment. **Strategic Management Journal**, 11, 49–58.
- Kuratko, D.F. 2010. Corporate entrepreneurship: An introduction and research review. In Z.J. Acs and D.B. Audretsch (Eds.), *The Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction* (pp. 129-164). Springer Publishers.
- Law, J., & Whittaker, J. 1992. Mapping acidification research: A test of the co-word method. **Scientometrics**, 23(3), 417-461.
- Leydesdorff, L. 1989. Words and Co-Words as Indicators of Intellectual Organization. **Research Policy**, 18(4), 209-223.
- Leydesdorff, L., & Vaughan, L. 2006. Co-occurrence matrices and their applications in information science: extending ACA to the web environment. **Journal of the American Society for Information Science and Technology**, 57(12), 1616-1628.
- Lin, S. J., & Lee, J. R. (2011). Configuring a corporate venturing portfolio to create growth value: Within-portfolio diversity and strategic linkage. **Journal of Business Venturing**, 26(4), 489-503.
- Lo'pez-Herrera, A. G., Herrera-Viedma, E., Cobo, M. J., Mart'inez, M. A., Kou, G., & Shi, Y. 2012. A conceptual snapshot of the first decade (2002–2011) of the international journal of information technology & decision making. **International Journal of Information Technology & Decision Making**, 11(2), 247–270.
- Lumpkin, G. T., & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. **Academy of management Review**, 21(1), 135-172.
- Manu, F. A. (1992). Innovation orientation, environment and performance: A comparison of US and European markets. **Journal of International Business Studies**, 333-359.
- Mcgrath, R. G., Venkataraman, S., & MacMillan, I. C. (1994). The advantage chain: Antecedents to rents from internal corporate ventures. **Journal of Business Venturing**, 9(5), 351-369.
- McMullen, J. S., & Shepherd, D. A. 2006. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. **Academy of Management Review**, 31(1), 132–152.
- Merrifield, D. B. 1993. Intrapreneurial corporate renewal. **Journal of Business Venturing**, 8, 383–389.
- Meyer, G. D., & Heppard, K. A. (2000). *Entrepreneurship as strategy: Competing on the entrepreneurial edge*. Sage Publications.
- Miller, D. 1983. The correlates of entrepreneurship in three types of firms. **Management science**, 29(7), 770-791.

- Morris, M. H., Kuratko, D. F., & Covin, J. G. 2011. *Corporate entrepreneurship & innovation*. Boston: Cengage/South-Western/Publishers.
- Muñoz-Leiva, F., Sánchez-Fernández, J., Liébana-Cabanillas, F. J., & Martínez-Fiestas, M. 2013. Detecting salient themes in financial marketing research from 1961 to 2010. **The Service Industries Journal**, 33(9-10), 925-940.
- Murgado-Armenteros, E. M., Gutiérrez-Salcedo, M., Torres-Ruiz, F. J., & Cobo, M. J. 2015. Analysing the conceptual evolution of qualitative marketing research through science mapping analysis. **Scientometrics**, 102(1), 519-557.
- Musgrove, P. B., Binns, R., Page-Kennedy, T., & Thelwall, M. (2003). A method for identifying clusters in sets of interlinking Web spaces. **Scientometrics**, 58(3), 657-672.
- Nason, R. S., McKelvie, A., & Lumpkin, G. T. (2015). The role of organizational size in the heterogeneous nature of corporate entrepreneurship. **Small Business Economics**, 45(2), 279-304.
- Nicolson, R. P., Peters, M. P., & Hisrich, R. D. 1985. Entrepreneurship strategy for internal markets - Corporate, nonprofit, and government institution cases. **Strategic Management Journal**, 6(2), 181-189.
- Peters, H. P. F., & van Raan, A. F. J. 1993. Co-word-based science maps of chemical engineering. Part I: Representations by direct multidimensional scaling. **Research Policy**, 22(1), 23-45.
- Peterson, R., & Berger, D. 1972. Entrepreneurship in organizations. **Administrative Science Quarterly**, 16, 97-106.
- Phan, P. H., Wright, M., Ucbasaran, D., & Tan, W. L. (2009). Corporate entrepreneurship: Current research and future directions. **Journal of business Venturing**, 24(3), 197-205.
- Pinchot III, G. 1985. *Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur*. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- Ponzi, L. J. (2002). The intellectual structure and interdisciplinary breadth of knowledge management: A bibliometric study of its early stage of development. **Scientometrics**, 55(2), 259-272.
- Porter, A. L., & Youtie, J. 2009. How interdisciplinary is nanotechnology? **Journal of Nanoparticle Research**, 11(5), 1023-1041.
- Rip, A., & Courtial, J. (1984). Co-word maps of biotechnology: An example of cognitive scientometrics. **Scientometrics**, 6(6), 381-400.
- Rip, A., Callon, M., & Law, J. (Eds.). 1986. *Mapping the dynamics of science and technology: sociology of science in the real world*. Macmillan.
- Romo-Fernández, L. M., Guerrero-Bote, V. P., & Moya-Anegón, F. 2013. Co-word based thematic analysis of renewable energy (1990-2010). **Scientometrics**, 97(3), 743-765.
- Ronda-Pupo, G. A., & Guerras-Martin, L. Á. 2012. Dynamics of the evolution of the strategy concept 1962-2008: a co-word analysis. **Strategic Management Journal**, 33(2), 162-188.

- Sathe, V. 1989. Fostering entrepreneurship in large diversified firm. **Organizational Dynamics**, 18(1), 20–32.
- Schildt, H., Maula, M., & Keil, T. 2005. Explorative and exploitative learning from external corporate ventures. **Entrepreneurship Theory and Practice**, 29(4), 493–515.
- Schumpeter, J. A. 1934. The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle (Vol. 55). Transaction publishers.
- Sedighi, M., & Jalalimanesh, A. (2014). Mapping research trends in the field of knowledge management. **Malaysian Journal of Library & Information Science**, 19(1), 71-85.
- Sharma, P., & Chrisman, J. J. 1999. Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. **Entrepreneurship Theory & Practice**, 23(3), 11–28.
- Sharma, P., & Chrisman, S. J. J. 2007. Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship\*. In *Entrepreneurship* (pp. 83-103). Springer Berlin Heidelberg.
- Small, H. 1973. Co-citation in the scientific literature: A new measure of the relationship between two documents. **Journal of the American Society for information Science**, 24(4), 265-269.
- Small, H., & Griffith, B. C. 1974. The structure of scientific literatures I: Identifying and graphing specialties. **Science studies**, 17-40.
- Stopford, J. M., & Baden-Fuller, C. W. 1994. Creating corporate entrepreneurship. **Strategic management journal**, 15(7), 521-536.
- Tang, L., & Shapira, P. 2011. China–US scientific collaboration in nanotechnology: Patterns and dynamics. **Scientometrics**, 88(1), 1–16.
- van de Vrande, V., Vanhaverbeke, W., & Duysters, G. 2009. External technology sourcing: the effect of uncertainty on governance mode choice. **Journal of Business Venturing**, 24(1), 62–80.
- Van Eck, N. J., & Waltman, L. 2007. Bibliometric mapping of the computational intelligence field. **International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems**, 15(5), 625–645.
- Vozikis, G. S., Bruton, G. D., Prasad, D., & Merikas, A. A. (1999). Linking corporate entrepreneurship to financial theory through additional value creation. *Entrepreneurship: Theory and Practice*, 24(2), 33-33.
- Wagner, C. S., & Leydesdorff, L. (2005). Network structure, self-organization, and the growth of international collaboration in science. **Research policy**, 34(10), 1608-1618.
- Wortman, M. S. 1987. Entrepreneurship: An integrating typology and evaluation of the empirical research in the field. **Journal of Management**, 13(2), 259-279.
- Yue, H. (2012). Mapping the intellectual structure by co-word: A case of international management science. In *Web Information Systems and Mining* (pp. 621-628). Springer Berlin Heidelberg.
- Zahra, S. A. 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. **Journal of business venturing**, 6(4), 259-285.
- Zahra, S. A. 1993. Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. **Journal of business venturing**, 8(4), 319-340.



- Zahra, S. A. 1995. Corporate entrepreneurship and financial performance: the case of management leveraged buyouts. **Journal of Business Venturing**, 10(3), 225-247.
- Zahra, S. A., & Covin, J. G. 1995. Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. **Journal of business venturing**, 10(1), 43-58.
- Zahra, S. A., & Covin, J. G. 1995. Contextual influences on the corporate entrepreneurship-performance relationship: a longitudinal analysis. **Journal of Business Venturing**, 10, 43–58.
- Zahra, S. A., & Nielsen, A. P. (2002). Sources of capabilities, integration and technology commercialization. *Strategic Management Journal*, 23(5), 377-398.
- Zahra, S. A., Gedajlovic, E., Neubaum, D. O., & Shulman, J. M. 2009. A typology of social entrepreneurs: Motives, search processes and ethical challenges. **Journal of business venturing**, 24(5), 519-532.
- Zahra, S. A., Sapienza, H. J., & Davidsson, P. 2006. Entrepreneurship and dynamic capabilities: a review, model and research agenda\*. **Journal of Management studies**, 43(4), 917-955.
- Zong, Q. J., Shen, H. Z., Yuan, Q. J., Hu, X. W., Hou, Z. P., & Deng, S. G. (2013). Doctoral dissertations of Library and Information Science in China: A co-word analysis. *Scientometrics*, 94(2), 781-799.

## Essay 2

# **Corporate Entrepreneurship And Customer: The Missing Link For Firm's Innovation Process**

## 2.1 Abstract

Collaborative innovation with external agents is increasingly important for the development of a new firm's innovation process, products, and services. Despite the critical role it plays, how the external agents collaborative relationship with the company can be used to manage the innovation processes has received relatively little attention in the corporate entrepreneurship literature. To help fill this theoretical gap, we adopted a bibliometric approach and, following the most rigorous methodological prescriptions, we offered a theory of innovation that links corporate entrepreneurship with value-co-creation and open innovation. Our article is divided into two studies. The first study provides a review of the literature from three existing fields of studies, corporate entrepreneurship, value co-creation, and open innovation, placing an emphasis on how firms engage in collaborative innovation with external agents. The second study, using a multiple qualitative case study, shows how firms' innovations are shaped by the relationship between the firms and their customers.

## 2.2 Introduction

Collaborative innovation with external agents is increasingly important for the development of a new company's innovation process, products, and services. Nowadays, firms tend to work closely with customers and are obtaining new insights and knowledge from these sources (Greer & Lei 2012; Prahalad & Ramaswamy 2000; Skaggs & Youndt 2004). Indeed, several scholars have considered forms of customer collaboration (Miles et al. 2006; Miles et al. 2005), customer coproduction (Prahalad & Ramaswamy 2004), user's innovation (Von Hippel 2005), and the consumer's perspective on value creation (Priem 2007). Despite its critical role, how the customer's collaborative relationship with the firm can be used to manage the innovation process has received relatively little attention in the corporate entrepreneurship literature.

Corporate entrepreneurship refers to the process whereby firms engage in diversification through internal development. Such diversification requires new resource combinations to extend the firm's activities in areas unrelated or marginally related to its current domain of competence and the corresponding opportunity set (Burgelman 1983; Zahra 1995). Corporate entrepreneurship, typically, is the result of the interlocking entrepreneurial internal activities of multiple participants. It is the sum of a firm's venturing and innovation activities (Guth & Ginsberg 1990), which can help it to acquire new capabilities (Stopford & Baden-Fuller 1994) and improve its performance (Lumpkin & Dess 1996; Zahra 2000). The entrepreneur is seen as the only agent of change characterized by creative behaviour and innovation (Schumpeter 1934). Therefore, past literature reviews on corporate entrepreneurship (Kuratko et al. 2015; Kuratko & Audetrash 2013; Kuratko & Morris 2013) have revealed several dimensions, but none of these were focused on the centrality of or relationship to the customer or external agents. Thus, researchers and practitioners have not yet provided a theory of innovation that links corporate entrepreneurship with customer relationship.

To help fill this theoretical gap, we offer a theory of innovation that links corporate entrepreneurship with fields of study based on these specific dimensions. These further fields of study are value-co-creation (Prahalad & Ramaswamy 2004) and open innovation (Chesbrough 2003; Chesbrough & Appleyard 2006), theories usually separated in the entrepreneurial and organizational literature. A bibliometric technique has been applied and, in particular, a frequency analysis was used in order to detect the main themes of each field of study. To aid this purpose, different approaches have been developed according to the unit of analysis. The most common units of analysis are journals, documents, cited references, authors, and descriptive terms or words (Börner et al. 2003). From these units, we can extract the words, which can be selected from the title, abstract, body of the document, or some combination of these. Furthermore, it is possible to extract the original keywords of the documents (author's keywords) or the indexing ones provided by the bibliographic data sources (e.g., ISI Keywords Plus) as words to analyze. In different economic fields, several researchers have analyzed the keywords as a methodological approach that aims to understand the structure of a field of study. There are different examples, such as the financial marketing research (Munoz 2013), the family business (Imes et al. 2013), and corporate social responsibility (De Bakker & Hellsten 2013). An analysis of keywords, for a broad and comprehensible vocabulary, is an obstacle these fields of study have still not managed to overcome. While prior analyses have examined the rise, contextual influences, issues, and current domains of specific themes within the corporate entrepreneurship field (Stopford & Baden-Fuller 1994; Sharma & Chrisman 1999; Zahra & Covin 1995; Kuratko & Audetresh 2013; Kuratko et al. 2015), a study of keywords has still not been carried out. We applied this method for the author's keywords associated with the papers, which represent a sample of the fields of study from 1992 to 2015.

Our goal is twofold: 1) to identify a framework that extends previous corporate entrepreneurship's literature, linking it with value-co-creation and open innovation theories; 2) to understand how firms' innovations are shaped by the relationship between firms and customers, thus considering the latter as a driver of innovation. To achieve our goal, the article is divided into two studies. The first study provides a review of the literature from three existing fields of studies: corporate entrepreneurship, value co-creation, and open innovation, placing an emphasis on how firms engage in collaborative innovation with customers. The second study, using a multiple qualitative case study, shows how firms' innovations are shaped by the relationship between firms and customers.

### **2.3 Overview of the study**

To accomplish our aim, we conducted two exploratory studies. First of all, we showed the method applied in this study. Therefore, in study 1 we have analyzed the existing literature of three fields of study: corporate entrepreneurship, value-co-creation, and open innovation. In Study 2, we chose an exploratory qualitative multiple case study to validate the results obtained in Study 1.

## 2.4 Study 1

### 2.4.1 The framework

In study 1 we have reviewed the existing literature of three fields of study: corporate entrepreneurship, value-co-creation, and open innovation placing emphasis on how companies engage in collaborative innovation with external agents.

Corporate entrepreneurship is the “formal and informal activities aimed at creating new business in established companies through product and process innovations and market developments [...] with the unifying objective of improving a company’s competitive position and financial performance” (Zahra 1991, p.262). Company's innovation encloses all venturing efforts in order to provide different resources for innovate projects and maintaining an appropriate infrastructure (Zahra 1995).

Value co-creation represents the idea that (a) value is increasingly being created and realized through actions of multiple parties, (b) value emanates from robust collaborative relationships among firms, and (c) structures and incentives for parties to partake in and equitably share emergent value are necessary to sustain co-creation” (Kohli & Grover 2008; Vargo & Lusch 2008). This co-created value is enhanced when several firms interact with one another through information technology to create a value proposition that can generate greater value for customers compared to a value proposition offered by any single firm (Cabiddu & Piccoli 2012).

