

**Scuola Dottorale di Ateneo  
Graduate School**

**Dottorato di ricerca  
in Management  
Ciclo XXVII  
Anno di discussione 2015**

***Three essays on sustainability, strategy and business  
model innovation***

**Settore scientifico disciplinare di afferenza: secs-p/08  
Tesi di Dottorato di Michele Pinelli, matricola 955943**

**Coordinatore del Dottorato**

**Prof. Anna Comacchio**

**Tutore del Dottorando**

**Prof. Tiziano Vescovi**

**Co-tutore del Dottorando**

**Prof. Chiara Mio**

## Table of contents

<b>Measuring the academic interest in sustainability and CSR: a bibliometric investigation</b>	<b>4</b>
Introduction.....	5
Research Methodology.....	6
<i>Bibliometrics</i> .....	7
<i>Research Design</i> .....	8
Research Findings.....	11
<i>The Most Productive and Influential Journals</i> .....	11
<i>Citations Mapping and Analysis</i> .....	12
<i>Research Themes</i> .....	13
The Social-environmental Dimension of Business.....	14
The Link Between Social-environmental Performance and Economic Performance.....	16
Heterogeneity of the Institutional Frameworks.....	18
The Management of Social and Environmental Issues.....	21
Stakeholders and the Demand for Sustainability.....	23
Discussion .....	26
Limitations and Future Research Directions.....	30
References.....	32
Figures .....	37
Tables.....	38
<b>Strategic approaches to industrial sustainabilization</b>	<b>43</b>
Introduction: the process of “sustainabilization” and its relevance for strategy.....	44
Corporate motivations and attitudes towards sustainability .....	45
<i>Sustainability-driven and sustainability-oriented strategies</i> .....	48
<i>Developmental and static approaches to sustainability</i> .....	51
<i>Strategic approaches to sustainabilization</i> .....	54
Discussion and conclusion.....	56
Tables.....	66
Figures.....	68
<b>Business models for urban mobility services: developments, features and key success drivers</b>	<b>70</b>
Introduction.....	71
Current challenges in the automotive sector and perspective solutions.....	72
<i>Urban Mobility Services</i> .....	76
<i>Recent developments in urban mobility</i> .....	80
Methodology .....	81
<i>Theoretical framework</i> .....	81
<i>Research Method</i> .....	83
<i>Research design</i> .....	84
Findings and analysis.....	86
<i>Transportation Network Companies and Carsharing operators</i> .....	86
<i>Summary of the cases</i> .....	88
<i>Carsharing business models’ features</i> .....	90

<i>Business model's success factors for carsharing operators</i> .....	91
Conclusions .....	94
References.....	96
Tables.....	101
<b>Estratto per riassunto della tesi di dottorato</b> .....	<b>104</b>

## Measuring the academic interest in sustainability and CSR: a bibliometric investigation

**Abstract.** *In recent years concerns about the social and environmental consequences of business activities have been escalating and studies of CSR and sustainability is now gaining momentum in both business and academia. This study aims a) to assess whether or not top academic management and economics journals have become increasingly interested in these topics; b) to identify the main areas of inquiry that these journals are interested in; and c) to consider the implications of these for academic research in the field. We use bibliometric analysis to process citation data from 496 papers across 67 journals published over 14 years in order to calculate the variation in the number of published works on sustainability-related topics. We reconstruct the intellectual structure of sustainability research in mainstream journals by using co-citation analysis and bibliometric mapping. We identify the main areas of inquiry with the purpose of clarifying the state of knowledge in the field and how sustainability research in top-tier journals differs from research on this topic that is published elsewhere.*

**Keywords:** environmental sustainability, corporate social responsibility, bibliometrics, literature review, academic research

## Introduction

Society today expects more from companies on the social-environmental dimension than in the past. Since the end of the last century corporations have been involved in a rising number of financial, social and environmental scandals (Cohen et al., 2010): Waste Management Inc. and Long-Term Capital Management (1998), Adidas (1999), Xerox (2000), WorldCom, Enron and Chiquita Brands Int. (2001), Arthur Andersen, Bristol-Myers Squibb and AOL (2002), HealthSouth and Parmalat (2003), MG Rover Group (2005) and Lehman Brothers (2008) are just a few examples (“The 10 Worst Accounting Scandals of All Time,” 2014, “The Corporate Scandal Sheet,” 2014). These facts, combined with established scientific consensus about the anthropogenic nature of unprecedented shifts in the temperature of our planet, are some of the factors that have contributed to focalize public attention on social and environmental issues (Aguilera et al., 2007; Aguinis and Glavas, 2012; Matten and Moon, 2008; Smith et al., 2005; Weitzman, 2002; York et al., 2003).

As a result, concern about business activities has been escalating and corporations are considered responsible for social ills of great magnitude in areas such as health, safety, environment and human rights that are not directly related to their traditional economic mandate (Lichtenstein et al., 2004; Matten and Moon, 2008; Porter and Kramer, 2006; Scherer and Palazzo, 2007).

Firms are responding to these rising expectations by becoming increasingly involved in socially- and environmentally-oriented initiatives such as corporate philanthropy, cause-related marketing, minority support programs, and socially-responsible practices (Scherer and Palazzo, 2007; Sen and Bhattacharya, 2001). In addition as companies are more often evaluated based on rankings that consider social-environmental performance, markets are witnessing the proliferation of products and processes with characteristics that are consistent with the transition towards a more sustainable paradigm, such as green products, ethical business practices, sustainable brands and responsible corporate behaviours.

Furthermore, companies today are more integrated, interdependent and connected with each other. In this changed context, basics assumptions concerning the creation of value – the traditional purpose of business – have been, and still are being, questioned. Scholars have even been questioning who companies are meant to create value for: if once it was assumed that the ultimate purpose was to create value for shareholders, nowadays corporations are asked to be increasingly inclusive and mindful of the interests of society and the planet as a whole.

Following its popularity in political agendas and business arenas, academic research in all disciplines is becoming increasingly interested in sustainable development. In social sciences such as management and economics, several journal publications have been focusing specifically on the social and environmental dimensions of firms, markets and production systems. Now that

sustainability is gaining momentum, research on this topic is becoming mainstream (Chabowski et al., 2011; Scherer and Palazzo, 2007) and it is spreading across influential journals that traditionally have not had a specific focus on social-environmental issues.

The aim of this paper is precisely to assess such interest: we investigate the pace at which the topics of sustainability and CSR are gaining centrality in the most influential management and economics journals and identify and discuss the main areas of inquiry that these publications are interested in. First, we adopt bibliometric analysis in order to assess the size of this interest, to identify the most influential studies and to discover the intellectual structure on which these works build; second, we use the key concepts of the most influential publications to identify and discuss the main themes and areas of inquiry of mainstream research on sustainability. Our findings confirm that top journals' interest in sustainable development and CSR has increased substantially over the last few years and that contributions focus on a few common themes: the boundaries of the social-environmental mandate of the firm; the management of sustainability initiatives; the relationship between profits and social-environmental performance; the firm-level, industry-level and country-level moderators of such relationship; and the sources of the demand for socially- and environmentally-oriented corporate behaviour. Consistently with the observation that strategy research has a strong economic orientation that leads scholars to assume profit-seeking and self-interested behaviour (Mitchell et al., 2007), we find that sustainability research in top-tier journals prioritize the economic dimension of business over social and environmental concerns, which are often interpreted as instrumental levers for the achievement of economic objectives.

The remainder of the paper is structured as follows: we first offer an overview of the methodology utilised and describe the research design; discuss our findings and present a detailed summary of the main areas of inquiry of sustainability research; finally we conclude and discuss our analysis.

## **Research Methodology**

In order to study the sustainability and CSR literatures, the authors conducted a systematic literature review, a relatively recent and yet increasingly important kind of secondary study in social sciences (Velamuri et al., 2011; Webster and Watson, 2002). Literature reviews are systematic if authors adopt a certain methodological rigor when they select and evaluate publications (Brocke et al., 2009; Velamuri et al., 2011). Particularly, authors need (i) to define research questions and scope in a review protocol; (ii) to identify data sources in a research strategy; and (iii) to analyze key

academic contributions in order to identify the main research themes, the intellectual structure and the research gaps of a field (Budgen and Brereton, 2006).

### **Bibliometrics**

Bibliometric mapping is a spatial representation of the relationships between disciplines, fields, specialties, articles or authors (Small, 1999). Since bibliometric citation analysis uses the numbers of received citations for identifying the most important papers, authors and journals in a field (Fetscherin et al., 2010), it is used as a research methodology for conducting more objective reviews of academic literature. Bibliometric analysis is based on the assumptions that (i) knowledge is *certified*, in the sense that researchers publish their findings in peer-reviewed academic journals; and (ii) that knowledge *stands on the shoulders of giants*, in the sense that scholars base their research on previously published *certified* materials. These notions imply that the number of citations a study receives reflects the quality of its contribution to the field, as it is assumed that authors cite influential works the most; moreover, if it is assumed that authors investigating the same phenomenon tend to be cited together, then the analysis of co-citations has to reveal some similarity of contents among studies (Calabretta et al., 2011; Culnan, 1987; Ramos-Rodríguez and Ruíz-Navarro, 2004).

Bibliometrics analysis is commonly used in the sciences and humanities (White and McCain, 1989) and more recently it has been adopted in the social science and particularly in several business and management studies (Chabowski et al., 2011; Fetscherin et al., 2010; Fetscherin and Usunier, 2012). Different bibliometric approaches, by focusing on different units of analysis, allow the investigation of diverse aspects of a research field: the conceptual structure (i.e. the main concepts) is studied through co-word analysis; the social structure (i.e. the collaboration networks) through co-author analysis; and finally the intellectual structure is studied through the analysis of cited references (Cobo et al., 2011). Given a set of papers, bibliometrics uses the number of times two articles are cited together (or the number of references that two articles share) as a measure of their similarity. This information is then used to build a map of the intellectual structure of a field. Citation-based studies are conducted through three main approaches: bibliographic coupling, co-citation analysis and direct citation (or inter-citation). Essentially, bibliographic coupling links together the citing papers: the more often two papers are cited together, the closer they appear on the map. Co-citation techniques on the other hand link the cited (not the citing) documents and represent the most used methodology. These techniques can be differentiated between co-citation clustering and co-citation analysis: whilst the former simply aggregates co-cited papers in clusters, the latter also assigns the citing papers (or the papers from the research front) to

the identified clusters. Finally, direct citation approach links citing articles to cited articles (Boyack and Klavans, 2010).

### Research Design

As our research is aimed at investigating the interest of top academic journals in the fields of CSR and sustainability, the workflow followed consisted of several steps: journal selection, data retrieval, data pre-processing, network extraction, mapping, analysis and interpretation. The study did not extend to investigations of disciplines such as architecture and biology because, despite their particular focus on sustainability, they tend to give it meanings which are distant from those assumed in economic and management disciplines (Grinde and Khare, 2008), and additionally, good bibliometric citation analysis cannot be performed on heterogeneous fields (Cobo et al., 2011).

Consistently with similar previous research (Hult and Chabowski, 2008), we identified top academic journals according to the Academic Journal Quality Guide (4<sup>th</sup> version) from the Association of Business Schools (ABS); for each field, we selected only the journals that belong to the top rank (i.e. rank 4).

As CSR and sustainability have a trans-disciplinary nature (Schaltegger et al., 2013), we investigated a broad spectrum of academic fields: Accounting; Business History; Business Strategy; Economics; Entrepreneurship and Small Business; Ethics and Governance; Finance, General Management; Human Resource Management and Employment Studies; Information Management; Innovation and technology change management; International Business and Area Studies; Management and Education; Marketing; Operations and Technology Management; Operations Research and Management Science; Organization Studies; Psychology; Public sector policy, management and administration; Sector Studies; Social Sciences; Tourism and Hospitality Management. This methodological choice however forced us to exclude fields that had no journal in the top rank (Business ethics and governance; Management and Education). Eventually this first step left us with 94 journals from 20 academic fields.

In September 2013, in order to identify CSR and sustainability-related papers, the authors compiled a list of search terms that reflected sustainability concepts (Glavič and Lukman, 2007; White, 2013) through iterative brainstorming sessions.

Consistently with other comparable studies (e.g. Chabowski et al., 2011) we looked for papers that were published from the year 2000. This is because, since the end of the last century, corporations have been involved in a wave of financial, social and environmental scandals (Cohen et al., 2010) that lit public concerns for the social-environmental performance of business and that ultimately resulted – among the other things – in the issuing of stricter environmental regulation and



industrial standards. As with previous research (Chabowski et al., 2011; Fetscherin and Usunier, 2012; Hult and Chabowski, 2008; Ramos-Rodríguez and Ruíz-Navarro, 2004), the authors utilised the ISI Web of Knowledge containing the SSCI Social Sciences Citation Index. The authors explored search terms in the *topic* field of the database, which encompasses title, abstract and the keywords of the papers. The terms initially searched for were: sustainability; sustainable development; green strategies; sustainable management, environmental management; ecology; global warming; climate change; corporate social responsibility; triple bottom line. As there is a blurring of lines between research in the sustainability and the CSR fields (Van Marrewijk, 2003; Wheeler et al., 2003), with some cross-over in both spheres, it was decided to include both terms in the bibliometric analysis. During the research process however, our list was extended to include additional field-specific search terms, such as: environmental accounting; eco-innovation; green innovation; green supply chain; sustainable lifestyles; sustainable consumers; sustainable consumption; green organization; green marketing; sustainable marketing; green technology; green investment; green economy; ecological economics; eco-tourism. By expanding the keywords the authors were able to explore the key terms utilised in the diverse disciplines in the broad management field.

Since the goodness of the results from bibliometric analysis depends on the quality of the data (Cobo et al., 2011), the authors cross-checked that the material by reading titles and abstracts of the papers. Consequently, non-relevant ones were removed from the set (e.g. articles in which the term “sustainability” referred to competitive advantage or in which the term “ecology” referred to the institution rather than the natural environment). As a result, the process allowed us to identify 1213 articles from 72 journals. 881 of these papers (73% of the total) came from the fields of Economics (175; 14%), Tourism and Hospitality Management (275; 23%) and Social Science (431; 36%). Particularly, most of these papers came from only five journals: in the fields of Economics, 123 papers were published in the *Journal of Environmental Economics and Management*; in the field of Tourism and Hospitality Management, 74 articles were published in the *Annals of Tourism Research* and 201 in *Tourism Management*; in the Social Science field, 139 papers were published in *Environment and Planning A*, and 180 in *Risk Analysis: an International Journal*. Except for these publications, the highest number of papers published in a single journal is 39 (Research Policy) and the second highest is 26 (Organization Studies; Public Administration review). We consider such result to be a consequence of our research strategy. Since one of the objectives of this study is to understand whether or not the interest in the topic of sustainability has grown over time, we decided to remove from our sample the five publications that published the 59% (717) of the totality of the papers that we retrieved (1213) in order to improve the quality of our findings. After

their exclusion from the analysis, we remained with 496 papers from 67 journals in 19 academic fields.

As bibliographic sources usually contain errors (Cobo et al., 2011), in order to further increase the quality of the data, the database was cleaned by detecting duplicate items, by checking for misspelling in relevant fields and by adding information where needed. For this task the *Sci<sup>2</sup> Tool* was utilized (<http://sci.slis.indiana.edu>), a modular toolset specifically designed to perform the study of science, in order to identify possible data flaws, which were then corrected manually.

As using a large amount of data for bibliometric mapping can lead to less clear results, it is usually carried out using only the most cited articles, the most productive authors or the journals with the best performance metrics (Cobo et al., 2011). As per previous studies, in order to minimize model instability while maintaining the integrity of the findings, the optimal number of works to be analyzed must fall between 20 and 30 (Chabowski et al., 2011; Hult and Chabowski, 2008; Ramos-Rodríguez and Ruíz-Navarro, 2004). The authors reconstructed the intellectual base of sustainability research by mapping the citation-relationships of the 25 most influential papers, that is, those that received the highest number of citations. We used the *Bibexcel* software (<http://www.umu.se/inforsk/Bibexcel>; Persson et al., 2009) – a bibliometric tool developed at the University of Umeå (Sweden) for managing bibliometric data – in order to identify these works and to build their co-citation matrix. This kind of square matrix expresses the similarity between the papers of a sample and it conveys information that can be used to build bibliometric maps. For producing results of even better quality, bibliometrics analyses are often carried out using only a portion of the data (Cobo et al., 2011). Consequently, we decided to build the co-citation matrix by using only the most cited papers among those in our sample. By excluding articles that received less than 20 citations, 160 papers remained. As other bibliometric studies have used an even smaller number of papers for the construction of the matrix (Ramos-Rodríguez and Ruíz-Navarro, 2004), the authors consider this sample size acceptable. In order to represent the intellectual structure of sustainability research, the *VOSViewer* tool was utilized (<http://www.vosviewer.com>; van Eck & Waltman, 2010), a software specifically designed by the Centre for Science and Technology Studies at Leiden University (The Netherlands) for constructing and visualizing bibliometric maps.

Besides uncovering the intellectual structure of sustainability research, the authors wanted to identify the most important topics on which academic research has focused. In order to do that, the content of the 25 most influential papers from our sample were explored, for which we also built a map using the *HistCite* software ([www.histcite.com](http://www.histcite.com)), a specific bibliometric tool for analyzing and visualizing direct citation linkages from Web of Science data (Fetscherin et al., 2010; Fetscherin and Usunier, 2012; Roper and Parker, 2006). For clarity's sake, it is worth remarking

how these two samples differ from one another: while the latter includes the 25 studies from our 496-papers sample that were cited the most in Web of Science, the former includes the 25 articles that were cited the most by the works in our sample.

At the end of this process the authors were able to create bibliometric maps that provide graphical information on the connections between papers. However, as a bibliometric analysis is not a good enough substitute for actual reading and critical analysis (Ramos-Rodríguez and Ruíz-Navarro, 2004; White and McCain, 1998), research themes were next identified through an in-depth analysis of the articles.

## Research Findings

### The Most Productive and Influential Journals

By analysing the set of 496 papers, it is possible to see that the publishing structure is rather concentrated, as the 10% most influential journals received 44% of the total citations and published 35% of all articles in our sample (see table 1). The journals that received the most citations are: *Academy of Management Review*, *Strategic Management Journal*, *Journal of Operations Management*, *Journal of Management Studies*, *Organization Studies*, *Harvard Business Review* and *Research Policy*.

[INSERT TABLE I ABOUT HERE]

When the unit of analysis shifts from the total number of citations to the number of published papers, we investigate the journals' interest in sustainability rather than how influential they are (see table 2). In this case there is a similarly concentrated structure. In addition, the journals with the most interest in sustainability belong to the fields of *Social Science*, *General Management*, *Economics*, *Organization* and *Public Sector Management*.

[INSERT TABLE II ABOUT HERE]

As shown in table 3, between 2000 and 2006 the average number of sustainability-related papers published each year is 19.1; between 2007 and 2013 it grows to 51.7. This evidence suggests that top academic journals are increasingly interested in sustainability-related topics.

[INSERT TABLE III ABOUT HERE]

### Citations Mapping and Analysis

In this section the intellectual structure of the highest-quality academic research on CSR and sustainability by employing bibliometric citation mapping is assessed. Since the ideal number of papers for this purpose lies between 20 and 30 (Ramos-Rodríguez and Ruíz-Navarro, 2004), the authors follow the lead of previous bibliometric studies (Chabowski et al., 2011; Hult and Chabowski, 2008) by mapping the 25 papers that were cited the most by the papers that were utilised for building the co-citation matrix. In the map in figure 1, each node represents a study, the size of which reflects the number of local citations it received: the more citations a paper has received, the bigger the node appears.

[INSERT FIGURE 1 ABOUT HERE]

[INSERT TABLE V ABOUT HERE]

Before proceeding with the analysis and discussion of the main areas of inquiry of sustainability research, a map of the citation-relationship of the 25 papers in the sample that received the highest number of citations is presented. The resulting map, in which the arrows represent the citation relationships between papers, highlights strong connections, confirms that the core of sustainability research rests on a solid intellectual basis despite its multi-disciplinary nature. For the sake of clarity, it is worth remarking the different purposes of the two maps: while the former graphically shows the intellectual structure of the field, the latter highlights which paper cites another in the sample. The first one is a map of the 25 studies that were cited the most by the 160 papers in our sample that received the highest number of citations in Web Of Science; in that map, the proximity reflects the degree of similarity between papers. This second map instead shows the connections (direct citations) between the 25 most cited papers that belong to our sample and the content we analyse in the following sections.

[INSERT FIGURE 2 ABOUT HERE]

[INSERT TABLE V ABOUT HERE]

## Research Themes

Since a bibliometric analysis is not a good enough substitute for actual reading and critical analysis (Ramos-Rodríguez and Ruíz-Navarro, 2004; White and McCain, 1998), rather than deducing research themes from clusters of citations on the map, the authors proceed with an in-depth analysis of the articles to identify and discuss the topics that have been most investigated. Contributions mostly cover a few key themes: the boundaries of the social-environmental mandate of the firm; the management of sustainability-oriented initiatives; the relationship between profitability and social-environmental performance and its firm-level, industry-level and country-level moderators; and the origins of the demand for CSR. These lines of inquiry are consistent with those addressed by (McWilliams et al., 2006), in their introduction to the special issue on the strategic implications of CSR in the *Journal of Management Studies*. As explained in the methodological section, in order to identify the research papers that investigate sustainability, the authors used search terms related to the social and environmental dimensions of the firm. Several of the articles we retrieved specifically addressed the topics of our interest through the lens of CSR. Such evidence, which constitutes itself a result of our investigation, demands a clarification of the relationship between the concept of corporate social responsibility and that of sustainability. As discussed earlier, these constructs have been described as “related”, “interwoven” and “consonant” (Van Marrewijk, 2003; Wheeler et al., 2003). Given their affinity, it is important to remark both what these subjects have in common and where they differ.

Development is defined as sustainable when it meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). It is considered as an alternative aspirational model to the traditional paradigm of economic growth which, by neglecting the social and environmental externalities of business, is expected to eventually slow down and finally collapse (Ehrenfeld, 2000; York et al., 2003). CSR on the other hand is an “umbrella” term that reflects the social imperatives of corporations, the social consequences of business success and that overlaps with a variety of conceptions of the relationships between business and society (Matten and Moon, 2008). At a general level, CSR refers to the voluntary integration of social-environmental concerns in business operations and stakeholders’ interactions (EU-Communication July 2002). As a result, it is through CSR that business can play its part to make economic development sustainable over the long-run (Van Marrewijk, 2003).

The main research themes identified in our analysis are further discussed below.

### *The Social-environmental Dimension of Business*

Every company in any Country is somehow involved in social or environmental issues as the mandatory or customary need to address such concerns stems from social rules, norms and regulation (Matten and Moon, 2008). Every company therefore has a social-environmental mandate.

Researchers have used a variety of definitions, constructs, concepts, operationalizations and empirical measures to refer to corporations' social-environmental activities. Such diversity is mirrored in the broad array of practices that have been analysed and by the multi-disciplinary nature of theoretical backgrounds which scholars build their work on. One reason for this heterogeneity is the intrinsic ambiguity of the social-environmental mandate of business, which has varied across time and space in terms of meanings, scope, language and approaches (Aguilera et al., 2007; Bansal, 2005; Buysse and Verbeke, 2003; Matten and Moon 2008; McWilliams et al., 2006). The theoretical and practical understandings of CSR has developed over several decades and since the mid-20<sup>th</sup> century it expanded to include concerns about corporate social performance, business ethics, stakeholder relations, corporate citizenship and links with financial performance (Matten and Moon, 2008). Even the expression sustainable development was ambiguous and led to various formulations before its definition as development that does not compromise the ability of future generations to meet their needs emerged as the dominant one (Bansal 2005). The result of these dynamics is that CSR has become an umbrella term for a variety of concepts related to the relationships between business and society which reflects the social imperatives of corporations and the social consequences of business success (Matten and Moon, 2008).

Scholars have diverging judgments regarding this vagueness. Some of whom (e.g. Orlitzky et al., 2003) consider the use of a broad definition that encompasses both social and environmental aspects as advantageous because it allows the comparability with early studies that use environmental performance as a proxy for social responsibility and because NGOs, IGOs and business actors regard social responsibility as including both social and environmental performance. Others conversely warn against this vagueness, as it has led to CSR to be “used as a synonym for business ethics, defined as corporate philanthropy, and considered strictly as relating to environmental policy” [...] and to be “confused with corporate social performance and corporate citizenship” ((McWilliams et al., 2006). The broad and blurry boundaries of the social dimension of business makes it difficult to compare theory and findings across studies (McWilliams et al., 2006) that build on different theories and use only partially overlapping constructs for analysing different aspects of an ambiguous concept.

A notion common to most studies is the idea that, in order to be socially responsible, a firm needs to foster some form of social good by going beyond what it is legally required to do and

beyond mere economic convenience (Aguilera et al., 2007; Matten and Moon, 2008; McWilliams and Siegel, 2001). Regarding this aspect, Matten and Moon (2008) subtly observe that while some socially-oriented actions are mandatory (which they refer to as “implicit CSR”), others are voluntary (“explicit CSR”). In this sense, implicit CSR stems from social values, norms and rules that result in the mandatory or customary obligation for corporations to address particular social issues in specific ways. On these specific matters the law and civil society do not leave companies the discretion to articulate their own version of responsibility. Any other socially-oriented voluntary program or strategy falls into the category of explicit CSR. Two important implications result from this distinction. One is that the scope of the minimum compulsory involvement of corporations in socially-oriented activities varies across countries, as the breadth of the set of mandatory and customary obligations differs across institutional environments. The other is that the locus of the strategic relevance of socially-oriented initiatives lies in the explicit component of CSR: no significant shift in competitive outcomes can be expected from just complying with mandatory or customary obligations; rather, it is in the discretionary domain that companies can develop distinctive capabilities that strengthen their competitive advantage.

The notion that companies should emancipate their socially-oriented initiatives from the logic of economic rationality is crucial for a thorough understanding of sustainability research. On this point in fact collide two antithetic strains of thought. On the one hand there are those who advocate for the involvement of business in social issues even when they are not instrumental for achieving superior economic performance; these scholars base their arguments on the rationale that companies have ethical and moral obligations to act as good citizens, to respect communities and the natural environment and to participate in charitable causes (Lichtenstein et al., 2004; Luo and Bhattacharya, 2006; Porter and Kramer, 2006; Sen and Bhattacharya, 2001). The other perspective is that companies can legitimately pursue social-environmental outcomes only when these are consistent with the creation of value for shareholders (Aguilera et al., 2007; McWilliams and Siegel, 2001); in the absence of this condition – under this view – firms have reason to go beyond immediate economic outcomes and embrace the ethical and discretionary expectation of external stakeholders only in order to gain legitimacy and permission to operate (Bansal, 2005; Porter and Kramer, 2006).

The reason for the centrality of this debate is that these two positions reflect the two major intellectual approaches to the study of sustainability from a management perspective. As Scherer and Palazzo (2007) remark, an instrumental interpretation of socially-oriented initiatives is the only possible outcome of mainstream positivist research that aims at finding explanations for social phenomena by identifying causal relationships with the methods of natural science; however, it

could also be argued that the academic investigation of CSR should rather be morally grounded and be better pursued by research interested in the moral evaluation, judgment and prescription of human actions.

### *The Link Between Social-environmental Performance and Economic Performance*

Given the importance of the above-mentioned debate, it is not surprising that the relationship between social-environmental performance and profitability has been the object of investigation of a number of theoretical and empirical studies (McWilliams et al., 2006). As explained by York et al. (2003) the predominant view until the end of the last century was that economic development and environmental preservation were conflicting objectives: because of the structure of market economies, environmental depletion was considered the only possible outcome of the quest for economic growth. More recently, research proposed a variety of arguments to support the reconciliation between economic and social-environmental objectives. Neoclassical environmental economy and ecological modernization theory for instance predict that the mitigation of environmental problems will become cost-effective due to institutional restructuring, rising public concern, NGOs' pressure, technological innovation and stricter regulation (York et al., 2003).

Researchers have also extensively investigated the positive economic effects of good social-environmental performance in terms of improved relationships with stakeholders, higher sales and margins, strengthened contextual factors, new and more advanced capabilities and lower costs. Many authors also remark that socially-oriented actions increase stakeholders' explicit and tacit attitudes towards the firm. (McWilliams et al., 2006; McWilliams and Siegel, 2001; Orlitzky et al., 2003) In this sense CSR can be a tool that companies use to enhance the credibility of their actions in political contexts in which the legitimacy of business is debated. CSR can also prevent or compensate for poor environmental performance which can damage stakeholders relationships and result in riskier investments, for which shareholders and financial institutions may demand higher risk premium that would therefore reduce companies' market value (Buysse and Verbeke, 2003; Dowell et al., 2000).

