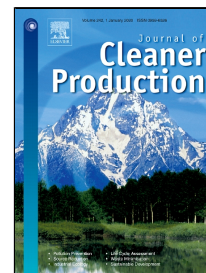


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Organizational capabilities for sustainability towards corporate sustainability benefits: a systematic literature review and an integrative framework proposal

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Organizational capabilities for sustainability towards corporate sustainability benefits: a systematic literature review and an integrative framework proposal

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Organizational capabilities for sustainability towards corporate sustainability benefits: a systematic literature review and an integrative framework proposal

ABSTRACT

This research relates the theme of **corporate** sustainability to organizational capabilities from business strategy. The literature brings initial indications on the contribution of strategic organizational capabilities to corporate sustainability. However, these attempts are still incipient and non-structured. **Thus, in order to explore different organizational capabilities that companies can develop to obtain sustainability benefits, this paper aims to propose an integrative framework that relates strategic organizational capabilities for sustainability and expected corporate sustainability benefits.** For this, a systematic literature review was conducted, based on a paper sample of 88 publications extracted from the ISI Web of Science database. The paper also develops a descriptive overview of the subject, presenting the main gaps and a research agenda. The results showed that corporate sustainability is strongly related to business strategy and the ability of companies to develop specific capabilities. Thus, the understanding from academics and managers on what strategic organizational capabilities (OCs) consists and how they can be developed or improved is fundamental to reaching corporate sustainability. **The paper presents some contributions. First, the integrative framework developed from the literature review comprises seven categories of organizational capabilities for sustainability (OCSs) related to ten categories of corporate sustainability benefits (CSBs). Second, the framework can contribute as a support tool for managers, by providing an explicit guideline on which capabilities that can be developed and/or improved in the organization to achieve a certainly expected sustainability benefit. Third, it is possible to identify OCS and CSB categories that have already been related in the literature and those that need further research. Fourth, the overview of the literature of OCS by bibliometric and cluster analyses allowed a broad understanding of how academics have addressed these themes over the years. Finally, the research agenda developed from the literature review may broaden opportunities for further research on the subject.**

Keywords: Organizational Capabilities, Corporate Sustainability, Corporate Sustainability Benefits.

1. Introduction

The literature has indicated that organizations that take into account the impacts of their actions on the environment and society may achieve economic returns, competitive advantage and better performance (Dangelico et al., 2017; Hofmann et al., 2012; Barnett and Salomon, 2012; Reuter et al., 2010; Orlitzky et al., 2003).

In this scenario, the logic of corporate sustainability has been gaining prominence among companies and researchers have been studying corporate sustainability from a strategic perspective, considering that **organization capabilities** (OCs) developed by

companies can influence it (Amui et al., 2017; Annunziata et al. 2017; Branco and Rodrigues, 2006). OC can be defined as the ability of an organization to perform tasks to achieve desired results by using its available resource base (Helfat and Peteraf, 2003; Winter, 2003; Zollo and Winter, 2002).

The first relevant studies on resources and capabilities from a strategic management perspective are found from the Resource Based View (RBV) (Barney, 2001; Wernerfelt, 1984). The RBV focuses on resources and capabilities to explain the superior performance of some companies to reach a competitive advantage. A relevant contribution of this field is related to the dynamic capabilities approach (DC), presented by Teece et al. (1997) to explain competitive advantage in dynamic markets.

However, the RBV was considered limited since it does not incorporate the external environment. The incorporation of environmental issues into this body of knowledge was pioneered by Hart (1995), who proposed the Natural Resource-Based View of the Firm (NRBV) as a more complete framework when considering the natural resources and environmental problems into RBV. According to Hart (1995), the challenges posed by the natural environment are among the most important factors in the new pattern of resource development and OCs. Hart and Dowell (2011) analyzed that the economic and social environmental challenges raised in the NRBV have multiplied over the years.

In this sense, Annunziata et al. (2017) argue that sustainability-oriented companies should identify and develop specific capabilities rooted in the organization to implement practices that are a source of competitiveness in an increasingly aware and attentive market for sustainability issues. The literature presents several studies that address the OCs related to obtaining strategic benefits for corporate sustainability. For instance, it mentions the use of proactive environmental strategies (Delmas et al., 2011; Fraj Andrés et al., 2013; Peters et al., 2011; Sharma et al., 2007; Sharma and Vredenburg, 1998), successful implementation of environmental management practices and systems (Charan and Murty, 2018; Yu and Ramanathan, 2016; Johnson, 2017), support of corporate social responsibility (Choi et al., 2019; Ramachandran, 2011; Renouard, 2011; Torugsa et al., 2012), and support to the management of the green supply chain (Bowen et al., 2001; Choi and Hwang, 2015; Paulraj, 2011; Peters et al., 2011). In this context, attention to organizational capabilities related to sustainability is essential.

However, although there is a body of knowledge on OCS, there is a recent need for more research in this area. According to Gelhard and Delft (2016), the literature has

been debating about performance in facing economic, social and environmental issues. Nevertheless, the relationship between OC and sustainability benefits remains little explored. For example, Gabler, Richey and Rapp (2015) argue that little is known about how firms determine and use the appropriate resources to maximize the performance of environmental initiatives. Yu and Ramanathan (2016) comment on the need to empirically explore the development of an environmental management capability. Hofmann et al. (2012) also stated that little is known about how strategic firm-specific capabilities may facilitate the adoption of sustainability initiatives. In particular, the present research addresses Amui et al. (2017) indication towards the opportunity for studies seeking to identify the types of dynamic capabilities that can be developed in order to more effectively overcome the emerging challenges of sustainability. Salim et al. (2019) also recommended how important is further research to expand organization capabilities, especially those responsible for environmental issues.

Thus, since OCS can bring strategic sustainability benefits for companies, and focusing on addressing these research gaps, this study seeks to answer the following research questions: (i) What are the main types of strategic OCS addressed in the literature? (ii) May the OCSs lead to the development of corporate sustainability benefits (CSB), and what would these benefits be? (iii) How strategic OCS and CSB can be linked together to provide an integrative framework? Therefore, this paper performs a systematic literature review (SLR) by providing: (i) an overview of the studies that addressed OCS, (ii) research gaps, and (iii) a research agenda. Based on the main findings, we proposed an integrative framework linking strategic OCS and CSB.