Finally, about the open innovation and has been argued by Chesbrough (2006), “is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation”, which means the exploitation of specific architectures, like business models, in order to create and catch value. This perspective finds its roots in the early nineties, according to the possibilities to open the processes of innovation, encouraging a contamination between these elements. Through several studies, literature reached a new model formulation, which has implied the striking of this new concept, “open innovation” (Chesbrough 2003; Chesbrough & Appleyard 2006).

### 2.4.2 Method

To address our goal, we first analyzed the existing literature of the three fields of study in order to reveal and map the knowledge of each one. Second, we described the relationship of these pre-existing approaches in order to understand the way in which possible lacks might relate to other fields of study (Clarity 2010).

In previous studies (Ronda-Pupo & Guerras-Martin 2012; De Bakker et al. 2005; Callon et al. 1991; Cambrosio et al. 1993; Ding et al. 2001), the main themes and knowledge of several fields of study have been revealed by means of bibliometrics analysis. The latter is a quantitative analysis method that processes the literature’ characteristics and uses mathematics and statistics methods to describe, evaluate, and predict the status and future of science. Ding, Chowdhury, and Foo (1999a,b, 2000) have shown how bibliometrics studies can be used to trace the advancement of knowledge on the development of science (van Raan 1997) and the mapping/cartography of a specific field of study using different units of analysis.

Therefore, using the word analysis methods, we applied a method that counts and analyzes the co-occurrences of an author's keywords in the publications on a given subject (Callon et al. 1991). In particular, we analyzed the frequency of these keywords in order to reflect the popular research areas (themes) for a specific period range. The highest frequency keywords tend to be the basic words of the field, which are not the subject of topic analysis and do not reveal the core themes of a specific field of study.

In short, we believe that this method of study can provide suggestions for describing the relationship between the fields of study and the pre-existing approaches analyzed here and can also offer an understanding of the possible lacks or bridges among these fields of study (Clarity 2010).

### 2.4.3 Unit of analysis

The data used for this analysis were taken from Elsevier's Scopus database, which is one of the world's largest multidisciplinary databases of scientific literature (Bar-Ilan 2008) and has been widely used as the data source in studies depicting scientific dynamics (Gupta & Dhawan 2009). The use of Scopus guarantees a selection of journals with a high impact factor and the possibility to apply and advanced research according to topics, time frame and unit of analysis (Falagas 2008).

We set a query in order to extract documents according to a unique search term according to the fields of the study analyzed (e.g. "corporate entrepreneurship", "value co-creation" and "open innovation"), without to consider a specific type of document. This query has retrieved a set of documents about the three fields (corporate entrepreneurship: 229; value co-creation: 2.005; open innovation: 1.308) that covering a time window from 1992 to 2015. Then, according to this sample, we applied the extraction of the words. There are two ways to extract words from documents: non-parametric and parametric (Ding et al. 2001). Non-Parametric deals with manual efforts of collecting keywords given by keyword lists (author's keywords or database's keywords), title, abstract, and sometimes even including classification codes. On the other hand, parametric way implies the data collection through the extraction of words directly from full-text documents. Non-parametric way of key extraction has been used in this study, we have taken into account just the keywords added by the authors because are the descriptive words most commonly selected as the type of item to analyze (Börner et al. 2003; Cobo et al. 2011), furthermore, providing a more detailed description, to improve of data quality and avoiding bias in the indexing process (Romo - Fernandez 2013).

A total number of unique keywords emerged from this research for each field of study and, after this selection, it was necessary a process of standardization of each field. This process is aimed to remove all synonyms, ambiguity, general term and different variants form of words (Ding et al. 2001), in order to resolve problems such as distortion or noise. In all the literature analyzed, some related concepts are represented by different words or phrases, thus, such words were standardized by an appropriate process of merger. According to the research keys previously stated, the name of the fields appear in all the papers considered and would not be an added value for this research, hence has not been considered on

the results. After this processing, we were left with a specific number keywords (corporate entrepreneurship: 654; value co-creation: 449; open innovation: 485) and, starting from this sample, we set the next step of the analysis. Using Bibexcel, we analyzed the period concerned and, to promote data smoothness, the best option has been to choose a unique period.

## 2.5 The state of the art

Keywords reflect the core content of a field of study. The frequency of the keywords directly represents the occurrence of themes on a certain subject and indirectly reflects the focus of a discipline (Li & Yang 2004; Li et al. 2012). This paper analyzed the keywords published in the fields of the study mentioned above by surveying and mapping them over the course of the last twenty-five years. By focusing on high-frequency keywords, we were able to explore and reveal the progress and prospect of each single academic field during the past twenty-five years.

Following the most rigorous methodological prescriptions, we standardized the sample of keywords that emerged. Results show a non-homogeneity of values among the fields, and most of the keywords appeared on just a single occasion; only a set of keywords showed a frequency that was greater than the specific level. Therefore, to promote homogeneity of the findings, we chose the first forty keywords that emerged. We chose them because we argue that they are able to represent the main contents of the academic fields we analyzed. After this, we will analyze each single field of study separately.

### 2.5.1 Corporate entrepreneurship

The review of corporate entrepreneurship's literature shows how researchers in this field, focus on internal activities of the firm and share the vision that a firm's innovation is chiefly a function of its internal resources (Table 1). The analysis of the main contributions suggests a high homogeneity between the papers.

**Table 1.** The most frequent keywords in corporate entrepreneurship for the period 1992–2015

Keyword	Frequency	Keyword	Frequency
Innovation	31	Absorptive capacity	4
Intrapreneurship	16	Proactiveness	4
Entrepreneurial orientation	14	Global entrepreneurship monitor	3
Entrepreneurship	14	Nigeria	3
Corporate venturing	13	Opportunity	3
Strategy	8	Organizational culture	3
Organizational performance	7	Entrepreneurs	3
Sustainability	6	High-performance human resource practices	3

Middle managers	6	Radical innovation	3
Entrepreneurialism	6	Technological distinctive competencies	3
Firm performance	5	Entrepreneurial intensity	3
Innovativeness	5	Organizational context	3
Organizational learning	4	Ambidexterity	3
Strategic renewal	4	Training	3
Corporate ventures	4	Corporate entrepreneurship strategy	3
Risk-taking	4	Corporate innovation	3
Entrepreneurial behavior	4	Knowledge management	3
SMEs	4	Venture capital	3
Corporate governance	4	Spain	3
Performance	4	Strategic entrepreneurship	3
GEM	4	Top management support	3
Case study	4		

As can be seen in the table above (Table 1), the most frequently used keyword has been “innovation” (31), followed by “intrapreneurship” (16), “entrepreneurial orientation” (14), “entrepreneurship” (14) and “corporate venturing” (13). Notice that these keywords have the higher frequency of occurrence and co-occurrence, and indicate that these research topics are major focuses and the bridges connecting other research topics in the field of study of corporate entrepreneurship. The analysis revealed how topics are mainly focused on corporate' themes, revealing the core of corporate entrepreneurship field around the reach of innovation of the firm and its strategy through the creation of new businesses or processes. On the contrary, among the dimensions emerged from the analysis, is not appeared a tendency of the scholars to consider any aspect focused on the centrality of the customer, other external agents and any kind of relationship.

In short, these keywords were the focus of discussion in the literature pertaining to this cluster for the years concerned and means that they refer to areas where researchers work in a significantly way. Furthermore, note that top themes emerged in this analysis are all focused in this field of study, are not emerged interdisciplinary episodes.

### 2.5.2 Value co-creation

The analysis of the literature on value Co-creation (Table 2) shows how these studies were mostly focused toward the services development in order to improve an involvement and collaboration of the customers. The analysis of the main contributions suggests a high homogeneity between the papers.



**Table 2.** The most frequent keywords in value co-creation for the period 1992–2015

Keyword	Frequency	Keyword	Frequency
Service logic	28	Crowdsourcing	3
Value creation	22	Supply chain management	3
Service-dominant logic	20	Innovation management	3
Co-creation	14	Justice theory	2
Business model	8	Strategy	2
Innovation	7	Qualitative research	2
Social media	7	Learning	2
Resource integration	5	Transformation	2
Service science	4	Product-service system	2
Customer experience	4	Collaboration	2
Quality	4	Knowledge management	2
Case study	4	Outsourcing	2
Entrepreneurship	4	Creativity	2
Internet	4	Corporate strategy	2
Consumer behavior	4	Practices	2
Perceived value	3	Sustainment	2
Customer engagement	3	Context	2
Participation	3	Design	2
Networks	3	ICT	2
Value proposition	3	Institutions	2
Sustainability	3	Technology management	2

As can be seen in the table above (Table 2), the most frequently used keywords have been “service-logic” (28), “value creation” (22) and “service-dominant logic” (20), followed by other themes such as “business model” (8), “innovation” (7) and “social media” (7), which imply the tendency of the company to consider an outward perspective for the company’s services improvement. This tendency is emphasized by the presence of themes such as “co-creation” (14), “customer experience” (4), “consumer behavior” (4), “customer engagement” (3) and “collaboration” (2), which emphasize the consideration and involvement of external agents.

The analysis revealed how the core themes in this field of study are mainly focused on the achievement of the creation of value and innovation of the company. This target passes through the services development and embracing a logic that allows an involvement perspective through these services. This perspective is mostly supported by the consideration of external dimensions and this is emphasized by the presence of themes based on involvement's dimensions. This underline the evolution and transformation of customers from 'passive players' to 'active players', where the company's value is embedded in personalized collaborative experiences and interactions with customers.

### 2.5.3 Open innovation

The review of the literature on open Innovation (Table 3), shows how these studies were mostly focused toward the company's innovation development through the openness toward external agents.

**Table 3.** The most frequent keywords in open innovation for the period 1992–2015

<b>Keyword</b>	<b>Frequency</b>	<b>Keyword</b>	<b>Frequency</b>
Innovation	211	Network	16
Crowdsourcing	75	Living labs	16
Collaboration	59	Closed innovation	15
Knowledge management	57	Social media	15
Absorptive capacity	49	Collective intelligence	14
New product development	45	Strategy	14
Intellectual property	44	Entrepreneurship	14
Co-creation	39	Value creation	13
Open source	37	Online communities	13
SMEs	35	Customer integration	12
Case study	35	Product innovation	11
User innovation	31	Performance	11
R&D	29	Inbound open innovation	11
Technology transfer	25	China	11
Creativity	24	Trust	10
Web 2.0	22	Outbound open innovation	9
Business model	19	External knowledge	9
Living lab	18	Innovation intermediaries	9
Openness	18	Patents	9

Licensing	17	Ideation	9
Motivation	17	ICT	9

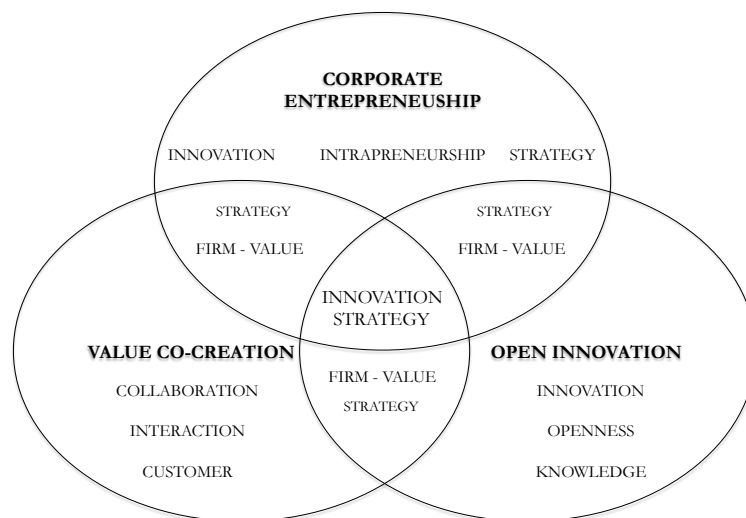
As can be seen in the table above (Table 3), the most frequently used keywords have been “innovation” (211), “crowdsourcing” (75) and “collaboration” (59). These keywords are followed by other important themes, such as “absorptive capacity” (49), “new product development” (45), “co-creation” (39), “user innovation” (31) and “R&D” (29). Furthermore, the analysis has given a list of pure entrepreneurial keywords, such as “business model” (19), “strategy” (14) and “entrepreneurship” (14).

The analysis revealed how the core themes in this field of study are strongly focused toward the field of innovation, which appears as the core of open innovation's literature. To support of this theme, scholars, have focused on themes which emphasize the outward perspective of this field of study, mainly about the openness, involvements, and sharing. According to the analysis, this openness is mostly focused on knowledge management in order to improve the R&D activities, through the democratization of the user position.

## 2.6 Findings

The frequency of word occurrence in a particular subject can reflect the importance of that subject's themes. The co-occurrence of these keywords across the documents can be interpreted as indicating the popular themes on a specific field of study. Applying this kind of analysis, it has been possible to deepen the scientific trends of the last twenty-five years related to corporate entrepreneurship, value co-creation, and open innovation (Figure 1).

**Figure 1.** Comparison of corporate entrepreneurship, value co-creation and open innovation keywords



First of all, the analysis led us to deepen the existing literature on corporate entrepreneurship, which shows how past research studies were mainly focused on a company's internal activities (Table 1), such as "innovation," "intrapreneurship," "entrepreneurial orientation," "entrepreneurship," and "corporate venturing." It also emerged that references to external agents (customer or user) and about any forms of interaction or collaboration are practically nil. Therefore, the findings show that past research studies are mostly focused on company internal activities, underpinning the fact that corporate entrepreneurship is the sum of efforts to promote innovation from an internal company perspective (Zahra, 1991, 1995; Barringer & Bluedorn, 1999). Furthermore, the findings show that the literature, in this field of study, considers only the entrepreneurial behaviors within a company (Echols & Neck, 1998), without even a minimal consideration of forms of external agents' involvement or engagement or a simple outward-looking perspective.

On the other hand, the findings show that the other fields of study that were considered had a greater perspective of the involvement of external agents. First of all, in the value co-creation literature, we produced a range of findings that emphasize a strong attention to service development and innovation themes. This perspective encompasses the outward perspective of this field of study, which promotes an approach to external agents, mainly due to the development of services (Prahalad & Ramaswamy 2004a; 2004b). Themes such as "co-creation," "customer experience," "consumer behavior," "customer engagement," and "collaboration" emphasize the involvement of external agents in order to create a common firm-value (Kambil et al., 1999; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). Furthermore, as our analysis shows, there are some points in common between corporate entrepreneurship and value co-creation. In particular, themes such as innovation appear to be a common achievement of both fields of study, revealing the specific strategy of past scholars. Finally, it is not possible to find a strong reference that warrants a connection to the other themes of corporate entrepreneurship because, as Table 2 shows, there are no references to entrepreneurship's internal activities.

The same trend is confirmed by the findings on open innovation. As shown in Table 3, the analysis suggests a strong focus of the field of study on the achievement of innovation through the sharing of knowledge, exploiting dimensions such as collaboration. This perspective suggests the involvement of external agents in order to build up a relationship with them and to exploit this relationship as a source of innovation (Von Hippel, 2005). Furthermore, the high frequency of themes such as crowdsourcing and knowledge management implies that companies increasingly innovate by pooling knowledge with communities of external agents (Almirall & Casadesus-Masanell, 2010; Chesbrough, 2003). Instead, compared to value co-creation analysis, it is possible to find here, in a more concrete way, some connections to the field of corporate entrepreneurship. Emerging themes (e.g., "absorptive capacity," "entrepreneurship," and "strategy") suggest a pure entrepreneurship environment and emphasize the fact that entrepreneurial strategy appears shyly in this field of study.