Socially-oriented initiatives can also positively affect consumers' attitudes toward the corporation therefore leading to higher revenues and margins. Luo and Bhattacharya (2006) argue that – through improved customer-specific knowledge – CSR helps firms build a base of more satisfied customers, which is a key driver of long-term economic performance through greater loyalty, willingness to pay premium prices and less volatility of cash flows. In addition, CSR can result in either product or process innovation, leading to differentiation advantage and thus to higher revenues (Christmann, 2000; McWilliams and Siegel, 2001, 2000; McWilliams et al., 2006). CSR



can also increase brand equity through more meaningful associations with an organization's identity (Lichtenstein et al., 2004), since consumers identify more easily and have better attitudes towards companies that behave responsibly (Sen and Bhattacharya, 2001). In addition, when firms signal their concern for social issues, consumers perceive that they are honest and reliable and tend to assume their products are of higher quality (McWilliams and Siegel, 2001, 2000).

Porter and Kramer (2006, 2002) argue that socially-oriented initiatives, by strengthening the competitive context in which a company is embedded, ultimately benefit the firm itself. This is because competitive performance is strongly affected by contextual factors such as the quality of the local infrastructure; institutions' efficiency; education, health and motivation of the people in the area; and the presence of competitive partners to ally with.

Investments in socially-oriented activities can also help firms develop new resources and capabilities and improve other organizational processes (e.g. Bansal, 2005; Buysse and Verbeke, 2003; Orlitzky et al., 2003; (Sharma and Henriques, 2005). Environmental management systems for instance provide specialized information that are necessary to improve the overall performance of critical organizational functions such as production and design, which the firm would not be able to obtain otherwise (King and Lenox, 2002; Melnyk et al., 2003).

Finally, CSR can also lower costs by increasing productivity and by reducing fines and penalties. Environmental practices like product stewardship, eco-centric management and design for disassembly aim at decreasing manufacturing costs through eco-efficiency and better waste management. Also the adoption of green state-of-the-art technologies can actually lower operating costs through higher eco-efficiency (Christmann, 2000; Dowell et al., 2000).

Besides the positive effects of good social environmental performance on profitability, researchers have considered the possibility of an inverse causal relationship, with good economic performance resulting in positive social-environmental outcomes. The foundation of this argument is the idea that "slack resources" from good past economic performance allow firms to take voluntary responsibility initiatives, as these absorb funds and represent an area of managerial discretion (Bansal, 2005; Christmann, 2000; Melnyk et al., 2003; Orlitzky et al., 2003; Zhu and Sarkis 2004).

Despite the extensive investigation, the debate on the relationship between profitability and social-environmental performance is still unresolved as the findings of empirical research are too fractured and too variable to draw generalizable conclusions (Christmann, 2000; Luo and Bhattacharya, 2006; McWilliams et al., 2006; Orlitzky et al., 2003; Sen and Bhattacharya, 2001; Zhu and Sarkis, 2004). Such fragmentation may be due to a variety of reasons. It may stem from flaws of theoretical frameworks –misunderstandings regarding the mechanics underlying the

connection between social-environmental outcomes and economic performance (Buysse and Verbeke, 2003; Luo and Bhattacharya, 2006; Sen and Bhattacharya, 2001). Or it may derive from methodological flaws of statistical models – that may be inappropriate, misspecified or be using different operationalizations which inevitably result into associations of various strength and sign (McWilliams et al., 2006; Orlitzky et al., 2003). In any case, the result of this ambiguity is that managers are left without a clear statement about the economical desirability of investments in socially-oriented initiatives, which is an obstacle to the spreading of environmental practices (McWilliams and Siegel, 2001; Melnyk et al., 2003). In a context where the empirical studies testing the sign of the relationship between social performance and profits provide only inconsistent, fragmented and volatile results or, at most, questionable evidence of a positive link (Christmann, 2000; Luo and Bhattacharya, 2006; Sen and Bhattacharya 2001), another research strain has focused on the identification of the conditions under which practices addressing social-environmental issues result in positive economic performance. Rather than postulating an unconditionally positive or negative relationship between profitability and social-environmental performance, researchers have argued either that socially-oriented practices have different economic potential because of intrinsically different returns to CSR (Christmann, 2000; Guide, 2000; King and Lenox, 2002) or that different companies may not all be equally capable of appropriating the full value potential created by CSR activities; this may be the result of differences in complementary assets (Bhattacharya (2006; Christmann, 2000; Luo and Bhattacharya, 2006; Zhu and Sarkis, 2004), capabilities (Bansal 2005; Buysse and Verbeke, 2003; Dowell et al., 2000), size and economies of scale or scope (Guide, 2000; McWilliams and Siegel, 2001, 2000; Sharma and Henriques, 2004; Zhu and Sarkis, 2004) or different sensitivity to flaws of the social and natural environments in which the companies are embedded (Christmann, 2000; Lichtenstein et al., 2004; Porter and Kramer, 2002; Sen and Bhattacharya, 2001).

### *Heterogeneity of the Institutional Frameworks*

Although in the last decades firms have generally been greatly encouraged to pursue socially-oriented practices (Bansal 2005), they have been responding in a variety of ways: some dedicated substantial discretionary resources to social-environmental issues, others only complied with regulation and industrial standards and others became creative in an attempt to find their way around prescriptions. Important differences in the institutional settings of different countries and industries explain part of the behavioural variance (Buysse and Verbeke, 2003). Firms are embedded into institutional settings that enable their strategic decisions by influencing the value creation and value capture mechanisms (Aguilera et al., 2007). As a result, institutional differences

across industries and market structures lead to different expectations and returns to activity, therefore affecting the rate at which sustainable practices spread (Bansal, 2005; Matten and Moon, 2008; McWilliams and Siegel, 2001; McWilliams et al., 2006; Porter and Kramer, 2006).

Firms operating in different sectors show different patterns of involvement in socially-oriented initiatives as industries differ in terms of elements that affect the general posture towards social responsibility (McWilliams and Siegel, 2000, 2001; McWilliams et al., 2006). These elements include: R&D intensity, the level of product differentiation, the stage of the industry life cycle, the stability of technology, stakeholders pressure, and the intensity of rivalry.

Industries also vary in terms of stakeholders' pressure and perceived importance of environmental management (Buysse and Verbeke, 2003). Firms in evidently polluting sectors, such as the primary producing industries, are more capital-intensive and more visible than firms in service sectors; as a result, they are more subject to institutional pressure and need to be more responsive to social-environmental issues (Bansal, 2005). In industries that are subject to public controversy like tobacco, pharmaceutical and petrochemical, the predominant view is that philanthropy should be a matter of consciousness and therefore it should be as detached from business objectives as possible (Porter and Kramer, 2002). Consequently, in these industries CSR initiatives may tend to be characterized by negative economic impact as they are purposely designed to be detached from business.

As sustainable practices are often context-specific, in some industries or markets their implementation could not be feasible (Bansal, 2005). Remanufacturing for instance – by recovering both materials and the value-added of used products – greatly contributes to a better use of resources but it is only applicable in industries where goods are durable, technology is stable and products' end-of-life value-added is high and easy to restore (Guide, 2000).

The average level of product differentiation in an industry can affect the diffusion of particular sustainable practices as CSR attributes are elements that increase product differentiation (Sen and Bhattacharya, 2001). Sharma and Henriques (2004) argue that in industries where the level of product differentiation is low, it is more likely that CSR attributes derive from process-level sustainable practices because there is less room for differentiation at the product-level. Since in these industries firms are more easily perceived as substitutable, customers are more likely to consider socially responsible behaviour as a distinguishing factor between companies (Sen and Bhattacharya, 2001).

Besides industrial features, the adoption of socially-oriented practices is affected by different national institutional frameworks that affect CSR in terms of meanings, scope, language and approaches (Aguilera et al., 2007; Bansal, 2005; Buysse and Verbeke, 2003; Matten and Moon

2008; McWilliams et al., 2006). The responsibility of corporations is defined by broader responsibility systems that are affected by the historical financial, political, labour and cultural systems. Different institutions defining the degree of corporate discretion and customary ethics allow for different connotations in CSR across countries. In Europe for instance, the power of the state has been historically greater than in the United States; as a result, whilst European national governments have generally been directly engaged in social activities, the U.S. government has been adopting a laissez-faire approach which left companies freer to tailor their responses to the pressure of stakeholders. Consequently, American corporations could develop voluntary actions and independent CSR strategies on a variety of issues of societal concern such as labour conditions, consumer protection, environmental responsibility and education. Conversely, in Europe, the law define the role and responsibilities of companies on the same issues and even when firms take independent and voluntary responsibility, the process is negotiated with governmental institutions (Matten and Moon, 2008). Consistently, a conspicuous degree of diversity exists in legal frameworks regulating and enforcing socially-oriented practices (Sharma and Henriques, 2005). In addition, the characteristics of national financial systems substantially affect the scope of corporate responsibility and firms' approach to sustainability. The Anglo-American financial model for instance is characterized by dispersed ownership, strong shareholder rights and active markets for corporate control. Since the stock market is the main source of financial resources, American companies are needed to provide high degrees of transparency and a certain propensity to take social responsibilities. At the same time, shareholders' pressure for short-term profits constrains the set of sustainability practices managers can adopt. The European financial model on the other hand is characterized by long-term debt finance, weak markets for corporate control and ownership by fewer interlocking large investors, among which banks play a major role. Companies embedded in this context need to consider not just shareholders but also other stakeholders interested in long-term growth, the preservation of power and the need for social legitimation (Aguilera et al. 2007; Matten and Moon, 2008). As a result, European and American companies tend to hold different levels of responsibility for specific issues. Due to the active role of European governments in the definition of social responsibilities and to higher levels of taxation, European companies do not share the American ethics of "giving back" to society and are inclined to consider philanthropic initiatives, such as the funding of education or the provision of health insurance, a governmental responsibility. Moreover they are more concerned about other societal matters, such as the environment and sustainability (Matten and Moon 2008).

### *The Management of Social and Environmental Issues*

Firms that become involved in socially-oriented initiatives have to make a variety of decisions in terms of what issues to tackle and what practices to adopt. On the basis of their relevance for individual companies, societal issues can be either urgent and generic – that is they can be important for society but not particularly consequential for a firm’s competitive position – or relevant and specific, in the sense that they both affect the drivers of competitive advantage and are affected by a firm’s operations (Porter and Kramer, 2006). Regarding the actions that can be undertaken to deal with such issues, companies can run practices of varying complexity that affect existing operations at different levels: end-of-pipe solutions for treating waste before disposal for instance are relatively simple add-on solutions that do not imply any substantial change in established practices; pollution prevention strategies instead require business process and technological innovations; for instance, activities like product or eco-system stewardship require more essential changes of the whole business model (Bansal, 2005; Buysse and Verbeke, 2003; King and Lenox, 2002; Sharma and Henriques, 2005).

As companies become involved in socially-oriented activities in various ways and for different reasons, their general attitude towards societal concerns can be very different. A reactive posture characterizes companies that engage in social issues as a response to the mandatory or customary responsibility assigned by the government and society. By meeting this requirement, companies maintain their legitimacy to operate. Proactive actions instead take place when corporations embrace the spirit of those responsibilities and engage in “triple bottom line” thinking by going beyond legal prescriptions and by embedding CSR into their core company strategies (Aguilera et al., 2007; Buysse and Verbeke, 2003). Socially-oriented initiatives may also be adopted at a superficial level for window-dressing purposes and used as a form of advertising or public relations (Aguilera et al., 2007; Porter and Kramer, 2002).

The level of involvement of corporations into social-environmental activities is often considered as a process characterized by an increasing commitment of resources and through the development of organizational competences (Buysse and Verbeke, 2003; Christmann, 2000; Melnyk et al., 2003). In this sense organizational efforts become quantifiable in terms of resources dedicated to the management of socially-oriented activities: the higher the investment, the higher the commitment to social causes and thus the social responsibility of the company. Advancing on this route requires the accumulation of different kinds of resources and capabilities that allows firms to undertake increasingly complex practices (Melnyk et al., 2003). For instance, whilst reactive strategies aimed at legal compliance often require limited investments, higher levels of commitment require firms to implement practices that go beyond their economic mandate and beyond their

organizational boundaries by considering the social-environmental performance of their suppliers, by monitoring the total environmental impacts of products throughout their entire life-cycle or by re-designing their business models around industrial eco-systems (Buysse and Verbeke, 2003; Christmann, 2000).

When the involvement into socially-oriented actions is considered instrumental to the achievement of economic objectives, the optimal level of commitment is the one that maximizes profitability. Theoretically, such a level cannot be too high, as increasing commitment implies higher revenues but also more costs (McWilliams and Siegel, 2001). However it is hard to determine the related costs in practice, as CSR initiatives require solutions that are often integrated into other business processes, making their costs diffused and hard to quantify. Under these conditions managers may choose inappropriate environmental solutions or a non-optimal level of engagement (King and Lenox 2002). The ability to rationally respond to complex social-environmental problems is immensely reduced by deep structural scientific uncertainty combined with an economic inability to adequately quantify losses (Sharma and Henriques, 2005).

In any case, even when socially-oriented actions are based on moral obligations towards society, researchers agree that commitment has to have an upper limit as “corporations are not responsible for all the world’s problem, nor they have the resources to solve them all” (Porter and Kramer, 2006; p.92); in addition their responsibility “is differentiated [...] from the responsibility of governments” (Matten and Moon, 2008; p.405) and thus they “cannot be held accountable for all human misery”(Weitzman, 2009).

In contrast to this quantitative view of the commitment to sustainability as a process characterized by the accumulation of resource and competences, another perspective evaluates corporate social engagement not on the basis of the amount of resources that are dedicated to the resolution of general problems of society but rather on the basis of the impact on specific societal issues, as the most effective social agendas are obtained by tailoring CSR initiatives on company-specific capabilities, resources, relationships and business models ((Scherer and Palazzo, 2007). When corporations design their social agendas around the issues that appear to be more urgent for the relevant stakeholders, they tend to focus their efforts on advertising how many resources they dedicate to societal causes through reports of anecdotic evidence of uncoordinated, diffuse and unfocused solutions that neither strengthen competitive position nor they have any meaningful social effect. In addition, by attempting to satisfy external stakeholders, companies make the strategic ingenuity to cede control of their CSR agendas to outsiders (Porter and Kramer, 2002; 2006).

By comparing these perspectives, it is possible to identify the characterizing features of these two sustainability-management models: one is general in that it deals with issues that are worth pursuing because of their relevance for society; the other one is company-specific, as firms' resources, competences and business models determine the social issues to be addressed; one is quantitative, as the level of commitment is determined by the size of companies' efforts; and the other is qualitative as the commitment is determined by a company's ability to choose the issues they can have the greater impact on.

### *Stakeholders and the Demand for Sustainability*

A thorough understanding of the CSR phenomenon requires an investigation of stakeholders motivations, of their ability to affect companies behaviour and of the institutional setting within which they operate (Aguilera et al., 2007; Matten and Moon, 2008; McWilliams and Siegel, 2001; McWilliams et al., 2006). The review of the literature reveals that the demand for more socially responsible behaviour mostly comes from external stakeholders, such as consumers, NGOs and governments rather than from actors inside companies, such as managers and shareholders.

This notion is crucial for understanding the size and kind of corporations' efforts towards socially-oriented actions as internal actors have the most power to influence firms' behaviour (Aguilera et al., 2007). Although managers may bring into the firm their personal moral values and interests beyond a purely economic dimension, they are assumed to address social and environmental concerns as a strategic response to the demands of stakeholders (Buysse and Verbeke, 2003). As a result, many CSR activities in practice have little or nothing to do with perceived responsibilities or moral obligations (Scherer and Palazzo, 2007).

Stakeholders have instrumental (self-interest driven), relational (concerned with relationships among group members) and moral (concerned with ethical standards and moral principles) motives for pushing firms to engage in socially-oriented manner (Aguilera et al., 2007). Stakeholders with different motives can lead firms to adopt different social-environmental practices. For instance, whilst shareholders are more likely to support quick solutions like pollution-control, product certifications and more eco-efficient processes, stakeholders without an economic stake are more likely to also support practices based on principles such as intra-generational equity, human rights and ecosystem health whose benefits require more time (Sharma and Henriques, 2004).

Most of the pressure to engage in socially-oriented initiatives comes from a combination of the actions by NGO, IGOs, national governments and consumers. All these actors have a mixture of motivations and different priorities. NGOs' goals are often intrinsically related to sustainability, such as global human rights, economic justice or environmental protection. They tend to be trusted

to be promoting the public interest more than either the government or individual companies. They are able to influence firm' behaviour by providing information, mobilizing social movements, organizing boycotts, protests and militant actions against companies, and by lobbying the government to enhance regulation or deny operating licenses (Sharma and Henriques, 2004). Their use of the media is a particularly effective weapon for its power to assign importance to specific issues and to affect companies' reputation (Bansal 2005).

Also the actions of governments and IGOs, either through regulation or the promotion of voluntary initiatives, are crucial for driving firms toward socially-oriented practices (e.g. Bansal, 2005; Buysse and Verbeke, 2003). Governments act on behalf of the values and the preferences of a civil society and establish the legal institutions that address situations of market failure (Matten and Moon, 2008). Governments promote CSR also as a means to enhance international competitiveness and attract foreign investments through increased innovation or higher-performance workplaces (Porter and Kramer, 2006, 2002). As a result governments have the challenging task to understand how to guide "systems innovation" to facilitate not only greener firms but also more sustainable configurations of institutions, techniques, rules, practices and networks (Aguilera et al., 2007).

Since it can achieve broader coverage than voluntary initiatives, regulation is a governmental tool that is particularly versatile and powerful. The first and most obvious function of legislation is the relocation of social and environmental costs of production activities from society to business actors through fines and sanctions. In this context, the law acts as a primary driver of the behaviour of companies that have scarce consideration for social-environmental issues (Buysse and Verbeke, 2003; Zhu and Sarkis, 2004). The actual social and environmental outcomes however are highly dependent on the design of the legal framework in which companies operate. Overly strict or general regulation may have an adverse impact on productivity by forcing companies to commit resources and manpower to non-productive practices (Dowell et al., 2000). Strict command-and-control CSR regulation for instance, may prescribe inflexible technologies and practices that are inappropriate for a particular firm's market environment (Orlitzky et al., 2003). Instead, regulations focused on environmental outcomes, like the quality level of water and air, allow firms the possibility to use a variety of strategies and approaches to meet the social expectations of the government and other stakeholders (Sharma and Henriques, 2004).

Legislation drives firms behaviour also by acting as a "focal point" around which stakeholders such as consumers, institutional investors, communities and NGOs set their social expectations (Aguilera et al., 2007; Buysse and Verbeke, 2003; Sharma and Henriques, 2004). In the absence of guidelines, firms find it more difficult to design sustainability practices and identify the social expectations of stakeholders (Sharma and Henriques, 2004).



Although CSR regulation has been widely used in collectivist countries such as Belgium, Denmark and the Netherlands, it is not the only option governments have to encourage firms to take social-environmental responsibility. In the United States, where the social and political systems are built on traditions of individualism, democracy, moralism and utilitarianism, the government has provided companies with the incentives to exercise strategic discretion about social issues by promoting voluntary CSR initiatives (Aguilera et al., 2007; Matten and Moon 2008).

Finally, consumers' preferences and actions, by affecting firms' competitive success, constitute another fundamental driver of more proactive attitudes towards social and environmental concerns. Consumers push companies to engage in CSR primarily for moral and relational motives. This means that not only do consumers seek the opportunity to do good by considering the repercussions of business and products in their purchase and consumption decisions, but also that they develop a sense of collective identity around their social concerns for the environment and society (Smith et al., 2005). Consumers can influence the behaviour of companies by individually deciding to purchase their products but also by collectively organizing their actions in social movements. These consumer movements are particularly powerful for their capacity to hurt corporate reputation through collective actions such as boycotts (Aguilera et al., 2007; Buysse and Verbeke, 2003).

The review of the literature reveals that the demand for more socially responsible behaviour mostly comes from external stakeholders, such as NGOs, IGOs, national governments and consumers rather than from actors inside companies, such as managers and shareholders. When companies outsource their social agenda to external stakeholders they make the strategic error of outsourcing their strategic objectives. In addition, as external stakeholders have less power to influence corporate behaviour than internal stakeholders, the effectiveness of such social agendas can be debatable.

Stakeholders with different motives can lead firms to adopt different social-environmental practices.

Of all stakeholders, governments play a particular role for the diffusion of sustainability actions. The essential tool government use to enforce sustainable development is regulation. Although legislation can drive the behaviour of firms through imposition or by setting guidelines, it does not have the versatility to assure effective social agendas in all circumstances.

## Discussion

In recent decades concerns about the consequences of economic activities on society and ecosystems have been rising. Financial, social and environmental scandals combined with established consensus about the consequences of human actions on the planet are some of the factors that contributed to focalize the attention of the public on social and environmental issues (Aguilera et al., 2007; Lichtenstein et al., 2004). Corporations have started to be considered responsible for social ills of great magnitude in areas such as health, safety, environment and human rights that are not directly related to their traditional economic mandate (Matten and Moon, 2008; Smith et al., 2005; Weitzman, 2009; York et al., 2003). As a result, although companies cannot solve all society' problems nor they can be held accountable for what clearly falls outside their responsibility, (Lichtenstein et al., 2004; Matten and Moon, 2008; Porter and Kramer, 2006; Scherer and Palazzo, 2007), the involvement of business in socially-oriented initiatives has become an imperative (Matten and Moon, 2008; Porter and Kramer, 2006; Scherer and Palazzo, 2007).

Firms are responding to these mounting expectations by becoming increasingly involved in initiatives such as environmental protection, corporate philanthropy, cause-related marketing, minority support programs, and socially responsible employment and manufacturing practices (Scherer and Palazzo, 2007; Sen and Bhattacharya, 2001).

In a situation where sustainability is gaining momentum among academic and business circles, this paper contributes to the advancement of our knowledge of the social-environmental dimension of business and enriches the on-going debate on the involvement of business in social and environmental issues by measuring the development of the interest in the topic of sustainability, by reconstructing the intellectual structure of the field and by identifying the main areas of inquiry. In so doing, the paper highlights the essential traits of sustainability research in top-tier management and economic journals, which is helpful to understand how the debate in these outlets differs from the conversation that is carried out in sustainability journals.

Our findings support the claim that research on sustainability is becoming mainstream: we find that in the last years the most influential management and economic journals have been publishing an increasingly high number of papers investigating the social-environmental dimension of business. By using bibliometrics analysis, we reconstruct the intellectual structure of this stream of research. We find that researchers have often looked at the phenomena of our interest through the lens of CSR. Taking this evidence as an independent finding, we clarify the relationship between the concept of corporate social responsibility and that of sustainable development.

Assuming that the most influential journals act as a focal point around which academic contributions tend to homogenise in terms of research questions, topics, perspectives and

methodologies, we identify the main areas of investigation of sustainability research with the purpose of detecting its trajectories. In the specific, we find that contributions focus on: the boundaries of the social mandate of business; the relationship between profitability and social-environmental performance; the institutional elements that act as industry-level and country-level moderators of such relationship; the role of stakeholders in the implementation of socially-oriented actions; and the management of social-environmental initiatives.

The analysis of the studies we reviewed highlights that any company in any Country has a social-environmental mandate, as the involvement in societal issues (such as consumer protection and labour conditions) stems from national regulation and from social values and norms. Its boundaries and scope however are intrinsically ambiguous, as they have varied across time and space in terms of meanings, scope, language and approaches. As a result, the theoretical and practical understandings of CSR - intended here as the tool that companies use to integrate social-environmental concerns in their operations - has become an umbrella term that overlaps with a variety of conceptions of the relationships between business and society. Such vagueness makes it difficult to compare theory and findings across studies that build on different theories and use only partially overlapping constructs for analysing different aspects of an ambiguous concept.

The debate on the emancipation of socially-oriented initiatives from the logic of economic rationality is crucial for a thorough understanding of research on sustainability as it introduces the two main intellectual approaches to the study of sustainability from a management perspective: one is a positivist standpoint that results in an instrumental interpretation of socially-oriented initiatives; the other one is a modernist standpoint that is interested in the moral evaluation, judgment and prescription of human actions.

Given the high number of contributions related to various aspects of the relationship between social-environmental performance and profitability, we deduce that the instrumental interpretation of socially-oriented initiatives is the perspective that is most common among the studies that we have analysed. We find that the investigation of the link between these two constructs, almost in an attempt to economically justify the desirability of socially-oriented initiatives, mostly focuses on the identification of the mediating and moderating variables that connect good social-environmental performance with increased profitability. Despite these efforts however, we acknowledge that the findings of empirical research are too fractured and too variable to draw any generalizable conclusion. In our opinion, the lack of a clear statement about the economic desirability of CSR investments is what motivated the investigation of the conditions under which socially and environmentally oriented practices can improve economic performance. This stream of research underlines that different sustainability practices may have different economic potential because of a) intrinsically different returns to CSR; b) different ability of

corporations to appropriate the full value potential created by CSR activities; c) the effects of industry-level and country-level institutional contingencies. Ultimately, all these factors greatly affect the pace at which sustainability oriented practices spread.

From reviewing the literature we understand that the demand for socially oriented behaviour mostly comes from external stakeholders, such as consumers, NGOs and governments. This notion is crucial for understanding the size and kind of the involvement in social-environmental issues as stakeholders with different motives lead firms to adopt different practices. Consequently, as companies become involved in socially oriented activities in different ways and for different reasons, research reports that their general attitude towards societal concerns can be very different. By comparing various perspectives, we identify two models of sustainability-management: one is general and quantitative - in the sense that it is characteristic of companies that deal with issues that are worth pursuing because of their relevance for society and whose level of commitment is determined by the size of their efforts; the other one is company-specific and qualitative – in the sense that it is distinctive of firms that select the social issues to be engaged with on the basis of their ability to have a significant impact on them because of their particular resources, competences and business models .

By identifying the main areas of inquiry on which researchers have focused, the authors sketch a picture of the state of the art of the research that is published in the most influential economics and management journals. Such images that we draw is of paramount importance because it facilitates confrontation with other streams of research investigating the same topics but with different perspectives, research questions and approaches. Particularly, the authors provide a useful point of reference against which future research can compare the essential traits of research on sustainability that is published in other kinds of publications. In this way, we not only advance our understanding of this particular body of knowledge but also facilitate future developments.

It would appear that organisations are ahead of academic research when it comes to the topics of CSR and sustainability – while the vast majority of research in our leading journals is focusing on aspects of financial performance and competitive advantage; businesses themselves are engaging in wider debates, also being discussed in society, which reflect on the broader relationships between business, society and the planet. In his critique of journal rankings, Willmott (2011, p 429) noted that journal lists “stifle innovation and constrict scholarly innovation”; while our study shows that since 2006 there has been a marked increase in CSR and sustainability related research this has been a particular type of research which has tended, for the most part to focus on firm performance and competitive advantage type studies, and most of it has not been critical research .

This is consistent with the observation that the highly economic orientation of management research has led scholars to maintain traditional behavioral assumptions regarding the self-interest of profit-driven entrepreneurs (Cohen and Winn, 2007; Dean and McMullen, 2007; Mitchell et al., 2007; Parrish, 2010). Because of this intellectual legacy, the incorporation of social and environmental concerns into business operations needed an economic rationale to be justified. Much of sustainability research in our leading management journals has consequently focused on the investigation of the relationship between social-environmental performance and profitability and on the identification of the so called “business case” drivers (Schaltegger et al., 2012, 2006; Schaltegger and Hansen, 2013; Schaltegger and Synnestvedt, 2002; Wagner and Schaltegger, 2003). These efforts led to the rise and diffusion of concepts such as cleaner production, eco-efficiency and design for the environment, the investigation of which served the purpose of proving the economic rationality of practices that could have positive social-environmental impacts and at the same time contribute to profitability. A significant limitation of this kind of research is that it assumes that market incentives are a prerequisite for any contribution business can make to sustainable development (Parrish, 2010). In so doing, it restricts the scope of such contributions to those that result in ‘win-win’ outcomes – therefore neglecting considerations about the important tradeoff decisions that the triple bottom line paradigm implies (Elkington, 1997). This critique has motivated a deeper investigation of the diversity of entrepreneurial values and motives (e.g. Cohen et al., 2008) in the attempt to better understand and explain the reality of practice (Parrish, 2010). This strain of empirical research revealed that quite often the personal motivations of entrepreneurs were far more complex than a mere quest for profit maximization (Mitchell et al., 2007; Stocchetti, 2012) as business can be conceptualized as a means through which social well-being and environmental quality could be pursued (Atkinson, 2000; Mair et al., 2006; Schaper, 2012) by integrating social and environmental purposes into business operations (Parrish, 2010; Parrish and Tilley, 2010; Schlange, 2008). Examples of goals that complement the quest for profits are the creation of as many jobs as possible, the treatment of the highest possible number of patients (Seelos and Mair, 2007) and the satisfaction of the needs of the poor in developing countries (Prahalad, 2009, 2006; Prahalad and Hammond, 2002).