This paper contributes to the academic literature in some ways. First, it advances the knowledge of OCS, since it identifies and maps several strategic sustainability benefits that can be achieved by organizations through the development of OCs. Second, although recently Amui et al. (2017) have conducted a SLR on capabilities for sustainability in order to systematize the available knowledge, identifying the current lack of research on the integration of these themes, the authors did not focus on types of OCSs, nor the relation of OCs with the benefits of corporate sustainability. Salim et al. (2019) also conducted an SLR on organizational capabilities and sustainability, but their focus was on eco-innovation. Thus, this evidence demonstrates the advancement and contribution of this paper concerning the previous literature. Third, the findings may assist firms in improving their strategic OC, especially those responsible for CSB, enhancing sustainability performance consistent with the environmental and social

changes. Finally, the paper allows a better understanding of obtaining different benefits of corporate sustainability through specific capabilities of the company, regarding the business strategy point of view.

This paper is structured as follows: after this introduction, section 2 presents the research methodology. Section 3 presents a general overview on OCS literature. Section 4 presents the integrative framework that relates to OCS with CSB. Section 5 discusses the literature gaps and presents a research agenda. Finally, section 6 presents the conclusions, implications, limitations and directions for further research.

2. Method

The SLR can be defined as a tool to identify, evaluate and interpret available and relevant studies regarding a particular research question (Kitchenham, 2004). The SLR steps adopted in this research are adapted from Tranfield et al. (2003): review planning, conducting the review, and reporting and dissemination (Fig. 1).

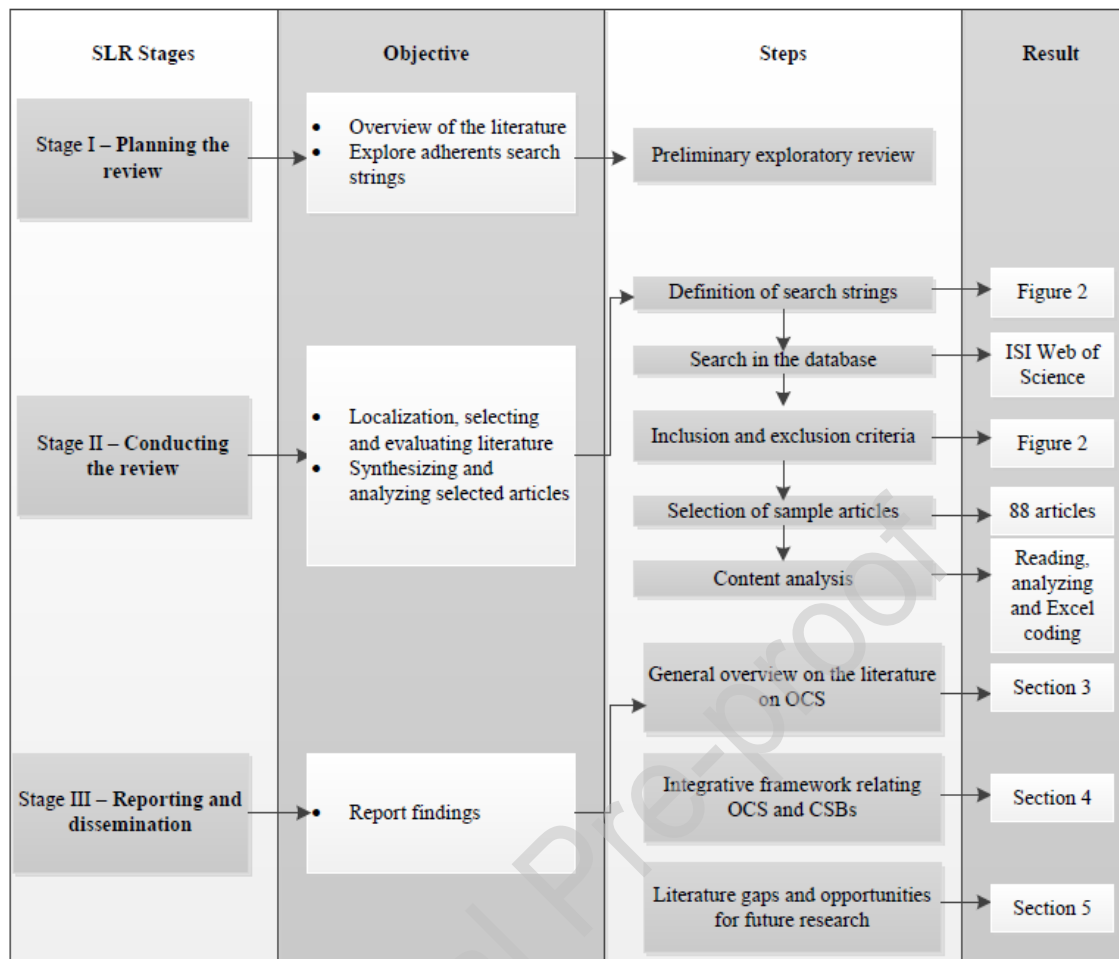
This Figure also describes the main objectives, methods, and tools adopted, as well as where the results were presented in the paper.

Step 1 - Review Planning

Tranfield et al. (2003) argue that it is necessary to carry out studies to evaluate the relevance of the subject to be researched, as well as to delimit the area of study. In this step, we sought to analyze in a preliminary and exploratory way forms by which OCS research topics are being approached by the literature. We searched Google Scholar for papers that studied OC related to sustainability. We noticed that a great number of authors studies these themes, although recently. In this step, we also analyze the main terms adopted by the articles to define the search terms (strings). In this way, an adherent search could be conducted to cover papers that approach the subject.

Step 2 - Conducting the Review

This step comprises stages for defining the portfolio. Tranfield et al. (2003) state that the search strategy should be reported in sufficient detail to ensure that it can be replicated. A search systematization begins with the identification of search strings drawn from the scope of the study and discussions with the group involved with the review (Tranfield et al., 2003).