Through the analysis, we found two different perspectives: first, an internal perspective, which is typical of corporate entrepreneurship and does not consider involving the perspective of external agents (e.g., customers or partners) to develop internal activities and the company's process of innovation; and second, a perspective that is typical of value co-creation and open innovation and which is externally oriented and focused on external agent involvement. The latter perspective has some weak connection to corporate entrepreneurship, mainly in terms of innovation, which is the common element in all the fields of study.

## **2.7 Discussion**

In Study 1, we developed a framework that extends previous corporate entrepreneurship's literature linking this internal perspective with two other perspectives: value-co-creation and open innovation theories.

Our analysis shows, firstly, a kind of anachronism in the corporate entrepreneurship literature and its point of view on innovative contribution toward the development of a firm's processes. This contribution is considered as only arising from internal resources (such as entrepreneurial orientation) with no reference to external agents such as customers or partners. Innovation activities are concentrated on the autonomous efforts undertaken by individual members of an organization (Zahra, 1993) or carried out by groups of executives, middle managers, or employees (Pinchot 1988). The development of the innovation processes, products, and services, when considering only the internal means of improvement, does not consider any form of communication, dialogue, interaction, or collaboration with external agents. The customer and the user do not have a role in the innovation activities. Therefore, we argue that past research studies have failed to consider external agents as drivers of innovation that could be included with other business drivers (e.g., technology, usability etc.) in order to innovate and renew a company's strategy.

The analysis led us to consider the differences and similarities of the three fields of study in order to evaluate their potential complementarity. Therefore, we have considered an extension of the existing literature on corporate entrepreneurship, focused exclusively on the promotion of innovation from an internal company perspective (Zahra 1991, 1995; Barringer & Bluedorn 1999) and considering only the entrepreneurial innovation attitudes within the organization (Echols & Neck 1998). The review suggested that we should take into account the figure of the customer as a driver of innovation.

## **2.8 Study 2**

### **2.8.1 Research method**

Given limited theory about how customers can contribute to process, product and service innovation, we conducted an inductive, multiple-case study (Eisenhardt 1989).

The setting for our study was the startup context and the environment within these startups are delivered and grown up in the first stage of its formation: More specifically, we focus our attention on two different cases (Table 6):

- Business Incubator (C1);
- Business Accelerator (C2);

This context was appropriate because, nowadays, accelerators and incubators are aimed to build relationships with their customers, the startups, in order to facilitate the development of partnerships and synergies based on innovation. Thus, accelerators and incubators, imply activities based on innovation, collaboration, and co-working activities, within a context based on a strong relationship with the startups, characterized by a high level of digital competence and technical skills. Furthermore, this context was appropriate because, through accelerators and incubators, startup teams receive mentoring, guidance and a small amount of funding in return for a small stake in the company. These features allow an engagement, an involvement and thus exceeding of the traditional patterns about the relationship between firm and customer.

## 2.8.2 Overview of the firm

As stated above, the firm has been categorized into two types: business incubator and business accelerator (Table 6).

The C1, Open Campus (business incubator), is not a formal firm, is a project delivered by, Tiscali Spa, an established firm that operates on telecommunication context. Open Campus can be understood as a business incubator characterized by a co-working space. This project is born on 2013 and has been delivered and powered by Tiscali Spa in order to innovate its business, open its business range and engage a relationship with a new kind of customers. Their customers are freelance professional and, mainly, an innovative start-up that operates in digital, web and communication context, in line with strategic areas of Tiscali Spa.

The C2, H - Farm (business accelerator), is a platform created in 2005 with the aim of helping young entrepreneurs in launching innovative internet startups and supporting the transformation of Italian companies in a digital perspective. The main goal of H-Farm is to encourage the creation of projects aimed at simplifying the use of digital tools and services by people and companies, helping them transform their processes into digital workflows. The accelerator provides useful logistics and consultancy services and operational resources designed to help small innovative companies develop and accelerate their business. It also plays the role of investor through financial resources that support companies' operational business, "Seed Capital", until to find an industrial partner or financial investor interested in buying the company's shares, thus allowing for a positive exit.

**Table 4.** Description of Cases

Cases	Category	Country	Number of customer	Firm informant/N <sup>o</sup> of interviews	Customer informant/N <sup>o</sup> of interviews
C1	Business Incubator	Italy	16	Head of Project (2)	CEO (10) Developer (1) Operations Manager (2)
C2	Business Accelerator	Italy	36	Business and Financial Analyst (2)	CEO (7) Developer (3)

### 2.8.3 Data collection

To validate the research question, we collected data mainly through our primary sources: semi-structured interviews and survey. We use also secondary sources, e.g. web site analysis, and observation.

In general, the case studies were all based on interviews. We exploited two distinct protocols, which have been used when conducting these interviews. The one applied to firms, which was based on semi-structured interviews, through phone-calls and meeting face to face; the other, applied only to the customers, was based on a mail survey through a structured questionnaire (Yin 1994). In both case, we completed the data collection with a study of each interviewee's web site and observation, in order to validate data collected by the interviews. The reason for using a questionnaire was that the customer firms were numerous, very dissimilar, situated in far places, and the likelihood of being able to attain the desired information and lead the open interviews into required areas of the operation, without using some kind of questionnaire, was considered low. All the respondents were managers or CEO of each firm or customer's firm, depending on the company structure, because of their likely familiarity with firm-wide strategic actions, especially corporate entrepreneurship and collaboration efforts (Miller 1983; Zahra 1991; Prahalad & Ramaswamy 2004).

The main goal was to investigate the features of the relationship between the two main actors (firm and customer), in order to understand behaviour and competences, the inclination to collaborate and possible drivers of innovation. We attempted to get this information through specific questions for both actors. First, we asked to firm about their activities through specific questions such as: *Do you involve customers in your renewal activities?* Secondly, we tried to understand the willingness and behaviour of the customer through questions such as: *Is it important for you play an active role in the innovation processes development?* Registered tapes were not made for all the interviews, but the interviewer took notes in shorthand, approximately 60 pages of text.

The firm's interview took us from a half hour to an hour and a half. The interviews usually began with general questions that enabled an overview of the firm about activity, customer, and market; the

second section is focused on the entrepreneurship and innovation approach of the firm; the third section is about the relationship with customer and information technology.

The customer's interviews usually began with a general overview, in order to understand status and position relative to the firm interviewed. The second part was about the relationship with the firm. The last part was focused on the relationship with innovation. A personalized letter accompanied each questionnaire, explaining the study's objective and instructions about the interview.

#### 2.8.4 Data analysis

The data collected during interviews were analyzed by conducting a preliminary within-case study followed by a cross-case comparison (Eisenhardt 1989), revisiting the data and often using charts and tables to facilitate comparisons between cases (Miles & Huberman 1994).

We used the software program Nvivo 10 for coding and analysis. First, we coded each sentence that was considered a viable unit of text. Codes, such as "collaboration", "competence" and "interaction" were used to characterize units of text (Miles & Huberman 1994). We then conducted a second round of analysis of codes, which are initially emerged, looking for the quotes that could have been referenced to the theoretical framework: corporate entrepreneurship, value co-creation and open innovation. In the second stage of the data analysis, new codes, as "knowledge" emerged from different understandings of the data, prompted us to return to the first stage of the analysis and update the set of codes emerged (Krippendorff 2004). To analyze the potential actions about firm's relationship with the customer, we categorized the codes found on three different parent nodes: involvement, competences and innovation. According to this activity, we identified distinctive phrases used by our informants to refer specifically to their way to developing innovation processes. Then, we categorized the specific codes, or child nodes, within these three perspectives.

After coding the two groups of interviews of firm and respective customers, we did not find new themes in the remaining sources of data; this absence of novel codes suggested that we reached "theoretical saturation" (Strauss & Corbin 1998).

### 2.9 Findings

This section presents the findings from the case study. As outlined, the existing literature contains early links between innovation, firms and value-co-creation. A number of additional themes emerged from this research. We report the main dimensions (parents nodes) that comprise involvement as well as the competences and innovation, within which we categorized the main codes emerged from the interviews (child nodes). We analyzed the results according to a two-fold perspective: from firm's view and from customer's view, supported by several tables. Evidence from cases studies rise to the existence of different factors that delivering this kind of relationship, where there is a bilateral exploitation of the actors in order to develop its innovative processes.



## 2.9.1 Involvement

The interviews told us that most of the firm contacted are willing to collaborate, or rather, promote a pro-active participation of the customers (Prahalad & Ramaswamy 2004b). The conceptualization of the collaboration on the existing literature goes beyond inviting the customer to participate in the production or the design processes. It suggests that no value exists without the customers' incorporating the firm's offering into their own lives, thus the parties work closely to achieve a beneficial value (Miles et al. 2006). The customer, then, becomes a co-creator of value (Cabiddu & Piccoli 2012).

*"There is a strong involvement of the customer. When startup became our customers, we ask them to be an active actor of the project. We do not care about a customer who does not tend to be an active part, who do not cooperate"* [Head of Project C1]

*"There is an involvement of the customer in order to create value"* [Business and Financial Analyst C2]

As stated by the interviewees, the involvement, or incorporation of the customer is promoted by the firm interviewed. The informants of the cases study have declared that they try to deliver and improve a relationship with the customers based on a collaborative contribution. On the other hand, customers interviewed, consider very important the perspective of a partnership with the firm, based on a responsible active role for the innovation's processes development. Most of them already play this kind of role in C1 (90%) and C2 (87,5%), emphasizing the importance of this kind of inclusion, which means playing a responsible active role (Table 5).

**Table 5.** Customer's involvement dimensions

Involvement	Aspects	Illustrations
Active role	Customers play an active role	<p><i>"Sometimes we support the firm in order to develop product and processes"</i> [CEO; C2 customer]</p> <p><i>"We have actively been involved in every activity or processes shared by the firm. That is why we feel to play an active role"</i> [CEO; C1 customer]</p>
Inclusion	Sense of participation and being assigned responsibilities by the firm for the process's innovation	<p><i>"Customer's inclusion is essential because trough inclusion and responsibility can be stimulated a process of mutual interest between firm and customer"</i> [CEO; C2 customer]</p> <p><i>"It is an approach that partly has always been and we think that is essential in order to create a collaborative environment, as the campus is"</i> [CEO; C1 customer]</p>

These findings are supported by the previous studies, which, firstly see the producer and the customer as resource integrators who jointly co-create value; in other words, the producer and the customer work together to reach the realization of the value proposition (Prahalad & Ramaswamy 2004b; Vargo & Lusch 2004). The customer is considered, thanks to the possibility to interact, an active part of the relationship, giving their contribution as a co-creator of value (Vargo & Lusch 2004; Lusch & Vargo 2006). Secondly, according to the open innovation perspective, we are focused on a collaborative approach, which implies a strong centrality of the user (Chesbrough 2006). The firm has to build an infrastructure in order to supply all the information and tools useful for the user and their contribution. The innovation supplied by the user must be considered as an essential source, in order to achieve an improvement of the value of the social welfare and competitive advantages (Sawhney et al. 2005; Priem 2007).

### 2.9.2 Competences

Evidence from cases study indicates and suggests that competences and skills represent the elements which are closely linked with the innovation context. This kind of relationship lends itself to a B2B context (business-to-business). This assumption is due to the fact that “competencies designate how specific competitive capabilities are acquired and leveraged; they constitute the realization of a complex pattern of strategic choices” (Roth & Jackson 1995: p.1722). Synthesizing, the B2B competences represent a bundle of tangible and intangible assets and resources that work together to create competitive and innovative capabilities (Barua et al. 2004; Leonard-Barton 1992). The following quotations illustrate how the competences and skills are valued as essential elements in all the environments:

*“We operate a customer selection...First of all, we seek for a customer that operating in a specific context or environment: digital or information technology in general and related competences. Secondly, is essential that these customers are willing to innovate. Our customer is the start-up, that leads us to consider a B2B context”.* [Head of Project C1]

*“We operate a customer selection according to the technical competences of team’s member, or according to the technical competences of project’s owner. Through the start-up, we are focused on a B2B context”.* [Business and Financial Analyst C2]

Our data shows findings of our interviews about competences. We gathered information about the firm, in order to understand if there were a customer selection, how does it work and selection criteria typical of this context. Furthermore, we found out how customers support this perspective. In C1 (100%)

and C2 (87,5%), customer considering essential to have technical competences and skills in order to join this context and build up a relationship with firm considered in this case study (Table 6).

**Table 6.** Customer's competences dimensions

Competences	Aspects	Illustrations
Competences and skills	Competencies refer to production expertise or a specific know-how, such as the bundle of people skills, system integration, or specific production technologies, that can be linked to a specific point in the value chain or to specific strategic design choices that create competitive capabilities and advantages.	<p><i>“Our firm is one of the most important in innovation and business accelerators and is very careful in the selection of the projects on which invests its resources and its endorsement. Certainly, projects, ideas and mainly start-ups do not count enough behind if there is not a team of individuality and personal competences that make a difference to achieve the goals and success of the initiative”.</i> [CEO; C2 customer]</p> <p><i>“Competences are essential and not necessarily must refer just to technical skills. These are helpful to relating with other start-ups within the campus and mainly with the firm”.</i> [CEO; C1 customer]</p>

These findings are supported by previous studies which have found that the technical skills and competences refer to the general abilities of the firm or customer to use advanced information and communication technologies (ICT) in their daily work to support business objectives (Angeles et al. 2001; Powell & Dent-Micallef 1997; Stratman & Roth 2002; Tippins & Sohi 2003). The literature has recognized that competences from both sides, firm, and customer, are essential. In this perspective we find out that firm seek for specific skills on the customer, in order to create a continuing relationship aimed to develop and achieve a business idea. On the other hand, customer, consider essential possess specific digital and management skills in order to join and build up a relationship with the firm of C1 and C2. These results show how the firm are focused on a specific context that implies all these competences, the B2B context. This implies skills such as technical skills, market acuity, and knowledge channels can be found (Rosenzweig & Roth, 2007), which are very helpful for this kind of relationship.

### 2.9.3 Innovation

Finally, we focus on the innovation perspective. The interviews told us how is essential the innovation processes and how it enclosed a combination of creativity, knowledge, competences, skills and capabilities (Hessels et al. 2008). The following states illustrate the innovative perspectives of firm studied:

*“Through this project, we answer to an innovative need, in order to develop our internal processes according to an innovative perspective. Through this project, we try to exploit our customer as a driver for this purpose”.* [Head of Project C1]

*“We exploit our customer and its competences in order to have resources for expert advice for R&D, problem solving or innovation in general”.* [Head of Project C1]

*“We are focused on an innovative perspective in order to improve our activities and open them through the exploitation of information technology. Be innovative is an aim in order to be more competitive in our market and our customer is a driver to reach this goal”.* [Business and Financial Analyst C2]

The previous statements show that a constant innovation is the purpose of the firm. According to the interviews and quotations showed above, in all the cases studied, is possible to find an innovative perspective and the need to reach an improvement of the firm.

In conformity with these statements and supported by the previous researches, we argue that innovation is the introduction and implementation of new ideas, knowledge and competences. Innovativeness refers to “a firm’s capacity to engage in innovation: that is, the introduction of new processes, products, or ideas in the organization” (Hult et al. 2004: p. 429). The firm needs to exploit and introduce specific input, drivers, usefully to reach this target and data show that this driver is the customer. The latter can be understood as a resource, a partner, essential for the innovation processes of the firm.

On the other hand, even customers are focused on an innovative perspective. They, try to innovate its processes exploiting several drivers, which are mostly focused on the components enclosed within the relationship build up with the firm, such as collaboration, interaction and sharing (Table 7).