Also Kilbourne and Beckmann (1998) and McDonagh and Prothero (2014) in their assessments of sustainability research in the marketing field from 1998-2013 ascertained that research in the leading marketing journals have a “narrow managerialist focus” and did not “adequately define the environmental problem” (Kilbourne and Beckmann, 1998); our assessment of the broad management field (including the marketing discipline) would suggest the same shortcomings. Consequently, as suggested in McDonagh and Prothero (2014) further research that

examines the broader systemic relationships between society, the natural environment and organisations is required. While we still require further analysis and consensus on firm performance and competitive advantage, research must also move beyond this to tackle the wider issues which businesses themselves have already begun to address. To not do so, does a disservice to both academia and business.

## **Limitations and Future Research Directions**

Our study presents some limitations because of the intrinsic drawbacks of bibliometric methodology and because of the research strategy that we designed.

First, we recognize that the choice to use ABS' Journal Quality Guide for selecting journals could be criticized. The use of such journal lists tends to lead to the homogenization of research topics, theoretical perspectives and methodological approaches (Willmott, 2011). Although we acknowledge the damaging consequences of reduced intellectual diversity, for the purposes of our study we take a neutral position on this matter. If first-rank publications tend to set the standards to which other journals of the field aim to comply, an increase of interest in sustainability research from this journals may anticipate an expanding popularity of research on the social and environmental dimension of business. In addition, if research topics, theoretical perspectives and methodological approaches tend to homogenize around what is published in the most highly-ranked journals, by identifying the main areas of enquiry of sustainability research published in these outlets, we should be able to identify the themes around which future contributions will accumulate.

Second, the set of papers we retrieved can be biased because of subjectivity in selecting the search terms that in our opinion constitute the boundaries of the field. The areas we retrieve through search terms may not always clearly belong to the field under study (Calabretta et al., 2011).

Third, in bibliometrics, the number of citation is only an assumed proxy for influence. On the one hand, citations may not reflect an actual transfer of knowledge: for example in the case authors cite scholars with whom they have a personal relationship or for the prestige of their name or affiliation. On the other hand, some studies may become widely cited because authors want to disagree with them rather than build upon them (e.g. Friedman, 1970).

Fouth, co-citation analysis has also some intrinsic limitations. On the one hand this technique allows building the intellectual structure of a field only with a small number of studies, as the quality of findings decreases if more than 20 – 30 works are included (Ramos-Rodríguez and Ruíz-Navarro, 2004). On the other hand, in co-citation analysis, works that are frequently co-cited are more important than works that received a high number of individual citations but that were not highly cited with other studies. For these reasons, the interpretation of bibliometric maps is often biased (Calabretta et al., 2011).

We believe that our choice of actually studying the most cited works among those that we retrieve could, at least in part, compensate for these limitations. On the one hand, the in-depth analysis of the articles allowed us to distinguish the motives for which citations are made. On the

other hand, identifying the main research themes from the individually most cited articles allows us to include contributions from highly influential articles even if they were not frequently cited with other works. In any case, we encourage future research to corroborate or supplement our findings by reducing (or extending) the study period and by narrowing the scope of the analysis.

## References

- Aguilera, R.V., Rupp, D.E., Williams, C.A., Ganapathi, J., 2007. Putting the S Back in Corporate Social Responsibility: A Multilevel Theory of Social Change in Organizations. *Academy of Management Review* 32, 836–863. doi:10.5465/AMR.2007.25275678
- Aguinis, H., Glavas, A., 2012. What We Know and Don't Know About Corporate Social Responsibility: A Review and Research Agenda. *Journal of Management* 38, 932–968. doi:10.1177/0149206311436079
- Atkinson, G., 2000. Measuring Corporate Sustainability. *Journal of Environmental Planning and Management* 43, 235–252. doi:10.1080/09640560010694
- Boyack, K.W., Klavans, R., 2010. Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately? *Journal of the American Society for Information Science & Technology* 61, 2389–2404. doi:10.1002/asi.21419
- Brocke, J. vom, Simons, A., Niehaves, B., Niehaves, B., Reimer, K., Plattfaut, R., Cleven, A., 2009. Reconstructing the giant: on the importance of rigour in documenting the literature search process.
- Budgen, D., Brereton, P., 2006. Performing systematic literature reviews in software engineering, in: *Proceedings of the 28th International Conference on Software Engineering*. ACM, pp. 1051–1052.
- Buysse, K., Verbeke, A., 2003. Proactive Environmental Strategies: A Stakeholder Management Perspective. *Strategic Management Journal* 24, 453. doi:10.1002/smj.299
- Calabretta, G., Durisin, B., Ogliengo, M., 2011. Uncovering the Intellectual Structure of Research in Business Ethics: A Journey Through the History, the Classics, and the Pillars of *Journal of Business Ethics*. *Journal of Business Ethics* 104, 499–524. doi:10.1007/s10551-011-0924-8
- Chabowski, B., Mena, J., Gonzalez-Padron, T., 2011. The structure of sustainability research in marketing, 1958-2008: a basis for future research opportunities. *Journal of the Academy of Marketing Science* 39, 55–70. doi:10.1007/s11747-010-0212-7
- Christmann, P., 2000. Effects of “best Practices” of Environmental Management on Cost Advantage: The Role of Complementary Assets. *Academy of Management Journal* 43, 663–680. doi:10.2307/1556360
- Cobo, M.J., Lopez-Herrera, A.G., Herrera-Viedma, E., Herrera, F., 2011. Science Mapping Software Tools: Review, Analysis, and Cooperative Study Among Tools. *J. Am. Soc. Inf. Sci. Technol.* 62, 1382–1402. doi:10.1002/asi.21525
- Cohen, B., Winn, M.I., 2007. Market imperfections, opportunity and sustainable entrepreneurship. *J. Bus. Ventur.* 22, 29–49. doi:10.1016/j.jbusvent.2004.12.001
- Cohen, J., Ding, Y., Lesage, C., Stolowy, H., 2010. Corporate Fraud and Managers' Behavior: Evidence from the Press. *J Bus Ethics* 95, 271–315. doi:10.1007/s10551-011-0857-2



- Culnan, M.J., 1987. Mapping the Intellectual Structure of MIS, 1980-1985: A Co-Citation Analysis. *MIS Quarterly* 11, 341. doi:10.2307/248680
- Dean, T.J., McMullen, J.S., 2007. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *J. Bus. Ventur.* 22, 50–76. doi:10.1016/j.jbusvent.2005.09.003
- Dowell, G., Hart, S., Yeung, B., 2000. Do corporate global environmental standards create or destroy market value? *Manage. Sci.* 46, 1059–1074. doi:10.1287/mnsc.46.8.1059.12030
- Ehrenfeld, J.R., 2000. Being and havingness, in: *Forum for Applied Research and Public Policy. EXECUTIVE SCIENCES INSTITUTE INC*, pp. 35–41.
- Elkington, J., 1997. Cannibals with forks. *The triple bottom line of 21st century.*
- Fetscherin, M., Usunier, J.-C., 2012. Corporate branding: an interdisciplinary literature review. *European Journal of Marketing* 46, 733–753. doi:10.1108/03090561211212494
- Fetscherin, M., Voss, H., Gugler, P., 2010. 30 Years of foreign direct investment to China: An interdisciplinary literature review. *International Business Review* 19, 235–246. doi:10.1016/j.ibusrev.2009.12.002
- Glavič, P., Lukman, R., 2007. Review of sustainability terms and their definitions. *Journal of Cleaner Production* 15, 1875–1885.
- Grinde, J., Khare, A., 2008. THE ANT, THE GRASSHOPPER OR SCHRÖDINGER'S CAT: AN EXPLORATION OF CONCEPTS OF SUSTAINABILITY. *Journal of Environmental Assessment Policy and Management* 10, 115–141. doi:10.1142/S1464333208003007
- Hult, G.T.M., Chabowski, B.R., 2008. Sourcing Research as an Intellectual Network of Ideas. *Decision Sciences* 39, 323–335. doi:10.1111/j.1540-5915.2008.00194.x
- King, A., Lenox, M., 2002. Exploring the locus of profitable pollution reduction. *Manage. Sci.* 48, 289–299. doi:10.1287/mnsc.48.2.289.258
- Lichtenstein, D.R., Drumwright, M.E., Braig, B.M., 2004. The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits. *Journal of Marketing* 68, 16–32.
- Luo, X., Bhattacharya, C., 2006. Corporate Social Responsibility, Customer Satisfaction, and Market Value. *Journal of Marketing* 70, 1–18.
- Mair, J., Robinson, J., Hockerts, K., 2006. *Social entrepreneurship.* Palgrave Macmillan New York.
- Matten, D., Moon, J., 2008. “implicit” and “explicit” Csr: A Conceptual Framework for a Comparative Understanding of Corporate Social Responsibility. *Academy of Management Review* 33, 404–424. doi:10.5465/AMR.2008.31193458
- McDonagh, P., Prothero, A., 2014. Sustainability marketing research: past, present and future. *Journal of Marketing Management* 30, 1186–1219. doi:10.1080/0267257X.2014.943263
- McWilliams, A., Siegel, D., 2001. Corporate Social Responsibility: A Theory of the Firm Perspective. *Academy of Management Review* 26, 117–127. doi:10.5465/AMR.2001.4011987

- McWilliams, A., Siegel, D.S., Wright, P.M., 2006. Corporate Social Responsibility: Strategic Implications. *Journal of Management Studies* 43, 1–18. doi:10.1111/j.1467-6486.2006.00580.x
- Melnyk, S.A., Sroufe, R.P., Calantone, R., 2003. Assessing the impact of environmental management systems on corporate and environmental performance. *J. Oper. Manag.* 21, 329–351. doi:10.1016/S0272-6963(02)00109-2
- Mitchell, R.K., Busenitz, L.W., Bird, B., Gaglio, C.M., McMullen, J.S., Morse, E.A., Smith, J.B., 2007. The central question in entrepreneurial cognition research 2007. *Entrep. Theory Pract.* 31, 1–27. doi:10.1111/j.1540-6520.2007.00161.x
- Orlitzky, M., Schmidt, F.L., Rynes, S.L., 2003. Corporate social and financial performance: A meta-analysis. *Organization Studies* 24, 403–441. doi:10.1177/0170840603024003910
- Parrish, B.D., 2010. Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing* 25, 510–523. doi:10.1016/j.jbusvent.2009.05.005
- Parrish, B.D., Tilley, F., 2010. Sustainability entrepreneurship : charting a field in emergence, in: *Making Ecopreneurs : Developing Sustainable Entrepreneurship*. Gower Publishing, Ltd., Farnham, pp. 21 – 41.
- Porter, M.E., Kramer, M.R., 2002. The Competitive Advantage of Corporate Philanthropy. *Harvard Business Review* 80, 56–69.
- Porter, M.E., Kramer, M.R., 2006. Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review* 84, 78–92.
- Prahalad, C.K., 2006. The innovation sandbox. *Strategy and Business* 44, 62.
- Prahalad, C.K., 2009. The fortune at the bottom of the pyramid, revised and updated 5th anniversary edition: Eradicating poverty through profits. FT Press.
- Prahalad, C.K., Hammond, A., 2002. Serving the world’s poor, profitably. *Harvard business review* 80, 48–59.
- Ramos-Rodríguez, A.-R., Ruíz-Navarro, J., 2004. Changes in the Intellectual Structure of Strategic Management Research: A Bibliometric Study of the Strategic Management Journal, 1980–2000. *Strategic Management Journal* 25, 981–1004. doi:10.1002/smj.397
- Roper, S., Parker, C., 2006. Evolution of Branding Theory and Its Relevance to the Independent Retail Sector. *The Marketing Review* 6, 55–71. doi:10.1362/146934706776861555
- Schaltegger, S., Beckmann, M., Hansen, E.G., 2013. Transdisciplinarity in Corporate Sustainability: Mapping the Field. *Bus. Strat. Env.* 22, 219–229. doi:10.1002/bse.1772
- Schaltegger, S., Hansen, E.G., 2013. Industry Transformation through Sustainable Entrepreneurship. Examples in the Apparel and Energy Industries., in: McIntosh. *The Necessary Transition. The Journey towards the Sustainable Enterprise Economy*. Greenleaf, Sheffield, UK, pp. 182 – 197.
- Schaltegger, S., Ludeke–Freund, F., Hansen, E.G., 2012. Business cases for sustainability: the role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development* 6, 95–119.

- Schaltegger, S., Synnestvedt, T., 2002. The link between “green” and economic success: environmental management as the crucial trigger between environmental and economic performance. *Journal of environmental management* 65, 339–346.
- Schaltegger, S., Wagner, M., others, 2006. *Managing the business case for sustainability*. Greenleaf, Sheffield, UK.
- Schaper, M., 2012. *Making ecopreneurs: developing sustainable entrepreneurship*. Gower Publishing, Ltd.
- Scherer, A.G., Palazzo, G., 2007. Toward a Political Conception of Corporate Responsibility: Business and Society Seen from a Habermasian Perspective. *Academy of Management Review* 32, 1096–1120. doi:10.5465/AMR.2007.26585837
- Schlange, L.E., 2008. Stakeholder identification in sustainability entrepreneurship: the role of managerial and organisational cognition. *Greener Management International* 13.
- Seelos, C., Mair, J., 2007. Profitable Business Models and Market Creation in the Context of Deep Poverty: A Strategic View. *ACAD MANAGE PERSPECT* 21, 49–63. doi:10.5465/AMP.2007.27895339
- Sen, S., Bhattacharya, C.B., 2001. Does Doing Good Always Lead to Doing Better? Consumer Reactions to Corporate Social Responsibility. *Journal of Marketing Research (JMR)* 38, 225–243.
- Sharma, S., Henriques, I., 2005. Stakeholder Influences on Sustainability Practices in the Canadian Forest Products Industry. *Strategic Management Journal* 26, 159–180. doi:10.1002/smj.439
- Small, H., 1999. Visualizing science by citation mapping. *Journal of the American Society for Information Science* 50, 799–813. doi:10.1002/(SICI)1097-4571(1999)50:9<799::AID-ASI9>3.3.CO;2-7
- Smith, A., Stirling, A., Berkhout, F., 2005. The governance of sustainable socio-technical transitions. *Research Policy* 34, 1491–1510. doi:10.1016/j.respol.2005.07.005
- Stocchetti, A., 2012. The Sustainable Firm: from Principles to Practice. *International Journal of Business and Management* 7, p34. doi:10.5539/ijbm.v7n21p34
- The 10 Worst Accounting Scandals of All Time [WWW Document], 2014. . Accounting-Degree.org. URL <http://www.accounting-degree.org/scandals/> (accessed 2.24.14).
- The Corporate Scandal Sheet [WWW Document], 2014. . Forbes. URL <http://www.forbes.com/2002/07/25/accountingtracker.html> (accessed 2.24.14).
- Van Marrewijk, M., 2003. Concepts and definitions of CSR and corporate sustainability: between agency and communion. *Journal of business ethics* 44, 95–105.
- Velamuri, V.K., Neyer, A.-K., Möslin, K.M., 2011. Hybrid value creation: a systematic review of an evolving research area. *Journal für Betriebswirtschaft* 61, 3–35.
- Wagner, M., Schaltegger, S., 2003. Introduction: How Does Sustainability Performance Relate to Business Competitiveness? *Greener Management International* 2003, 5–16.
- Webster, J., Watson, R.T., 2002. Analyzing the past to prepare for the future: Writing a literature review. *Management Information Systems Quarterly* 26, 3.

- Weitzman, M.L., 2002. Landing fees vs harvest quotas with uncertain fish stocks. *Journal of Environmental Economics and Management* 43, 325–338. doi:10.1006/jeem.2000.1181
- Weitzman, M.L., 2009. On Modeling and Interpreting the Economics of Catastrophic Climate Change. *Review of Economics and Statistics* 91, 1–19. doi:10.1162/rest.91.1.1
- Wheeler, D., Colbert, B., Freeman, R.E., 2003. Focusing on value: Reconciling corporate social responsibility, sustainability and a stakeholder approach in a network world. *Journal of General Management* 28, 1–28.
- White, H.D., McCain, K.W., 1989. Bibliometrics. *Annual review of information science and technology* 24, 119–186.
- White, H.D., McCain, K.W., 1998. Visualizing a discipline: An author co-citation analysis of information science. *Journal of the American Society for Information Science*.
- White, M.A., 2013. Sustainability: I know it when I see it. *Ecological Economics, Sustainable Urbanisation: A resilient future* 86, 213–217. doi:10.1016/j.ecolecon.2012.12.020
- Whitley, R., 1984. The Fragmented State of Management Studies: Reasons and Consequences. *Journal of Management Studies* 21, 331–348. doi:10.1111/j.1467-6486.1984.tb00415.x
- Willmott, H., 2011. Journal list fetishism and the perversion of scholarship: reactivity and the ABS list. *Organization* 18, 429–442.
- York, R., Rosa, E.A., Dietz, T., 2003. Footprints on the earth: The environmental consequences of modernity. *Am. Sociol. Rev.* 68, 279–300. doi:10.2307/1519769
- Zhu, Q.H., Sarkis, J., 2004. Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *J. Oper. Manag.* 22, 265–289. doi:10.1016/j.jom.2004.01.005

## Figures

Figure 1: Intellectual structure of research on sustainability

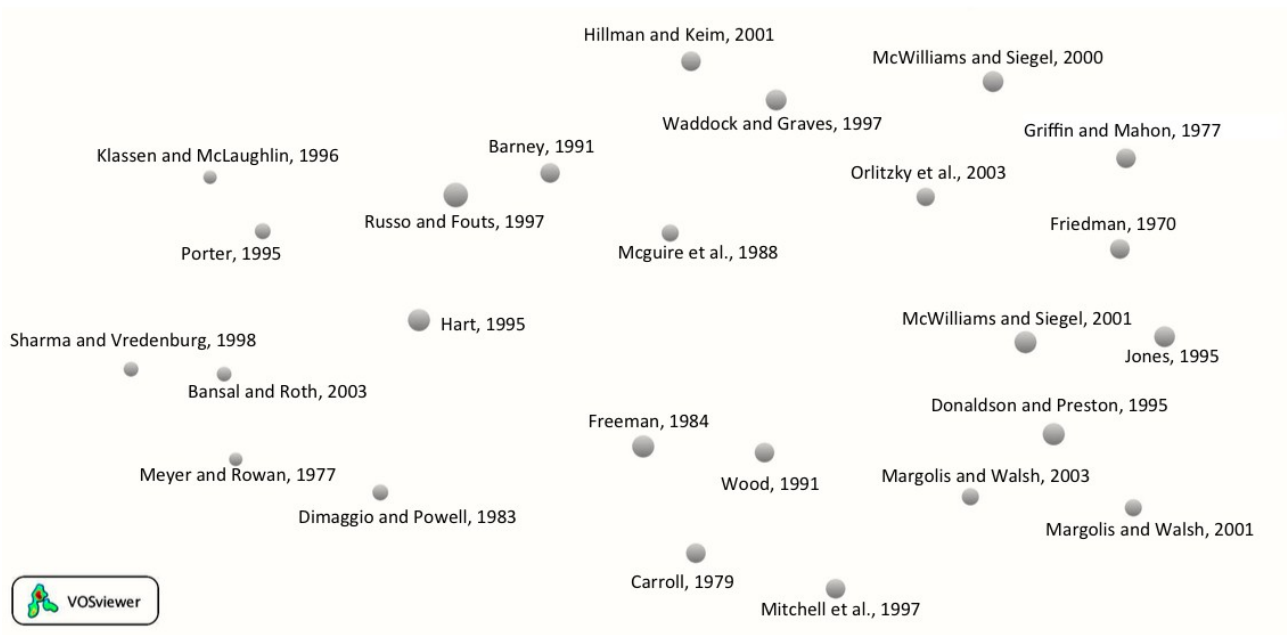
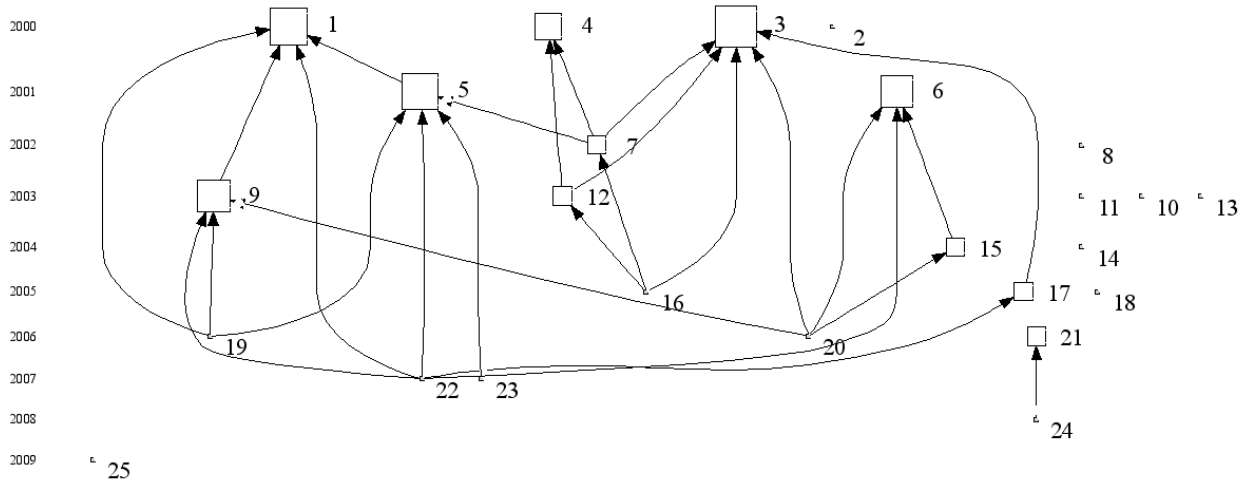


Figure 2: Direct citation map of the 25 most influential sustainability-related papers

25 most influential papers citation map



## Tables

Table I: Ranking of the most interested and influential journals

Rank	Journal	Nr. Of Papers	Journal	GCS
1	<i>Research Policy</i>	39	<i>Academy of Management Review</i>	1795
2	<i>Organization Studies</i>	26	<i>Strategic Management Journal</i>	1447
3	<i>Public Administration Review</i>	26	<i>Journal of Operations Management</i>	1158
4	<i>Environment and Planning D</i>	24	<i>Journal of Management Studies</i>	951
5	<i>Journal of Management Studies</i>	24	<i>Organization Studies</i>	896
6	<i>Strategic Management Journal</i>	22	<i>Harvard Business Review</i>	848
7	<i>Harvard Business Review</i>	21	<i>Research Policy</i>	847
8	<i>American Economic Review</i>	18	<i>Management Science</i>	664
9	<i>Journal of Operations Management</i>	17	<i>Academy of Management Journal</i>	585
10	<i>Accounting, Organizations and Society</i>	16	<i>Journal of Marketing</i>	532
11	<i>Academy of Management Review</i>	14	<i>Economic Geography</i>	483
12	<i>Management Science</i>	14	<i>American Economic Review</i>	475
13	<i>Economic Geography</i>	13	<i>Accounting, Organizations and Society</i>	471

Table II: Sustainability-related papers divided by academic field

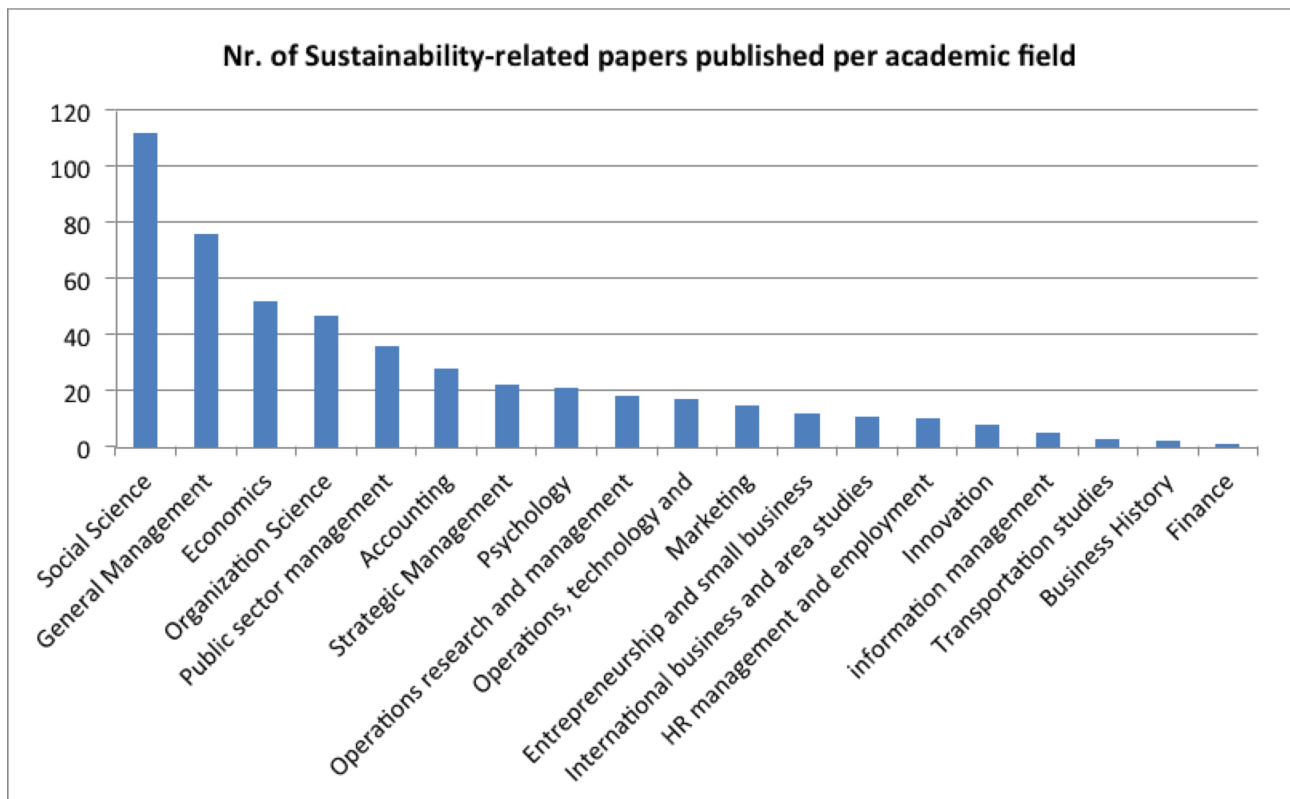




Table III: yearly production of sustainability-related papers (2000 – 2013)