Fig.1. Descriptive summary of the SLR

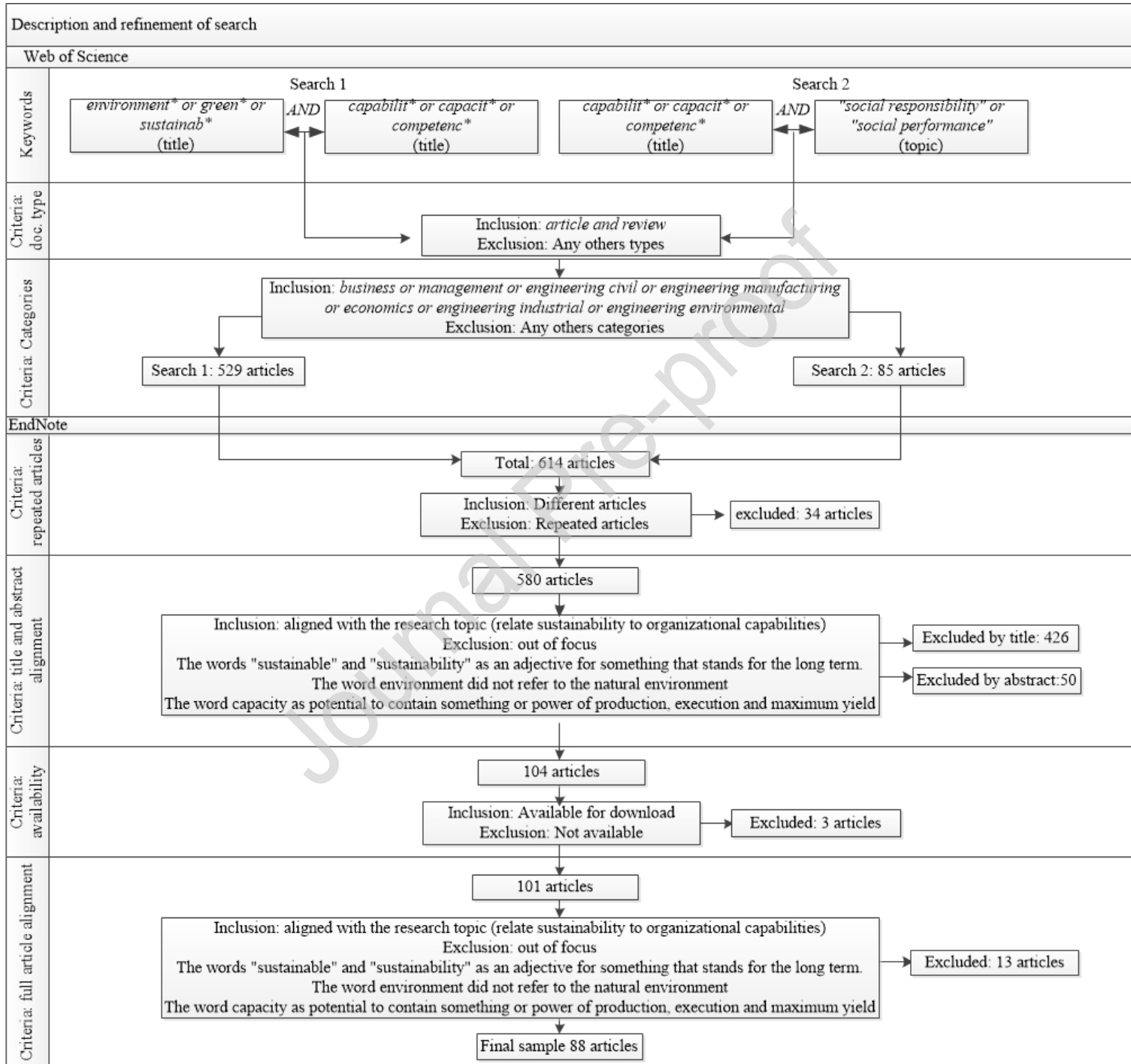
Thus, using the ISI Web of Knowledge (WOS) database in February/2019, **two** searches were carried out contemplating the theme of organizational capabilities (and related terms) and sustainability (and related terms) (Fig. 2). The WOS can be considered one of the most prestigious academic literature databases in the world (Wang and Waltman, 2015).

The first search, named "search 1", had as search strings terms related to capabilities and sustainability (and its synonyms) in order to not lose relevant content. The search was conducted by the "title" on WOS. "Search 1" was complemented by "search 2", which added other search terms considered relevant for the sustainability approach, such as "social performance" and "social responsibility". We also performed this search by "title" on WOS. However, a low number of results were obtained. Therefore, we performed another search but replacing the search for "title" with "topic" in the terms related to sustainability. Fig. 2 summarize these searches.

Then, we began the selection of studies. For that, some analyses were performed as recommended by Ensslin et al. (2017) and Tranfield et al. (2003), aiming at alignment

with the research topic. These analyses were conducted in titles, abstracts, free availability of full articles; and lastly, full alignment of the articles with the research topic. Fig. 2 shows the procedures adopted in all research steps, as well as the inclusion and exclusion criteria adopted.

Fig.2. Research steps



Tranfield et al. (2003) argue that only studies meeting the specified inclusion criteria should be part of the sample. The authors underscore the importance of documenting the numbers of included and excluded studies at each step of the review, providing reasons for the exclusions. At this stage, the software *EndNote* was used to eliminate duplicates, and read titles and summaries of articles. After completing all the steps, the final sample consisted of 88 papers, which are presented in Appendix 1.

For the data extraction stage, Tranfield et al. (2003) argue that researchers should consider the information that will be required to design summary tables and to perform data synthesis. Forms may include details on the source of information (title, authors, journals, and publication details) and any other features that could be relevant to the study. In this research, a spreadsheet was created in MS Excel, fed with information such as title, authors, year, journal, number of citations, objectives, theories, methods, gaps, research opportunities and types of OCs. It was important for assisting the analysis of the studies.

Thus, articles were analyzed by content analysis, which is a highly flexible research method widely used as a systematic and rigorous approach to analyze data obtained or generated during the study (White and Marsh, 2006). According to the authors, content analysis may have qualitative and quantitative applications, or both, as is the case of this paper.