**Table 7.** Customer’s innovation dimensions

Innovation	Aspects	Illustrations
Collaboration	A process where two or more parties work closely with each other to achieve mutually beneficial outcomes	<i>“Our firm set up a system between the various entities that make it up, creating a real ecosystem made up of collaborative contributions (mutual) for the development, not only in terms of technology but also financial and in-kind consulting, which help us to innovate our project”.</i> [CEO; C2 customer]
Information Technology	The study or use of systems (especially computers and telecommunications) for storing, retrieving, and sending information.	<i>“Our driver of the innovation can be considered the information technology, that can be understood as the leverage to improve our project and mainly the relationship with the firm”.</i> [CEO; C1 customer]
Interaction (Relationship)	Is the way of parties talk and act with each other and various structures in an organization, a social interaction between two or more parties.	<i>“The professionalism of the environment, interaction and exchange of know-how are the main reason for our stay within this co-working context, but mainly serve as the engine for the development and innovation of our project”.</i> [CEO; C1 customer]

*“The relationship that has created between*

		<i>startupper and the firm's management makes cooperation, as well as useful professionally, to a pleasant environment for collective growth. This is the driver to improve our project".</i> [Operations Manager; C1 customer]
Sharing	Activity through which knowledge (i.e., information, skills, or expertise) is exchanged among parties or organizations.	<i>"The exchange and sharing of information and competences among the others start-up and the firm, are the foundation in order to growth and achieve a continuous innovation within this ecosystem."</i> [CEO; C1 customer]

According to the interviews, it has been possible to find the main dichotomy between the two cases. In C1, customers find above all that collaboration (80%) is the primary driver for innovation; secondly, interaction (relationship) (40%), which implies a strong predisposition to an outward-looking perspective (Table 8 and 9). Conversely, in C2, customers mainly tend to focus on knowledge as the driver (50%), which shows a predisposition to focus on one's own internal resources, or rather, on their own efforts.

**Table 8.** Customer's driver of innovation C1

	<b>Commitment</b>	<b>Interaction (Relationship)</b>	<b>Information technology</b>	<b>Sharing</b>
Source	7	4	3	2
References	8	4	3	2
Node Coverage	80%	40%	30%	20%

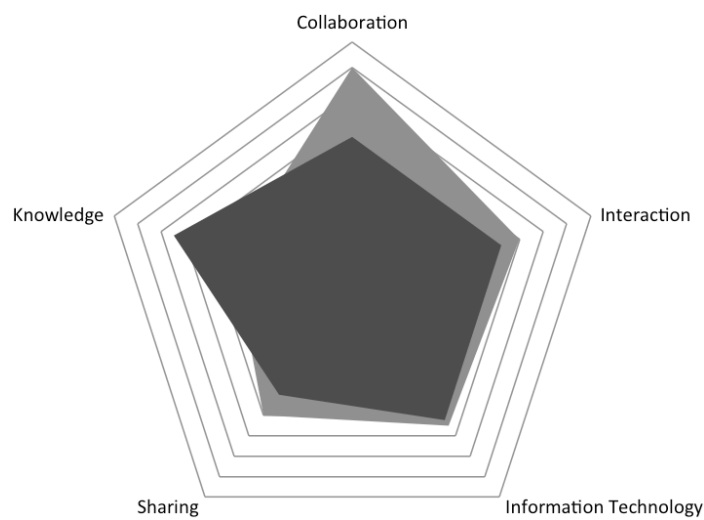
**Table 9.** Customer's driver of innovation C2

	<b>Knowledge</b>	<b>Commitment</b>	<b>Information Technology</b>	<b>Interaction (Relationship)</b>
Source	4	2	2	2
References	4	2	2	2
Node Coverage	50 %	25 %	25 %	25 %

We report these results schematically in Figure 2, with the set of drivers of innovation emerged by the customer's interviews. The scheme consists of five categories, scaled from zero (no appearance of an element) to 100 (100% of all respondents referred to an element). Figure 2 shows results for the full customer's sample, C1 and C2, (graphically portraying the tabular results from Tables 8 and 9) in order to mark the difference between the two customers.

As can be seen, the figures exhibited some similarity, but also some differences as well, mainly for one category. The collective portrayal from this figure shows a strong trend for collaboration of C1's customers, which implies a typical inclination to reach innovation through relationships with other entities. On the other hand, C2's customers show a significant tendency toward the knowledge element, which implies reliance on mainly their own efforts, and a resulting inclination to reach innovation without external influences.

**Figure 2.** Dichotomy between the customers



Notes. C1 is represented by the area light-colored; C2 is represented by the area dark-colored. The scale indicates the percentages according to Table 11 and Table 12.

## 2.10 Discussion

Our goal in study 2 was to investigate the features of the relationship between the firm and the customer, in order to understand the behaviors, competences and inclination to collaborate and lead innovation.

Through the case study, we deepened two different environments related to two specific firms: the business incubator, Open Campus (C1) powered by Tiscali; and the business accelerator, H – Farm (C2). These have allowed us to illustrate and support a tangible example of predisposition for a collaborative relationship put forward by the firm with its customers.

Secondly, we sought to analyze the key dimension of this collaborative relationship. C1 and C2 data show a relationship between the firm and the customer, which lays its foundation on competences, engagement, and innovativeness (Stopford & Baden-Fuller 1994; Lumpkin & Dess 1996; Zahra 2000). According to the literature on value co-creation and open innovation, it emerged that both firms, business incubator, and business accelerator, see the customer as a resource (Von Hippel 2005; Sawhney et al. 2005; Priem 2007), equipped with competences and technical skills, through which it is possible to

collaborate with in order to innovate and develop business, or rather, the processes. Customers are considered to be a partner who plays an active role as co-creator (Prahalad & Ramswamy 2004; Vargo & Lusch 2004) of this innovation. This predisposition is not simply a perspective, but a real connotation of the relationship that implies an active role of the customer (start-up), and a real contribution to the development of the processes of the firm (business incubator; business accelerator); such as problem-solving, R&D and innovation in general. According to this perspective, firms have stated that their driver to reach this innovation is the customer, the startup, a skilled resource to leverage a sustained competitive advantage (Barney 1991).

Then, we sought to understand whether this inclination to collaborate was a characteristic of the customers. Data shows that customers' behaviors are not totally similar between C1 and C2; we found a homogeneity between them, but only for part of the features. For the first part of the interviews, customers showed a homogeneous perspective about the willingness to play an active role in the relationship with the firm. This perspective means inclusion and is considered essential by the customers, in order to stimulate a greater responsibility than the traditional relationship, and a process of mutual interest with the firm. Furthermore, they support the perspective that this inclusion must be supported by their competences and technical skills. These features are considered essential in relation with other startups within the campus and mainly with the firm.

In the second part, the data shows a dichotomy between the customers of C1 and C2. Both the customers show the same perspective toward innovation as the purpose of their activities, nevertheless we found a dichotomy. This difference is in the drivers to reach this innovation. Customers on C1 showed a tendency to regard their driver of innovation as collaboration, which means a number of considerations: First of all, it means an outward-looking perspective, which implies a tendency to relate to external entities, such as the firm. These, include the other startup or the firm as "devices" in order to create their processes through collaboration. On the other hand, customers on C2 showed a tendency to regard their driver as knowledge. This finding implies a clear tendency for the customers to not consider relating with external entities as a priority. Furthermore, it implies a knowledge-based view (Kogut & Zander 1992), where the customers simply consider their own efforts as their driver of innovation. This perspective does not mean a total aversion to collaborate with other startups or the firm; however, customers believe that innovation can be reached mainly through their competences, without the main focus being a collaborative relationship.

In line with this idea, our findings support the perspective that C2's customer shows a willingness to collaborate and play an active role with the firm, but is focused on a knowledge-based view (Kogut & Zander 1992), rather than a resources based view, which implies a strong predisposition to its internal resources in order to leverage the innovation. Thus, mainly C1 enclosed the elements of the relationship proposed in this study. We have found a predisposition of the business incubator to reach innovation of its processes through the collaboration of its skilled customer. The firm is focused on a relationship of engagement, thanks to a co-working environment, which exploits the customer as the driver of

innovation to develop processes such as R&D, problem solving, communication and public relations. In this environment, the customer is totally willing to play this active role, acknowledging the collaboration as the driver of innovation in the relationship with the firm. Overall, our findings provide substantial empirical support for the positive impacts of the collaborative relationship between the firm and the customer. According to our findings, we argue that on the business incubator, Open Campus, it is possible to find the relationship proposed here.

## **2.11 Conclusions, limits and future directions**

In this study, we sought to contribute to deeper understand the relationship between firm and customer, aimed to an innovative collaboration. We have set ourselves to reach a two-fold goal: 1) to identify a framework that extends previous corporate entrepreneurship's literature linking it with value co-creation and open innovation; 2) to understand how firms' innovations are shaped by the relationship between firms and customers, thus considering latter as a driver of innovation.

We have accomplished this by introducing a review of the existing literature, which enabled us to deliver a research model and, mainly, to recognize the state of the art and the literature's limits through a scientific rigorous method. We found some limits of the corporate entrepreneurship's contemporary literature and its ways to reach its purpose, the processes innovation. The innovation of the firm passes through the combination of several resources, which do not consider any perspective of customers involvement and therefore, any form of collaboration with them. According to this assumptions, we extended the existing literature, considering three fields of study that have not been considered jointly before: corporate entrepreneurship, value co-creation, and open innovation. This perspective enabled us to consider a new theoretical framework based on new kind of collaborative relationship called corporate customership, aimed to explain the collaborative relationship between firm and customer.

Then, through the multiple-case study, we analyzed the specific environments where we deepened this kind of relationship. The analysis of the interviews and questionnaires enabled us to understand how firms build a collaborative relationship with customers. We identified the perspective where the customer is considered as a driver to reach the innovation, through its competences and skills. On the other hand, we recognized how the customer is willing to contribute to these processes mainly within a business incubator's environment.

This study also has its limitations. The first limitation is related to the research sample. The qualitative data analysis was undertaken from a small number of the firm. To further foster the multidisciplinary debate and maintain a link with practice, future researchers may want to explore gathering data from a larger sample. This further research could refine or expand upon our findings in several ways. In the discussion, we proposed theoretical arguments that extended our findings to provide a basis for future empirical research, which may be aimed to deepen the core components of this collaborative relationship. While our work is theoretical in nature, it mainly has implications of interested to business accelerators and incubators context and their relationship with startups. Specifically, we contribute to understanding



the dynamics of customer's involvements through a collaborative perspective. Our findings underline the fact that, nowadays, the firm's innovation can be shaped on the collaborative relationship between firm and customer.

## 2.12 References

- Angeles, R., Corritore, C. L., Basu, S. C., & Nath, R. 2001. Success factors for domestic and international electronic data interchange (EDI) implementation for US firms. **International Journal of Information Management**, 21(5), 329-347.
- Bar-Ilan, J. (2008). Which h-index?—A comparison of WoS, Scopus and Google Scholar. **Scientometrics**, 74(2), 257-271.
- Barney, J. 1991. Firm resources and sustained competitive advantage. **Journal of management**, 17(1), 99-120.
- Barringer, B. R., & Bluedorn, A. C. 1999. The relationship between corporate entrepreneurship and strategic management. **Strategic Management Journal**, 20(5), 421-444.
- Barua, A., Konana, P., Whinston, A., & Yin, F., 2004. An empirical investigation of net-enabled business value. **MIS Quarterly**, 28(4), 585–620.
- Börner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. **Annual review of information science and technology**, 37(1), 179-255.
- Cabiddu, F., Lui, T. W., & Piccoli, G. 2013. Managing value co-creation in the tourism industry. **Annals of Tourism Research**, 42, 86-107.
- Callon, M., Courtial, J. P., & Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemistry. **Scientometrics**, 22(1), 155-205.
- Cambrosio, A., Limoges, C., Courtial, J. P., & Laville, F. (1993). Historical scientometrics? Mapping over 70 years of biological safety research with coword analysis. **Scientometrics**, 27(2), 119-143.
- Clarity, C. 2010. Editor's comments: Construct clarity in theories of management and organization. **Academy of Management Review**, 35(3), 346-357.
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. 2011. An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the fuzzy sets theory field. **Journal of Informetrics**, 5(1), 146-166.
- de Bakker, P. I., Yelensky, R., Pe'er, I., Gabriel, S. B., Daly, M. J., & Altshuler, D. (2005). Efficiency and power in genetic association studies. **Nature genetics**, 37(11), 1217-1223.
- Ding, Y., Chowdhury, G. G., & Foo, S. (2001). Bibliometric cartography of information retrieval research by using co-word analysis. **Information processing & management**, 37(6), 817-842.
- Ding, Y., Chowdhury, G. G., & Foo, S. (2001). Bibliometric cartography of information retrieval research by using co-word analysis. **Information processing & management**, 37(6), 817-842.
- Echols, A. E., & Neck, C. P. 1998. The impact of behaviors and structure on corporate entrepreneurial success. **Journal of managerial psychology**, 13(1/2), 38-46.
- Eisenhardt, K.M. 1989. Building theories from case study research. **Academy of Management Review**, 14(4): 532-550.

- Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses. **The FASEB journal**, 22(2), 338-342.
- Greer, C. R., & Lei, D. 2012. Collaborative innovation with customers: a review of the literature and suggestions for future research\*. **International Journal of Management Reviews**, 14(1), 63-84.
- Gupta, B., & Dhawan, S. (2009). Status of India in science and technology as reflected in its publication output in the Scopus international database, 1996–2006. **Scientometrics**, 80(2), 473-490.
- Guth, W. D., & Ginsberg, A. 1990. Guest editor's introduction: Corporate entrepreneurship. **Strategic Management Journal**, 11(Summer), 5-15.
- Hessels, J., Van Gelderen, M., & Thurik, R. 2008. Entrepreneurial aspirations, motivations, and their drivers. **Small Business Economics**, 31(3), 323-339.
- Hult, G. T. M., Hurley, R. F., & Knight, G. A. 2004. Innovativeness: its antecedents and impact on business performance. **Industrial marketing management**, 33(5), 429-438.
- Ihlström Eriksson, C., & Svensson, J. 2009. A user centered innovation approach identifying key user values for the e-newspaper. **International Journal of E-Services and Mobile Applications (IJESMA)**, 1(3), 38-78.
- Kambil, A., Friesen, G. B., & Sundaram, A. 1999. Co-creation: A new source of value. **Outlook Magazine**, 3(2), 23-29.
- Kogut, B., & Zander, U. 1992. Knowledge of the firm, combinative capabilities, and the replication of technology. **Organization science**, 3(3), 383-397.
- Kohli, R., & Grover, V. 2008. Business value of IT: an essay on expanding research directions to keep up with the times. **Journal of the association for information systems**, 9(1), 1.
- Krippendorff, K. 2004. Reliability in content analysis. **Human Communication Research**, 30(3), 411-433.
- Kuratko, D. F., Montagno, R. V., & Hornsby, J. S. 1990. Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment. **Strategic Management Journal**, 11, 49-58.
- Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. **Strategic management journal**, 13(S1), 111-125.
- Lumpkin, G. T., & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. **Academy of management Review**, 21(1), 135-172.
- Miles, M. B., & Huberman, A. M. 1994. **Qualitative data analysis: An expanded sourcebook**. Beverly Hills: Sage Publications.
- Miles, R. E., Miles, G., & Snow, C. C. 2005. **Collaborative entrepreneurship: How communities of networked firms use continuous innovation to create economic wealth**. Stanford University Press.
- Miles, R. E., Miles, G., & Snow, C. C. 2006. Collaborative Entrepreneurship: A Business Model for Continuous Innovation. **Organizational Dynamics**, 35(1), 1-11.