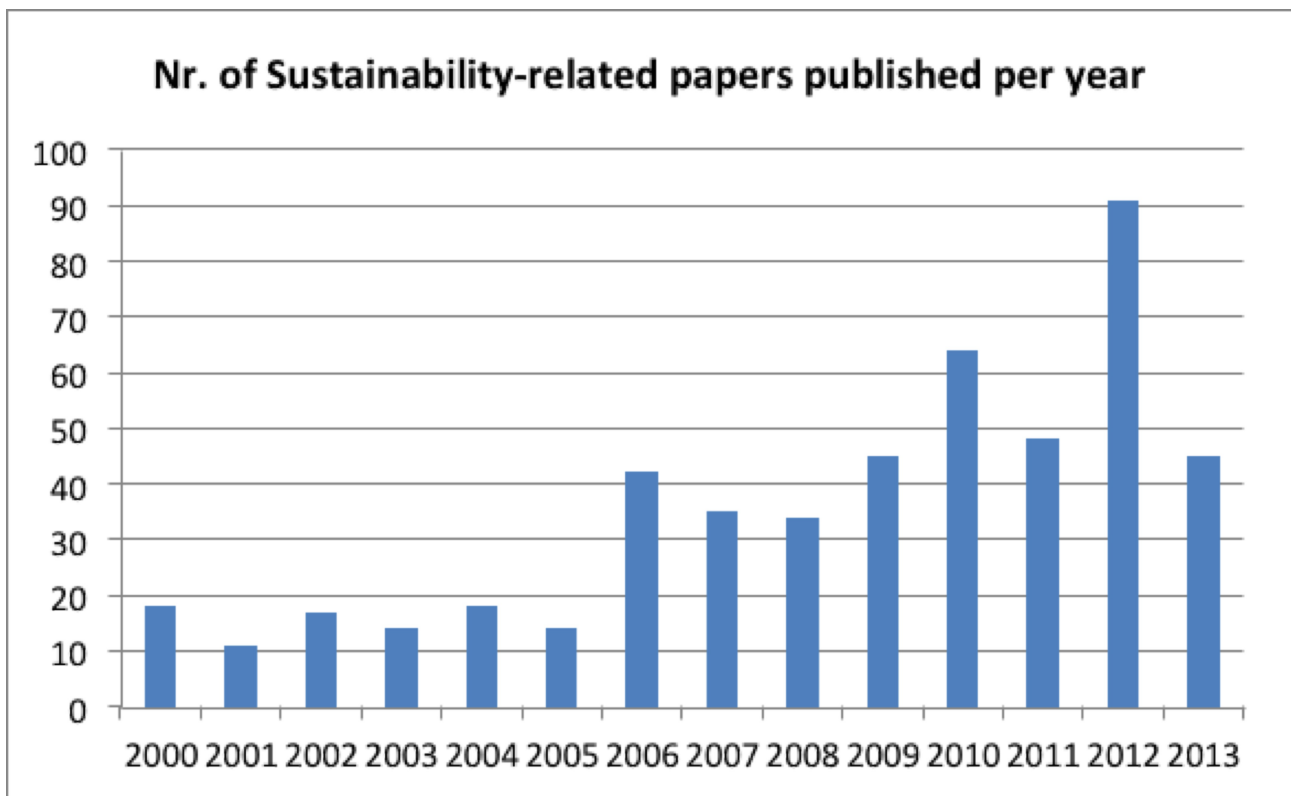


TABLE IV: Intellectual structure of sustainability research



<b>Title</b>	<b>Author</b>	<b>Year</b>	<b>Publication</b>
A Three-Dimensional Conceptual Model of Corporate Performance	Carroll	1979	Academy of Management Review
The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications	Donaldson and Preston	1995	Academy of Management Review
Strategic Management A Stakeholder Approach	Freeman	1984	
The social responsibility of business is to increase its profits.	Friedman	1970	New York Times Magazine
The Corporate Social Performance and Corporate Financial Performance Debate Twenty-Five Years of Incomparable Research	Griffin and Mahon	1997	Business & Society
Instrumental Stakeholder Theory: A Synthesis of Ethics and Economics	Jones	1995	Academy of Management Review
Misery Loves Companies: Rethinking Social Initiatives by Business People and Profits?: The Search for A Link Between A Company's Social and Financial Performance	Margolis and Walsh	2003	Administrative Science Quarterly
Corporate social responsibility and financial performance: Correlation or misspecification?	McWilliams and Siegel	2001	Strategic Management Journal
Corporate Social Responsibility: A Theory of the Firm Perspective	McWilliams and Siegel	2001	Academy of Management Review
Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts	Mitchell et al.	1997	Academy of Management Review
Corporate social and financial performance: A meta-analysis	Orlitzky et al.	2003	Organization Studies
Corporate Social Performance Revisited	Wood	1991	Academy of Management Review
Why Companies Go Green: A Model of Ecological Responsiveness	Bansal and Roth	2003	Academy of Management Journal
Firm resources and sustained competitive advantage	Barney	1991	Journal of Management
The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields	DiMaggio and Powell	1983	American Sociological Review
A Natural-Resource-Based View of the Firm	Hart	1995	Academy of Management Review
The Impact of Environmental Management on Firm Performance	Klassen and McLaughlin	1996	Management Science
Institutionalized Organizations: Formal Structure as Myth and Ceremony	Meyer and Rowan	1977	American Journal of Sociology
Green and Competitive - Ending the Stalemate	Porter	1995	Harvard Business Review
A Resource-Based Perspective on Corporate Environmental Performance and Profitability	Russo and Fouts	1997	Academy of Management Journal
Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities	Sharma and Vredenburg	1998	Strategic Management Journal
Shareholder value, stakeholder management, and social issues: what's the bottom line?	Hillman and Keim	2001	Strategic Management Journal
Corporate Social Responsibility and Firm Financial Performance	Mcguire et al.	1988	Academy of Management Journal
The corporate social performance - financial performance link	Waddock and Graves	1997	Strategic management journal

Table V: List of the 25 most cited sustainability-related papers (Nr refers to the citation map)

<b>Nr.</b>	<b>Author,Year, Journal, Volume, Page</b>	<b>LCS</b>	<b>GCS</b>
1	McWilliams A, 2000, STRATEGIC MANAGE J, V21, P603	4	320
2	Guide VDR, 2000, J OPER MANAG, V18, P467	0	212
3	Christmann P, 2000, ACAD MANAGE J, V43, P663	5	337
4	Dowell G, 2000, MANAGE SCI, V46, P1059	2	212
5	McWilliams A, 2001, ACAD MANAGE REV, V26, P117	4	539
6	Sen S, 2001, J MARKETING RES, V38, P225	3	407
7	King A, 2002, MANAGE SCI, V48, P289	1	186
8	Porter ME, 2002, HARVARD BUS REV, V80, P56	0	170
9	Orlitzky M, 2003, ORGAN STUD, V24, P403	3	652
10	York R, 2003, AM SOCIOL REV, V68, P279	0	201
11	Melnyk SA, 2003, J OPER MANAG, V21, P329	0	168
12	Buysse K, 2003, STRATEGIC MANAGE J, V24, P453	1	230
13	Adger WN, 2003, ECON GEOGR, V79, P387	0	223
14	Zhu QH, 2004, J OPER MANAG, V22, P265	0	214
15	Lichtenstein DR, 2004, J MARKETING, V68, P16	1	159
16	Sharma S, 2005, STRATEGIC MANAGE J, V26, P159	0	150
17	Bansal P, 2005, STRATEGIC MANAGE J, V26, P197	1	195
18	Smith A, 2005, RES POLICY, V34, P1491	0	227
19	McWilliams A, 2006, J MANAGE STUD, V43, P1	0	219
20	Luo XM, 2006, J MARKETING, V70, P1	0	182
21	Porter ME, 2006, HARVARD BUS REV, V84, P78	1	462
22	Aguilera RV, 2007, ACAD MANAGE REV, V32, P836	0	206
23	Scherer AG, 2007, ACAD MANAGE REV, V32, P1096	0	191
24	Matten D, 2008, ACAD MANAGE REV, V33, P404	0	243
25	Weitzman ML, 2009, REV ECON STAT, V91, P1	0	191

## Strategic approaches to industrial sustainabilitization

**Abstract.** With the term sustainabilitization we refer to a process of industrial transformation in the direction of higher levels of sustainability. With a capacity of altering the effectiveness of established business models, we recognize that companies do not just passively undergo such a process but rather they actively adopt strategies to change the course to their advantage. The aim of this paper is to understand and make sense of the strategic alternatives that companies use to impel the sustainabilitization process. We review academic literature on the management of social-environmental issues and we find organizations adopt either sustainability-driven or sustainability-oriented strategies, which they implement either according to a developmental or a static model. Combining these two dichotomies, we build a matrix of four different strategic approaches to the process of sustainabilitization.

**Keywords.** Sustainabilitization, Sustainability management, Sustainability strategies.

## Introduction: the process of “sustainabilization” and its relevance for strategy

In the last decades much attention has been given to the concern over the unsustainability of the traditional model of economic development. The incapacity of this model to indefinitely foster growth is implied by the high levels of resource consumption and by the use of technologies that are by now mature (in the sense that they require large investments for achieving small performance improvements). As a consequence, the term sustainable development has been coined to describe an aspirational alternative model of growth that does not compromise the possibility of future generations to meet their own needs (Brundtland, 1987). The emergence of this paradigm implies a profound transformation of production activities and consumption patterns in the direction of systems thinking and greater coordination because of an increased awareness of the fact that the stocks of productive factors are limited in quantity; that social-environmental externalities are actual costs for society; that the responsibility of social-environmental outcomes pertains – regardless of product ownership – to the whole supply and waste chains (Dyllick & Hockerts, 2002; Roome, 1992).

It has been observed that sustainable development is a competency-destroying paradigmatic shift (Hart and Milstein, 1999) capable of altering the effectiveness of established business models in a variety of ways: reduction of costs and risks; increase of efficiency, legitimacy and revenues; shifts of consumer preferences (increased concerns for environmental degradation and social exploitation); stricter environmental regulation; stricter industry-level standards and certifications; shifts in the objectives of entrepreneurs (desire to not aggravate or to contribute to the solution of social-environmental issues) (Hockerts, 2007; McWilliams & Siegel, 2001). Therefore, sustainability also has the potential to radically transform the structure of many industries, particularly the most resource-intensive ones like energy, mining and forestry sectors (Hart and Milstein, 1999; Wheeler, Colbert, & Freeman, 2003). The realization of this potential disruption occurs through the interplay of incumbent corporations and pioneer entrepreneurs who act as Schumpeterian “creative destroyers” by introducing more sustainable products, processes and business models first in niche markets and then in mass markets (Hockerts & Wüstenhagen, 2010; Schaltegger & Hansen, 2013).

We define “sustainabilization” as the process with which industries and corporations are gradually moving away from traditional models of production and consumption by assuming features that are more consonant with a world where resources are finite. Strategic management literature establishes that the locus of potential profitability is determined at the level of the industry (Porter, 1980, 2008) while its realization depends on firm resources (Barney, 1991) – by affecting

both industry structures and the value of corporate competencies – the sustainabilization process affects firm performance and therefore is highly relevant for strategy (Nag, Hambrick, & Chen, 2007). All in all, it is for strategic reasons that it is important that companies become fully aware of the social and environmental dimensions of business (Wheeler et al., 2003).

Regarding the way with which companies deal with such a paradigmatic shift, it is reasonable to assume that they will not just passively undergo the transformation but rather try to modify their competitive context for their own advantage (Deviney, 2009) by driving the sustainabilization process through the formulation of sustainability strategies. This paper reviews various strategic behaviors discussed in management literature with the purpose of making sense of corporate sustainability management.

Before proceeding with the analysis, we remark that – for the purpose of this study – we refer to a general definition of strategy as a series of actions aimed at achieving a particular goal. With this notion in mind, to analyze sustainability from a strategic perspective means to analyze the motivations of corporations. This element represents the reference point on which we build our theoretical framework: by distinguishing sustainability strategies on the basis of the goals they pursue, it is possible to recognize whether strategies are either sustainability-driven or sustainability-oriented. Later, we distinguish between developmental and static models of the attitude towards sustainability depending on how the organization's posture develops over time. From the combination of these dichotomies, we build a matrix representing four possible strategic approaches to the process of sustainabilization.

### **Corporate motivations and attitudes towards sustainability**

As management literature has identified a variety of motivations – instrumental, political, integrative and ethical – for engaging in social-environmental issues (Garriga & Melé, 2004; Maon, Lindgreen, & Swaen, 2010), the first dichotomy that we introduce distinguishes sustainability strategies on the basis of the final goal they pursue. Such a distinction reflects the two fundamental traditions of sustainability research in management studies: the business- and the moral-perspective. The former has tried to provide an economic justification to the incorporation of social-environmental concerns into business operations. The search for a positive link between social-environmental performance and profitability is what fueled the florid debate on the so-called “business-case” for sustainability (Schaltegger, 2011; Schaltegger, Ludeke-Freund, & Hansen, 2012; Schaltegger, Wagner, & others, 2006; Schaltegger & Synnestvedt, 2002; Wagner & Schaltegger, 2003). The moral perspective on the other hand, preaches that corporations should foster some form of social good through social initiatives beyond what they are legally required to

do and beyond the mere economic convenience (Aguilera et al., 2007; Matten and Moon, 2008; McWilliams and Siegel, 2001).

The co-existence of such radically different viewpoints is – at least in part – due to the intrinsic ambiguity of the social-environmental mandate of business which has varied across time and space in terms of meanings, scope, language and approaches (Aguilera, Rupp, Williams, & Ganapathi, 2007; Bansal, 2005; Buysse & Verbeke, 2003; Matten and Moon 2008; McWilliams, Siegel, & Wright, 2006). Since the mid-20th century the theoretical and practical understanding of the involvement of business in social-environmental concerns has developed as a “fragmented adhocracy”, in the sense that the variety of actors and goals involved in the production and validation of knowledge has resulted in high levels of fragmentation, disjunction and uncertainty and in low levels of research coordination (Whitley, 1984). As it has been observed, the incorporation of social concerns into business operations has been “used as a synonym for business ethics, defined as corporate philanthropy, considered strictly as relating to environmental policy” [...] and “confused with corporate social performance and corporate citizenship” (McWilliams et al., 2006; p.8).

The broadness and blurriness of the social mandate of business constitutes the condition that allowed the development of perspectives that essentially diverge on the number of stakeholder groups whose interests are considered relevant (Jones, Felps, & Bigley, 2007): shareholders (Friedman, 1970), internal stakeholders (Drucker, 1984), external stakeholders (Aguilera et al., 2007) or society as a whole (Davis & Blomstrom, 1971). The business perspective assumes that the interest of shareholders is the priority and therefore social-environmental issues can be legitimately addressed only when doing so contributes to greater profitability. Under the moral perspective, companies are understood as having the responsibility to operate in the interest of broader society because they have the resources to have an impact on societal and environmental challenges (Hansen, Grosse-Dunker, & Reichwald, 2009).

Decades since the academic discussion began on the desirability of the involvement of business in social-environmental issues, the debate has become mainstream (Scherer & Palazzo, 2007) and its focus has gradually moved from “whether or not sustainability is a goal worth pursuing” to “how to make sustainability happen”. Likewise, we share the view that there is no alternative to sustainable development (Nidumolu, Prahalad, & Rangaswami, 2009). If the traditional model of industrial development is indeed unsustainable, either it changes – and it will become sustainable – or it will not – and eventually development will arrest. In either case, the one possible model of long-term development is sustainability. From this assumption, we derive that companies in all industries will eventually comply with this paradigm. Although management

literature has identified a variety of motivations for engaging in socially-oriented activities, for the purposes of our analysis we distinguish between motivations that bring companies to pursue sustainability as an end-goal of the highest priority per se and motivations that lead firms to pursue sustainability objectives as an instrumental sub-goal that mediates and moderates profitability. We derive that the former kind of motivations lead organizations to adopt sustainability-pushing strategies, which we call “sustainability-oriented strategies”; the other kind of motivations lead companies to adopt sustainability-pulled strategies, which we call “sustainability-oriented strategies”. The importance of such a distinction comes not just from the intellectual soundness of the conceptualization but also from its ability to capture the practical implications of these two kinds of strategies. Companies that hold different motivations and pursue different objectives will adopt different tools and practices and will make different choices in the presence of the substantial trade-offs that the consideration of the triple-bottom line implies (Parrish, 2010).

Due to the highly economic orientation of strategic management research, the traditional behavioral assumption about entrepreneurs is that they are self-interested and motivated by profits alone (Cohen & Winn, 2007; Dean & McMullen, 2007; Mitchell et al., 2007; Parrish, 2010). With this intellectual legacy, management scholars that aimed to reconcile the business-perspective and the moral-perspective needed an economic rationale to justify the incorporation of social and environmental concerns into business operations. Consequently, much of sustainability research in management focused on the investigation of the relationship between social-environmental performance and profitability and on the identification of the so called “business cases” (Schaltegger & Hansen, 2013; Schaltegger et al., 2012, 2006; Schaltegger & Synnestvedt, 2002; Wagner & Schaltegger, 2003); the rise and diffusion of concepts such as industrial-ecology, cleaner production and eco-efficiency stem from this effort (Parrish, 2010). After decades of mixed and inconclusive empirical results (Salzmann, Ionescu-somers, & Steger, 2005), management scholars came to the conclusion that the key factors driving the association between social-environmental performance and profitability are complex (King & Lenox, 2002; Siegel, 2009) and that there is no automatic connection between the two constructs (Schaltegger et al., 2012). This finding implies that profitability can be enhanced through good social-environmental performance but only in the case the latter is specifically designed for this purpose according to the mediating variables that drive profitability. Such variables have been identified as belonging to several categories: cost reduction through energy and materials savings; reduction of political, social and market risks; increases of sales and margin; increases of reputation and brand value; increased attractiveness as an employer; and better innovation capabilities (Devinney, 2009; Schaltegger et al., 2012).

At the same time another strain of empirical research revealed that quite often the personal motivations of entrepreneurs were far more complex than a mere quest for profit maximization (Mitchell et al., 2007; Stocchetti, 2012). As a result, more and more scholars started to investigate the kind of entrepreneur who integrated social and environmental purposes in their business activities (Parrish, 2010; Parrish & Tilley, 2010; Schlange, 2008) and who conceptualized business as a way through which social well-being and environmental quality could be pursued, therefore contributing to both sustainable development and sustaining their own activities. (Atkinson, 2000; Mair, Robinson, & Hockerts, 2006; Schaper, 2012). Examples of goals that complement the quest for profits are the creation of as many jobs as possible, the treatment of the highest possible number of patients (Seelos & Mair, 2007) and the satisfaction of the needs of the poor in developing countries (C. K. Prahalad, 2009; Coimbatore K. Prahalad & Hammond, 2002; Coimbatore Krishnarao Prahalad, 2006). While building business cases means designing win-win situations, pursuing the multiple objectives of a triple bottom-line (Elkington, 1997) requires decision makers to deal with trade-offs and to make choices. This is caused by the intrinsic complexity of sustainability management (Roome, 1992) which exposes businesses to the so called “directional risk” - the risk that the achievement of a positive outcome in a particular dimension (e.g. environment) brings an unintended negative effect on another dimension (e.g. profitability) (Paech, 2007). The novel contribution of this stream of research is that it highlights that – in practice – profit maximization and economic goals are not always the highest priority and that social-environmental objectives can have the same, sometimes even higher, priority (Kearins, Collins, & Tregidga, 2010; Schaltegger, 2002).

### **Sustainability-driven and sustainability-oriented strategies**

Based on such considerations that strategies are sequences of actions aimed at achieving specific goals, we derive that the different goals of business ventures result in different kinds of strategies. In particular, those that have broader sets of objectives and take into account the interests of a higher number of groups of stakeholders, pursue sustainability as an end-goal of the highest priority by adopting *sustainability-pushing* strategies that we label “sustainability-oriented” strategies.

In contrast, companies that give the highest priority to the interests of their owners and therefore to the maximization of long-term profitability, sustainability – by adding additional constraints to the traditional “single” bottom-line – cannot be an end-goal but rather a sub-goal that is worth pursuing only in the case it is instrumental to the creation of synergies which strengthen the competitive position of the organization. When companies pursue sustainability only as a means (a sub-goal) to an end, their strategies are driven by the process of industrial sustainabilization as it



opens (or closes) opportunities to profit. From this perspective, the involvement in social-environmental issues is not due to moral reasons but it is an instrumental response to the demand of the market (Siegel, 2009). We conceptualize these strategies as *pulled by sustainability*, which therefore we label “sustainability-driven” strategies. For the sake of clarity, it is important to remark that this notion does not imply any kind of reactive posture of the firm towards the paradigm of sustainability and the sustainabilization process, which is instead considered (like any other market trend) relevant in the moment it can affect profitability. For instance, incumbent companies in the German apparel industry such as Otto Group and C&A did not originally have a particular focus on organic cotton market niche nor did they have any particular interest in the promotion of the “organic” cause; however they became interested in the segment when pioneer companies such as Hess Natur and Mass Naturwaren proved its economic potential (Schaltegger and Hansen, 2013). In fact, the sustainabilization process takes place through the interplay between pioneer entrepreneurs – who have the objective of fostering and speeding-up the deep structural transformation that is required by sustainability by adopting sustainability-oriented strategies for the introduction of products, processes and business models in niche markets – and incumbents – that leverage their advanced long-existing competencies for spreading into the mass markets the innovations that have proved their economic potential (Hockerts & Wüstenhagen, 2010; Schaltegger & Hansen, 2013; Wagner & Llerena, 2008). Indeed the emergence and diffusion of sustainable entrepreneurship requires an economic rationale that justifies the engagement of social-environmental challenges, as it usually is the expectation of improved economic performance that leads firms to pursue sustainability (Schaltegger et al., 2012, 2006; Schaltegger & Synnestvedt, 2002; Wagner & Llerena, 2008; Wagner & Schaltegger, 2003).

In table 1, we present the essential traits of sustainability-driven and sustainability-oriented strategies and their effects on the sustainabilization process. Sustainability-driven strategies have the objective of strengthening the strategic position of the firm by leveraging the synergies arising from the engagement of social-environmental challenges. Sustainability-oriented strategies instead have the objective of integrating social and environmental purposes into business activities taking into account the interests of broader sets of stakeholder groups. Although sustainability-driven strategies are neutral with respect to the promotion of the sustainabilization process, they play the crucial role of spreading into the mass market the successful practices that are introduced in niche markets by companies that actively try to foster the sustainabilization process through sustainability-oriented strategies.

[INSERT TABLE 1 HERE]

An important contribution of this paper relates to the implications that can be derived from the adoption of sustainability-driven and sustainability-oriented strategies. As this distinction is based on the motivations driving the actions of those who manage the firm, it implies a differentiation of strategic behaviors. Management literature has identified a variety of sustainable tools and practices, all of which have different features and serve different purposes. Environmental practices like pollution control, pollution prevention and product and ecosystem stewardship (Bansal, 2005; Buysse and Verbeke, 2003; King and Lenox, 2002; Rennings, Ziegler, Ankele, & Hoffmann, 2006; Sharma and Henriques, 2005) have different impacts on firm performance in terms of sign, magnitude and timing of their effects. Cleaner production technologies aimed to increase the overall efficiency and to reduce risks for society and the environment (United Nations Environment Programme Division of Technology, 2002) can be applied either to end-of-pipe pollution control solutions – that treat waste before disposal and clean-up contaminated sites – or to pollution prevention solutions – that reduce or eliminate waste before it is generated in the first place. Although both applications have positive environmental effects, their contribution to economic performance can be significantly different. Pollution prevention practices are related to both higher market value and ROA because they stimulate productivity in the use materials; provide unexpected valuable information on business processes, thus highlighting opportunities for operational improvement; and allow managers to realize savings in short time-spans (Christmann, 2000; Côté, Booth, & Louis, 2006; King and Lenox, 2002). Treating and transferring waste through add-on equipment and technologies on the other hand represents an investment with no potential to increase productivity nor profitability (King and Lenox, 2002). Product stewardship (Hart, 1995, 1997), eco-design (Hart & Milstein, 2003; van Hemel & Cramer, 2002), design for the environment (Lefebvre, Lefebvre, & Talbot, 2003) or design for sustainability (Klewitz & Hansen, 2014) refer to approaches that aim at redesigning all phases of product manufacturing processes – from pre-manufacturing activities to end-of-life disposal so that products require fewer materials and less packaging, last longer and become easier to disassemble at the end of their life-cycle in order to facilitate their recycling, remanufacturing or reusing (Bos-Brouwers, 2010; Fernández-Viñé, Gómez-Navarro, & Capuz-Rizo, 2010; Lefebvre et al., 2003; Noci & Verganti, 1999; van Hemel & Cramer, 2002). In addition, these practices contribute to profitability in various ways. In fact, whilst recycling is merely focused on materials recovery, remanufacturing – through which worn-out products are disassembled, cleaned, refurbished, reassembled and finally restored to like-new conditions – it has much greater economic potential because it recovers not just materials but also products' value-added in terms of energy and labour (Guide, 2000).

In order to more effectively explain how companies pursue different objectives through either sustainability-driven or sustainability-oriented strategies, it is helpful to use the matrix

introduced by Wagner & Llerena (2008) to explain the link between economic radicality and the direct social benefit of sustainability-oriented innovations. The authors conceptualize sustainability-related innovations as innovations that either have a) both positive social and economic effects (square A in figure 1); or b) positive social effects that more than compensate for the loss of a certain amount of consumer surplus (triangle B in figure 1). The economic radicality (Arrow, 1962) is intended as the cost reduction brought about by the innovation (keeping all the other variables constant); and the direct social benefits refers to the reduction of pre-existing negative externalities. Wagner & Llerena (2008) explain that the incentive to pursue some innovation depends on the private benefit of such innovation rather than on the totality of its social and private benefits. This conclusion builds on the behavioral assumption of economic rationality typical of strategic management literature (Cohen & Winn, 2007; Dean & McMullen, 2007; Mitchell et al., 2007; Parrish, 2010). The typology that we introduce however allows us to construct a deeper analysis. According to our framework, we derive that: a) companies pursuing sustainability as an end-goal will adopt sustainability-oriented strategies that either result in both positive social and economic effects (square A in figure 1) or in positive social effects that more than compensate for the loss of a certain amount of profits (triangle B in figure 1); b) companies pursuing sustainability as a sub-goal will adopt sustainability-driven strategies that either result in both positive social and economic effects (square A in figure 1) or in positive economic effects that more than compensate for the aggravation of some kind of social-environmental externality (triangle B in figure 1).

[INSERT FIGURE 1 HERE]

### **Developmental and static approaches to sustainability**

After using organizational goals to discriminate between sustainability-driven and sustainability-oriented strategies, we propose a typology of the general corporate attitude towards sustainability based on its evolutionary dynamics. In management literature, an organization's posture towards sustainability is understood as the level of responsibility it takes regarding the interests of its stakeholder groups (Clarkson, 1995), the expectations of whom can be considered more or less relevant (Carroll, 1979). Usually the set of possible attitudes towards such expectations is conceptualized as ranging from negligent to proactive. In general, the literature distinguishes between reactive, defensive, accommodative and proactive postures (Wilson, 1975), although terminology presents a certain degree of variation across studies (Maon et al., 2010): e.g. non-compliance, compliance, compliance plus and environmental excellence (Roome, 1992); minimum legal compliance, enlightened self-interest, proactive change (Stahl & Grigsby, 1997); compliance, relationship management and sustainable organization culture (Wheeler et al., 2003); pre-corporate

sustainability, compliance-driven, profit-driven, caring, synergistic, holistic (Van Marrewijk & Werre, 2003); rejection, non-responsiveness, compliance, efficiency, strategic proactivity, sustaining (Benn, Dunphy, & Griffiths, 2014a). Usually, negligence, rejection and reactivity are associated with indifference or reluctance to accommodate stakeholders' expectations; defensiveness and adaptation describe a more or less passive response to regulation and stakeholder pressure in the direction of compliance; and proactiveness refers either to the attempt of anticipating regulation and social expectation or to carry out a leading role in the promotion of sustainability (Jawahar & McLaughlin, 2000; Joyner & Payne, 2002; Maon et al., 2010; Wheeler et al., 2003; Roome, 1992).

We find that this classification can be developed on the basis of how companies advance through the different stages by distinguishing between developmental and static approaches to sustainability. Developmental models have already been the object of various investigations (Maon et al., 2010) and, in order to maintain consistency with previous studies, we use their terminology. This kind of models conceptualizes the posture towards sustainability as an evolutionary process that leads companies to incorporate social-environmental concerns increasingly deeper into their business operations (Maon et al., 2010). The fundamental prediction of these models is that firms become gradually further committed to the solution of sustainability challenges through a process of more or less radical organizational change (Benn, Dunphy, & Griffiths, 2014b; Doppelt, 2009; Hart & Milstein, 1999; Mirvis, 2000). As companies advance on this path, they cease considering social-environmental concerns as a constraint and become more inclusive of the interests of broader sets of stakeholder groups, therefore moving forward through the stages (Maon et al., 2010). Such progression is characterized by a cultural transformation (Maon et al., 2010) that leads to: an increasing commitment of resources; the development of organizational and technological competences; greater consideration of stakeholders' expectations; the development of new employee skills; bigger investments in formal environmental management systems and procedures; and the inclusion of environmental issues deeper into the strategic planning process (e.g. Buysse and Verbeke, 2003; Christmann, 2000; Melnyk et al., 2003). As the positioning of the organization proceeds towards proactiveness, the accumulation of resources, competences and experience allows firms to undertake increasingly complex practices which more pervasively invest a broader share of activities (Melnyk et al., 2003) that eventually cross organizational boundaries: higher levels of commitment to sustainable development require consideration of the social-environmental performance of suppliers; cross-organizational cooperation for the arrangement of production activities in industrial eco-systems; monitoring the overall environmental impact of products

throughout their entire life-cycle; and business models reconfiguration (Roome, 1992; Sharma & Henriques, 2005).