Step 3 - Reporting and dissemination

An appropriate SLR should make it easier to understand the research by synthesizing works (Tranfield et al., 2003). Based on quantitative and descriptive analysis, we sought to obtain an overview of the articles. Thus, we analyzed the evolution in the number of articles over the years, research methods, sustainability pillars, geographical/sectoral arrangements, industrial sectors, countries where empirical studies were developed and journals with the highest number of publications. **Finally, we performed a cluster analysis on the keywords of the sample articles using *VosViewer* software.**

In the qualitative dimension, an inductive analysis was performed. It is recommended when there are no previous studies investigating the phenomenon or when knowledge is fragmented (Elo and Kyngäs, 2008). Thus, this analysis was appropriate for this research since we identified no studies seeking to identify and synthesize types of OCS.

Thus, we sought to identify the different OCs and their relationship to sustainability. There was an extensive number of OCSs in the articles. We also realized that, although authors used different terms, some of such capabilities shared the same definition or were strongly related (see Table 2. General overview of OCSs categories, in Section 4.1). Therefore, it was possible to group them into categories. According to Cavanagh (1997), the creation of categories aims to provide a means of describing the phenomenon, increasing understanding and generation of knowledge.

To formulate categories through analysis of inductive content, it is necessary that the researchers interpret and decide which information should be grouped in the same category (Dey, 1993). The objective is to reduce the number of categories by grouping similar ones, or group different categories into broader categories (Elo and Kyngäs, 2008). In this paper, the OCs that comprise each category do not necessarily have the same meaning but are interrelated since their definitions complement each other.

As warned by Dey (1993), the development of such categories did not occur simply by gathering similar or related information. The OCSs were deeply analyzed as belonging or not to a given category by comparing them with other OCSs that belong or not to that category. Thus, it was possible to define where each OCS was best fitted and which category needed to be formed since no OCS could be placed in a category into which it did not fit. Thus, the OCS identified during the review process were grouped into categories since they have related concepts and definitions (regarding strategic capabilities for sustainability - see Table 2). The related terms adopted by the authors' sample are described in Column 3 of Table 2, allowing an understanding of the inclusion relationship with the category in which each OCS was found.

Since the OCS categories were identified, a similar procedure was performed to identify the expected sustainability benefits related to such capabilities. In this way, we verified that the studies related to OCS sought to investigate, in a general way, whether their development led companies to obtain benefits related to corporate sustainability.

The identification procedure was similar to that used for OCS, that is, some benefits were similar or related. Thus, such benefits have also been grouped into broader categories (Table 4). Each identified benefit was related to the article from which it was extracted. Finally, from these analyses, it was possible to develop an integrative framework that relates strategic organizational capabilities to sustainability and expected corporate sustainability benefits, as well as provide an overview on research gaps and propose a research agenda on the topic.

3. General overview on the literature on organization capabilities for sustainability

Fig. 3 presents the evolution of publications over the years. The first paper related to OCS was published in 1998 (Sharma and Vredenburg, 1998). It is a relevant research since several other authors of this sample cited it (it was the most cited - 786 citations, according to the WOS). This may be an indication that some authors have started researching on this topic from the perspective of Sharma and Vredenburg (1998).

However, the studies are scarce in the following years, with an increase in 2008. The years 2015 to 2019 (the latter year encompasses only two months) indicate that studies on this topic has been intensified, demonstrating the relevance of this theme in the current context.

The articles were published in 45 different journals. Some of these journals have as their main scope topics related to environmental issues, while others have a more general and well-diversified scope, which indicates that different areas are linking their research to the OCS issues. The most significant journal in the sample is the Journal of Cleaner Production, with 16 articles. All journals that had more than two sample articles published have a relevant Journal Citation Reports (JCR), which demonstrates the importance of publications on the subject.

Fig. 3. Evolution of the number of articles over the years.

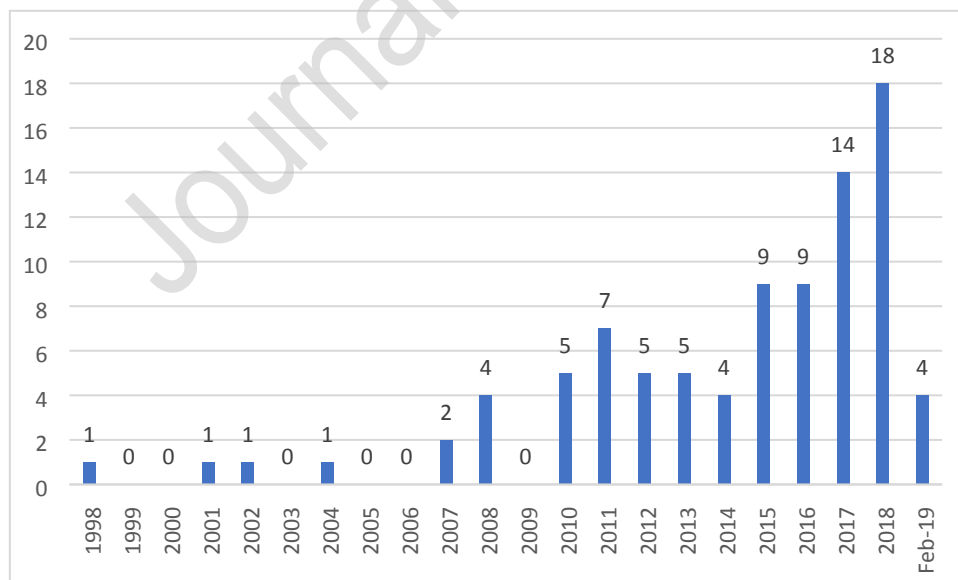


Fig. 4 shows that the research methods favor practical and theoretical approaches. The survey is the most used method, and represents the only type of quantitative approach of the sample. The use of this method has increased over the years (highlighting 2017 and 2018, with the largest number of publications). Regarding theoretical articles, there is a

significant number. This corroborates the fact that it is a subject of recent research and still demands exploitation of knowledge. Most theoretical articles deal with deepening of the study topics, relations between theories, among others. Among the articles with a theoretical approach, only Amui et al. (2017) and Salim et al. (2019) conducted an SLR, and none aimed to develop an integrative framework that related strategic organizational capabilities to sustainability and expected corporate sustainability benefits, which confirms the importance of this study.