- Miller, D. 1983. The correlates of entrepreneurship in three types of firms. **Management science**, 29(7), 770-791.
- Pinchot III, G. 1985. Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- Powell, T. C., & Dent-Micallef, A. 1997. Information technology as competitive advantage: the role of human, business, and technology resources. **Strategic management journal**, 18(5), 375-405.
- Prahalad, C. K., & Ramaswamy, V. 2000. Co-opting customer competence. **Harvard business review**, 78(1), 79-90.
- Prahalad, C. K., & Ramaswamy, V. 2004a. **The future of competition: Co-creating unique value with customers**. Harvard Business Press.
- Prahalad, C. K., & Ramaswamy, V. 2004b. Co-creation experiences: The next practice in value creation. **Journal of interactive marketing**, 18(3), 5-14.
- Romo-Fernández, L. M., Guerrero-Bote, V. P., & Moya-Anegón, F. 2013. Co-word based thematic analysis of renewable energy (1990–2010). **Scientometrics**, 97(3), 743-765.
- Ronda-Pupo, G. A., & Guerras-Martin, L. Á. (2012). Dynamics of the evolution of the strategy concept 1962–2008: a co-word analysis. **Strategic Management Journal**, 33(2), 162-188.
- Rosenzweig, E. D., & Roth, A. V. 2007. B2B seller competence: construct development and measurement using a supply chain strategy lens. **Journal of Operations Management**, 25(6), 1311-1331.
- Roth, A.V., & Jackson, W., 1995. Strategic determinants of service quality and performance: evidence from the banking industry. **Management Science**, 41(11), 1720–1733.
- Schumpeter, J. A. 1934. **The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle (Vol. 55)**. Transaction Publishers.
- Skaggs, B. C., & Youndt, M. (2004). Strategic positioning, human capital, and performance in service organizations: a customer interaction approach. **Strategic Management Journal**, 25(1), 85-99.
- Stratman, J. K., & Roth, A. V. 2002. Enterprise Resource Planning (ERP) Competence Constructs: Two-Stage Multi-Item Scale Development and Validation\*. **Decision Sciences**, 33(4), 601-628.
- Straub, D., Boudreau, M. C., & Gefen, D. 2004. Validation Guidelines for IS Positivist Research. **Communications of the Association for Information Systems**, 13(24). 380-426.
- Strauss, A. Corbin 1998. Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory. (2nd ed.) Thousand Oaks.
- Thornberry, N. E. 2003. Corporate entrepreneurship: teaching managers to be entrepreneurs. **Journal of Management Development**, 22(4), 329-344.
- Tippins, M. J., & Sohi, R. S. 2003. IT competency and firm performance: is organizational learning a missing link?. **Strategic Management Journal**, 24(8), 745-761.

- Vargo, S. L., & Lusch, R. F. 2004. The four service marketing myths remnants of a goods-based, manufacturing model. **Journal of Service Research**, 6(4), 324-335.
- Vargo, S. L., & Lusch, R. F. 2004b. Evolving to a new dominant logic for marketing. **Journal of marketing**, 68(1), 1-17.
- Vargo, S. L., & Lusch, R. F. 2008a. From goods to service (s): Divergences and convergences of logics. **Industrial Marketing Management**, 37(3), 254-259.
- Vargo, S. L., & Lusch, R. F. 2011. It's all B2B... and beyond: Toward a systems perspective of the market. **Industrial Marketing Management**, 40(2), 181-187.
- Vargo, S. L., Maglio, P. P., & Akaka, M. A. 2008b. On value and value co-creation: A service systems and service logic perspective. **European management journal**, 26(3), 145-152.
- Yin, R. K. 1989. **Case Study Research: Design And Methods (Applied Social Research Methods)**. Sage Publicat.
- Zahra, S. A. 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. **Journal of business venturing**, 6(4), 259-285.
- Zahra, S. A., & Covin, J. G. 1995. Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. **Journal of business venturing**, 10(1), 43-58.

## Essay 3

# **Open Innovation: a Pathway Toward Open Strategy?**

### 3.1 Abstract

The increasing adoption of open approaches to innovation requires firms to revise their traditional views of strategy. However, relatively little is known about how managers can go about achieving this transformation, and how, and to what extent, strategy should be adapted. This study, using a grounded-theory approach, investigates how and why forms of open strategy occur as a result of open innovation approaches. In particular: we identify the key dimensions that underpin open strategy. We discuss them in terms of innovation strategy, strategic fit and bidirectional communication. We also identify three different possible levels of open strategy: corporate, functional and business area. The results of our analysis: (i) highlight that the open innovation approach is a starting point for the process of open strategy; (ii) show to what extent an open innovation approach tends to influence and shape the strategy of a firm; and (iii) provide researchers with a framework that seeks to explain the key dimensions of open strategy.

### 3.2 Introduction

Over the past decade, open innovation has been widely debated in the management innovation literature (Chesbrough 2003; Dahlander & Gann 2010; Gassmann & Enkel 2004; von Hippel 2005; Prahalad & Ramaswamy 2004; West & Gallagher 2006). “Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology” (Chesbrough 2003: 24). Research has identified a number of advantages of the open innovation approach, such as leveraging external knowledge inputs to accelerate internal innovations and expand markets for external use of innovation. There are different open forms of innovation with purposive inflows and outflows of knowledge to accelerate internal innovation of the company (Chesbrough 2003; Chesbrough & Appleyard 2007; Lichtenthaler 2008; Prandelli et al. 2006). This combination of internal and external knowledge could be considered a key element of strategy innovation, synonymous with dynamic complementarity and boundary spanning, that implies strong involvement with the firm’s environment (Love 2014). In the last decade, the adoption of open approaches to innovation has been increasing, resulting in an opening of the firm’s processes (Chesbrough & Appleyard 2007; Doz & Kosonen 2008; Chesbrough 2006). At the same time, this openness has placed certain limits on traditional business models because these open innovative processes need to be supported by new models focused on sustaining this kind of approach. They need to maintain a continuum updating and innovating the strategy in order to allow the firm to fit the strategy into its own context and reach a sustained competitive advantage (Chesbrough & Appleyard 2007). To cope with this lack, a new approach to the firms’ strategy, open strategy, has been introduced (Chesbrough & Appleyard 2007; Whittington et al. 2011). The purpose of open strategy is to ensure the sustainability of open innovation, to create the premises for a growing competitive advantage and to support open innovation (Chesbrough & Appleyard 2007).

Thus, a rising number of studies are being conducted to deepen the many approaches resulting from these developments. The literature has begun to investigate novel customer service arrangements (Cenfentelli et al. 2008; Brohman et al. 2008), electronic interfaces for service provision (Rayport & Jarowsky 2004), new sources of innovation (Von Hippel 2005), new drivers of innovation (Rhee 2010) and inclusion of the customer as a part of the network (Prahalad & Ramaswamy 2000). Despite the number of studies concerning these open approaches, relatively little is known about how managers can go about transforming their traditional strategies and how, and to what extent, strategy should be adapted. This study, using a grounded-theory approach, investigates how and why forms of open strategy occur as a result of open innovation approaches. In particular, we identify the key dimensions that underpin open strategy. We discuss them in terms of innovation strategy, strategic fit and bidirectional communication. We also identify three different possible levels of open strategy: corporate, functional and business area. This finding has significant implications for both theory and practice.

The study proceeds as follows. First, we develop a brief literature review about open innovation and open strategy. Second, we develop the analysis method and illustrate it. Third, we analyze empirical data and present our findings. The final section concludes with a discussion and a conclusion.

### **3.3 Literature background: from open innovation to open strategy**

Over the last few years, the adoption of open approaches to innovation has been increasing, resulting in an opening of firms' traditional strategies (Chesbrough & Appleyard 2007; Doz & Kosonen 2008; Chesbrough 2006). As argued by Whittington et al. (2011), open strategy builds on the notion of open innovation, the process by which corporations increasingly innovate by pooling the knowledge of external agents: e.g., users, business partners and universities (Almirall & Casadeuss-Masanell 2010; Chesbrough 2003). This argument suggests that it is possible to use the process of open innovation to overcome the boundaries of traditional strategy.

Some authors claimed that open innovation challenges traditional perspectives on strategy, understood as the process aimed to create a market placement in order to cope with competitors and build barriers around a firm's own business model. Openness implies a transcendence of this strategic perspective. The challenge is maintaining a continuum updating and innovating the strategy in order to allow the firm to fit the strategy into its own context and reach a sustained competitive advantage (Chesbrough & Appleyard 2007). Thus, they stated that it was necessary to introduce a new approach to the firm's strategy, named open strategy, which ensures the sustainability of open innovation (Chesbrough & Appleyard 2007).

Open strategy is built around the goal of creating the foundation for a growing competitive advantage and, mainly, to support open innovation, which can be considered a process of the strategy of openness. Open strategy involves an upgrade of the strategy concept, aimed to balance value creation and value capture through a perspective of greater transparency and involvement than there has been in the past (Chesbrough & Appleyard 2007; Whittington et al. 2011).



According to Whittington et al. (2011), the opening of strategy is likely to be very awkward, because, as previously stated, it goes against and beyond the traditional strategy thinking. This is due to the fact that strategy, following this open perspective, is not longer exclusive and secret. An exclusive strategy means the classical point of view, where the strategy is the job of the chief executive (Andrews 1971; Montgomery 2008) supported by the strategic planners, an “elite staff” who perform in-depth analysis in order to help a detached top management carry out the strategic overseer task effectively (Williamson 1970). The strategy is secret and uses asymmetries of information to get a sustained competitive advantage (Makadok & Barney 2001). Open strategy challenges both these orthodoxies through two specific elements: widening inclusion and increasing transparency.

Inclusion refers to participation in a firm’s strategic conversation—the exchange of information, views and proposals intended to shape the continued evolution of an organization’s strategy (Mantere & Vaara 2008; Westley 1990). Inclusion has reached beyond corporate boundaries. The rise of strategy consulting reflects a greater openness to outsiders: strategy consulting has created a market for strategy ideas (Ghemawat 2002). Nevertheless, past researchers (Love et al. 2014) argued that, on one hand, the combination of internal and external knowledge could be considered a key element for strategy innovation and, on the other hand, could be considered a source of trouble because it could lead to the formation of conflicts of interest.

Transparency refers to the visibility of the information about the organization’s strategy, potentially during the formulation process but particularly with regard to the strategy finally produced. This dimension could be considered a good tool for comparing a firm’s own business system with systems of competitors who have chosen to use this approach. This is due to the possibility of receiving some interesting input that could improve the firm’s strategy. In this way, the company becomes more competitive and is ready to respond instantly to environment’s influences (Chesbrough & Appleyard 2007; Whittington et al. 2011). On the other hand, excessive transparency may cause the emergence of phenomena harmful to the company, such as piracy of information. Thus, in some circumstances, transparency must be limited, and it is preferable that firms protect their business with copyrights and patents (Chesbrough & Appleyard 2007).

To sum up, open strategy has developed around the notion of open innovation in order to support it. Both share the openness perspective, but open strategy has been delivered to improve the strategy of the firm in order to fit it into its own context. This approach is based on the possibility of sharing different points of view, information, knowledge and experiences with external agents. This does not mean a transfer of decision-making, however; it means an open strategic dialogue for knowledge exchange with transparent access to information.

These instances of greater inclusiveness and transparency, standing in sharp contrast to conventional strategy’s elitism and opacity, reflect an evolution towards strategic openness that is still uneven and incomplete. To date, scholars argue that excessive openness may be a source of vulnerability for a firm. Further, is important to consider that this approach, this field of study, is constantly taking shape. This

status implies several blind spots regarding the development of open strategy and its managerial application, mainly about the foundation supporting relationship based on this approach.

### 3.4 Method and research design

Given the limited theory regarding how open innovation can influence the strategy of the company, we employed a qualitative grounded-theory research approach, as most appropriate (Corbin & Strauss 1990). We used grounded theory not only as a means for generating new theoretical perspectives but also to elaborate and confirm the existing ones. This orientation is aligned with our interpretive approach in that we were especially interested in understanding events as experienced by organizational actors from their own perspectives (Burrell & Morgan 1979; Langley 1999).

The setting for our study was carried out using Google, according to a specific search key: “open innovation + company + list.” This query has produced a list of companies of several sizes and types that were commonly known for their open innovative approach. Specifically, this list was composed of 28 companies, which were subjected to a standardization process in order to select those most appropriate for this study. When developing the final list of companies, we also considered whether companies were completely willing to participate in this type of research and the level of ease of communication with their corporate managers. We generated the list without constraints regarding industrial sector—however, we patterned it according to the size of the company in order to deliver a specific study design. The referenced study design includes: (1) pilot case studies of two small companies and (2) a multiple case study of three large companies.

#### 3.4.1 Overview of the companies

We collected data on five companies without any constraints about the business area. We planned a study design with two steps: first, we analyzed two startups as pilot cases (Table 1), which we chose according to their structure: they were simple and relatively young. A few points are worth noting about the respective firms to understand the nature of their business and their competitive environments:

- Opportunity Network: is a business matchmaking platform that enables CEOs to share and connect to business opportunities worldwide. Is a startup company born in 2014, that is rapidly grown thanks to the team' high competencies and thanks to strong partnerships achieved, as with Intesa San Paolo. It is a sort of financial social network, where members are invited only through reputable financial, legal and professional services firms that ensure the reliability of the members. This is aimed to build up a trustworthy network and to contribute to members' success by providing access to reputable partners worldwide;

- Innoventually: is the one-stop source for assisting public and private entities, and individuals in the creation, management, protection, promotion, development and monetization of innovative

solutions. Is a startup company born in 2014, which promote the open innovation paradigm mainly on SME in order to enable the innovation process of the customer. It encompasses several services: through a specific platform and through the promotion of specific services, such as challenges, technology scouting, patent brokering, etc.. Is possible to get all these services according to a team extremely professional and firms that have decided to be part of its network.

**Table 1.** Description of the pilot case studies

Case Study	Name	Country	Business Area	Size	(N° of intw.) Informants
Pilot Case Study 3	Opportunity Network	USA	Business matchmaking	SME	(1) CEO (fou.) (2) CPO (co-fou.)
Pilot Case Study 2	Innoventually	Italy	Innovative solution for SME	SME	(1) CEO (fou.)

Note: fou = founder; co-fou = co-founder; CPO = chief people officer.

Then, we opted for three large companies as multiple-case studies (Table 2), which operate on several business area in order to emphasize transversality's nature of the topic. Conforming to research's agreements and confidentiality reasons, the most of informants, are blinded in this paper and named according to a distinguished sign, e.g. Case Study 2 (Table 2). This is due to the important strategic topics analyzed in this analysis.

**Table 2.** Description of the case studies

Case Study	Name	Country	Business Area	Size	Revenue (2014)	(N° of intw.) Informants
Case Study 1	Electrolux	Sweden	Home and professional appliance	Large business	112.1	(2) Open innovation director
Case Study 2	Blind	Netherlands	Electronics	Large business	21.4	(2) Open innovation manager
Case Study 3	Blind	Italy	Telecommunications	Large business	21.5	(1) Open innovation analyst; (1) Strategy and Innovation analyst

Note: revenue amount is in billion and determined in Euros.

### 3.4.2 Data collection

We collected our data relying on both primary and secondary sources of data, including: (a) semi-structured protocols with people involved in the formation of strategy, as well as those involved in the

formation of innovation and relationships with external figures of the company; (b) archival data and web-sites about the companies.