Besides developmental models, management literature has identified other ways to approach sustainability. The formulation of these models – that we label “static” – stems from the observation that developmental models risk being ineffective both in terms of positive social impact and in terms of business performance. The assumption of progressive inclusiveness of stakeholders’ interests implies that – as companies proceed towards the proactive/excellence stage – they accommodate a higher number of stakeholders’ concerns, therefore ending up dealing with harder social-environmental challenges. The critique here is that the social responsibility of a specific company is not to be described as uniformly high or low across all issues. Social-environmental problems can be tackled with different strategies and levels of commitment depending on the ability to address a specific issue and because the urgency to address a specific societal concerns varies due to regulation strictness and public attention (Christmann, 2000; Porter and Kramer, 2006). The strategic problem here is that – by targeting social-environmental issues on the basis of their urgency for relevant stakeholders – companies tend to outsource to stakeholders the identification of their own goals therefore losing control of their societal agendas. In terms of overall social benefit, the problem of trying to solve general social-issues that are relevant for stakeholders is that there is no guarantee that individual companies have the resources and the competences that are necessary to properly address these challenges (Porter and Kramer, 2002; 2006). In addition, the logical fallacy of models that want corporations to become indefinitely involved in general problems of society stems from the argument that there must be a limit to the accountability of corporations for society’s problems as, not only they do not have the resources to do so, but also their responsibility is different from the responsibility of governments (Matten & Moon, 2008; Porter & Kramer, 2006; Scherer & Palazzo, 2007).

From a business perspective, static models consider that the economic value and the potential social benefit of solutions to social-environmental problems are not the same for every company, as they depend on the accurate matching between organizational competencies and the societal issues to be tackled (Lichtenstein, Drumwright, & Braig, 2004; Porter & Kramer, 2002, 2006; Sen & Bhattacharya, 2001). The underlying rationale is that the social performance of corporations does not depend on the amount of resources they dedicate to general and diffused social-environmental problems that they cannot effectively address nor use for strengthening their competitive position. Rather, the quality of the social contribution of corporations depends on the impact they have on specific issues that are significantly affected by their business operations and that, at the same time, affect the underlying drivers of their competitive advantage. By addressing

such issues with strategies that are tailored on company-specific capabilities, resources, relationships and business models, it is possible to both enhance profitability and to obtain the most effective social agendas (Porter & Kramer, 2002, 2006).

The prediction of static models, in contrast to that of developmental models, is that companies can benefit society the most – not by addressing an increasing number of social-environmental issues in the attempt of meeting the expectations of broader sets of stakeholder groups – but by using their advanced competencies in very specific areas of knowledge for overcoming specific social-environmental challenges for which those competencies and knowledge is relevant. In this sense, static models preach that the solution of the most urgent problems of society requires narrowness of focus rather than broadness.

Our analysis reveals important differences, as well as commonalities, regarding these models of organizational postures towards sustainability (see table 2). On the one hand, both models argue that the engagement of social-environmental challenges requires the development of competencies and expertise that over time allows them to undertake increasingly complex sustainable practices. On the other hand, while developmental models predict an indefinite increase in the inclusiveness of stakeholders' expectations that leads companies to become involved in more general and urgent problems of society, static models sustain that companies' resource-base act as a leash that channels sustainability-oriented efforts towards specific issues. These issues may not necessarily be the most important or urgent from a social point of view, but can be dealt with in a way that is both effective and reinforces their strategic position.

[INSERT TABLE 2 HERE]

### **Strategic approaches to sustainabilization**

From the combination of the two dichotomies that emerged from the analysis that we have conducted, we build our theoretical framework of strategic approaches to the process of sustainabilization. We find that the strategic intent – on the basis of which we discriminated between sustainability-driven and sustainability-oriented strategies – affects and moderates the progression of the process of cultural development described in developmental models.

[INSERT FIGURE 2 HERE]

In the first and second quadrants of figure 2, we locate companies that apply sustainability-driven strategies and therefore instrumentally pursue sustainability objectives for achieving

economic outcomes. In the third and fourth quadrant we locate organizations that, besides profit, pursue other social-environmental objectives with the same or even higher priority.

Firms in the first quadrant apply sustainability-driven strategies and follow a developmental model. These companies approach sustainability in order to improve their economic performance and identify the social-environmental issues they tackle on the basis of how important and urgent these are for the stakeholder groups that they consider relevant. As their posture develops, these firms become increasingly sensitive and receptive of stakeholders' expectations and therefore they commit to an increasingly high number of sustainability challenges over time. However, the fact that they address social-environmental issues in order to obtain positive economic outcomes constitutes an important constraint to the development of their posture towards sustainability.

When the commitment to social-environmental challenges is aimed at increasing profitability, the involvement of the firm in such issues cannot be indefinitely high and increases till the additional costs counterbalance the increased revenues; their ideal level of engagement is determined through a cost-benefit analysis (McWilliams and Siegel, 2001). However, it may be difficult to carry out such an evaluation because socially-oriented initiatives require solutions that are often integrated into other business processes, making their costs diffused and hard to quantify. Furthermore, the ability to rationally respond to considerable problems (such as those related to climate change) is reduced by scientific uncertainty and the economic inability to adequately quantify losses from catastrophic events (Weitzman, 2009). Under these conditions, managers may choose the incorrect environmental practice or a non-optimal level of engagement (King and Lenox 2002).

Companies in the second quadrant apply sustainability-driven strategies and have a static attitude towards sustainability. They also approach sustainability in order to improve their economic performance but they select the social-environmental problems they want to solve on the basis of their impact on the drivers of competitive advantage and on the social context in which the company is immersed; by providing solutions to these issues, companies improve their competitive position and create social value at the same time (Porter & Kramer, 2011).

Organizations in the third quadrant apply sustainability-oriented strategies and are involved in a process of cultural development (Maon et al., 2010) that leads them to become gradually more mindful of the interests of broader sets of stakeholder groups. As they proceed on this cultural path, they become increasingly involved in the promotion of sustainability – which is considered a goal that is per-se worth pursuing – and the range of their social-environmental objectives and initiatives widens over time. The combination of sustainability motives and their dynamic attitude is the condition that allows these organizations to potentially become leaders in the promotion of

sustainability. As companies in quadrant one and three address social-environmental issues that are not necessarily linked to their business, they can develop general competences on broad sets of sustainability-challenges which help them building privileged relationships with various stakeholder groups. Although their social agendas do not directly reinforce their business operations, they can still reinforce their competitive advantage on the nonmarket political arena where strong formal and informal relationships with stakeholders are particularly important (Oliver & Holzinger, 2008; Peng, Sunny Li Sun, Pinkham, & Hao Chen, 2009)

Companies in the fourth quadrant apply sustainability-oriented strategies and have a static attitude towards sustainability. They are moved by a set of social and environmental goals that they do not prioritize over profitability. As a result, their social agendas are harmonically developed in accordance to the specific features of their business operations. These companies actively try to maximize the social impact of their activities by improving the social context in which they are immersed. By addressing social-environmental issues that are closely connected to their business, these companies, as well as those in quadrant two, can develop advanced sustainability-competencies in areas of knowledge that are strictly connected to their business. They become specialists and achieve excellence in the management of specific social-environmental challenges that in turn reinforce their competitive position.

## **Discussion and conclusion**

In this paper we have presented a theoretical analysis of the strategic approaches to the process of sustainabilization based on the kind of motivations that move corporations and on the evolutionary features of their attitudes towards sustainability. With the term sustainabilization, we synthesize and describe a process of industrial transformation that previous studies consider an example of “creative destruction”. In accordance to the industry-based view and the resource-based view of strategy, we argued that the locus of the relevance of this process for strategic management lies in its capacity to change the features of an industry that determine the effectiveness of established business models. Particularly, we claimed that such process affects firms’ performance at two levels: first, it produces changes in the overall profitability of an industry; second, it acts as a competency-destroying agent, especially in resource-intensive and energy-intensive sectors. As sustainabilization is a process that affects the economic performance of corporations, we derived that companies try to strategically influence and drive the process, rather than passively suffer its consequences. We interpreted the interest of management literature in sustainability and environmental management as evidence in favour of this view.



We reviewed sustainability strategies and classified them on the basis of the underlying organizational goals. We argued that organizations that have the specific end-goal of pursuing particular social-environmental outcomes or fostering the process of sustainabilization itself adopt *sustainability-oriented strategies*. On the other hand, companies that address the same issues as a sub-goal only because of their capacity to affect profitability adopt *sustainability-driven strategies*. Similar to previous studies that contributed to the florid debate on sustainable entrepreneurship and innovation have used similar terminologies in the investigation of related phenomena, we extensively clarified what we mean by sustainability-driven and sustainability-oriented strategies in order to avoid confusion with terms such as sustainable development innovation (Hall, 2002), sustainable innovation (Hockerts, 2003), CSR-driven innovation (Hockerts et al., 2008), sustainability-related innovation (Wagner & Llerena, 2008), sustainability-oriented innovation (Hansen et al., 2009; Paech, 2007) sustainability-driven entrepreneurship (Parrish, 2010; Schlange, 2008) or sustainability-driven innovation practices (Roome, 1994; Schaltegger, 2011). In particular, although the term sustainability-driven has been used for example to describe the different motives and values of a class of entrepreneurs that departs from the standard assumption of economic rationality that is common in strategic management literature (Parrish, 2010; Schlange, 2008), we use it to describe a sustainability-pulled kind of strategies that are aimed at capitalizing the positive economic effects of the incorporation of social-environmental concerns into business operations. We also use strategic motivations as the distinguishing element of sustainability-oriented strategies, which describe a coherent sequence of actions aimed at pursuing social-environmental goals with high priority. Past work have used the term in a different way, for example to describe a kind of innovation that is perceived as adding value to the overall capital stock of an organization (Hansen et al., 2009).

We also analysed the theoretical perspectives on sustainability postures. Taking as a starting point the established classification of reactive, defensive, accommodative and proactive postures (e.g. Roome, 1992; Van Marrewijk & Werre, 2003; Wheeler et al., 2003; Wilson, 1975), we distinguished between developmental models and static models on the basis of how the attitude of corporations towards social-environmental concerns develops over time. Developmental models conceptualize the posture towards sustainability as an evolutionary cultural process that leads companies to become increasingly sensitive to stakeholders expectations and incorporate social-environmental concerns deeper and deeper into their business operations (Maon et al., 2010). In opposition to developmental models, we argue that static models do not describe the attitude towards sustainability as necessarily moving in the direction of increasing proactiveness. The prediction of these models is that the creation of positive social-environmental outcomes does not stem from the accommodation of an increasingly high number of stakeholders expectations but

rather from the application of advanced business-related competencies in very specific areas of knowledge to the identification of solutions to specific social-environmental challenges for which those competencies and knowledge are relevant.

We also argued that that the strategic intent – on the basis of which we discriminated between sustainability-driven and sustainability-oriented strategies – affects and moderates the progression of the process of cultural development that is described by developmental models. We built a theoretical framework that explains a) how the prioritization of economic objectives over social-environmental ones constrains the development of a proactive sustainability-promoting attitude; b) that the combination of sustainability motives and a progressively proactive attitude is the condition that allows organizations to potentially become leaders in the promotion of sustainability and to reinforce their competitive advantage by capitalizing on privileged stakeholders relationships in nonmarket political arena where strong relationships are particularly valuable; and c) that social agendas harmoniously developed in accordance to specific business-related areas of knowledge allow firms to build advanced sustainability-competencies that can be applied to the management of specific social-environmental challenges that in turn reinforce their competitive position.

This study offers several contributions to existing literature. We both complement and extend the debate on sustainable entrepreneurship and innovation by considering both the motivations and the evolution of strategic behaviours at the same time, whereas previous studies focused on these elements separately. First, we highlight that firms that pursue sustainability for different motivations have different incentives to adopt sustainable practices and will therefore end up adopting different strategies, tools and activities due to their different economic potential. Second, by considering strategic motivations and the evolution of the attitude towards sustainability together, we were able to integrate the moral-based and the business-based perspectives on the involvement of business in sustainability agendas with the literature on the posture towards sustainable development. Third, we extended this literature by analysing an alternative model of the attitude towards sustainability that is not developmental. Fourth, by focusing on the effect of the strategic objectives of sustainability strategies on the evolution of the sustainability posture, we identified the interactions between these two elements. Overall, we offer a holistic and comprehensive view on the strategic approaches to sustainable development.

## **References**

- Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). Putting the S Back in Corporate Social Responsibility: A Multilevel Theory of Social Change in Organizations. *Academy of Management Review*, 32(3), 836–863. doi:10.5465/AMR.2007.25275678
- Arrow, K. (1962). Economic welfare and the allocation of resources for invention. In R. Nelson, *The rate and direction of inventive activity* (pp. 609–925). Princeton: Princeton University Press.
- Atkinson, G. (2000). Measuring Corporate Sustainability. *Journal of Environmental Planning and Management*, 43(2), 235–252. doi:10.1080/09640560010694
- Bansal, P. (2005). Evolving Sustainably: A Longitudinal Study of Corporate Sustainable Development. *Strategic Management Journal*, 26(3), 197–218. doi:10.1002/smj.441
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Benn, S., Dunphy, D., & Griffiths, A. (2014a). *Organizational Change for Corporate Sustainability*. Routledge.
- Benn, S., Dunphy, D., & Griffiths, A. (2014b). *Organizational Change for Corporate Sustainability*. Routledge.
- Bos-Brouwers, H. E. J. (2010). Corporate sustainability and innovation in SMEs: evidence of themes and activities in practice. *Business Strategy and the Environment*, 19(7), 417–435.
- Brundtland, G. (1987). *World Commission on Environment and Development, Our Common Future*. New York, Oxford University Press.
- Buysse, K., & Verbeke, A. (2003). Proactive Environmental Strategies: A Stakeholder Management Perspective. *Strategic Management Journal*, 24(5), 453. doi:10.1002/smj.299
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4(4), 497–505.
- Christmann, P. (2000). Effects of “best Practices” of Environmental Management on Cost Advantage: The Role of Complementary Assets. *Academy of Management Journal*, 43(4), 663–680.
- Clarkson, M. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review*, 20(1), 92–117.
- Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing*, 22(1), 29–49.
- Côté, R., Booth, A., & Louis, B. (2006). Eco-efficiency and SMEs in Nova Scotia, Canada. *Journal of Cleaner Production*, 14(6–7), 542–550.

- Davis, K., & Blomstrom, R. L. (1971). *Business, society, and environment: Social power and social response* (Vol. 71). McGraw-Hill New York.
- Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22(1), 50–76.
- Devinney, T. M. (2009). Is the Socially Responsible Corporation a Myth? The Good, the Bad, and the Ugly of Corporate Social Responsibility. *The Academy of Management Perspectives*, 23(2), 44–56.
- Doppelt, B. (2009). *Leading Change Toward Sustainability-: A Change-Management Guide for Business, Government and Civil Society*. Greenleaf Publishing. Retrieved from [http://books.google.it/books?hl=it&lr=&id=WsLnXeAURVsC&oi=fnd&pg=PP1&dq=Doppelt,+B.+\(2003\).+Leading+Change+Toward+Sustainability&ots=0UwQoRH84\\_&sig=92i3rBC88bNQNT\\_kg01s8QLz0UY](http://books.google.it/books?hl=it&lr=&id=WsLnXeAURVsC&oi=fnd&pg=PP1&dq=Doppelt,+B.+(2003).+Leading+Change+Toward+Sustainability&ots=0UwQoRH84_&sig=92i3rBC88bNQNT_kg01s8QLz0UY)
- Drucker, P. (1984). The new meaning of corporate social responsibility. *California Management Review*, 26, 53–63.
- Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment*, 11(2), 130–141.
- Elkington, J. (1997). Cannibals with forks. *The Triple Bottom Line of 21st Century*. Retrieved from [http://pdf-release.net/external/242064/pdf-release-dot-net-148\\_en.pdf](http://pdf-release.net/external/242064/pdf-release-dot-net-148_en.pdf)
- Fernández-Viñé, M. B., Gómez-Navarro, T., & Capuz-Rizo, S. F. (2010). Eco-efficiency in the SMEs of Venezuela. Current status and future perspectives. *Journal of Cleaner Production*, 18(8), 736–746.
- Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine*, pp. 122 – 126.
- Garriga, E., & Melé, D. (2004). Corporate Social Responsibility Theories: Mapping the Territory. *Journal of Business Ethics*, 53(1-2), 51–71.
- Guide, V. D. R. (2000). Production planning and control for remanufacturing: industry practice and research needs. *Journal of Operations Management*, 18(4), 467–483.
- Hall, J. (2002). Sustainable development innovation; a research agenda for the next 10 years Editorial for the 10th Anniversary of the Journal of Cleaner Production. *Journal of Cleaner Production*, 10(3), 195–196.

- Hansen, E. G., Grosse-Dunker, F., & Reichwald, R. (2009). Sustainability Innovation Cube — a Framework to Evaluate Sustainability-Oriented Innovations. *International Journal of Innovation Management*, 13(4), 683–713.
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986–1014.
- Hart, S. L. (1997). Beyond Greening: strategies for a sustainable world. *Harvard Business Review*.
- Hart, S. L., & Milstein, M. B. (1999). Global Sustainability and the Creative Destruction of Industries. *Sloan Management Review*, 41(1), 23–33.
- Hart, S. L., & Milstein, M. B. (2003). Creating sustainable value. *The Academy of Management Executive*, 17(2), 56–67.
- Hockerts, K. (2003). *Sustainability innovations: ecological and social entrepreneurship and the management of antagonistic assets*. University St. Gallen, Difo, Bamberg.
- Hockerts, K. (2007). *Managerial perceptions of the business case for corporate social responsibility*. CBS Center for Corporate Social Responsibility. Retrieved from <http://openarchive.cbs.dk/handle/10398/7117>
- Hockerts, K., Morsing, M., Eder-Hansen, J., Krull, P., Midttun, A., Halme, M., ... Nurmi, P. (2008). *CSR-driven innovation: towards the social purpose business*. Center for Corporate Social Responsibility, CBS. Retrieved from [http://samfundsansvar.dk/file/318859/csr\\_driven\\_innovation\\_towards\\_social\\_purpose\\_business\\_september\\_2008.pdf](http://samfundsansvar.dk/file/318859/csr_driven_innovation_towards_social_purpose_business_september_2008.pdf)
- Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, 25(5), 481–492.
- Jawahar, I. M., & McLaughlin, G. L. (2001). Toward a descriptive stakeholder theory: An organizational life cycle approach. *Academy of Management Review*, 26(3), 397–414.
- Jones, T. M., Felps, W., & Bigley, G. A. (2007). Ethical theory and stakeholder-related decisions: The role of stakeholder culture. *Academy of Management Review*, 32(1), 137–155.
- Joyner, B. E., & Payne, D. (2002). Evolution and implementation: a study of values, business ethics and corporate social responsibility. *Journal of Business Ethics*, 41(4), 297–311.
- Kearins, K., Collins, E., & Tregidga, H. (2010). Beyond Corporate Environmental Management to a Consideration of Nature in Visionary Small Enterprise. *Business & Society*, 49(3), 512–547.
- King, A., & Lenox, M. (2002). Exploring the locus of profitable pollution reduction. *Management Science*, 48(2), 289–299.

- Klewitz, J., & Hansen, E. G. (2014). Sustainability-oriented innovation of SMEs: a systematic review. *Journal of Cleaner Production*, *65*, 57–75.
- Lefebvre, É., Lefebvre, L. A., & Talbot, S. (2003). Determinants and impacts of environmental performance in SMEs. *R&D Management*, *33*(3), 263–283.
- Lichtenstein, D. R., Drumwright, M. E., & Braig, B. M. (2004). The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits. *Journal of Marketing*, *68*(4), 16–32.
- Mair, J., Robinson, J., & Hockerts, K. (2006). *Social entrepreneurship*. Palgrave Macmillan New York. Retrieved from [http://www.untag-smd.ac.id/files/Perpustakaan\\_Digital\\_1/ENTREPRENEURSHIP%20Social%20Entrepreneurship%20-%20Palgrave%20Macmillan.pdf](http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/ENTREPRENEURSHIP%20Social%20Entrepreneurship%20-%20Palgrave%20Macmillan.pdf)
- Maon, F., Lindgreen, A., & Swaen, V. (2010). Organizational Stages and Cultural Phases: A Critical Review and a Consolidative Model of Corporate Social Responsibility Development. *International Journal of Management Reviews*, *12*(1), 20–38.
- Matten, D., & Moon, J. (2008). “implicit” and “explicit” Csr: A Conceptual Framework for a Comparative Understanding of Corporate Social Responsibility. *Academy of Management Review*, *33*(2), 404–424.
- McWilliams, A., & Siegel, D. (2001). Corporate Social Responsibility: A Theory of the Firm Perspective. *Academy of Management Review*, *26*(1), 117–127.
- McWilliams, A., Siegel, D. S., & Wright, P. M. (2006). Corporate Social Responsibility: Strategic Implications. *Journal of Management Studies*, *43*(1), 1–18.
- Melnyk, S. A., Sroufe, R. P., & Calantone, R. (2003). Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management*, *21*(3), 329–351.
- Mirvis, P. H. (2000). Transformation at Shell: Commerce and citizenship. *Business and Society Review*, *105*(1), 63–84.
- Mitchell, R. K., Busenitz, L. W., Bird, B., Gaglio, C. M., McMullen, J. S., Morse, E. A., & Smith, J. B. (2007). The central question in entrepreneurial cognition research 2007. *Entrepreneurship Theory and Practice*, *31*(1), 1–27.
- Nag, R., Hambrick, D. C., & Chen, M.-J. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic Management Journal*, *28*(9), 935–955.
- Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why Sustainability is Now the Key Driver to Innovation. (cover story). *Harvard Business Review*, *87*(9), 56–64.

- Noci, G., & Verganti, R. (1999). Managing “green” product innovation in small firms. *R&D Management*, 29(1), 3–15.
- Oliver, C., & Holzinger, I. (2008). The Effectiveness of Strategic Political Management: A Dynamic Capabilities Framework. *Academy of Management Review*, 33(2), 496–520.
- Paech, N. (2007). Directional Certainty in Sustainability-Oriented Innovation Management. In *Innovation towards sustainability* (pp. 121 – 139). Springer.
- Parrish, B. D. (2010). Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing*, 25(5), 510–523.
- Parrish, B. D., & Tilley, F. (2010). Sustainability entrepreneurship : charting a field in emergence. In *Making ecopreneurs : developing sustainable entrepreneurship* (pp. 21 – 41). Farnham: Gower Publishing, Ltd.
- Peng, M. W., Sunny Li Sun, Pinkham, B., & Hao Chen. (2009). The Institution-Based View as a Third Leg for a Strategy Tripod. *Academy of Management Perspectives*, 23(3), 63–81.
- Porter, M. E. (1980). *Competitive strategy* (Vol. 2). New York: The Free Press.
- Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard Business Review*, 86(1), 25–40.
- Porter, M. E., & Kramer, M. R. (2002). The Competitive Advantage of Corporate Philanthropy. *Harvard Business Review*, 80(12), 56–69.
- Porter, M. E., & Kramer, M. R. (2006). Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review*, 84(12), 78–92.
- Porter, M. E., & Kramer, M. R. (2011). Creating Shared Value. *Harvard Business Review*, 89(1/2), 62–77.
- Prahalad, C. K. (2006). The innovation sandbox. *Strategy and Business*, 44, 62.
- Prahalad, C. K. (2009). *The fortune at the bottom of the pyramid, revised and updated 5th anniversary edition: Eradicating poverty through profits*. FT Press. Retrieved from [http://books.google.it/books?hl=it&lr=&id=RPSG4JxAZzYC&oi=fnd&pg=PR5&dq=prahalad+fortune+bottom+pyramid+eradicating+poverty&ots=TVkLDidaOl&sig=dcNOrguaBEDApGZiD0k4i\\_IyFR0](http://books.google.it/books?hl=it&lr=&id=RPSG4JxAZzYC&oi=fnd&pg=PR5&dq=prahalad+fortune+bottom+pyramid+eradicating+poverty&ots=TVkLDidaOl&sig=dcNOrguaBEDApGZiD0k4i_IyFR0)
- Prahalad, C. K., & Hammond, A. (2002). Serving the world’s poor, profitably. *Harvard Business Review*, 80(9), 48–59.
- Roome, N. (1992). Developing environmental management strategies. *Business Strategy and the Environment*, 1(1), 11–24.
- Roome, N. (1994). Business Strategy, R&D Management and Environmental Imperatives. *R&D Management*, 24(1), 065–082.

- Salzmann, O., Ionescu-somers, A., & Steger, U. (2005). The Business Case for Corporate Sustainability:: Literature Review and Research Options. *European Management Journal*, 23(1), 27–36.
- Schaltegger, S. (2002). A Framework for Ecopreneurship. *Greener Management International*, 2002(38), 45–58.
- Schaltegger, S. (2011). Sustainability as a driver for corporate economic success: Consequences for the development of sustainability management control. *Society and Economy*, 33(1), 15–28.
- Schaltegger, S., & Hansen, E. G. (2013). Industry Transformation through Sustainable Entrepreneurship. Examples in the Apparel and Energy Industries. In *McIntosh. The Necessary Transition. The Journey towards the Sustainable Enterprise Economy* (pp. 182 – 197). Sheffield, UK: Greenleaf.
- Schaltegger, S., Ludeke–Freund, F., & Hansen, E. G. (2012). Business cases for sustainability: the role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, 6(2), 95–119.
- Schaltegger, S., & Synnestvedt, T. (2002). The link between “green”and economic success: environmental management as the crucial trigger between environmental and economic performance. *Journal of Environmental Management*, 65(4), 339–346.
- Schaltegger, S., Wagner, M., & others. (2006). *Managing the business case for sustainability*. Sheffield, UK: Greenleaf. Retrieved from <http://hal.archives-ouvertes.fr/hal-00279614/>
- Schaper, M. (2012). *Making ecopreneurs: developing sustainable entrepreneurship*. Gower Publishing, Ltd. Retrieved from <http://books.google.it/books?hl=it&lr=&id=AIRILhGp3yUC&oi=fnd&pg=PR9&dq=developing+sustainable+entrepreneurship+schaper&ots=bFgM3FrdAl&sig=1aAFMWSYdpTMniKNeHxw-Z7KexU>
- Scherer, A. G., & Palazzo, G. (2007). Toward a Political Conception of Corporate Responsibility: Business and Society Seen from a Habermasian Perspective. *Academy of Management Review*, 32(4), 1096–1120.
- Schlange, L. E. (2008). Stakeholder identification in sustainability entrepreneurship: the role of managerial and organisational cognition. *Greener Management International*, (55), 13.
- Seelos, C., & Mair, J. (2007). Profitable Business Models and Market Creation in the Context of Deep Poverty: A Strategic View. *The Academy of Management Perspectives*, 21(4), 49–63.
- Sen, S., & Bhattacharya, C. B. (2001). Does Doing Good Always Lead to Doing Better? Consumer Reactions to Corporate Social Responsibility. *Journal of Marketing Research (JMR)*, 38(2), 225–243.



- Sharma, S., & Henriques, I. (2005). Stakeholder Influences on Sustainability Practices in the Canadian Forest Products Industry. *Strategic Management Journal*, 26(2), 159–180.
- Siegel, D. S. (2009). Green Management Matters Only If It Yields More Green: An Economic/Strategic Perspective. *Academy of Management Perspectives*, 23(3), 5–16.
- Stahl, M. J., & Grigsby, D. W. (1997). *Strategic management: total quality and global competition*. Blackwell Oxford.
- Stocchetti, A. (2012). The Sustainable Firm: from Principles to Practice. *International Journal of Business and Management*, 7(21), p34. doi:10.5539/ijbm.v7n21p34
- United Nations Environment Programme Division of Technology. (2002). *Changing Production Patterns: Learning from the Experience of National Cleaner Production Centres*. UNEP/Earthprint. Retrieved from <http://books.google.com/books?hl=it&lr=&id=hi9PobTwWk0C&oi=fnd&pg=PT7&dq=Changing+Production+Patterns:+Learning+from+the+Experience+of+National+Cleaner+Production+Centres&ots=n6oXonpo96&sig=3qddYUN31FkQY7qDg-xSPHaCT9Y>
- Van Hemel, C., & Cramer, J. (2002). Barriers and stimuli for ecodesign in SMEs. *Journal of Cleaner Production*, 10(5), 439–453.
- Van Marrewijk, M., & Werre, M. (2003). Multiple levels of corporate sustainability. *Journal of Business Ethics*, 44(2-3), 107–119.
- Wagner, M., & Llerena, P. (2008). *Drivers for sustainability-related innovation: A Qualitative analysis of renewable resources, industrial products and travel services*. Bureau d'Economie Théorique et Appliquée, UDS, Strasbourg. Retrieved from <http://www.beta-umr7522.fr/productions/publications/2008/2008-22.pdf>
- Wagner, M., & Schaltegger, S. (2003). Introduction: How Does Sustainability Performance Relate to Business Competitiveness? *Greener Management International*, 2003(44), 5–16.
- Weitzman, M. L. (2009). On Modeling and Interpreting the Economics of Catastrophic Climate Change. *Review of Economics and Statistics*, 91(1), 1–19.
- Wheeler, D., Colbert, B., & Freeman, R. E. (2003). Focusing on value: Reconciling corporate social responsibility, sustainability and a stakeholder approach in a network world. *Journal of General Management*, 28(3), 1–28.
- Whitley, R. (1984). The Fragmented State of Management Studies: Reasons and Consequences. *Journal of Management Studies*, 21(3), 331–348.
- Wilson, I. (1975). What one company is doing about today's demands on business. In *Changing Business–Society Interrelationships* (pp. 121–140). Los Angeles.