However, there are only 13 among 88 articles using a qualitative approach (Fig. 4). Among case studies, 3 of them have a longitudinal approach. It is not explicit whether there is a tendency in using this method over time. However, from 2008, the case study has been used over the following years, which demonstrates the validity of this method within this research theme. Finally, only two papers adopted mixed methods.

Fig. 4. Evolution of methods over the years

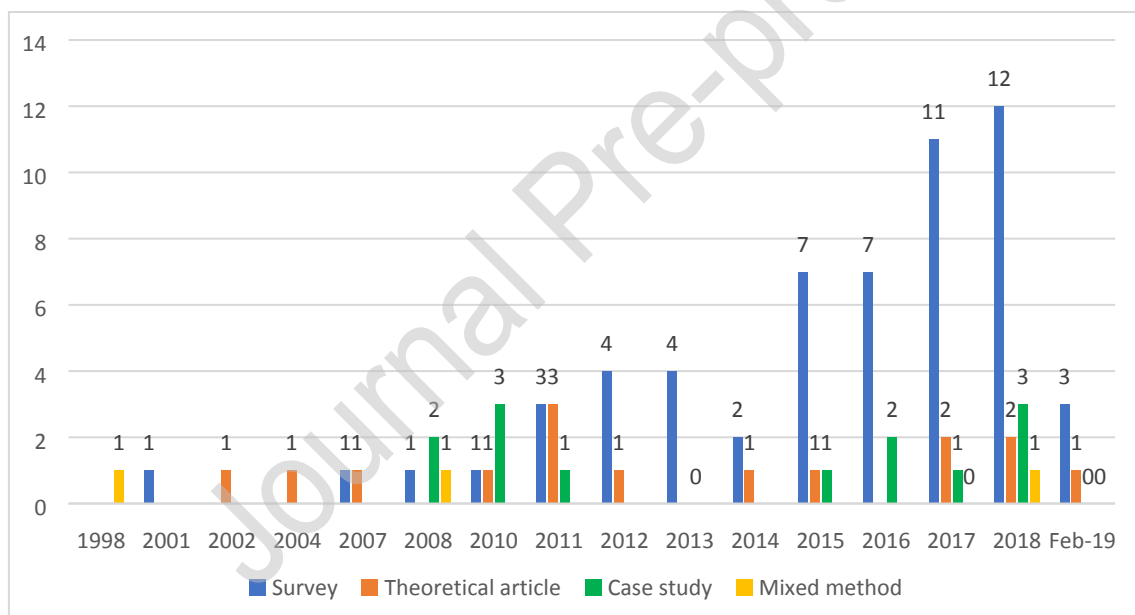
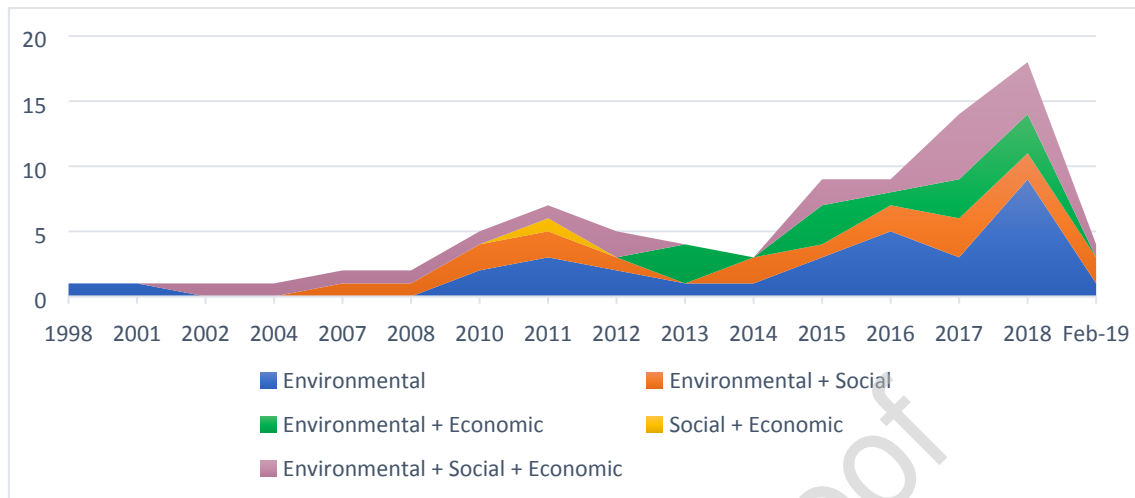


Fig. 5 shows the sustainability pillars as discussed over the years. The environmental pillar is the strongest, and was studied mainly in isolation. However, there are articles contemplating the environmental pillar together with other pillars (social or economic, or both). The social pillar, separated from the environmental pillar, was the least explored, and only the article of Ramachandran (2011) was found. It should be noted that the economic pillar, although not used as a search string (since it is not part of the scope of this paper), is still evidenced from 2008. This is justified because many papers

dealing with some pillar of sustainability (environmental or social) usually relate this analysis to the economic question.

Fig. 5. Evolution of sustainability pillars over the years



In relation to the sustainability pillar, we found that most studies dealing with the environmental pillar in conjunction with other pillars still have a major focus on the environmental pillar. In this sense, most capabilities studied are related to the environmental pillar, which is why the findings of this research are focused mainly on this pillar.

Fig. 6 shows business arrangement where the studies were conducted. Most articles studied the context of individual firms, often identifying the industry of which the companies were a part. A low number of studies did not identify this sector. A considerable part of the works analyzed OCSs from the point of view of supply chains and, to a small extent, in the context of multinationals. The study of OCSs in the context of industrial clusters was conducted by only one research. This can be explained by Galdeano-Gómez et al. (2008), who argued that most studies have examined environmental capabilities internally, leaving aside the moderating role of business environment characteristics (e.g., spillover effects) and the cooperation between organizations through clustering for the implementation of sustainable initiatives.

Some studies focused on small and medium enterprises (SMEs), which is interesting, since there are particularities in these companies such as reduced capital, centralization of functions, among others, that hinder the development of OCSs. Deepening studies focusing on this subject are still relevant since it is still scarce.