Primary data were collected using semi-structured protocols delivered through phone-calls. We argue that this kind of protocols were most suitable for this kind of research in order to enable the informants the possibility to freely speak about the open innovative approach of the company. We completed the data collection with a study of each interviewee's website and of sustainability reports, to validate data collected by the interviews. All respondents were managers (e.g. open innovation manager, strategy manager, etc.) or CEOs of company interviewed, depending on the company structure because of their likely familiarity with firm-wide strategic actions, particularly corporate entrepreneurship and collaboration efforts (Miller 1983; Zahra 1991; Prahalad & Ramaswamy 2004).

The main goal was to investigate how and why forms of open strategy occur as a result of open innovation approaches. Thus, we attempted to obtain this information through specific questions. In particular, we asked about their purpose through specific questions such as: *Can you explain your personal vision of open innovation?; What are the main reason of your company while launching (or planning to launch) these open innovation projects (what kind of innovation do you expect?)*? Furthermore, we sought to deepen the relationship with corporate strategy: *What is, in your opinion, the relationship between the open innovation approach and the company strategy? Do you share some processes at the strategy level with external agents?* Registered tapes were made for all the interviews for a total of five and half hours, also, the interviewer has taken notes, approximately forty pages of text, in shorthand.

Overall, we conducted 5 formal interviews and as many informal interviews. Their last varied from 45 minutes to an hour and half. Protocols consist of five sections: the interviews usually began with general questions that enabled an overview of the company regarding activity, employees and market; the second section is focused on the vision of the informant about the open innovation; the third section is about the open innovation features that can be found on the company's organization; the fourth section regards the reasons and purpose for the implementation of this kind of approach, according to which we deepened the main perspective of this approach; the fifth and last section is about the connection between the implementation of the open innovation approach and the corporate strategy. We relied on archival data from the same period of primary data gathering. These data have also helped to triangulate the self-reports of key informants, and, thereby, mitigate possible "retrospective bias" in the interviews with the managers involved.

We used pilot case studies in preparation to the formal data collection and in order help us to refine the data collection plan with respect to the content of the data and the procedures to be followed (Yin 2003). Thus, the case study design includes a multiple, exploratory, in-depth pilot cases study followed by a more explanatory, multiple-case analysis of three companies. Problems and issues identified in the exploratory pilot case study were aimed to redefine the variables for further investigation. The subsequent multiple-case studies has the objective of verifying the processes identified from the pilot case and the literature.

### 3.4.3 Data analysis

We analyzed the data using an open-coding approach, inductive theory building (Strauss and Corbin 2008), which involved selecting, categorizing, and labeling direct statements (e.g., first-order, informant-centric codes) that we could assemble into more theoretical perceptions (second-order, researcher-centric themes), and which we later could condense into more general theoretical concepts (overarching dimensions).

We began first-order coding by reviewing interview transcripts and archival data and identifying “thought units” or passages that represented a fundamental idea or concept. To preserve informant-level meanings, we used Nvivo 10 in order to highlight labels according to the terms actually used by informants and emerged from the texts. In other cases, we assigned labels adequate at the level of meaning of the informant to capture first-order observations (Spradley 1979), in order to keep labels as close as possible to the informants’ own language (Table 3) (e.g. “innovation strategy”; “strategic fit”).

**Table 3.** Data summary of open strategy's label emerged

Node	N° of Sources	N° of Coding references	N° of Words coded
Innovation Strategy	3	32	1.062
Strategic Fit	3	8	288
Bidirectional Communication	3	11	442

Note. Par.: Paragraphs

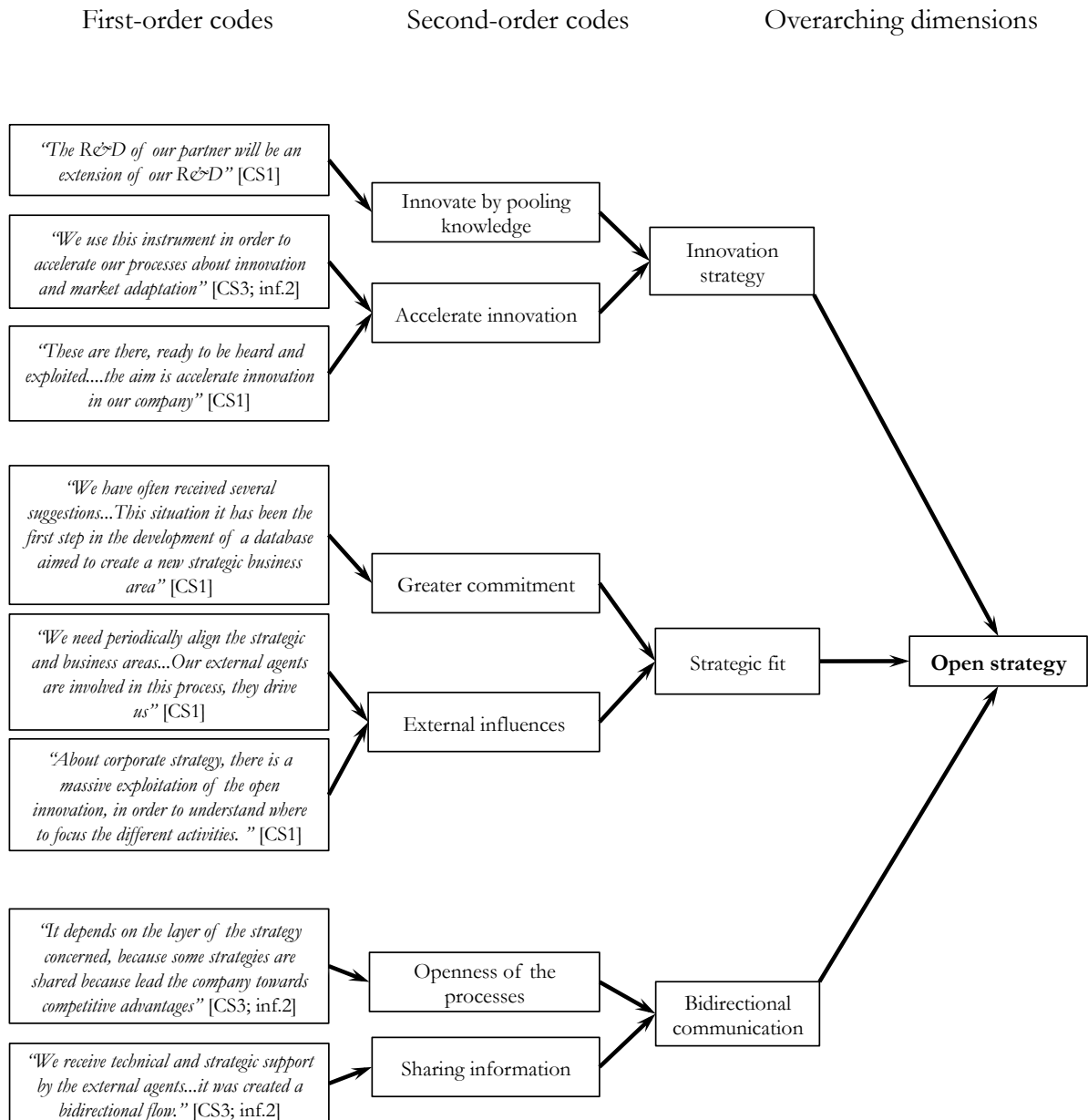
Furthermore, we used constant comparative methods to compare and contrast data over time and across informants and sources (Glaser 1978), to establish and maintain analytic distinctions among the codes. Furthermore, we compared thought units with previously identified codes and either categorized new data under existing codes or created a new code if it was analytically distinct. Through this iterative process, we identified 15 first-order codes.

The second-order analyzes involved axial coding (Strauss & Corbin 2008), synthesizing and clustering first-order codes into higher-order themes. We aggregated the 15 first-order codes into 8 second-order themes that were level specific. These themes pertained to specific fields of study taken into account in this analysis. The final phase, of theoretical coding (Glaser 1978), involved assessing the semantic relationships among these themes, a process that generated 4 overarching dimensions, typical of the openness about the companies analyzed (Figure 1).

Finally, we arrived at the grounded theory model by segregating the member-level and field-level dimensions and tracing sequential and interactive relationships among them, thereby transforming the previously static and standalone dimensions into a dynamic, integrated, theoretical process model. After

coding 5 cases study, we did not find new themes in the remaining sources of data. This absence of novel codes suggested that we reached a theoretical saturation (Strauss & Corbin 1998).

**Figure 1.** Analytical coding process



In particular, Figure 1 displays the ordering and structuring of the data that identify the codes, themes, and dimensions that capture the activities linked to innovation.

Table 4 show the dimensions mentioned above and provides illustrative, direct quotation from our fieldwork.

**Table 4.** Representative quotes and archival entries underlying second-order themes

---

<b>Innovation strategy</b>
Innovative by pooling knowledge: <i>“Make profit. Lets start with strategy of the company that is aimed to improve its competitive advantage. At the end, any kind of company that wants to remain healthy in a business way, must improve this competitive advantage. How can do this? Through the innovation. Doing innovation, that often is mistakenly framed with new technologies, but instead, can be linked with new production processes that makes cheap the output for the customer and any kind of innovation, and, accordingly, create value for the company”.</i> [Case Study 1]; <i>“Open innovation is a new way of doing business, through the synergy among ecosystems that diverge radically each other, which are (1) the company, with their organizational systems. The other ecosystem is the external one, (2) the external network of innovators, which are beyond the traditional external network of collaborators of the company. Many argue about open innovation with reference to relationships that exist with suppliers, customers, etc.. We believe that this is a normal model of innovation. On the contrary, we argue that open innovation means go beyond listening and interacting with non-traditional players. There is a fundamental diversity, which very often is perceived as a barrier. This diversity means talk with companies that are far away from us, for business area or technological competences. This is what is open innovation for us...Is essential to develop an external trusted network, in other words, the R&amp;D of our partner will be an extension of our R&amp;D”.</i> [Case Study 1]
Accelerate innovation: <i>“We argue that open innovation is the idea to exploit the inflows and outflows of knowledge so that innovation as such be speeded up. Our industrial area is currently exposed to major changes and becoming the increasingly land of open ecosystems, that must increasingly adapt to new market dynamics. We use this instrument in order to accelerate our processes about innovation and market adaptation”.</i> [Case Study 3; inf.2]; <i>“We must not count on the support of our internal resources, but, even on the external ones, in order to create innovation and value. These are there, ready to be heard and exploited. Thus, the aim of open innovation is nothing more than accelerate innovation in our company”.</i> [Case Study 1]
<b>Strategic fit</b>
Greater commitment: <i>“We have often received several suggestions for a specific innovation that was not enclosed in any of our strategic business areas. However, these suggestions seemed to be interesting and led us to present a new product that was not typical of our business areas, but was in line with our strategic idea. This situation it has been the first step in the development of a database, aimed to create, most likely the next year, a new strategic business area with a new product”.</i> [Case Study 1]
External influences: <i>“We need to align periodically with internal stakeholders about the areas to focus on innovation scouting, to identify solutions that can be aligned with company priorities: this is the way our internal functions drive open innovation scouting. Our external agents are involved in this process, they drive us”.</i> [Case Study 1]; <i>“Obviously, about corporate strategy there is a massive exploitation of the open innovation, in order to understand where focus the different activities. In my unit we are using this approach during the meetings with strategic buyers. We have just concluded an event named OI Roundtable, where we met suppliers and even competitors, in order to speak openly about themes that will be aimed to drive some strategic processes and to find out if we are going in the right direction. The openness is total and provides for speak openly with a wide variety of actors and expecting the same behavior from them”.</i> [Case Study 2]
<b>Bidirectional communication</b>
Openness of the processes: <i>“There are advantages for all the parts involved through the sharing, which must be bilateral unless trilateral. Obviously, it depends on the layer of the strategy concerned, because some strategies are shared because lead the company towards competitive advantages, other could be lead the company towards some potential risks. We must keep a balance within our ecosystem between collaboration and competitiveness, interpreting the strategy development step by step”.</i> [Case Study 3; inf.2];
Sharing information: <i>“We receive technical and strategic support by the external agents...in someway, we lost some specific dimensions than the past and it was formed a bidirectional flow, do ut des. This is due to a greater transparency underlying”.</i> [Case Study 3; inf.1]

---

Note. Some example above use fictitious names for confidentiality reasons

### 3.5 Findings overview

In this section, we identify the key dimensions that underpin open strategy. We discussed them in term of innovation strategy, strategic fit and bidirectional communication.

#### 3.5.1 Innovation strategy

The interviews told us that all of the companies analyzed here consider open innovation as an essential instrument, a new way of doing business in order to accelerate innovation within the company. Therefore, the exploitation of this kind of instrument can be related to an innovation strategy, a perspective focused on the innovation process as an instrument that is strategically oriented (de Brentani 1989; Laing 1993; Sundbo 1997).

Companies instill innovation policies that satisfy their innovative needs. To meet these needs, companies deploy new resources and encourage new ideas (Sundbo 1997). Indeed, some studies (Koc & Ceylan 2007; Macdonald & Williams 1994) report that new ideas, fundamental for a company's innovative capacities, depend on knowledge creation. Alongside the importance of generating new ideas, emerges the importance of the use and dissemination of such knowledge inside and outside the company (Monge et al. 1992). Company structure, with appropriate instruments of innovation strategy, represents fundamental factors for innovation (Lemon & Sahota 2004; Slappendel 1996) as illustrated by the following quotation:

*“At the end, any kind of company that wants to remain healthy in a business way, must improve this competitive advantage. How can do this? Through the innovation. Make innovation, that often is mistakenly framed with new technologies, but instead, can be linked with new production processes that makes cheap the output for the customer and any kind of innovation, and, accordingly, create value for the company”.* [Open Innovation Director - Case Study 1]

As previously mentioned, this kind of approach can gather several aspects, from which the tendency to innovate by pooling external knowledge emerges. First, gathering knowledge (competencies and skills) from external networks is a typical approach in the informants' processes. The following quotations illustrate how the companies seek innovation by pooling knowledge with the external agents:

*“Open innovation is a new way of make profit, through the synergy among ecosystems that diverge radically each other, which are (1) the company, with their organizational systems. The other ecosystem is the external one (2), the external network of innovators, which are beyond the traditional external networks of collaborators of the company...we argue that open innovation means to go beyond listening and interacting with traditional players...talk with companies that are far away from us, for a business area or technological competences...Is essential to develop an external trusted network, in other words, the R&D of our partner will be an extension of our R&D”.* [Open Innovation Director - Case Study 1]



The second aspect of the innovation strategy is related to the possibility of accelerating innovation processes within the company through this kind of approach. As stated by the informants, the implementation of a company's processes through the exploitation of an instrument such as the open innovation is considered the best way to “*accelerate to innovation*” (Open innovation manager - Case Study 1). The following quotations demonstrate how the open innovation approaches of the informants are aimed to speed up the innovation processes within the company:

*“We argue that open innovation is the idea to exploit the inflows and outflows of knowledge so that innovation as such be speeded up. Our industrial area is currently exposed to major changes and becoming the increasingly land of open ecosystems, that must increasingly adapt to new market dynamics. We use this instrument in order to accelerate our processes about innovation and market adaptation”.* [Strategy and innovation analyst - Case Study 3]

*“We must not count on the support of our internal resources, but, even on the external ones, in order to create innovation and value. These are there, ready to be heard and exploited. Thus, the aim of open innovation is nothing more than accelerate innovation in our company”.* [Open Innovation Director - Case Study 1]

Our data show us how the innovation strategy is an expression of an open innovation approach, whose implementation starts from two essential aspects, and these findings are supported by the previous studies. As argued by Chesbrough (2006: p. 1), an open innovation approach is “the use of purposive inflows and outflows of knowledge to accelerate the internal innovation, and expand the markets for external use of innovation.” This perspective emerged strongly in the interviews. Companies embrace this kind of approach in different ways, showing infrastructures that appear more or less formal on each company. About these companies, we can refer to units that manage these approaches and try to promote this culture within the companies, in order to benefit strategically from them. In short, this dimension encompasses improvements and efforts that refer to an innovation strategy that can be considered as a set of interdependent processes that dictate how much to invest in business model innovation (Pisano 2015).