## Tables

Table 1: sustainability-driven and sustainability-oriented strategies

	<b>Sustainability-driven strategies</b>	<b>Sustainability-oriented strategies</b>
<b>Goal</b>	Maximizing profits considering the increased relevance of social performance	Pursuing also goals other than profits while staying in economic equilibrium
<b>Strategic rationale</b>	Social-environmental issues have to be pursued when instrumental	Social-environmental issues can be pursued as independent goals
<b>Interests of relevance</b>	Shareholders' wealth	Society's well-being
<b>Attitude</b>	Neutral towards the sustainabilization process	Enhancing the sustainabilization process

Table 2: Developmental and Static models

	<b>Developmental models</b>	<b>Static models</b>
<b>Issues to target</b>	Determined on the basis of their relevance for society	Determined by firm-specific resources, competences and expertise
<b>Sustainability Attitude</b>	Progressively moving towards proactiveness in the promotion of sustainability	Mindful of the strategic relevance of social-environmental challenges
<b>Social impact</b>	Realized by accommodating the expectations of increasingly broad sets of stakeholders groups	Realized by addressing social issues that affect and are affected by business activities

## Figures

Figure 1: Sustainability related innovations. Adapted from Wagner and Llerena (2008).

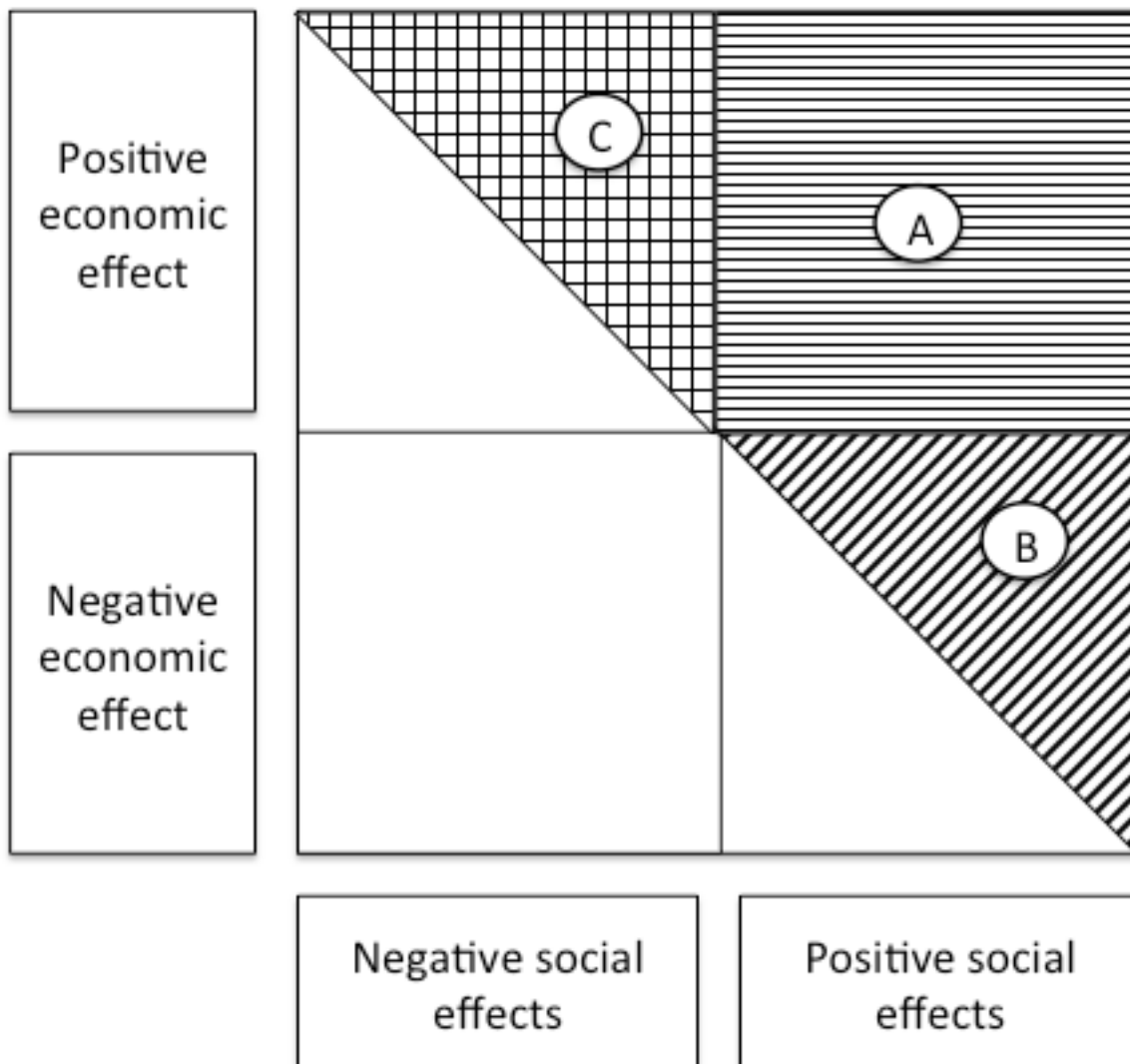


Figure 2: Matrix of strategic approaches to Industrial Sustainabilization

	Sustainability-driven strategies	Sustainability-oriented strategies
Developmental models	<p><b>1</b></p> <p>Sustainability is pursued in order to improve economic performance. More issues are identified on the basis of their importance for relevant stakeholders.</p>	<p><b>3</b></p> <p>Sustainability is pursued as an end-goal. A process of cultural development widens the range of their social-environmental objectives and initiatives over time.</p>
Static models	<p><b>2</b></p> <p>Sustainability is pursued in order to improve economic performance. Issues are identified on the basis of their potential contribution to competitive advantage</p>	<p><b>4</b></p> <p>Social and environmental goals are not prioritized over profitability. Sustainability agendas are harmonically developed in accordance to the business</p>

## **Business models for urban mobility services: developments, features and key success drivers**

**Abstract.** Current individual automobility causes substantial environmental and social problems. Whereas the existing literature and automotive company practices focus on technical improvements, more recent corporate and political developments of mobility services are characterized by an unprecedented experimentation of novel value propositions offered in the market. An in-depth analysis of urban mobility services and their underlying business models is missing.

The aim of this paper is to provide an overview of the business models for novel urban mobility services that have proliferated into the market for the last few years. This article analyzes features of such business models and identifies essential success factors. The analysis shows that sustainability driven business model development has the potential to radically transform the product offers and structure of the automotive industry. The current business model developments underlying carsharing and related mobility services require new value creation networks and production systems with substantial organizational consequences.

**Keywords.** Carsharing, mobility services, urban transportation, automotive, business model, sustainability

## Introduction

The paper provides an overview of the business models for novel online-enabled urban mobility services that have been proliferating in the market in the last few years. We aim at analyzing the basic features of such business models with the purpose of identifying their essential success factors. We also analyze the effects of the proliferation of such mobility services on the sustainability challenges of the automotive industry.

In the last decade the mobility services business arena has witnessed unprecedented experimentation in terms of novel value propositions being launched in the market. Developing a thorough understanding of the features, success factors and sustainability implications of these mobility services is exceptionally relevant for management and sustainability research because of their potentially revolutionary impact on the automotive industry. Scholars indeed have remarked how the paradigm of sustainable development has the potential to radically transform the structure of many industries, particularly the energy-intensive and resource-intensive ones such as automotive (Hart and Milstein, 1999).

We argue that the proliferation of online-enabled mobility services is the ultimate attempt of the industry to evolve under the current technological constraint. Management research has determined that business models, just like products, processes and organizational forms, are object of innovation (Zott, Amit and Massa, 2011). From an evolutionary perspective, innovation processes produce changes in the characteristics of a population over successive generations, generally in the direction of increasing diversity and complexity (Van Marrewijk, 2003). Such phenomenon is evident in any family of products whose features have evolved over time causing the product gamma to broaden and the internal complexity to increase (e.g. mobile phones, cars, computers, etc.). It is our opinion that, in the automotive sector, entrepreneurs and incumbent players are experimenting with new business model configurations in order to deliver value propositions that best fit the changing mobility needs in urban areas.

Several scholars have remarked that the whole automotive industrial structure and automakers' dominant business model are tightly linked to the sector's technological paradigm, which therefore affects the trajectory of business model innovation (e.g. Orsato and Wells, 2007). We argue that, in the absence of a viable technological alternative, such business model experimentation is the ultimate attempt of the industry to evolve under the current technological constraint.

Our investigation is particularly important and original because management research has not examined yet the features, success factors and effects of the introduction of online-enabled mobility services, which is a novel, highly consequential and contemporary phenomenon.

The paper proceeds as follows: in section 2 we describe the core features and most recent developments of the automotive sector, with a particular emphasis on its economic and environmental challenges, the relationship between its technological paradigm and the dominant business model and the novel online-enabled mobility services that are spreading in urban areas; in section 3 we introduce and motivate the appropriateness of the business model framework, of the methodology that we chose and of the research design that we adopted; in section 4 we present our findings, we provide an overview of the key the business models components for online-enabled mobility services and we proceed with the analysis of the key BMs success drivers; finally, we present our conclusions in section 5.

### **Current challenges in the automotive sector and perspective solutions**

Just like the economic relevance of the automotive sector stems from its capacity to create wealth and jobs, its sustainability has global relevance for its capacity to affect communities and the natural environment. Hart and Milstein (1999) argue that sustainability has the potential to radically transform the structure of many industries, as most sectors are still organized according to the rules of a past era, in which raw materials were abundant, energy was cheap and waste was easy to dispose.

Development is sustainable when it happens in a way that does not compromise the ability of future generations to meet their own needs (WCED, 1987); it implies that economic decisions are made considering the social-environmental externalities that the traditional industrial development paradigm has historically ignored. Sustainability also implies an increased awareness of the limitedness of stocks of productive factors. Such limitedness is incompatible with: a) the inefficiency of mature technologies, for which big investments produce only marginal improvements; and b) the established high levels of resource consumption. It is for this reason that sustainable development is a competency destroying paradigmatic shift with the potential of producing important modifications in the characteristics of established business models, especially in industry-intensive and resource-intensive sectors (Hart and Milstein, 1999).

In particular, a sustainable automotive industry can be intended as one that is consistently profitable and able to withstand short-term fluctuations in economic circumstances (economic dimension); that produces goods that do not degrade the environment, are fit for purpose, and are designed for longevity; that does not consume physical resources (environmental dimension); and that creates life-enhancing employment for communities over a long period of time (social dimension) (Wells, 2013). At the moment however, before achieving the conditions for



sustainability, the industry has to face several challenges related to several aspects of vehicle manufacturing, competitive dynamics, consumer behavior and environmental impacts.

At the economic level, the problems of the industry – namely, high capital intensity, overcapacity and thin volatile profits – derive from automakers' dominant BM and the established technological regime for vehicle manufacturing (Wells, 2013). All these aspects are also the major factors affecting the competitive dynamics. On the one hand indeed most car manufacturers operate on business models that share some important characteristics: revenues streams coming from vehicles sale; core competences centered on two fundamental technologies (the internal combustion engine and the all-steel body); the reliance on suppliers for the procurement of components and on networks of distributors for the sale of the vehicles; competitive strategies based on the standardization of non-customer-facing vehicle features and the mass-customization of customer-facing ones. On the other hand the whole scale and pace of contemporary car manufacturing is tightly dependent on the features of the adopted technologies: as the productions of the all-steel body and internal combustion engine require massive up-front investments the whole industry results very capital-intensive and therefore characterized by strong economies of scale. As automakers operate on a revenue model that is based almost completely on revenue flows from the sale of new vehicles, it is crucial for them to achieve the lowest possible production cost – which, given the size of the above-mentioned investments, is minimized at very high output volumes. The necessity to minimize production costs through high volumes of output has also resulted in the accumulation of overcapacity which in turn led to market saturation in most industrialized countries. Such saturation increased the competitive rivalry and it made prices fall and costs levitate (because of the intense product differentiation). In addition, given automakers' reliance on revenues from car sales, it is hard for them to integrate their thinner and thinner margins with other profits flows related to car ownership and use (leasing, servicing, insurance, finance and repair parts). Finally, as lower purchasing prices are also particularly appealing for customers, the sector is locked into a BM based on mass production and fierce price competition.

On the environmental dimension, the industry has severe effects that relate to all the stages of the product life-cycle: production, use and disposal. As the world largest manufacturing sector, the automotive is a major consumer of the global stocks of raw materials (steel, aluminum, plastic, magnesium, rubber and copper) (Wells, 1998). Although such input factor intensity is clearly at odds with the objective of consuming zero physical resources, the bright side is that there is great potential for improvement as most cars are bigger, faster and heavier than they need to be: they can accommodate 5 people although the average occupancy rate is just 1.2; their maximum achievable

speed greatly exceeds the legal limits (not to mention the average traffic speed in urban areas); and also their fuel capacity goes far beyond the length of the average trip (which usually take place in urban areas). The reason of the success of such over-performing general-purpose vehicles derives from their versatility and from the necessity for automakers to reach the high-volumes of sales that minimize the cost of production. The advantage of more versatile cars is that they are easier for manufacturers to sell and easier for customers to resell on the secondary market. The problem of this kind of vehicles is that they use enormous resources for allowing customers to have potential performance levels that they rarely capitalize but for which they actually pay a significant price.

Because of these economic challenges car manufacturing has become a much riskier business in the last couple of decades and the industry was finally forced to undergo a profound restructuring process from the second half of the 1990s in an attempt to improve its overall profitability. In particular automakers adopted a series of strategies for improving their cost structure: the rationalization of the overall production systems through global consolidation and capacity reduction; the containment of platform-specific costs by deriving a larger number of car models from a single platform; and the more deep involvement of suppliers in production activities by using modular assembly strategies.

Although these strategies improved global efficiency and profitability, their beneficial effects are doomed to decrease over time because of the competitive dynamics that push market prices to go down and costs to go up. As soon as today's booming market will become saturated and as soon as the room for improvements in production processes will run out, the necessity of more structural solutions will become impelling. From a business perspective, the problem is that automakers' core competences are built around an unsustainable technological regime. The paradox and greatest challenge for the industry is that the emergence of a new sustainable regime based on different technologies would imply not only for automakers' to re-conceive their competitive position – for example from “manufacturers of cars” to “system integrators” and to “suppliers of mobility” (Firnorn & Müller, 2012; Orsato & Wells, 2007; Wells, 2013) – but it would also imply to call the established power structures into question – as a paradigm based on other technologies would destroy the economic relevance of automakers' current core competences.

Besides the fact that to use resources for creating potentials that are rarely capitalized is a waste per se, general-purpose cars are responsible for unnecessary environmental damages: heavier and faster cars imply augmented fuel consumption and air emissions which are responsible for the 80% of the automotive's environmental impact comes from (Whitelegg, 1993; Wells, 2013). With respect to this last notion, it is worth remarking that the search for zero-emissions technologies is

not just an attempt to improve the overall environmental performance of the sector but it is also an attempt of incumbent players to find a solution that does not change the existing structure of the industry and power relationships (Wells,2013). Ideally, the feasibility of a zero-emissions technology would allow vehicles to be manufactured, sold and used just like they have been so far. The related paradox is that, even in the case such a solution is found, a change in automakers core competences would still be required: since none of today's alternative motive forces can match the energy content of petrol-based fuels, zero-emissions technologies most likely would not be able to adequately deal with the heavy all-steel body that cars currently mount. As a result, also environmental imperatives would result in a competency-destroying paradigmatic shift for the automotive industry.

As the strategies adopted by car manufacturers in the last couple of decades are not going to be decisive for solving the problems of the industry, several scholars have looked at product-service systems (PSS) for potential solutions. A PSS is an “integrated bundle of products and services which aims at creating customer utility and generating value” (Bohem and Thoms, 2013). The emergence of PSS derives from market evolution and from the sophistication of consumer preferences and behavior. As customers were tending to look for more effective ways to satisfy their needs, companies have started offering solutions that are a combination of tangible good content and intangible service content. This kind of offerings has often had quite a revolutionary impact on mature industries as they tend to be delivered through new business models and to facilitate changes in consumption patterns. It is our opinion that the novel online-enabled mobility services under investigation in this paper are an excellent example of such dynamics in the automotive sector.

Academic literature (e.g. Bohem and Thoms, 2013; Tukker, 2004): usually distinguish between three kinds of PSS: product-oriented PSS (where basic services are added to a product that is sold in a traditional manner), use-oriented PSS (where the provider keeps the ownership of the product, takes care of maintenance and then sells its availability through leasing, renting or sharing contracts) and result-oriented PSS (where the provider assumes an obligation to directly deliver a result rather than offering customers a tool to satisfy some need). According to Tukker's (2004) typology, carsharing can be intended as a PSS that is both “product sharing” (a formula that allows different users to sequentially use the product while the provider keeps ownership and maintenance responsibility) and “pay per service unit” (a contract that allows users not to buy the product but rather to pay for the output of the product – in this case mobility – according to the level of use).

Such a kind of PSS has potential for contributing to change in consumption patterns, to restructure the industry and to improve its sustainability (Wells, 2006, 2007).

The change in the conventional ownership structure implies a shift of costs and activities (e.g. maintenance and repair) from users to providers, which creates value for customers. This shift gives PSS providers a strong incentive to internalize the life-cycle costs related to product use. In turn this becomes a reason to design products to be more efficient in the first place and to last longer. From a system perspective, the overall industry makes substantial improvements in terms of resource intensity as shared products are used much more intensively, which implies a substantially lower resource consumption and capital intensity in the system. In addition the necessity to operate PSS efficiently gives a strong incentive to optimize the use of energy and consumables and to adopt strategies that extend the life of capital goods such as recycling, remanufacturing and product-upgrading. In short, PSS have the potential to inspire different technological paradigms with radically lower impacts.

### **Urban Mobility Services**

The scope of the automotive industry is quite large and still broadening, encompassing not only automakers, suppliers and distributors but also all those players operating in the industries that relate to the infrastructure associated with vehicle use, maintenance and end-of-use disposal. Although automakers are the largest economic entities at the core of the automotive field, to focus only on these actors would imply missing the majority of the industry (Nieuwenhuis and Wells, 1997). The boundaries of the sectors are indeed spanning and the weight of players from other industries has been growing substantially due to the increasingly important role played by electronic components, alternative plastics and potential substitutes for the traditional internal combustion engine (Orsato and Wells, 2007). In addition, particularly in the last decade, the emergence of companies that operate as providers (or facilitators) of novel urban mobility services have enriched the industry with players whose competitive position substantially departs from that of “car-sellers” (or even system-integrators) and becomes closer to the notion of “suppliers of mobility” ((Firnkorner & Müller, 2012a).

The proliferation in the last few years of novel urban mobility services (carsharing, carpooling, transportation network companies, etc.) is a phenomenon that has the potential to revolutionize the automotive industry in all the three dimensions of sustainability. Such potential is not due to the fact that these services call the established technological paradigm into question but rather because they offer a new way of conceptualizing mobility, particularly in urban areas.

Carsharing services (CSS) are defined in the literature as systems that involve small to medium fleets of vehicles, available at several stations, to be used and shared by a relatively large group of members (Shaheen et al., 1999). After an initial phase of market-entry and experimentation, the carsharing (CS) market has considerably grown and value propositions have extensively diversified so that now CSS are an established reality in most western markets (Shaheen et al., 2009).

Across the whole range of CSS offerings, it is possible to distinguish two main value propositions ideal-types: the traditional *round-trip* CS model and the emerging *one-way* CS model. While the first one requires users to return a car to the same station where it was originally picked up, the second one allows users to leave it at a different station. While this functionality is of great convenience for users and thus critical for both market growth and the evolution of the industry, it comes at the cost of great operational complexity for CS operators since it hugely complicates the task of car-stocks planning (Jorge and Correia, 2013). The technological developments of the last decades in the areas of wireless service, smartphones and apps allowed CS operators to innovate deeply both their value propositions and their business models so that an increasingly high number of CS variants has been accumulating around the two above-mentioned CSS ideal-types. The most significant innovation of the kind is likely the free-floating CS system which, thanks to GPS-based technologies and mobile applications, allows users to drop off vehicles at any location within a determined geographical area (Firnkorner and Muller, 2012).

Academic research has also investigated and established that CSS have several positive effects on the sustainability of urban transportation in terms of reduced need for parking space (Mitchell et al., 2010) and increased efficiency in vehicles use, as shared cars have higher utilization rates than private ones (Litman, 2000; Schuster et al., 2005). Besides these aspects, research on CSS has focused on a variety of themes such as the history of the development of CSS industry, the feasibility of CS as an alternative travel mode and the impact of the introduction of CSS on urban transportation, car ownership and vehicle usage (Habib et al., 2012).

With respect to the investigation of the factors responsible for a successful introduction of CSS, researchers have analyzed both elements that relate to the quality of the value propositions (which are the determinants of the value that CSS create for their users) and elements affecting the efficiency and feasibility of the business models adopted by CS operators (see table I and table II below). Research has found that CS business models benefit from the existence of some underlying conditions such as: the presence of a wider policy framework reinforcing contextual elements such as reserved parking spaces from the municipality or limitations to private transport use (Catalano et al., 2008; Millard-Ball et al., 2006); the possibility to effectively insure the vehicles (Efthymiou et

al., 2013); the presence of other complementary travel modes like light railway (Stillwater et al., 2009); the degree of concentricity, that is the concentration of destinations and origins at few locations (Li, 2011); and the capability to optimize the stock of vehicles (Jorge and Correia, 2013). On the other hand, some of the factors that are held in high regarded by customers (therefore affecting the quality of CS value propositions) are: the possibility of leaving the vehicle in a location different from the station where it was originally picked up (Efthymiou, 2012); CSS affordability and convenience of use (Lane, 2005); the distance between home/work and the nearest station (Zheng et al., 2009; Costain et al., 2012; Efthymiou et al., 2012); the availability of cars at the stations (Habib et al., 2012; Lorimier and El-Geneidy, 2011); user-friendly reservation processes (Efthymiou et al., 2012); adequate type of cars (Efthymiou et al., 2012).

[INSERT TABLE I HERE]

[INSERT TABLE II HERE]

With respect to the effect of the introduction of CSS on users' car holdings, researchers have consistently reported that CSS tend to reduce the number of vehicles households own (e.g. Celsor and Millard-Ball, 2007; Katzev, 1999; Firnkorn and Muller, 2012; Walb and Loudon, 1986). Although this effect is among the most consistent findings in the whole CS literature, by looking at the results of empirical research, it is possible to notice a strong cross-study variation in terms of magnitude of the effect depending on the region and the time span of the evaluation. Schure et al. (2012) for instance calculated that households using CSS in San Francisco own on average 0.47 cars whilst those not using CSS own 1.22. Similarly, Martin et al. (2010) calculated that the introduction of CSS in North America has reduced vehicle holdings from an average of 0.47 to 0.24 vehicles per household, and they also estimated that for each new shared car that is introduced, between 9 and 13 private cars are removed from the streets. Other studies in the same region show an even higher variance, between roughly 5 and 23 private vehicles removed from the street (Cervero et al., 2005; Lane, 2005; Shaheen et al., 2009; Shaheen et al., 2006; Shaheen and Rodier, 2005). Also studies conducted in Europe report that between the 10% and 60% of CSS users reduce their vehicle holdings after joining a CS program (Baum and Pesch, 1994; Harms and Truffer, 1998; Martin and Shaheen, 2011; Meijkamp et al., 1996).

With respect to the impact of CSS on car usage – usually measured through the vehicle miles traveled indicator (VMT) (i.e. the number of miles traveled by vehicles for a period of 1 year<sup>1</sup>)

---

<sup>1</sup>[http://en.wikipedia.org/wiki/Vehicle\\_miles\\_of\\_travel](http://en.wikipedia.org/wiki/Vehicle_miles_of_travel)

– empirical findings are more fragmented, as the cross-study variation concerns not only the size of the effect but also the sign of the relationship. Studying the first American CS company, Short-Term Auto Rental launched in 1983 in San Francisco, Walb and Loudon (1986) found that the introduction of CSS actually increased the total VMT due to the availability of a new travel mode. In another study also conducted in San Francisco almost 20 years later, Cervero et al. (2003) still found that CSS users had on average higher VMT levels than people not using CSS. Several studies however suggest the opposite, finding that the introduction of CSS usually reduces the total VMT by people (Baum and Pesch, 1994; Celsor and Millard-Ball, 2007; Harms and Truffer, 1998; Martin and Shaheen, 2011; Meijkamp et al., 1996; Shaheen and Rodier, 2005) or that CSS users who do not own a car never drive as much as people who do own one (Sioui et al., 2010).

Looking for an explanation for such mixed results, scholars seem to broadly agree that this cross-study variation may reflect fundamental differences in CSS users' travel habits before the introduction of CSS (Cervero et al., 2003; Cooper et al., 2010; Martin and Shaheen, 2010). In other words, since users adopt CSS as a substitute for other travel modes, having access to a private car prior the introduction of CSS strongly affects the sign of the variation of vehicle usage: more specifically, users who previously did not have access to a personal vehicle tend to increase their car usage due to the availability of a new travel mode. In this sense CSS become a substitute for other travel modes such as public transit, bicycles or walking. On the other hand, for those who had access to a personal car, the opposite effect takes place: as to some extent they get rid of their private vehicle, CSS become a substitute for car ownership, therefore reducing the total car usage of this segment.

The arguments used for explaining why CSS sometimes lead to a reduction of the VMT and sometimes to an increase of car usage introduce the topic of the relationship between CSS and the other travel modes in urban areas. Researchers have extensively documented that many CS users are also frequent public transport users (Cervero, 2003; Shaheen and Rodier, 2005; Burkhardt and Millard-Ball, 2006; Efthymiou et al., 2013) and that CSS are becoming a complementary solution for traveling in urban areas (Shaheen and Wright, 2001; Stillwater et al., 2009). As for the impact of the introduction of CSS on car usage, empirical studies show that also the effect on the usage of other transportation modes can vary.

On the one hand there are studies reporting a neat relationship, either finding that CSS increase the usage of other travel options such as walking, biking, and public transit (e.g. Cooper et al., 2010; Katzev, 1999) or the opposite (e.g. Walb and Loudon, 1986). On the other hand some other studies find mixed and more complex effects. Martin and Shaheen (2011) for instance, while investigating whether or not CSS drive people away from public transit and non-motorized modes,

found that they lead to an overall decline in public transit use but to an increase in travel by walking, bicycling and carpooling. Also Stillwater et al. (2009), finding that CSS usage is positively associated with light-rail availability and negatively with regional-rail availability, argue that CSS and local transit are complementary whilst CSS and regional transit may be substitutes.

### **Recent developments in urban mobility**

A thorough understanding of the evolutionary dynamics of travel modes in urban areas requires an investigation not just of CSS but also of the plethora of new online-enabled transportation services that in the last few years have been emerging in the market. These services, such as Uber X, Lyft, InstantCab and SideCar, are new hybrid forms of transportation that do not fit traditional categorizations (not even that of CS) but that certainly are emerging as a reality that is pushing the industry towards important transformations. Such services are originated and enabled by the same technological advancements in wireless service, smartphones and apps that have brought to the development of new forms of CS, such as the free-floating system. These online-enabled transportation services however are more than just smartphone applications, as the companies that offer them basically perform the same function as a limousine or shuttle dispatch office: arrangement of the transportations and control of the financial transactions.

The fierce reactions of the incumbent providers of transportation services in many major cities across America and Europe are certainly evidence of these revolutionary dynamics that are taking place in the industry. As a result of these protests, the Californian Public Utilities Commission (CPUC), recognizing that these new transportation services do not fit neatly into the conventional understandings of either taxis or limousines, created in September 2013 the category of Transportation Network Companies<sup>2</sup> (TNC) which are defined as “organizations [...] that provide prearranged transportation services for compensation using an online-enabled application or platform to connect passengers with drivers using their personal vehicles”.