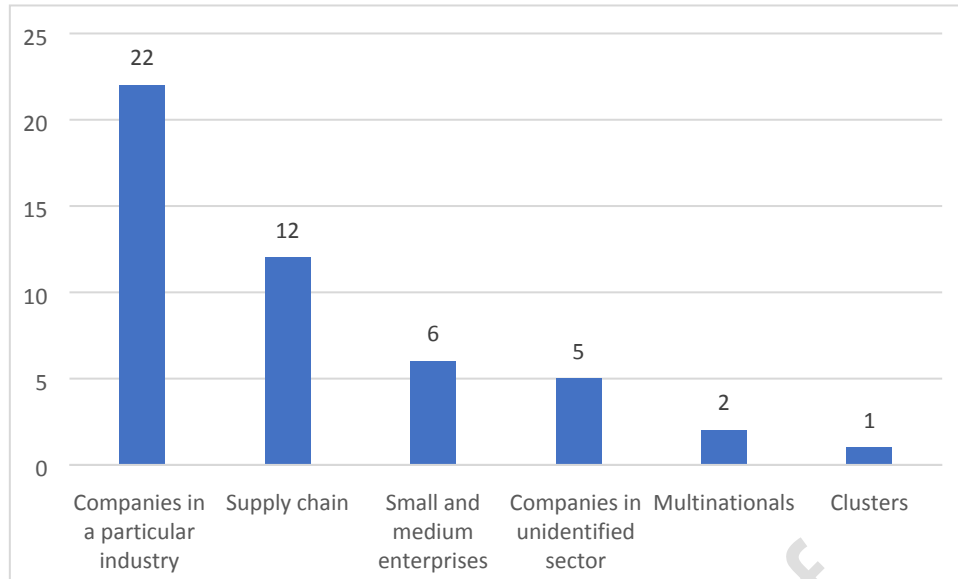
Fig. 6. Business arrangement

Table 1 shows the industrial sectors in which empirical research was developed. The manufacturing sector is the most representative, followed by chemical industries, construction industry and food industry/agri-food. Although there are more studies focusing on industrial sector, the service sector, specifically hotels and resorts, comes in third place. A wide variety of sectors aside those where environmental impacts are clearer (e.g., manufacturing, chemical industry, construction and industrial wastes) were also addressed (such as technology and services). This indicates that sustainability has been receiving attention by all business sectors.

Table 1. Industrial sector studied in articles in the portfolio

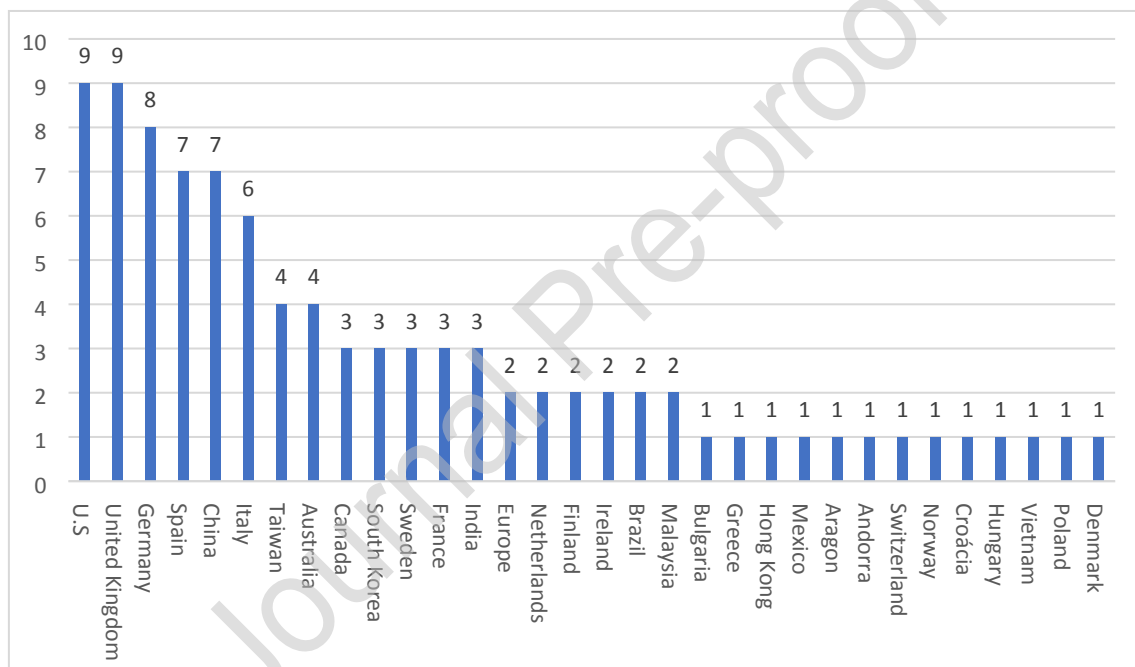
Industrial sector	Number of articles in the portfolio
Manufacturing industry	20
Chemical industry; Construction industry; Food industry / agri-food	5
Hotels / resorts; Textile industry; Automobile/automotive components industry; Sector of services not specified;	4
Technology sector; energy sector	3
Electronics industry; Transport	2
Oil and gas industry; Plastic industry; Tourism; Port industry; Pharmaceutical industry; Industry of production and processing of metals; Public companies; Industrial waste	1

Fig. 7 shows the geographical distribution of the countries where the empirical research was carried out, with a global interest in the subject. Countries with advanced economies, such as the US, followed by the UK and Germany, have a greater number of

studies. In addition, it can be observed that most researches were conducted in developed economies. Some have been conducted in developing economies such as China and Malaysia. China is the country with the largest CO₂ emissions in the world. It is often the object of study in sustainability-related studies. This fact is evident in the sample since China appears in fifth place.

Finally, among the 88 articles, few studies developed an empirical study in more than one country. Sharma et al. (2007), Judge and Elenkov (2005), Luzzini et al. (2015), Sarpin et al. (2016), Behnam et al. (2018) and Betts et al. (2018) are some examples. Since cross-country research is more difficult to perform, studies focusing on this aspect are still rare.