### 3.5.2 Strategic fit

Another salient dimension that emerged in the initial list of codes is the strategic fit, associated mainly with processes of sharing and receiving, and it explains how the situation in which all the internal and external elements that are relevant for a company are in line both with each other and with the corporate strategy (Scholz 1987). On closer inspection, it appeared, how through the implementation of open innovation approaches, there was the possibility to develop forms of joint sense-making (Angwin et al. 2014), with an alignment of the external elements with the company needs. The dimension of strategic fit is directly linked to two specific aspects: greater commitment and further external influences. The

following quotations allow us to deepen our knowledge/understanding of these aspects embedded in the dimension of strategic fit:

*“We have often received several suggestions for a specific innovation that was not enclosed in any of our strategic business areas. However, these suggestions seemed to be interesting and led us to present a new product that was not typical of our business areas, but was in line with our strategic idea. This situation it has been the first step in the development of a database, aimed to create, most likely the next year, a new strategic business area with a new product”.* [Open Innovation Director - Case Study 1]

According to the previous statement, we can observe that from an open innovation approach, the company received a specific level of external influences, which led the same company to reconsider its approach with the partners. These influences have implied a greater commitment for both company and innovator to create a database according to these suggestions and to create a new business area with its own strategy. This instance shows how an open innovation approach was a source of strategic fit based on a relationship between sharing and receiving, where an increasing inclusiveness emerged more than in the past. In short, it has created a process of collaborative strategy-making. This should lead to the creation of shared knowledge, supporting a greater commitment of the external agents, which results in greater forms of inclusion than the past:

*“We need periodically align the strategic and business areas, through a focus process. Our external agents are involved in this process, they drive us”.* [Open Innovation Director - Case Study 1]

*“Obviously, about corporate strategy, there is a massive exploitation of the open innovation, in order to understand where to focus the different activities. In my unit, we are using this approach during the meetings with strategic buyers. We have just concluded an event named OI Roundtable, where we met suppliers and even competitors, in order to speak openly about themes that will be aimed to drive some strategic processes and to find out if we are going in the right direction. The openness is total and provides for speak openly with a wide variety of actors and expecting the same behavior from them”.* [Open Innovation Manager - Case Study 2]

According to these statements, it is possible to recognize that forms of strategic fit not only encompass sharing aspects but are also focused on receiving inputs. This is due to an open innovative approach, which, according to Chesbrough (2006), is the inflow and outflow of knowledge and implies the receiving of these inputs. It is obvious that strong external influences emerge that are considered and exploited by the company. These influences, as informants told us, drive the company to developments that not only encompass innovation processes about the services or products but also establish the inclusion of strategic dimensions. As argued by De Gooyert et al. (2014), an individual organization involves its internal and external stakeholders in the joint exploration of strategic developments and

trends. This is due to the massive influence of the open innovation on management, which leads the latter to include external agents in some strategic processes. These inclusions, as stated by the informants, are aimed at aligning the company's strategic processes in which the partner drives the company in order to address these processes better. On closer inspection, these agents are usually included in figures typical of a B2B context, and as it emerged in the interviews, they can be encompassed within a wide variety of external agents such as universities, commercial or financial partners, and competitors.

### 3.5.3 Bidirectional communication

The last dimension is about communication and how the implementation of an open innovation approach leads the company toward bilateral (or trilateral) exchanges of information among the actors involved, and thus toward forms of greater transparency. In particular, Stieger et al. (2012) have pointed out the role of two-way communication between management and stakeholders understood as the combination of listening and talking—a dialogue—which creates new knowledge and allows for shared understanding. This dimension encompasses two specific aspects: the sharing of information and the openness of the processes.

The first aspect, the openness of the process, emerged from and was embedded in the dimension of bidirectional communication. Whittington et al. (2011) have defined openness as the increase in transparency, concerning an opening-up of the communication process to include previously excluded actors. On closer inspection, all the distinctions about openness can be understood as aspects of communication, considering that they have to do with this process. Inbound innovation, inclusion in strategy, and openness in participation all imply receiving information, opinion, and knowledge from previously excluded communicators. With regard to the notion of openness, we view receiving and sharing as the two core communicative aspects of both innovation and strategy; they should be understood as two dimensions that allow the categorization of different forms of openness. In that respect we follow Whittington et al. (2011), who have stressed that the two principles of openness, transparency and inclusion, should be regarded as continuous rather than binary:

*“There are advantages for all the parts involved through the sharing, which must be bilateral unless trilateral. Obviously, it depends on the layer of the strategy concerned, because some strategies are shared because lead the company towards competitive advantages, other could be lead the company towards some potential risks. We must keep a balance within our ecosystem between collaboration and competitiveness, interpreting the strategy development step by step”.* [Strategy and innovation analyst - Case Study 3]

The second aspect is about the sharing of information. The interviews told us how the main purpose is to receive more contributions by expanding the number of actors allowed to participate in an innovation or strategy process. This leads toward increased transparency and information-sharing. The following example shows how these forms of greater transparency have developed:

*“We receive technical and strategic support by the external agents...in someway, we lost some specific dimensions than the past and it was formed a bidirectional flow, do ut des. This is due to a greater transparency underlying”.* [Senior Project Manager at Open Innovation Unit - Case Study 3]

As emerged by these statements, forms of open innovation involve bidirectional communication that includes both sharing with others and receiving from them. This is emerging on the strategy processes, where informants have emphasized that this sharing implies a “conversation” where both parts share their strategic processes. This is mainly due to the greater transparency of the processes than in the past, which leads the company toward a sharing of its processes with specific partners. This sharing, according to the data, is focused on strategic processes and must imply a bidirectional sharing aimed at reaching a competitive advantage for both parties involved.

### 3.5.4 Open strategy

Overall, evidence from the case studies indicates and suggests how an open innovation approach could lead to the openness of strategy processes and reconsidering the traditional dimensions of the strategy about inclusion and transparency (Whittington et al. 2011). As it emerged by the interviews can be found several forms of this openness which can be traced to several levels of the business strategy: corporate, functional area and business area as showed in the following quotations:

*“If we focus on strategy levels below the core, there is a strategy even in the different business areas. Everyone of these areas has a strategy that plan how to reach the customer, types of product, etc., thus, there is a strategy. Here the open innovation has a strong influence. Therefore, for the first time in history, there was a flexibility that we have never had before. Why? Because our external agents and internal customers tell us what could we do. For instance, R&D could be not aligned with marketing area, but it did not say it or was not be heard it. However, from the moment which comes important inputs from outward, we define together the potential paths for us to tread. This pathway can lead me to create a new business area”.* [Open Innovation Director - Case Study 1]

*“Obviously, not everything's black and white, the openness of the strategy is a topic that must be assessed case by case. We usually have a strategic meeting with European partners, in which, according to non-disclosure agreement, we exchange information. Is utopian close myself in a walled garden and not to talk with anyone, we plan to speak with specific partners that could be important for my future and we decide to share with them some level of our strategy, obviously up to a point and they will do the same with us. There are several shades, that time after time are assessed according to the environment, and can imply to tell everybody what I do”.* [Strategy and innovation analyst - Case Study 3]

Our data revealed how an open innovative approach leads the company to forms of greater commitment and even beyond the normal company processes. As emerged, the sharing knowledge

typical of open innovative approaches, promotes forms of dialogue which go beyond the R&D processes, encompassing even the strategic ones. Companies tend to share these strategic processes up to specific levels, functional and business areas, according to their needs. Where serves, this openness could be complete but must be planned according to specific purposes:

*“We had a meeting with an our European partner, Partner X, with which we signed a non disclosure agreement under the strategic development of platforms by 2020...we exchanged information with this specific partner, with which we shared and told specific processes of our strategy and, obviously, this partner, did the same with us...We have chosen to share this information because leads to a competitive advantage for both the parts and, obviously, because there is bilateral (sometimes trilateral) sharing”.* [Strategy and innovation analyst - Case Study 3]

The company’s bidirectional communications emerge from this example and show how an open innovation approach could lead firms to open the strategy at different levels. In particular, the example emphasizes a new perspective on the transparency of strategic processes. Starting from a relationship that is typical of open innovation in which one partner receives knowledge from another partner, it is possible to find a pathway aimed at developing the business's strategy. The openness of the strategic processes and the subsequent sharing of these processes are necessary to reach a competitive advantage that can be shared with the partner. As emerged in the interviews and, in particular, in the previous example, a company decides to share its strategic processes with a partner only when this sharing is received in the same way by this partner. Obviously, these forms of transparency and inclusion are limited to a specific levels of strategy, which do not imply the core processes, but rather the “layers” below it.

### **3.6 Discussion**

To date, scholars have done a good job of investigating the openness of company processes. Despite this growing interest in open innovation (Chesbrough, 2003; Dahlander & Gann, 2010; Gassmann & Enkel, 2004; von Hippel, 2005; Prahalad & Ramaswary, 2004; West & Gallagher, 2006) and open strategy (Chesbrough 2006; Chesbrough & Appleyard 2007; Doz & Kosonen 2008; Whittington et al. 2011), there is not yet a complete literature on the relationship and the influences between these two fields of study. In particular, an in-depth analysis of the second one is lacking. This paper is aimed at addressing this gap in the literature and at broadening the existing theory and research, primarily on open strategy, explaining how and why forms of openness occur as a result of open innovation approaches. In particular, improvements to our understanding of the phenomenon of the utilization of open innovation is a starting point for implementing forms of open strategy that are aimed at reaching a sustainable competitive advantage for the actors involved.

Previous researchers (Chesbrough & Appleyard 2007; Whittington et al. 2011; Dobush 2014; Dobush 2012; Hardy et al. 2006; Schmitt 2010) have asserted that strategy is evolving toward greater openness and is exposing its members to significant strain and considerable new challenges. It has been argued that a

greater transparency and inclusiveness is unavoidable and will change the relative effectiveness of strategies (Whittington et al. 2011). In this context, it will be important to recognize the sources of competitive advantage embedded in complex processes (Rivkin 2000) such as open innovation (Chesbrough 2003; Chesbrough & Appleyard 2007). It will also be important to determine the pathway toward forms of open strategy because the real source of this openness has not yet been discovered (Whittington et al. 2011).

According to this frame, the study's most general contribution lies in the cross-level grounded model and its depiction of how and why the open strategy occurs. We theorized this open process as a construct and we discuss it in terms of innovation strategy, strategic fit, and bidirectional communication. This model not only helps to illuminate processes involved in the development of collaborative strategy-making processes, but it also shows how a company's open innovation is a source for open strategy. Not all the processes and themes revealed in the model are theoretically revelatory or require commentary. Therefore, in the following, we tend to highlight the most notable findings along with their implications for theory and future research.

### 3.6.1 Innovation strategy

Our findings support the notion of innovation strategy. In particular, they focus on the innovation process as strategically oriented instrument (de Brentani 1989; Laing 1993; Sundbo 1997), assuming strategy as an inspiration for this process (Ferreira et al. 2015). Currently, companies are combining internal R&D and external knowledge-acquisition activities (Cassiman 2006), which leads to the creation and development of processes that enable the company to maximize its innovative payoff (Zahra et al. 1993). Previous research (Rumelt et al. 1994; Thakur & Hale 2012) have recognized that a company's innovation strategy should specify how the different types of innovation fit into the business strategy and how the resources should be allocated (Piano 2015). Diverse perspectives are critical for successful innovation. However, without a strategy to integrate and align those perspectives around common priorities, the power of diversity is blunted or, worse, becomes self-defeating. Our study acknowledged that open innovation is an innovative strategic instrument that gathers these several perspectives. We extended the previous perspectives about innovation strategy, enclosing within this instrument two specific aspects: innovation by pooling knowledge and the acceleration of innovation.

In line with previous studies, we confirm and adjust the perspective from previous research that companies benefit differentially from adopting open innovation strategies (Cassiman 2006; Akman & Ylmaz 2009; Saebi & Foss 2015). We include within the innovation strategy concept the importance of the open innovation process (Chesbrough 2006). In particular, we emphasize the two aspects that emerged in the multiple case studies. Our findings suggest that companies pursuing an innovation strategy need to accelerate innovation within their abilities by pooling knowledge and, therefore, by exploiting the instrument of open innovation. Thus, while previous theoretical literature has only started

to unravel the complex links between internal and external sourcing (Cassiman 2006), we provide evidence on complementarity in the innovation strategy and its sub-aspects.

### 3.6.2 Strategic fit

Our data support the notion of strategic fit, understood as the situation in which all the internal and external elements relevant for a company are in line with each other and with the corporate strategy (Scholz 1987). These forms of strategic alignment have been supported by several side studies (Schmitt 2010) where this alignment is supported by forms of joint sense-making, emphasizing the phenomenon of collaborative strategy-making. As a result, recent research (Prajogo 2016) has argued that managers must seek a fit between the company's innovation strategies and the components of its environment. The company's external environment can also moderate its innovation strategies. In other words, the return generated from innovation is the result of the interaction between the business environment and the company's innovation strategies (Chesbrough 2006) and capabilities (Kerin et al. 1992), further promoting inclusiveness (Whittington et al. 2011).

Our data support the notion of strategic fit, implying the purpose of creating and co-constructing a shared understanding or vision with the stakeholders (Schmitt 2010; Prajogo 2016) involved in open strategic processes. In particular, our study acknowledged that the dimension of strategic fit comprises two additional categorizations: greater commitment and external influences. The implementation of an open approach led these companies to consider external influences in order to promote the greater commitment (Whittington et al. 2011) of the innovator partners to the strategy development. In particular, from an open innovation approach, the company can reconsider its strategic processes according to these external influences and it can develop a greater commitment. These findings support the dimension of strategic fit as the alignment of the strategy with environmental influences. They also emphasize a process of collaborative strategy-making from which has emerged greater inclusiveness than in the past (Whittington et al. 2011).

### 3.6.3 Bidirectional communication

Our findings support Habermas's (1987) notion of communication in which the aim of the communication is to generate a shared understanding and to involve the discussion of different views in order to achieve a common understanding. Previous research (Weick et al. 2005; Taylor & Van Every 2000) has defined communication as an ongoing process of making sense of the circumstances in which people collectively find themselves and of the events that affect them. The idea of sense-making as an activity that clarifies events and organizations suggest that organizational patterns are located in the actions and conversations that occur on behalf of the organization. In line with this view, Stieger et al. (2012) have pointed out the role of two-way communication between management and stakeholders understood as the combination of listening and talking—a dialogue—which creates new knowledge and allows for shared understanding.