The CPUC has concluded that TNCs belong to the category of charter party passenger carriers, as they engage in the transportation of persons by motor vehicle for compensation. Differently from other transportation charter parties belonging to the same category however, TNCs connect passenger to drivers who drive their personal vehicle purchased for a commercial purpose (like limousines, for instance).

On the basis of this notion, it is possible to isolate the elements that distinguish this new form of transportation services from other forms, such as CS or ridesharing (carpooling). As TNCs do not (and for the CPUC they are not even allowed to) directly own the vehicles used for their

---

<sup>2</sup><http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M077/K112/77112285.PDF>



operations, companies like Uber and car2go cannot fit this category. On the other hand, TNCs do not fit ridesharing category either as they not only offer transportation in exchange for compensation (even voluntary donations to the drivers are considerable a form of payment if the company receives a business benefit) but also drivers do not have a common work-related or incidental purpose with their passengers.

Although it is clear that the ruling of the CPUC not necessarily will set the universal standard to be applied in other jurisdictions, it can be considered as evidence of the important shifts that are taking place in the industry and it is also reasonable to assume that it will be used as the basis for further regulatory developments.

## **Methodology**

### **Theoretical framework**

In order to pursue our goal of understanding the factors driving the success of the novel online-enabled mobility services that are currently spreading through the market, we apply the business model framework. We consider this framework to be ideal for our analysis as it considers important aspects that go beyond the basic features of value propositions: it focuses on elements related to value creation and value capture in a network economy (Zott et al. 2010).

The popularity and academic significance of the BM concept is due to its capacity to explain the new business realities that started to spread through the markets since the second half of the 90s: the technological developments of those years, by creating new transactional mechanisms that resulted in new organizational forms and in new ways to create and capture value, had such serious implications for business that traditional constructs could not adequately describe; as a result, the concept of BM emerged as a new unit of analysis, different from traditional constructs such as product, company, network or industrial sector (Zott et al., 2010). The high degree of technological, product and market complexity of today's knowledge-based network-economy forced companies to specialize in narrower and narrower sets of core activities and led value chains to break up and scatter both geographically and organizationally. In the modern economic context, the BM concept explains the processes of value creation and value capture by looking not only at the activities of a focal firm but also at its economic exchanges with other organizations and stakeholders. In so doing, it remarks that the locus of value creation nowadays extends beyond the boundaries of individual firms, as individual companies cannot create value alone but they need to access – with increasingly sophisticated exchange mechanisms – the specialized complementary resources and

capabilities owned by other organizations. By mapping the system of exchanges, a BM describes how a firm is embedded in its ecology of suppliers, partners and customers.

As academic literature on the topic is rather fragmented and developed in different silos, scholars have proposed and used a variety of definitions, which overlap only partially (Zott et al., 2010). Across the studies however, it is possible to isolate the common elements that constitute the undisputed pillars of the construct. A business model can be intended as a way of representing a focal company's value proposition; the system of activities, resources, capabilities and economic exchanges with external parties that are necessary to create and deliver that value propositions; and the cost structure and revenue streams that constitute the financial architecture of the business (Afuah and Tucci, 2001; Seddon et al., 2004; Teece, 2007, 2010; Zott & Amit, 2008, Zott et al. 2010). We use these elements to compose our representation of the business model concept and to structure our analysis (see table III). As a result, the business model for online mobility service will be evaluated on the basis of three components: value proposition; value creation infrastructure; and financial model. The value proposition describes the essential traits of the offerings and the benefits that they bring to users. The value creation infrastructure provides an overview of all that is necessary to create and deliver the product/service offerings: the system of activities, resources, capabilities and economic exchanges with external parties. Finally, the financial model highlights both the way a company monetizes the value it creates for its customers and the cost that it has to bear in order to realize and deliver the value proposition.

[INSERT TABLE III HERE]

As the purpose of our analysis is to isolate the factors that reasonably drive the success of online-enabled mobility services, it is particularly important to clarify the relationship between the concepts of BM, strategy and competitive advantage as they all are interwoven and consonant. At the most general level a strategy can be intended as a series of actions or plans aimed at achieving a particular goal; in a business context this usually means to use resources for creating or strengthening a competitive advantage. Such an advantage can be obtained by companies that deliver more value to their customers (and that are capable to capture more of this value) than would occur if their competitors delivered the same products to the same customers (Mitchell and Coles, 2003). A BM can be intended as a complement of a product market strategy as companies can address the same customer needs by deploying the same product market strategies but using diverse BMs that are differently capable of enhancing such strategies (Christensen, 2001; Mitchell and Coles, 2003; Zott & Amit, 2008). In addition, in management literature the concepts of strategy

and BM tend to highlight different aspects of the value creation/capture process: while the strategy construct tightly relates to those of performance and competitive advantage by emphasizing the competitive dimension and the mechanics of value capture, BMs focus more on the value that product offerings create for customers by emphasizing the role of cooperation between organizations owning complementary assets ( Chesbrough & Rosenbloom, 2002; Magretta, 2002; Mäkinen & Seppänen, 2007; Mansfield & Fourie, 2004 ). As companies can deliver the same value propositions through different BMs, there is strong agreement in the literature that a BM can be source of competitive advantage per se (Casadesus-Masanell & Ricart, 2010; Christensen, 2001; Markides & Charitou, 2004). In addition, as companies can compete through their BMs, these can be object of innovation just like products, technologies and processes (Zott et al. 2010) for capturing the value potential of new technologies that enable new product functionalities and new exchange mechanisms (Bjorkdahl, 2009). Finally a last notion regarding the link between BMs and competitive advantage is that, since competitive advantages tend to erode over time, continuous BM innovation is required for maintaining sustained above average performance (Mitchell and Coles, 2003).

Finally, as in our analysis we also intend to highlight the effects of novel mobility services on the sustainability of the automotive sector, it is the case to briefly remark the importance of BM innovation for the realization of sustainability improvements. On the one hand it has been observed that, for the automobile industry to move away from its structural unsustainable condition, product and process innovation are not long-term solutions and important changes have to happen at the system level (Williams 2006, 2007). Under this perspective, the role of BM innovation is that of promoter and facilitator of shifts towards new and more sustainable consumption patterns through different vehicle-ownership configurations and different producer-customer interaction. On the other hand, purposefully designing novel BMs can also foster sustainability by realizing the economic potential of environmentally-oriented initiatives: to innovate established BM configurations can unlock the “business case drivers” of such activities and improve the profitability of a company through a variety of levers: cost reduction from energy and materials savings; increases of sales and margins; improvement of innovation capabilities; or better stakeholder relationships (Schaltegger et al. 2012).

## **Research Method**

In order to investigate the success factors of online-enabled mobility service operators, we analyze multiple case studies. This methodology is an empirical enquiry investigating “why” and “how” contemporary organizational, social or human phenomena occur in their real-life context (Hartley,

1994; Yin, 2013; Lee, 1999). Following an inductive approach, theory building and the discovery of causal relationships are derived from the observation of phenomena in the context in which they occur (McCutcheon & Meredith, 1993).

Case studies are especially used to study and understand complex, dynamic, atypical, unusual or unfamiliar social processes in their environmental context (Hartley, 1994; McCutcheon & Meredith, 1993; Tharenou, Donohue, Cooper, & others, 2007). The diffusion of online-enabled urban mobility services is a highly dynamic process, as operators are currently experimenting with a wide range of business models variations. Consequently, the application of research case study methodology is particularly appropriate in this kind of unfamiliar situations where new processes for their novelty do not allow statistical comparisons of large sample data (Hartley, 1994; McCutcheon & Meredith, 1993). Under these conditions, cases are helpful to describe and explore a situation, to generate hypotheses and to develop theoretical explanations that can be tested in other settings (Hartley, 1994; McCutcheon & Meredith, 1993; Yin, 2013). The generation of theoretical explanations, which is aimed to isolate the essential generalizable principles of the phenomenon under investigation, follows the aggregation, synthesis and analysis of evidence regarding particular cases (Hartley, 1994).

Our exploratory investigation based on such an inductive approach reduces the risk that cases become “what the researcher wants to find” (Hartley, 1994) as, not having any preexisting theoretical speculation on what factors make carsharing business model successful, we conducted our analysis on the basis of the information that we gathered. In addition, in order to improve reliability and to discern the generalizable principles from the unique feature of individual cases, we analyze multiple cases rather than just a single one.

### **Research design**

As the objective of our investigation is the identification of the success factors of business models for online-enabled urban mobility services, operators’ business model constitutes the unit of analysis of our study (Lee, 1999).

Since inductive theory building starts off as tentative and develops as information is gathered, synthesized and analyzed (Tharenou et al., 2007), we first analyzed the essential features of various online-enabled urban mobility services with the purpose of extrapolating their essential business model structure. As a result of this activity, we came to the conclusion that organizations providing such mobility solutions can be distinguished between carsharing operators and transportation network companies on the basis of their value propositions, value creation infrastructures and revenue models. Due to the high degree of heterogeneity, we discarded the

possibility of conducting one comprehensive monolithic analysis of transportation network companies and carsharing operators together as this would have a negative impact on the establishment of correct cause-and-effect relationships (internal validity) and on the generalizability (external validity) of findings and conclusions. Therefore, in order to produce valid and reliable inferences and to conduct proper cross-case analysis, we decided to treat the two groups separately (Yin, 2013). However, due to their novelty, transportation network companies business models are still involved in a process of consolidation and their essential traits (e.g. value propositions) present a high degree of variation. This situation, together with a lack of existing literature investigating this kind of organizations, seriously limits the possibility of deriving valid and reliable theoretical insights from cross-study analysis (Sommer & Sommer, 1991; Tharenou et al., 2007). Under these conditions, we decided to proceed with the investigation of business models' success factors only for carsharing operators.

Carsharing is a less recent type of mobility service that, despite still presenting a certain degree of business model variation, has already gone through a consolidation process that narrowed down the possible business model configurations to a limited number of alternative options. In addition, carsharing has already been the object of several studies that could provide us with important background that we could use as a reference point to draw our interpretations and analysis. Our strategy for selecting the companies was aimed at obtaining the maximum possible variation in terms of business model's features while maintaining the sample of case studies manageable. As the inference of causal relationships in case studies methodology requires a particular emphasis on the context in which the phenomenon occurs (Lee, 1999; Tharenou et al., 2007), we selected companies operating in the same country (although not necessarily exclusively). Among the possible countries, we opted for Germany for a series of reasons. Besides offering an homogeneous context, carsharing services are particularly diffused and promoted in Germany, where even Deutsch Bahn (the national railway operator) has set up its own carsharing company (Flinkster) as a way to fulfill its strategic objective of offering an integrated system of mobility solutions to provide full door-to-door transportation. Consistently, Germany has been the context in which several study on carsharing were set (Firnkor, 2012; Firnkorn & Müller, 2012; Loose, Mohr, & Nobis, 2006). We are confident that a sample of multiple cases, built in a way that maximizes features' variance using multiple sources allows us to identify both special features of individual cases as well as more general principles common to several cases (Hartley, 1994; Sommer & Sommer, 1991; Tharenou et al., 2007). Consequently, we reconstructed the business models of 10 carsharing operators from publicly available information retrieved from multiple sources such as websites, reports, previous studies and news from various kinds of e-magazines and

social media accounts. We then analyzed the collected data in order to extract information on business models.

Our investigation has an exploratory nature and uses an inductive approach to formulate theory on the basis of aggregated and synthesized information. On the one hand, if this reduces the risk that cases become “what the researcher wants to find” (Hartley, 1994) – therefore increasing the internal validity of our analysis - on the other hand, it exposes us to the risk of projection. This is the risk that researcher’s interpretations are biased by his/her preexisting cognitive structure, values and assumptions, therefore resulting in wrongly attributed cause-and-effect relationships (Neck, Godwin, & Spencer, 1996). In order to mitigate the risk of projection and to increase internal validity, it is possible to make reference to the literature and to involve more than one researcher in the identification of analogies and dissimilarities (Tharenou et al., 2007). Consequently, the authors have cross-tested their analysis through critical brainstorming aimed at identifying possible biases. In addition, extensive reference to the literature has been made.

## **Findings and analysis**

### **Transportation Network Companies and Carsharing operators**

The BM framework is a powerful tool for capturing how companies conduct their business. Our analysis focuses on three key BM components: value proposition, that refers to the essential features of the service and to the value that these create for customers; value creation and infrastructure, that refers to all the competences, asset, capabilities, resources and partnership that are necessary to create the value proposition; and financial model, that refers to both revenue streams and cost structure of the company. According to these three components, we find that online-enabled mobility services can be distinguished between Transportation Network Companies (TNC) and Carsharing Service (CSS) providers. In the next table we report the essential traits of a comparative analysis.

[INSERT TABLE IV HERE]

In terms of value proposition, CSS operators offer a hybrid mobility service that can be conceptualized as taxis without taxi-drivers. Users benefit from advantages deriving from both private and public transportation. First, carsharing allows users to reduce several kinds of costs: with respect to a privately owned vehicle that runs less than 10-16 km per year, the cost of each trip is cheaper for shared vehicles. In addition, by paying-as-they-go, users have a clear understanding of the cost of driving; for privately owned vehicles, the perception of the actual cost of each trip is

biased as it is usually associated with the mere cost of fuel, therefore neglecting fixed costs such as car purchase, maintenance, insurance and taxes. Second, as CSS operators' employees take care of maintenance and cleaning, users always drive vehicles in optimal conditions without spending time for taking care of such aspects. Users are also spared from other time-consuming activities such as renewing the insurance policy or paying administrative taxes. With respect to public transportation, users can enjoy both the intimacy of personal driving and the flexibility of door-to-door trips. Finally, through the offering of CSS providers, users can also access the car model that best matches each kind of trip.

The value proposition of TNC can be differentiated into two ideal types: high-end chauffeuring and ride-sharing. High-end chauffeuring provides services that are similar to taxis' but the transportation experience is enhanced because of the higher quality (e.g. better vehicles, added services) for which consumers pay a price premium. By sharing a ride with non-professional drivers, online-enabled ride-sharing offers passenger the possibility to commute for low prices (or even voluntary donations). Although the lower fares are compensated from the lack of any particular quality standard, operators tend to emphasize the social dimension of this kind of services: in the process of reaching their destination, drivers and passenger meet new people, socialize and broadly speaking enjoy a pleasant transportation experience.

In terms of value creation infrastructure, CSS operators have to deal with a high degree of operational complexity. First, decisions regarding the identification of the optimal fleet size and assortment depend on many variables related to the specificities of the urban areas where the service is offered and on the features of the value proposition (e.g. free-floating versus fixed stations system). Second, profitability is strongly affected by the ability of the operator to manage effectively the operational costs related to car use and maintenance (fuel, repair, insurance, etc.). Third the creation of value for carsharing users requires operators to establish strategic partnerships with other organizations such as providers of other complementary transportation services (other CSS operators, car rental companies, public transport, train, etc.) and with local authorities, businesses or even private citizens for the arrangement of parking agreements. Finally, CSS operators need to be capable of economically disposing of the vehicles that no longer can be part of the fleet (re-sale, recycling, remanufacturing, etc.).

TNCs, by performing a function similar to that limousine dispatch office, create value in a substantially different way. TNCs essentially connect passengers to drivers who drive their personal vehicle purchased either for commercial purposes (e.g. limousines) – in the case of high-end chauffeuring – or for personal ones – in the case of ride-sharing. The functions carried out by TNCs relate to the arrangement of the transportations and to the control of financial transactions.

Depending on the kind of value proposition they offer, they may have to perform additional activities such as background check of the professional drivers; due to the novelty of these services however, the regulatory regimes and the typical operational tasks are still to be defined. In any case, by not directly owning the vehicles used for their operations, TNCs are spared the operational complexity related to fleet management that CSS operators have to face.

Regarding the financial model, CSS operators' earnings come from several revenue streams. The first source of income is the price users pay for using the vehicles plus the various entry, monthly or annual fees for subscription. Second, operators belonging to a group that provides also other transportation services (like Flinkster and Deutsche Bahn) have the opportunity to obtain revenues from the cross-selling of other services. Third, CSS operators can obtain earnings from margins on all the costs that are connected to vehicle use such as insurance, maintenance, fuel etc. Lastly, revenues can also come from the sale of the vehicles to be dismissed from the fleet. About costs, the most important investment for CSS operators is that necessary to assemble the fleet. In addition, there are operating costs linked to vehicles (fuel, maintenance, insurance, service teams, etc.) and to the set-up and maintenance of supporting systems like software platforms, customer service, etc.

Not having a proprietary fleet, TNCs on the other hand do not bear all the fleet-related costs that CSS operators have. They however sustain operational expenses for setting-up and maintain software platforms and customers services and, depending on the regulatory regime, they might also have to invest resource for insuring the vehicles, for conducting background checks on the drivers or for other sorts of obligations. In terms of revenue streams, the essential source of income comes from a share of the price that passengers pay to the drivers plus entry, annual or monthly fees.

### **Summary of the cases**

For the purpose of understanding the essential features of the BMs adopted by CS operators and in order to identify recurring configurations as well as discontinuities (i.e. innovations) of specific providers, we analyze 10 German providers: Cambio, Stadtmobil, Einfach mobil Carsharing, Greenwheels, DeutscheBahn-Flinkster, Citroën-Multicity, Volkswagen-Quicar, BMWDriveNow, Daimler-Car2go and Citecar.

Cambio CarSharing was founded in 2000 as a merger of three carsharing companies and developed since then through a series of acquisitions that made it one of three largest carsharing companies in Germany. The Cambio group provides more than 1,500 vehicles to over 50 thousands customers at 500 stations across Germany (15 cities), Belgium (27 cities) and Ireland (Dublin and Cork) – where it is present since 2008 with the brand GoCar.



Formed in 1999, Stadtmobil is the largest car sharing organization of the Bundesverband CarSharing (the German association of carsharing operators) with 1,800 cars, 800 stations in 140 cities and 38,000 users. The group grew through a series of mergers and it now includes seven regional companies that share brand, marketing, website, reservation system, software development and car-access technology, while maintaining a certain autonomy regarding tariffs. Stadtmobil also cooperates with Cambio and other carsharing operators for allowing users to cross-book cars at other companies' stations.

Einfach mobil Carsharing is a small operator offering 97 vehicles at 47 stations across 3 cities in Germany (Gießen, Kassel and Marburg). However, by cooperating with Flinkster (Deutsche-Bahn), the company also grants its users the possibility to access shared cars in the rest of the country.

Greenwheels was founded in 1995 in Rotterdam and it is present in 27 cities in Germany. It is the largest carsharing operator in the Netherlands with 1,700 vehicles in 100 cities. Until March 2013, Greenwheels UK also offered its carsharing solution to the London's boroughs of Lambeth and Wandsworth due to the little number of users. Greenwheels' offering is designed to fit the narrow and congested urban streets and its fleet is constituted by Volkswagen, Toyota and Peugeot compact cars, station wagons and vans.

DriveNow is a carsharing service that was initiated in 2011 as a joint venture between BMW and the car rental company, Sixt. It began in Munich and now operates in Berlin, Hamburg, Dusseldorf, Cologne, Vienna and San Francisco. It operates over 2,350 cars that include a variety of gasoline, diesel and electric powered BMW cars. In the US, all the cars offered are electric.

Flinkster is the carsharing company of Deutsche-Bahn, the German national railway and logistics operator, and it is accessed through the booking engine of another subsidiary called DB Rent. This carsharing scheme has 3,600 cars available across 800 stations that cover over 200 towns and cities across Germany

Multicity was launched in 2011 by French automaker, Citroen. Together with its sister company Peugeot, they are making available throughout Europe battery-electric vehicles called C-Zero. The vehicles are charged with electricity from 100% renewable energy sources.

Car2go is the carsharing service of Daimler AG. It was initiated in 2008 in Germany but now in 2014, they operate over 12,000 gasoline and electric powered vehicles in 17 cities across Europe and 16 cities across North America with over 850,000 customers.

Quicar is a car-sharing service of Volkswagen that was launched in 2011 in Hanover, offering residents access to 200 short-term rental vehicles across 50 locations.

Citeecar is a community carsharing service founded in 2012 that is currently active in four cities in Germany. It is a startup that plans to open in more cities in Germany and then further in other locations in Europe. Cars are offered by organizations or citizens that allow customers to book and pay for these vehicles online.

### **Carsharing business models' features**

With respect to the essential typologies of CSS offered, we find that only few of the operators we analyzed adopt a free-floating system (car2go, Multicity, DriveNow). Most operators instead require that users bring the rented vehicle to some fixed station (Cambio, Einfach mobil Carsharing, Greenwheels, Flinkster, Quicar, CiteeCar, Stadtmobil). Interestingly enough, we also find that some operators experiment some sort of hybrid forms: in addition to the normal CSS, two operators differentiate their offering by giving users also the possibility of renting a vehicle for higher number of hours, a service that is quite similar to the traditional short-term car rental (Greenwheels, Quicar); some others offer also carpooling options while users rent vehicles (DriveNow, car2go).

Regarding the fleet, we find that some operators make available to users a broad range of car models (Cambio, Stadtmobil, Einfach mobil Carsharing, Flinkster) whilst others use just one or few models (car2go, Multicity, Quicar, DriveNow, Greenwheels, CiteeCar). In general, fleets are quite efficient as certified by various prizes and certifications (Cambio, Stadtmobil, Einfach mobil Carsharing, Quicar). Most operators also try to control fuel consumption by intensively communicating to users how to use as least fuel as possible and/or by installing ad hoc equipment (Cambio, Stadtmobil, Einfach mobil Carsharing, Flinkster, DriveNow, Car2go). In general, all operators have specific service teams for taking care of cleaning, maintenance and refueling (although usually users are also allowed to take care of the latter if necessary).

As of the pricing scheme, all operators charge either entry, yearly or monthly fees. With respect to the pay-per-use price, it can either be fixed – usually a price per minute or hour, depending on the minimum rental period (Multicity, car2go, CiteeCar) – or it can vary according to a series of parameters like car model, time of the day, travelled distance and the fact that the car is parked or driven (Cambio, Stadtmobil, Einfach mobil Carsharing, Greenwheels, Flinkster, DriveNow, Quicar). Some operators also apply an extra fee if the car is taken from or directed to specific destinations, like airports (DriveNow, car2go).

We find that CSS providers either operate in a great number of cities (Cambio, Stadtmobil, Greenwheels, Flinkster) or in just few selected ones (Einfach mobil Carsharing, Multicity, Quicar, DriveNow, CiteeCar, Car2go). Although all operators provide a 24 hours access to their vehicles,

most of them impose a minimum rental period (Cambio, Stadtmobil, Einfach mobil Carsharing, Flinkster, Quicar, CiteeCar), whilst only few apply no restriction of the kind (Car2go, Multicity).

With respect to partnerships, all operators extensively team up with a variety of other organizations. We identify three kinds of partnerships: partnerships with other providers of mobility services like other car sharing operators, short-term car rental, public transportation, bike rental etc. (Cambio, Stadtmobil, Einfach mobil Carsharing, Greenwheels, Flinkster, Multicity, DriveNow, Car2go, CiteeCar); partnership with providers of supporting services like booking systems, TLC network operators, gas stations, vehicle repair shops and any organizations that offers parking space (Cambio, Stadtmobil, Einfach mobil Carsharing, Greenwheels, Flinkster, Quicar, DriveNow, Car2go, CiteeCar); partnerships with NGOs addressing some social or environmental issue (Cambio, Flinkster, Quicar).

As of the way CSS providers reach their users, we find that all the operators interact with their customers by heavily using ICTs such as mobile applications, websites and call centers for providing information or for registration and booking services. Some operators seek various kinds of input from customers, be it suggestions over parking spaces (Einfach mobil Carsharing, Quicar, CiteeCar) other car models to include in the fleet (Einfach mobil Carsharing) or novel payment scheme (CiteeCar).

About vehicle insurance, all operators apply deductibles for inducing responsible driving behavior and most of them give their users the possibility to choose between a variety of insurance packages with reduced deductibles and a yearly fee (Flinkster, Cambio, Greenwheels, Stadtmobil, Einfach mobil Carsharing, Quicar, DriveNow, CiteeCar).

We also find that 4 CSS providers are connected to car manufacturing corporations (Citroën-Multicity, Volkswagen-Quicar, BMWDriveNow, Daimler-Car2go), 1 to the German national railway operator (Deutsche-Bahn Flinkster) while the rest originally started off as carsharing companies.

[INSERT TABLE V HERE]

[INSERT TABLE VI HERE]

### **Business model's success factors for carsharing operators**

In section 3 we highlighted the factors that previous research on CSS has either associated with higher benefits for users (see table I) or identified as strategic for running effective operations (see

table II). We use these elements as the starting point for our analysis aimed at the identification of the key success factors of the BMs for CSS operators.

Regarding CSS value proposition typologies, as already explained in the section dedicated to the review of the literature on CSS, the two basic ideal types are round-trip and one-way. Research and market evidence show that users have a strong preference for the latter, particularly when it comes in the form of free-floating: by allowing (almost) door-to-door trips, users can experience levels of flexibility that more closely resemble those achievable through direct car-ownership. Although potentially it creates more value for customers, this typology does not necessarily imply a competitive advantage in terms of operational effectiveness and performance, as it hugely complicates the task of balancing car stocks at stations. As a result, in order to capitalize the benefit stemming from the additional customer value, CS operators need to have adequate advanced planning capabilities for dealing with such complexity.

Additionally, as users value convenience of use, to put limitations such as a minimum rental duration (or imposing that users pay for multiple of 30 minutes) – although it may increase CSS operators' margins – would reduce the flexibility of the service and therefore the value created for customers.

With respect to the possibility of picking up other CSS users for the purpose of sharing the cost of the trip, although it may create value for the most price-sensitive segments, this option may not be relevant for users who consider the intimacy of private transportation particularly important; in addition, it may also cannibalize some revenues.

Finally, the last element distinguishing CS various value propositions is the number of car models users can choose from. Users would definitely benefit from the availability of several vehicle options as it would allow them to pick the car that best suits the specificity of each trip (the opposite of what happens with general-purpose vehicles). As a result, it may be possible that CSS operators with a broader fleet gamma could have a competitive advantage over those that offer only one car model. However, it has also to be considered that, if operators apply complicated pricing schemes that differentiate tariffs on the basis of car models, users could get confused about the actual cost of the service. In addition, CSS operators using fleets made of just one car model could achieve some economies and leverage on some synergies, for example for car maintenance and repair parts. As a result, it is risky to attempt predictions on what kind of fleet may be more beneficial for CSS operators. Based on these assumptions, it may be reasonable to think of a market that consolidates on one-model-fleet CSS operators each of which provides an offering that address a specific kind of trip (e.g. an operator with a fleet composed of only one model of compact cars for urban commuting, another operator offering only one model of roadster for social occasions,

another one with only station-wagons for family trips, etc.) so that competition is reduced and operational synergies could be achieved.

With respect to the success factors that relate to the value creation components of the BM, it is particularly interesting to consider whether or not car manufacturer providing CSS may have a competitive advantage. Surely an automaker would have a cost advantage in terms of the initial investment in the fleet and in terms of car replacements. The extent of such an advantage however depends on the relative weight of such savings on the overall performance.

As remarked in the literature review section, the notion of joint value creation is central in all BM literature as – in today’s knowledge-economy – companies have specialized competencies and need to cooperate with other actors in order to create and deliver their value propositions. Consequently, being good at establishing strategic partnership is a key success factor also in the CS business. Particularly, it seems that two kinds of cooperation are particularly important for CSS operators. The first kind refers to partnership with providers of other complementary transportation services. This is because, despite whatever level of flexibility CSS operators might achieve, they will not be able to reach the level of flexibility offered by privately owned vehicles. As a result, in a context in which car ownership is reducing, people satisfy their need of mobility in urban areas through a variety of integrated mobility services (e.g. CS, public transportation, short-term car rental, taxi, train, etc.). The second kind of strategic cooperation refers to partnership with companies that can enhance CSS operators’ operational costs (e.g. petrol stations, car maintenance), operational effectiveness (e.g. data transmission) and user experience (e.g. technological equipment and IT booking system). Consequently, the ability of effectively integrating into a transportation ecology and the related support infrastructure can be definitely considered as a key success driver.

Looking at the revenue model, CSS operators have to consider carefully some aspects related to the pricing strategy. The pricing scheme indeed should be sophisticated enough to reach users’ reserve price (in order to maximize profits) but not so complex that it results confusing. Another crucial element relates to the transparency of the price users pay with respect to the opacity of vehicle ownership: as customers tend to underestimate the cost of trips done with private cars, CSS operators would definitely benefit from a pricing strategy that adequately deals with such psychological bias of price perception. Finally, for CSS operators it is crucial to cost-effectively insure the vehicles and to use deductibles as an incentive for avoiding vehicle damages.