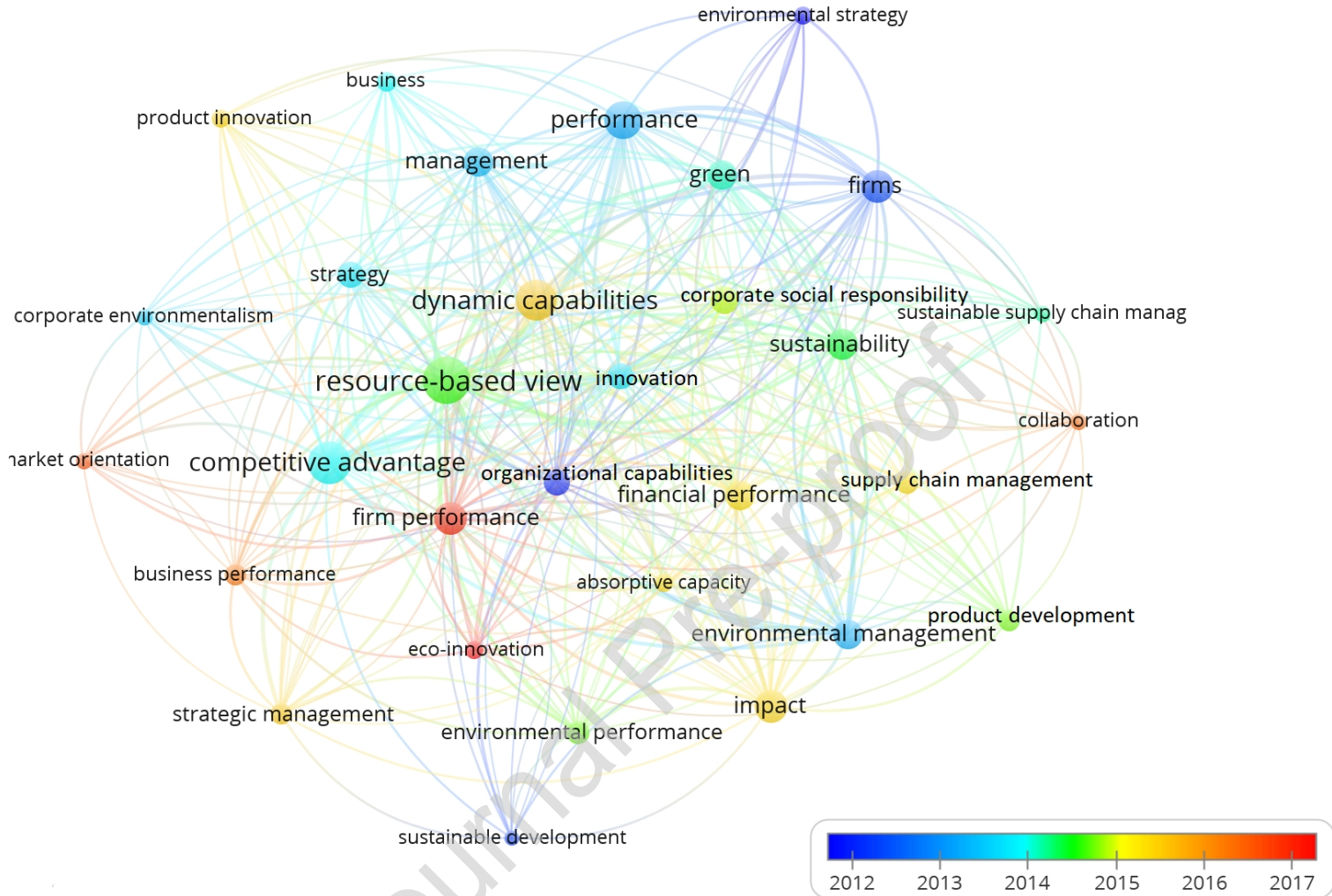
Fig. 7.Countries of empirical studies



Lastly, Fig. 8 shows the co-occurrence of keywords over time. There is a total of 36 words with a minimum occurrence of 5 times. It is observed that the most outstanding words are “competitive advantage”, “resource-based view” and “dynamic capabilities” and these have a greater incidence in the time interval from 2014 to 2016. As can be seen from Fig. 8, the most recent themes within this subject are “firm performance”, “eco-innovation”, “market orientation” and “collaboration”. In general, it can be analyzed that the keywords are very interrelated with each other and with the area of business strategy and corporate sustainability. For example, we identified terms with different approaches to (i) performance (financial performance, business performance, environmental performance), (ii) strategy (strategic management, environmental strategy), (iii)

competitive advantage and those related terms, and, (iv) sustainability (such as green, environmental management, corporate social performance, among others).

Fig. 8. Keywords co-occurrence overlay



Finally, it is important to highlight that although these are not themes that are directly related to the themes of this research, we identified the incidence of terms related to innovation (eco-innovation, product innovation, product development) and terms related to supply chains, which is indicative that these themes are close to organizational capabilities and corporate sustainability.

4. Integrative framework relating strategic organizational capabilities for sustainability and expected corporate sustainability benefits

The present Section provides a qualitative and deep analysis of the paper's sample. Content analysis techniques were conducted from which OCSs were identified (Section 4.2), as well as their relations to corporate sustainability (Section 4.2).

4.1. Organizational capabilities for sustainability (OCS)

As described in section 2, the OCSs were grouped into categories. These categories allow synthesizing the literature that addresses this research topic, thus helping in the understanding and operationalization of the constructs. Seven OCSs categories were created: capabilities related to collaborative relationships for sustainability (OCS1), capabilities related to the absorption of knowledge/learning about sustainability (OCS2), capabilities related to innovation/technology for sustainability (OCS3), capabilities related to alignment/motivation for sustainability (OCS4), capabilities related to marketing/external communication for sustainability (OCS5), capabilities related to flexibility/adaptation on sustainable issues (OCS6), and capabilities related to the management of sustainable operations (OCS7).

Table 2 presents the OCS categories, followed by a general definition assigned to each one. Since the similar and related capabilities that compose each category received different nomenclatures, the column 3 of Table 2 presents the terms of capabilities that comprise each category. Finally, column 4 presents the respective references that applied those terms.