In line with previous studies, we extend and adjust the notion of bidirectional communication, framing it as the openness of the strategic processes. In particular, we support the perspective of Whittington et al. (2011), acknowledging that greater transparency of strategic processes could be a result of the openness of the processes and the related sharing of information. We must channel this dimension mainly into a communicative perspective, aimed at creating shared knowledge with the partner through the exchange of information about the strategy (Whittington et al. 2011; Stieger et al. 2012). Open strategy-making aims to create joint sense-making and usually involves bidirectional communication that includes both sharing with others and receiving from others. The examples in above sections emphasize a new perspective on the transparency of strategy processes. In particular, according to the openness of the strategic processes and the subsequent sharing of these processes, the partners involved collaborate in order to reach a competitive advantage that can be shared among the actors.

### 3.6.4 Open strategy

Our studies supported and extended the notions of Whittington et al. (2011) about the open strategy, acknowledging that these forms of openness may lead the company to change its own traditions around inclusiveness and transparency. We acknowledged how these forms occur according to new innovation strategy instruments, which are based on open approaches. On closer inspection, it became clear how an open innovation approach leads people to consider external influences, thereby causing a greater commitment of the actors involved. Obviously, this inclusiveness needs to be supported by an openness of the strategy process, which results in bilateral sharing of the strategic information. According to the suggested innovation strategy, the actors in this relationship aim to achieve a competitive advantage and engage in the joint exploration of strategic topics that the company is not able to make sense of on its own.

On closer inspection, the process of open strategy analyzed here does not imply a natural and automatic sharing of strategic processes with the partner and the resultant ousting of the top management from the strategy's development. It is important to make some clarifications. First of all, in line with Schmitt (2010) and Henkel et al. (2014), the degree (level) of openness in innovation and strategy varies according to the degree of sharing and receiving. Accordingly, a complete openness of the strategy processes has not yet been observed due to the immaturity of the field. Nevertheless, it has been confirmed that a pathway toward concrete forms of open strategy is being developed.

Obviously, this openness does not embrace all the strategic processes. There are several layers of influence that the literature has not yet analyzed. Previous research (Chesbrough & Appleyard 2007; Whittington et al. 2011; Dobush 2014; Dobush 2012; Hardy et al. 2006; Schmitt 2010) has not determined at which level the strategy may be subjected to this openness. Our findings show that forms of open strategy may be related and occur at several levels of the company (Table 4). On closer inspection, there are three different levels: the corporate (strategy) level, where these forms of openness have not emerged, and the business and functional levels, where these forms of sharing and influence



with the partner are more evident and are observed even in the short term. Therefore, it is not currently possible to talk about extending the open strategy to the corporate level.

To illustrate, we can think of the strategy as an onion with external layers that change according to the innovation purposes and collaboration with partners and a core sheltered from this inclusiveness and transparency, which will be subjected to these changes only in the long term. In short, the open strategy dimensions (Table 5) can be traced back to several levels of strategy and influence in the time period.

**Table 5.** Open strategy dimensions

Dimensions	Level
Innovation strategy	Corporate strategy
Strategic fit	Functional area
Bidirectional communication	Business area

### 3.7 Conclusion and limitations

This paper has sought to explain how and why forms of open strategy occur as a result of open innovation approaches. Furthermore, it provides a conceptualization of the main dimensions that are encompassed in forms of open strategy.

First of all, a clear and strong influence of open innovation appeared. The implementation of this instrument resulted in an essential starting point for the achievement of an innovation strategy aimed at reaching a sustainable competitive advantage through forms of open strategy. The case studies analyzed tended to develop this approach in a deep way, up to considering the external influences not only for product and service processes but also for strategic processes. Effectively, a plan aimed at sharing the strategy processes emerged, thereby highlighting that companies are working toward this kind of openness.

Secondly, the analyzed cases of open strategy reveal that companies tend to change the strategy's traditional dimensions of inclusiveness and transparency in order to start bidirectional communication and sharing with partners. On closer inspection, this openness is not as complete as it is in the open innovation approach. The open strategy is a process of openness that does not encompass the core processes of the strategy, which are closely linked with top management. It focuses on the layers immediately below this core, which will then be influenced by this openness in the long term. There are several business and functional areas that imply several strategies, which will be open and shared with partners and form the core strategy previously mentioned.

Third, we delivered a framework that discusses how the open strategy occurs in terms of specific dimensions that reveal its nature. These dimensions enclose some clear influences from open innovation, such as innovation strategy, furthermore, there are two additional dimensions: strategic fit, focused on greater inclusiveness, and bidirectional communication, focused on more transparency.

Of course, this study has important limitations that stem from its exploratory intent. It can be defined by a pioneering perspective. The field of study of open strategy is still in its infancy. We see the propositions formulated in this paper as a call and a foundation for future empirical research in this subject area. Thus, it needs to be compared with other practical studies and tested for validity.

### 3.8 References

- Akman, G., & Yilmaz, C. (2008). Innovative capability, innovation strategy and market orientation: an empirical analysis in Turkish software industry. **International Journal of Innovation Management**, 12(01), 69-111.
- Almirall, E., & Casadesus-Masanell, R. (2010). Open versus closed innovation: A model of discovery and divergence. **Academy of management review**, 35(1), 27-47.
- Andrews, K. R. (1971). *The Concept of Corporate Strategy*. Homewood, IL: Irwin.
- Angwin, D., Meadows, M., Yakis-Douglas, B. (2014). Opening the M&A process to investors: Transparency in organizational.
- Brohman, M. K., Piccoli, G., Martin, P., Zulkernine, F., Parasuraman, A. Watson, R. T. (2009). "A design theory approach to building strategic net-based customer service systems". **Decision Sciences**, 40(3). 403-430.
- Burrell, G., & Morgan, G. 1979. *Sociological paradigms and organizational analysis*. Portsmouth, NH: Heinemann.
- Cassiman, B., & Veugelers, R. (2006). In search of complementarity in innovation strategy: Internal R&D and external knowledge acquisition. **Management science**, 52(1), 68-82.
- Cenfentelli, R. T., Benbasat, I. Al-Natour, S. (2008). "Addressing the what and how of online services: Positioning supporting-services functionality and service quality for business to consumer success". **Information Systems Research**, 19(2). 161-181.
- Chesbrough, H. (2003). The logic of open innovation: managing intellectual property. **California Management Review**, 45(3), 33-58.
- Chesbrough, H. W., & Appleyard, M. M. (2007). Open innovation and strategy. **California management review**, 50(1), 57-76.
- Chesbrough, H.W. (2006). *Open Business Models: How to Thrive in the New Innovation Landscape*. Boston, MA: Harvard Business School Press.
- Dahlander, L., & Gann, D. M. (2010). How open is innovation?. **Research policy**, 39(6), 699-709.
- De Brentani, U. (1989). Success and failure in new industrial services. **Journal of Product Innovation Management**, 6(4), 239-258.
- De Gooyert, V., Rouwette, E., Van Kranenburg, H., Freeman, E., Van Breen, H. (2014). Mental Model Renewal in Inter-organizational Strategizing: Bridging the Cognitive gap Between Internal and External Stakeholders. Paper presented at Workshop on Open Strategy, Said Business School, Oxford, 01.07.2014
- Dobusch, L., & Müller-Seitz, G. (2012): Strategy as a Practice of Thousands: The Case of Wikimedia. **Academy of Management Best Paper Proceedings**, pp. 1-6.
- Dobusch, L., Gegenhuber, T. (2014). Making an Impression with Open Strategy: Practicing Transparency and Engagement on Corporate Blogs. Paper presented at Workshop on Open Strategy, Said Business School, Oxford, 01.07.2014

- Doz, Y. L., & Kosonen, M. (2008): *Fast Strategy: How Strategic Agility Will Help You Stay Ahead of the Game*. Harlow: Pearson.
- Ferreira, J. J., Fernandes, C. I., Alves, H., & Raposo, M. L. (2015). Drivers of innovation strategies: Testing the Tidd and Bessant (2009) model. **Journal of Business Research**, 68(7), 1395-1403.
- Gassmann, O., & Enkel, E. (2004, July). Towards a theory of open innovation: three core process archetypes. In *R&D management conference* (Vol. 6, No. 0, pp. 1-18).
- Ghemawat, P. (2002). 'Competition and business strategy in historical perspective'. **Business History Review**, 76, pp. 37-74.
- Glaser, B. G. 1978. *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.
- Habermas, J. (1987). *Theory of Communicative Action Volume Two: Lifeworld and System: A Critique of Functionalist Reason*. Translated by Thomas A. McCarthy. Boston, Mass.
- Hardy, C., Lawrence, T., & Phillips, N. (2006). Swimming with sharks: creating strategic change through multi-sector collaboration. **International Journal of Strategic Change Management**, 1 (1/2), 96-112.
- Henkel, J., (2006). Selective revealing in open innovation processes: the case of embedded Linux. **Research Policy**, 35 (7), 953-969.
- Henkel, J., Schöberl S., & Alexy, O. (2014). The emergence of openness: How and why firms adopt selective revealing in open innovation. **Research Policy**, 43(5), 879-890.
- Henkel, J., Schöberl S., & Alexy, O. (2014). The emergence of openness: How and why firms adopt selective revealing in open innovation. **Research Policy**, 43(5), 879-890.
- Kerin, R. A., Varadarajan, P. R., & Peterson, R. A. (1992). First-mover advantage: A synthesis, conceptual framework, and research propositions. **The Journal of Marketing**, 33-52.
- Koc, T., & Ceylan, C. (2007). Factors impacting the innovative capacity in large-scale companies. **Technovation**, 27(3), 105-114.
- Laing, A. (1993). *Innovation and the service delivery system in the UK life assurance industry*. *Managing Innovation in Services*.
- Langley, A. 1999. Strategies for theorizing from process data. **Academy of Management Review**, 24: 691- 710.
- Lemon, M., & Sahota, P. S. (2004). Organizational culture as a knowledge repository for increased innovative capacity. **Technovation**, 24(6), 483-498.
- Lichtenthaler, U. (2008). Open innovation in practice: an analysis of strategic approaches to technology trans- actions. **IEEE Transactions of Engineering Management**, 55, pp. 148-157.
- Love, J. H., Roper, S., & Vahter, P. (2014). Learning from openness: The dynamics of breadth in external innovation linkages. **Strategic management journal**, 35(11), 1703-1716.
- Macdonald, S., & Williams, C. (1994). The survival of the gatekeeper. **Research Policy**, 23(2), 123-132.

- Makadok, R., & Barney, J. B. (2001). Strategic factor market intelligence: An application of information economics to strategy formulation and competitor intelligence. **Management Science**, 47(12), 1621-1638.
- Mantere, S. and E. Vaara (2008). 'On the problem of participation in strategy: a critical discursive perspective'. **Organization Science**, 19, pp. 341–358.
- Miles, M. B., & Huberman, A. M. 1994. Qualitative data analysis: An expanded sourcebook. Beverly Hills: Sage Publications.
- Miller, D. 1983. The correlates of entrepreneurship in three types of firms. **Management science**, 29(7), 770-791.
- Monge, P. R., Cozzens, M. D., & Contractor, N. S. (1992). Communication and motivational predictors of the dynamics of organizational innovation. **Organization Science**, 3(2), 250-274.
- Montgomery, C. (2008). 'Putting leadership back into strategy'. **Harvard Business Review**, 86, pp. 54–60.
- Pisano, G. P. (2015). You need an innovation strategy. *Harvard Business Review*, 93(6), 44-54.
- Prahalad, C. K., & Ramaswamy, V. (2004). Co-creating unique value with customers. **Strategy & leadership**, 32(3), 4-9.
- Prahalad, C.K. and Ramaswamy, V. (2000). Co-opting customer competence. **Harvard Business Review**, 78, pp. 79–87.
- Prajogo, D. I. (2016). The strategic fit between innovation strategies and business environment in delivering business performance. **International Journal of Production Economics**, 171, 241-249.
- Prandelli, E., Sawhney, M. and Verona, G. (2008). Collaborating with Customers to Innovate: Conceiving and Marketing Products in the Networking Age. Cheltenham: Edward Elgar.
- Rayport, J. F., Jaworski, B. J. (2004). "Best face forward". **Harvard Business Review**, 82(12). 47-58.
- Rhee, J., Park, T., & Lee, D. H. (2010). Drivers of innovativeness and performance for innovative SMEs in South Korea: Mediation of learning orientation. **Technovation**, 30(1), 65-75.
- Rivkin, J. (2000). 'Imitation of complex strategies'. **Management Science**, 46, pp. 824–44.
- Rumelt, R. P., & Teece, D. J. (1994). Fundamental issues in strategy: A research agenda. Harvard Business Press.
- Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. **European Management Journal**, 33(3), 201-213.
- Schmitt, R. (2010). Dealing with Wicked Issues: Open Strategizing and the Camisea Case. **Journal of Business Ethics**, 96 (11-19), 11-20.
- Scholz, C. (1987). Corporate culture and strategy—The problem of strategic fit. **Long Range Planning**, 20(4), 78-87.
- Siggelkow, N. 2002. Misperceiving interactions among complements and substitutes: Organizational consequences. **Management Science**, 48: 900-916.

- Spradley, J. P. 1979. *The ethnographic interview*. New York, NY: Holt, Rinehart & Winston.
- Stieger, D., Matzler, K., Chatterjee S., & Ladstaetter-Fussenegger, F. (2012): Democratizing Strategy: How Crowdsourcing Can Be Used for Strategy Dialogues. **California Management Review**, 54(4), 44-69.
- Strauss, A. Corbin 1998. *Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory*. (2nd ed.) Thousand Oaks.
- Sundbo, J. (1997). Management of innovation in services. **Service Industries Journal**, 17(3), 432-455.
- Taylor, J.R. and van Every, E.J. (2000), *The Emergent Organization*, Lawrence Erlbaum Associates, London.
- Teece DJ. 1986. Profiting from technological innovation: implications for integration, collaboration, licensing and public policy. **Research Policy**, 15: 285–305.
- Thakur, R., & Hale, D. (2013). Service innovation: A comparative study of US and Indian service firms. **Journal of Business Research**, 66(8), 1108-1123.
- transition through interim news events. Paper presented at Workshop on Open Strategy, Said Business School, Oxford, 01.07.2014
- Von Hippel, E. (2005). *Democratizing Innovation* MIT Press. Cambridge, MA.
- Weick, K. (2005). Managing the Unexpected: Complexity as Distributed Sensemaking. In: In Reuben R. McDaniel, Jr. & Dean J. Driebe (Eds.). **Uncertainty and Surprise in Complex Systems**, p. 51-65. Springer-Verlag, Berlin
- West, J., & Gallagher, S. (2006). Challenges of Open Innovation: The Paradox of Firm Investment in Open-Source Software. **R&D Management**, 36(3), 319-331.
- Westley, F. (1990). 'Middle managers and strategy: micro- dynamics of inclusion'. **Strategic Management Journal**, 11, pp. 337–342.
- Whittington, R., & Pettigrew, A. M. (2003). Complementarities, change and performance. Innovative forms of organizing.
- Whittington, R., Caillaet, L., & Yakis-Douglas, B. (2011). Opening Strategy: Evolution of a Precarious Profession. **British Journal of Management**, 22(3), 531-544.
- Williamson, O. E. (1970). *Corporate Control and Business Behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Yin, R. K. (2003). *Case study research: Design and methods*, 3rd edn. Applied Social Research Methods Series, vol. 5.
- Zaheer, A., Castañer, X., & Souder, D. (2013). Synergy sources, target autonomy, and integration in acquisitions. **Journal of Management**, 39(3), 604-632.
- Zahra, S. A. 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. **Journal of business venturing**, 6(4), 259-285.
- Zahra, S. A. 1993a. A conceptual model of entrepreneurship as firm behavior: a critique and extension. **Entrepreneurship theory and practice**, 17, 5-5.