In sum, our analysis allows to identify several conditions for successful CSS operations:

- [ One-way (and particularly free-floating) CSS can be the most successful value propositions, as long as operators possess the planning capabilities to effectively deal with the additional complexity in car-stock balancing operations.

- [ Flexibility-reducing features such as minimum rental time should be avoided.
- [ Helping users to connect with one another for sharing the cost of the service could cannibalize revenues.
- [ One-model fleets can allow CSS operators to leverage on economies, to achieve synergies and to find a more distinctive strategic position in the market.
- [ Car manufacturers operating in the CS business would have cost advantages related to the initial investment in the fleet and to the car replacements.
- [ Establishing strategic partnership with actors operating complementary transport services or in the supporting infrastructure (car maintenance, petrol companies, etc.) is a crucial success factor
- [ Operators should adopt pricing strategies sophisticated enough to extract the most value from different reserve prices but not so complex that it becomes confusing in the eyes of users; the pricing schemes should also deal properly with users' price perception biases.

A last important consideration regards the interactions between BM's components. Such connections indeed may determine important trade-offs that constrain the possibility to innovate the BM. One example could be the link between the transparency of the pricing scheme and the broadness of car models' gamma that CSS operators can include in their fleet. Vehicles of different size, weight and power necessarily have different operational costs as well as insurance and purchasing costs. Reflecting these cost differences in the pricing scheme would result in more sophisticated but more complex payment methods that would reduce the ability of users to understand the actual cost of their trips. Another relevant example could be the relationship between the breadth of car models' gamma and the provision of free-floating (one-way) CS. As it has been observed, the operational complexity of one-way (and even more that of free-floating CS) is much higher than that of round-trip CS because of the necessity to rebalance the stocks of vehicles when too many accumulate in some particular area or when one of these remains uncovered. As the "fit for purpose" principle advocates that different car models are to be used for different kinds of trips, to provide free-floating CS would require not only to re-balance the number of vehicles that are present in each urban area at any moment in time but also their kind.

## Conclusions

In this paper we examined the sustainability effects of the proliferation of novel urban mobility services. We argued that these services have great potential for the mitigation of the sustainability challenges of the automotive industry and automobility. Moving forward towards a more sustainable mobility requires structural change. On the one hand, a sustainable automotive industry

is profitable, does not consume physical resources, creates employment and produces goods that are fit for purpose and last long (Wells, 2013). On the other hand, sustainable automobility requires reducing the need to travel, adopting different mobility solutions, planning land-use so that distances are reduced and increasing travel efficiency through technological innovations (Banister, 2008). At the same time sunk investments, economic interests and established practices constrain the ability of the regime to change: all in all, established mobility is at the center of dynamic tensions between stability and change (Geels, Kemp, Dudley, & Lyons, 2011). As the technological paradigm on which the automotive industry stands shape its structure and automakers' dominant BM (Orsato and Wells, 2007), we argued that the proliferation of novel urban mobility services is the ultimate attempt of the industry to evolve in the absence of a viable technological alternative.

From this notion we derive that improving our understanding of the competitive dynamics linked to the provision of novel urban mobility service is of paramount importance. Consequently, we provided an overview of the BMs for mobility services offered by CSS operators and TNCs. We analyzed 10 CSS operators in order to identify possible alternative BM configurations. We referred to extant literature on CS for isolating asset, resources, capabilities and relationships that CSS operators need to effectively run their operations as well as the factors that drive value creation for CSS users. From these elements we derived key success factors for operating in the CS business arena.

Our analysis contributes to the conversation on sustainable mobility and to academic literature on CS organizations. We also provide numerous starting points for future research. First, a proper and thorough investigation of the services offered by TNCs is yet to be conducted; it will however require that practices and models consolidate around fewer alternative configurations, as the novel character of these organizations does not make it easy at the moment to understand what works and what does not. Second, we encourage future research to develop and extend our investigation by considering different contextual conditions and larger sample data. Third, a thorough understanding of the competitive dynamics of novel urban mobility services requires building (and testing) theoretical insights regarding the effects of the introduction of these services with pre-existing systems of mobility solutions as well as their ongoing interaction.

## References

- Banister, D., 2008. The sustainable mobility paradigm. *Transport Policy, New Developments in Urban Transportation Planning* 15, 73–80. doi:10.1016/j.tranpol.2007.10.005
- Baum, H.; Pesch, S. Untersuchung der Eignung von Car-Sharing im Hinblick auf die Reduzierung von Stadtverkehrsproblemen (in German); Federal Ministry for Traffic: Bonn, Germany, 1994.
- Barth, M. and Shaheen, S. (2002) Shared-Use Vehicle Systems: Framework for Classifying Carsharing, Station Cars, and Combined Approaches, *Transportation Research Record: Journal of the Transportation Research Board*, 1791, 105-112.
- Burkhardt, J. and Millard-Ball, A. (2006). Who Is Attracted to Carsharing?, *Transportation Research Record: Journal of the Transportation Research Board*, 1986, 98-105.
- Catalano, M., Lo Casto, B. and Migliore, M. (2008). Car sharing demand estimation and urban transport demand modelling using stated preference techniques, *European Transport*, 40, 33-50.
- Celsor, C. and Millard-Ball, A. (2007). Where Does Carsharing Work?: Using Geographic Information Systems to Assess Market Potential, *Transportation Research Record: Journal of the Transportation Research Board*, 1992, 61-69.
- Cervero, R. City CarShare: First-Year Travel Demand Impacts. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2003; pp. 159–166.
- Cervero, R.; Tsai, Y. City CarShare in San Francisco, California: Second-Year Travel Demand and Car Ownership Impacts. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2004; pp. 117–127.
- Cervero, R.; Golub, A.; Nee, B. City CarShare: Longer-Term Travel Demand and Car Ownership Impacts. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2005; pp. 70–80.
- Cooper, G.; Howes, D.; Mye, P. The Missing Link: An Evaluation of CarSharing Portland Inc., Portland, Oregon; Oregon Department of Environmental Quality and CarSharing: Portland, OR, USA, 2000.
- Efthymiou, D., Antoniou, C., & Waddell, P. (2013). Factors affecting the adoption of vehicle sharing systems by young drivers. *Transport Policy*, 29, 64–73. doi:10.1016/j.tranpol.2013.04.009



- Firnkorn, J. and Müller, M. (2011). What will be the environmental effects of new free-floating carsharing systems? The case of car2go in Ulm, *Ecological Economics*, 70(8), 1519-1528.
- Firnkorn, J. (2012). Triangulation of two methods measuring the impacts of a free-floating carsharing system in Germany. *Transportation Research Part A: Policy and Practice*, 46(10), 1654–1672. doi:10.1016/j.tra.2012.08.003
- Firnkorn, J., & Müller, M. (2012). Selling Mobility instead of Cars: New Business Strategies of Automakers and the Impact on Private Vehicle Holding. *Business Strategy & the Environment (John Wiley & Sons, Inc)*, 21(4), 264–280. doi:10.1002/bse.738
- Geels, F.W., Kemp, R., Dudley, G., Lyons, G. (Eds.), 2011. *Automobility in Transition?: A Socio-Technical Analysis of Sustainable Transport*. Routledge, New York.
- Habib, K. M. N., Morency, C., Islam, M. T., & Grasset, V. (2012). Modelling users' behaviour of a carsharing program: Application of a joint hazard and zero inflated dynamic ordered probability model. *Transportation Research Part A: Policy and Practice*, 46(2), 241–254. doi:10.1016/j.tra.2011.09.019
- Harms, S.; Truffer, B. *The Emergence of a Nation-wide Carsharing Co-operative in Switzerland*; Swiss Federal Institute of Aquatic Science and Technology: Dübendorf, Switzerland, 1998.
- Hartley, J. F. (1994). Case studies in organizational research. In C. Cassell & G. Symon (Eds.), *Qualitative methods in organizational research* (pp. 208–229). Newbury Park, CA: Sage Publications.
- Jorge, D., & Correia, G. (2013). Carsharing systems demand estimation and defined operations: a literature review. *European Journal of Transport and Infrastructure Research*, 13(3), 201–220.
- Katzev, R. *CarSharing Portland: Review and Analysis of its First Year*; Oregon Department of Environmental Quality: Portland, OR, USA, 1999
- Katzev, R., 2003. Carsharing: a new approach to urban transportation problem. *Analyses of Social Issues and Public Policies* 3 (1), 65–86.
- Lane, C. (2005). PhillyCarShare: First-Year Social and Mobility Impacts of Car Sharing in Philadelphia, Pennsylvania. *Transportation Research Record: Journal of the Transportation Research Board*, 1927, 158-166.
- Lee, T. W. (1999). *Using Qualitative Methods in Organizational Research*. SAGE Publications.
- Litman, T. (2000). Evaluating Carsharing Benefits, *Transportation Research Record: Journal of the Transportation Research Board*, 1702, 31-35.

- Loose, W., Mohr, M., & Nobis, C. (2006). Assessment of the Future Development of Car Sharing in Germany and Related Opportunities. *Transport Reviews*, 26(3), 365–382. doi:10.1080/01441640500495096
- Martin, E.; Shaheen, S.; Lidicker, J , 2010. The Impact of Carsharing on Household Vehicle Holdings: Results from a North American Shared-Use Vehicle Survey. In *Transportation Research Record: Journal of the Transportation Research Board*; 150–158.
- McCutcheon, D. M., & Meredith, J. R. (1993). Conducting case study research in operations management. *Journal of Operations Management*, 11(3), 239–256. doi:10.1016/0272-6963(93)90002-7
- Meijkamp, R.; Theunissen, R. Carsharing: Consumer Acceptance and Changes in Mobility Behavior. In *Proceedings of the European Transport Conference 1996*, Delft, The Netherlands, 1996.
- Millard-Ball, A., Morray, G., Schure, J.T., 2006. Car-sharing as a parking management strategy. Paper Presented at the 85th Annual Meeting of Transportation Research Board, Washington, DC.
- Neck, C. P., Godwin, J. L., & Spencer, E. S. (1996). Understanding Researcher “Projection” in Interpreting Case Study Data: The South Canyon Fire Tragedy. *The Journal of Applied Behavioral Science*, 32(1), 48–61. doi:10.1177/0021886396321003
- Schuster, T., Byrne, J., Corbett, J. and Schreuder, Y. (2005). Assessing the potential extent of carsharing - A new method and its applications, *Transportation Research Record: Journal of the Transportation Research Board*, 1927, 174-181.
- Shaheen, S.; Cohen, A.; Chung, M. North American Carsharing: A Ten-Year Retrospective. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2009; pp. 35–44.
- Shaheen, S.; Cohen, A.; Roberts, J.D. Carsharing in North America: Market Growth, Current Developments, and Future Potential. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2006; pp 116–124.
- Shaheen, S.; Rodier, C. Travel Effects of a Suburban Commuter Carsharing Service: CarLink Case Study. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2005; pp. 182–188.

- Shaheen, S., Sperling, D. and Wagner, C. (1999). A Short History of Carsharing in the 90's, *Journal of World Transport Policy and Practice*, 5(3), 16-37.
- Shaheen, S.A., Wright, J., 2001. The carlink II pilot program: testing a commuter-based carsharing program. In: 2001 IEEE Intelligent Transportation System Conference Proceedings, Oakland, USA, August 25–29.
- Sommer, B., & Sommer, R. (1991). *A practical guide to behavioral research: Tools and techniques (3rd ed.)* (Vol. xvi). New York, NY, US: Oxford University Press.
- Stillwater, T.; Mokhtarian, P.; Shaheen, S. Carsharing and the Built Environment: Geographic Information System-Based Study of One US Operator. In *Transportation Research Record: Journal of the Transportation Research Board*; Transportation Research Board of the National Academies: Washington, DC, USA, 2009; pp. 27–34.
- Tharenou, P., Donohue, R., Cooper, B., & others. (2007). *Management research methods*. Cambridge University Press New York.
- Walb, C.; Loudon, W. Evaluation of the Short-Term Auto Rental (STAR) Service in San Francisco, CA; US Department of Transportation: Washington, DC, USA, 1986.
- Banister, D. (2008). The sustainable mobility paradigm. *Transport Policy*, 15(2), 73–80. doi:10.1016/j.tranpol.2007.10.005
- Firnkorn, J. (2012). Triangulation of two methods measuring the impacts of a free-floating carsharing system in Germany. *Transportation Research Part A: Policy and Practice*, 46(10), 1654–1672. doi:10.1016/j.tra.2012.08.003
- Firnkorn, J., & Müller, M. (2012a). Selling Mobility instead of Cars: New Business Strategies of Automakers and the Impact on Private Vehicle Holding. *Business Strategy & the Environment (John Wiley & Sons, Inc)*, 21(4), 264–280. doi:10.1002/bse.738
- Firnkorn, J., & Müller, M. (2012b). Selling Mobility instead of Cars: New Business Strategies of Automakers and the Impact on Private Vehicle Holding. *Business Strategy & the Environment (John Wiley & Sons, Inc)*, 21(4), 264–280. doi:10.1002/bse.738
- Geels, F. W., Kemp, R., Dudley, G., & Lyons, G. (Eds.). (2011). *Automobility in Transition?: A Socio-Technical Analysis of Sustainable Transport*. New York: Routledge.
- Hartley, J. F. (1994). Case studies in organizational research. In C. Cassell & G. Symon (Eds.), *Qualitative methods in organizational research* (pp. 208–229). Newbury Park, CA: Sage Publications.
- Lee, T. W. (1999). *Using Qualitative Methods in Organizational Research*. SAGE Publications.

- Loose, W., Mohr, M., & Nobis, C. (2006). Assessment of the Future Development of Car Sharing in Germany and Related Opportunities. *Transport Reviews*, 26(3), 365–382. doi:10.1080/01441640500495096
- McCutcheon, D. M., & Meredith, J. R. (1993). Conducting case study research in operations management. *Journal of Operations Management*, 11(3), 239–256. doi:10.1016/0272-6963(93)90002-7
- Neck, C. P., Godwin, J. L., & Spencer, E. S. (1996). Understanding Researcher “Projection” in Interpreting Case Study Data: The South Canyon Fire Tragedy. *The Journal of Applied Behavioral Science*, 32(1), 48–61. doi:10.1177/0021886396321003
- Orsato, R. J., & Wells, P. (2007). U-turn: the rise and demise of the automobile industry. *Journal of Cleaner Production*, 15(11–12), 994–1006. doi:10.1016/j.jclepro.2006.05.019
- Sommer, B., & Sommer, R. (1991). *A practical guide to behavioral research: Tools and techniques (3rd ed.)* (Vol. xvi). New York, NY, US: Oxford University Press.
- Tharenou, P., Donohue, R., Cooper, B., & others. (2007). *Management research methods*. Cambridge University Press New York. Retrieved from [http://www.langtoninfo.com/web\\_content/9780521694285\\_frontmatter.pdf](http://www.langtoninfo.com/web_content/9780521694285_frontmatter.pdf)
- Wells, P. (2013). Sustainable business models and the automotive industry: A commentary. *IIMB Management Review*, 25(4), 228–239. doi:10.1016/j.iimb.2013.07.001
- Yin, R. K. (2013). *Case Study Research: Design and Methods*. SAGE Publications.

## Tables

Table I: List of factors that increase the value of CS services for customers

Factors increasing the value of CSS for customers	Study
flexibility to return the vehicle to a station different from the one where it was picked up	Efthymiou, 2012
distance between home/work and the nearest station	Zheng et al., 2009 Costain et al., 2012 Efthymiou et al., 2012
size of the stations (as it increases both car usage and availability)	Zheng et al., 2009 Costain et al., 2012
availability of vehicles (particularly at peak hours)	Habib et al., 2012 Lorimier and El-Geneidy, 2011
possibility to return the car without informing the center	Efthymiou, 2012
user-friendly reservation process	Efthymiou, 2012
adequate type of car	Efthymiou, 2012
affordability and convenience of use	Lane, 2005

Table II: List of factors that consolidate the effectiveness of the BM of CS operators

Factors increasing the effectiveness of CS operators BMs	Study
possibility to insure the vehicles	Efthymiou, 2012
support from local policies (for parking spaces or limitations to car use)	Catalano et al., 2008 Millard-Ball et al., 2006
availability of complementary travel modes (e.g. Light-railway)	Stillwater et al., 2009
ability to optimize the vehicles stock: (CS demand and the availability of vehicles mutually affect one another), particularly for one-way CS models	Jorge and Correia, 2013
degree of concentricity (the concentration of destinations and origins at few locations); high concentricity is good for one-way CS system, the opposite for round-trip CS system	Li, 2011

Table III: Business models components

Value proposition	• Characteristics of the offerings and value created for customers
Value creation infrastructure	• System of activities, resources, capabilities and economic exchanges
Financial model	• Revenue streams and cost structure

Table IV: Essential features of the business models of CS operators and TNCs

	CS service providers	Transportation Network Companies
value proposition	<p>CS is a service that is a hybrid between private and public transportation. Shared cars could be conceptualized as taxis without taxi-drivers. The cost of each trip is cheaper for shared vehicles than for privately held ones (unless a private vehicle runs more than 10-16 thousand km per year). Users benefit from a clearer perception of the actual costs of driving. Users do not need to spend time to take care of car maintenance and insurance. Users always drive cars in good conditions. Users can enjoy the intimacy of personal driving. Users can enjoy enhanced flexibility: door-to-door trips; access to different car models that best suit the kind of trip.</p>	<p>Value propositions can be differentiated in two broad sub-ideal types: high-end chauffeuring and ride-sharing.</p> <ol style="list-style-type: none"> <li>1. High-end chauffeuring offerings provide services that are similar to taxi's but the transportation experience is of higher quality (better vehicles, added services, pleasant drivers) for which consumers pay a price premium.</li> <li>2. online-enabled ride-sharing offer passenger the possibility to commute for low prices (or even voluntary donations) by sharing a ride with drivers who are not professionals, whose cars do not have to comply to any particular quality standard; operators tend to emphasize the social dimension of this kind of services: in the process of reaching their destination, drivers and passenger not only share costs but they also meet new people, socialize and broadly speaking have a pleasant experience.</li> </ol>
value creation infrastructure	<p>Finding the optimal size and assortment of the fleet.                      Managing effectively the operational costs related to car use and maintenance (insurance, fuel, repair, etc.).                      Establishing strategic partnerships with providers of complementary transportation services (car rental companies, public transport, train, etc.).                      Establishing relationship with local authorities for preferential treatments (e.g. parking agreements).                      Economically disposing of the vehicles (sale, recycling, remanufacturing, etc.)</p>	<p>TNC perform the same function as a limousine or shuttle dispatch office: arrangement of the transportations and control of the financial transactions. TNCs connect passenger to drivers who drive their personal vehicle purchased for a commercial purpose (like limousines, for instance). TNCs do not directly own the vehicles used for their operations.</p>
financial model	<p>Revenue streams: the price users pay for using the vehicles; entry fees, annual fees, monthly fees and insurance fees; extra-revenues from cross-selling (Deutsche Bahn).                      Costs: fleet purchase, vehicle operational costs (fuel, maintenance and insurance), set-up and maintenance of software platforms.</p>	<p>Revenues come from a share of the price that passengers pay to the drivers plus entry, annual or monthly fees.                      Costs: insurance; set-up and maintenance of the software; background checks of the drivers</p>

Table V: Attributes of the BMs adopted by the CS operators object of our analysis (descriptive statistics)

Attributes				
CS type	Free Floating	3	Fixed Stations	7
Fleet	Various models	5	Few models	5
Control fuel consumption	yes	6		
Emission certification	yes	4		
Pricing scheme	fixed	3	Variable	7
Presence	Extensive	4	Few cities	6
Minimum rental period	yes	6		
partnerships with				
<i>other mobility services</i>	yes	9		
<i>supporting services</i>	yes	10		
<i>NGOs</i>	yes	3		
requesting inputs from users	yes	3		
Automaker	yes	4		
Insurance	various packages	9		

Table VI: Attributes of the BMs adopted by the CS operators object of our analysis

	Attribute	Variants examples
value proposition	CS typology	roundtrip (Cambio), one way (Quicar), free-floating (Car2go, Flinkster)
	Use restriction	totally flexible (car2go), minimum time (Cambio), starts every round half an hour (Stadtmobil), ends every half an hour (Flinkster)
	Fleet	different sizes and brand (Cambio, Stadtmobil, Flinkster) or a unique model (car2go)
	Possibility to bring the car out of the country	yes (Cambio, stadtmobil)
	Possibility to pick up other users to share cost	yes (DriveNow)
Value creation	car manufacturer	no (Cambio, Stadtmobil), yes (car2go)
	Partnerships with complementary transportation services	short-term car rental (Cambio, car2go, DriveNow), public transportation (Cambio, Stadtmobil, Flinkster) Bike sharing (Cambio, DriveNow)
	Partnership with governmental organizations	German Federal Ministry of Transportation (Cambio), municipalities (Stadtmobil)
	Partnerships with other organizations	IT booking system (Cambio, Stadtmobil), technology equipment (Stadtmobil) petrol stations (Stadtmobil, DriveNow), energy companies (Flinkster) car-repairers (Stadtmobil), TLC operators (DriveNow)
	Partnerships with NGOs	Greenpeace (Cambio)
Financial model	Pricing scheme	Customers can chose between various combinations of fees, hourly rate (Cambio, Stadtmobil, Flinkster) and km rate (Stadtmobil, Flinkster) which can vary depending on the car model (Cambio, Stadtmobil), the fact that is day or night (Cambio, Stadtmobil, Flinkster), and the lenght of the trip (cambio, Stadtmobil, Flinkster); additional fees from/to specific locations such as airports (car2go, Drivenow); or the pricing scheme can be fixed (car2go)
	insurance cost	Mandatory insurance fee plus a deductible (Cambio, Flinkster), no insurance fee but higher deductible (Flinkster), higher insurance fee but no deductible.

## Estratto per riassunto della tesi di dottorato

Studente: Michele Pinelli

matricola: 955943

Dottorato: Management

Ciclo: XXVII

**Titolo della tesi:** Three essays on sustainability, strategy and business model innovation

### **Abstract.**

In recent years concerns about the social and environmental consequences of business activities have been escalating and studies of CSR and sustainability is now gaining momentum in both business and academia. This doctoral dissertation aims at investigating the strategic implications of the emergence of the sustainable development paradigm and the state of the art of sustainability research. This thesis includes three essays that touch a variety of aspects related to the topics of sustainable development, strategic management and business model innovation.

The first essay aims a) to assess whether or not top academic management and economics journals have become increasingly interested in these topics; b) to identify the main areas of inquiry that these journals are interested in; and c) to consider the implications of these for academic research in the field. Bibliometric analysis is used to process citation data from 496 papers across 67 journals published over 14 years in order to calculate the variation in the number of published works on sustainability-related topics. We reconstruct the intellectual structure of sustainability research in mainstream journals by using co-citation analysis and bibliometric mapping. We identify the main areas of inquiry with the purpose of clarifying the state of knowledge in the field and how sustainability research in top-tier journals differs from research on this topic that is published elsewhere.

The second essay provides a definition of the term sustainabilization, with which we refer to a process of industrial transformation in the direction of higher levels of sustainability. It is argued that companies do not just passively undergo such a process but, because of its capacity to alter the effectiveness of established business models and the structure of many industries, they will actively adopt strategies to change the course to their advantage. The aim of this paper is to understand and make sense of the strategic alternatives that companies use to impel the sustainabilization process. We review academic literature on the management of social-environmental issues and we find organizations adopt either sustainability-driven or sustainability-oriented strategies, which they implement either according to a developmental or a static model. Combining these two dichotomies, we build a matrix of four different strategic approaches to the process of sustainabilization; such theoretical framework explains how organizational motivations affect and constrain the development of the attitude towards sustainability concerns.



The third essay focuses on the sustainability challenges of the automotive sector. Current individual automobility causes substantial environmental and social problems. Whereas the existing literature and automotive company practices focus on technical improvements, more recent corporate and political developments of mobility services are characterized by an unprecedented experimentation of novel value propositions offered in the market. An in-depth analysis of urban mobility services and their underlying business models is missing. The aim of this paper is to provide an overview of the business models for novel urban mobility services that have proliferated into the market for the last few years. This article analyzes features of such business models and identifies essential success factors. The analysis shows that sustainability driven business model development has the potential to radically transform the product offers and structure of the automotive industry. The current business model developments underlying carsharing and related mobility services require new value creation networks and production systems with substantial organizational consequences.

**Abstract.** Negli ultimi anni la preoccupazione circa le conseguenze socio-ambientali delle attività di business è cresciuta molto. Contemporaneamente lo studio della responsabilità sociale di impresa e dello sviluppo sostenibile sta guadagnandosi un posto sempre più importante all'interno dei circoli accademici e nella politica economica. Questa tesi mira ad investigare le implicazioni strategiche del paradigma dello sviluppo sostenibile e lo stato dell'arte della ricerca accademica sulla sostenibilità. Questa tesi è composta da tre saggi che toccano vari aspetti legati allo sviluppo sostenibile, alla gestione strategica di impresa e all'innovazione dei modelli di business.

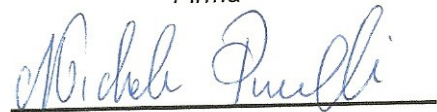
Il primo saggio mira a: valutare se il tema della sostenibilità è diventato di maggior interesse presso le più influenti riviste scientifiche che trattano di temi economici e di business; identificare i principali argomenti affrontati dagli articoli che vengono pubblicate presso tali riviste. Nell'articolo si usa una analisi bibliometrica per processare le citazioni di 496 articoli pubblicati in 67 riviste durante un periodo di 14 anni al fine di calcolare la variazione nel numero di lavori pubblicati su temi legati alla sostenibilità. Successivamente si utilizza l'analisi delle co-citazioni e mappatura bibliometrica per ricostruire la struttura intellettuale della ricerca sulla sostenibilità. Infine si identificano le principali aree di indagine di questo tipo di ricerca al fine di chiarire lo stato del sapere del disciplina e di identificare come la ricerca pubblicate nelle riviste più influente differisce da quella pubblicata altrove.

Il secondo saggio fornisce una definizione del termine sostenibilizzazione, con il quale ci si riferisce ad un processo di trasformazione industriale e aziendale nella direzione di maggiori livelli di sostenibilità. Si suppone che le aziende non si prostrino passivamente a questo processo ma che, a causa della sua capacità di modificare l'efficacia degli attuali modelli di business e di trasformare la struttura dei settori industriali, piuttosto adottino delle strategie volte a modificare l'evoluzione di tale processo in modo da trarne vantaggio. L'obiettivo di questo articolo è di comprendere e dare un senso alle alternative strategiche che le aziende adottano per guidare l'evoluzione del processo di sostenibilizzazione. Analizzando la letteratura accademica sulla gestione delle problematico socio-

ambientali, si scopre che le organizzazioni possono adottare o strategie orientate alla sostenibilità o strategie guidate dalla sostenibilità secondo un modello statico o di sviluppo. La combinazione di queste due dicotomie consente di costruire una matrice di quattro differenti approcci strategici al processo di sostenibilizzazione; il principale contributo di questo quadro teorico è quello di spiegare come differenti motivazioni organizzative possano influire sulla evoluzione dell'attitudine alla sostenibilità.

Il terzo saggio si focalizza sulle sfide che il settore dell'automotive deve affrontare prima di poter diventare sostenibile. Gli attuali modelli di mobilità individuale sono causa di ingenti problemi sociali ed ambientali. Laddove la letteratura esistente e le pratiche delle compagnie automobilistiche si focalizzano su miglioramenti tecnici, i recenti sviluppi politici ed economici dei servizi di mobilità sono caratterizzati da una sperimentazione senza precedenti di nuove proposte di valore. Una analisi approfondita dei servizi di mobilità urbana e dei relativi modelli di business è mancante. L'obiettivo di questo studio è di fornire un quadro dei modelli di business per i nuovi servizi di mobilità urbana, di analizzarne le caratteristiche distintive e di identificarne i fattori critici di successo. L'analisi mostra che l'innovazione di modelli di business guidata dalla sostenibilità ha il potenziale per trasformare in maniera radicale l'offerta e la struttura industriale dell'automotive. Lo sviluppo dei modelli di business per il carsharing e per l'erogazione di altri servizi di mobilità urbana necessita di nuove reti per la creazione di valore e di nuovi sistemi produttivi.

*Firma*



Michele Pirelli