Table 2. General overview of OCSs categories.

OCS categories	Definition	Related terms	References
Capabilities related to collaborative relationships for sustainability (OCS1)	Ability to cooperate with other companies and other stakeholders to jointly address sustainability challenges.	Ability to collaborate; Inter-firm relations; Relational capability; relationship building; capability for collective action; Integration with stakeholders (Customers, suppliers); Ability to integrate with external resources; cultural context; supply chain integration	(Choi and Hwang, 2015; Hofmann et al., 2012; Hoof and Thiell, 2014; Luzzini et al., 2015; Renouard, 2011; Sharma et al., 2007; Spekkink, 2015; (Bowen et al., 2001; Dangelico et al., 2017, 2013; Gelhard and von Delft, 2016; Lee and Klassen, 2008; Leonidou et al., 2013; Peters et al., 2011; Sharma and Vredenburg, 1998; Torugsa et al., 2012; Woo et al., 2016; Worley et al., 2010; Annunziata et al., 2017; Grewatsch and Kleindienst, 2017; Scarpellini et al., 2017; Watson et al., 2017; Behnam, Cagliano and Grijalvo, 2018; Hong et al., 2018; Melander, 2018; Liu et al., 2018; Choi et al., 2019; Kumar et al., 2018; Chen and Kitsis, (2017)
Capabilities related to the absorption of knowledge / learning about sustainability (OCS2)	Ability to acquire knowledge (from internal and external sources) related to processes and practices that may improve sustainable results	Absorption capability; external knowledge links; acquisition of knowledge and skills; acquisition of technical know-how; learning capability; knowledge assessment	(Beske, 2012; Beske et al., 2014; Chen, 2008; Dangelico et al., 2013; Delmas et al., 2011; Fraj Andrés et al., 2013; Johnson, 2017; Ketata et al., 2014; Kim et al., 2015; Pinkse et al., 2010; Sharma and Vredenburg, 1998; Upstill-Goddard et al., 2016; Xie et al., 2016; Chang, 2017 Charan and Murty, 2018; Grewatsch and Kleindienst, 2017; Jiang et al., 2018; Pacheco et al., 2018; Rodriguez and Cunha, 2018; Zhou et al., 2018; Hong et al., 2018; Melander, 2018; Choi et al., 2019; Chen and Kitsis, 2017)

OCS categories	Definition	Related terms	References
Capabilities related to innovation / technology for sustainability (OCS3)	Ability to develop technologies, products and processes aiming sustainability goals.	Capability of Innovation; sustainable innovations; continuous innovations; Predisposition to innovate; R&D capability; technological adoption capability; Technological detection/response capability	(Fraj Andrés et al., 2013; Gabler et al., 2015; Ketata et al., 2014; Wong, 2013; Amores-Salvadó et al., 2015; Chen, 2008; Hofmann et al., 2012; Sharma et al., 2007; Sharma and Vredenburg, 1998; van Kleef and Roome, 2007; Chakrabarty and Wang, 2012; Dangelico et al., 2017; Ko and Liu, 2017; Lai et al., 2015; Leonidou et al., 2013; Annunziata et al., 2017; Cezarino et al., 2018; Fernando et al., 2019; Jiang et al., 2018; Kang and He, 2018; Ramanathan et al., 2017; Rodriguez and Wiengarten, 2016; Hong et al., 2018; Bhattarai et al., 2019)
Capabilities related to alignment / motivation for sustainability (OCS4)	In-house capabilities that create an internal enabling environment to meet the challenges of sustainability within the organization.	Shared vision capability; understanding of environmental issues; employee support; multifunctional integration; support from senior management; capability for training, qualification and motivation; Environmental management capability of the organization; space, commitment and an open-mind to learn about environmental issues; internal communication capability; entrepreneurship; Ability to acquire enough capital to invest in environmental management; Environmental orientation	(Bowen et al., 2001; Fraj Andrés et al., 2013; Gabler et al., 2015; Johnson, 2017; Ketata et al., 2014; Kim et al., 2015; Lee and Klassen, 2008; Leonidou et al., 2013; Paulraj, 2011; Peters et al., 2011; Torugsa et al., 2012; Cezarino et al., 2018; Chang, 2017; Jiang et al., 2018; Kang and He, 2018; Melander, 2018; Chen and Kitsis, 2017)
Capabilities related to marketing / external communication for sustainability (OCS6)	Ability to explore and meet market needs on sustainable issues.	Marketing capability; Ability to communicate and share sustainability information with stakeholders	(Kim et al., 2015; Ko and Liu, 2017; Mariadoss et al., 2011; Wong, 2013; Woo et al., 2016; Yu and Ramanathan, 2016; Grewatsch and Kleindienst, 2017; Hirunyawipada, 2018; Jiang et al., 2018) (Kamboj e Zillur, 2017; Yu, Ramanathan and Nath, 2017; Zhou et al., 2018; Hong et al., 2018; Bhattarai, Kwong and Tasavori, 2019)
Capabilities related to flexibility / adaptation on sustainable issues (OCS5)	Ability to respond adequately and quickly to sustainability challenges	Environmental Adaptability Capability; flexibility capability; resilience capability; organizational capability for change; construction and reconfiguration of resources	(Dangelico et al., 2017; Folke et al., 2002; Gelhard and von Delft, 2016; Ramachandran, 2011; Reuter et al., 2010; Wong, 2013; Eltantawy, 2015; Johnson, 2017; Judge and Elenkov, 2005; Zhou et al., 2018); Hong, at al., 2018; Choi et al., 2019)
Capabilities related to the management of sustainable operations (OCS7)	Ability to tailor the efficiency of operations processes to sustainable issues	Environmental product and process management capability; Echo design capabilities; capability of operations; Process improvement; Ability to integrate with internal resources; Execution capability (integration of resources); sustainable purchasing capability	(Bowen et al., 2001; Dangelico et al., 2017; Lee and Klassen, 2008; Peters et al., 2011; Ramachandran, 2011; Yu and Ramanathan, 2016; Betts et al., 2018; Hirunyawipada, 2018; Yook et al., 2017; Liu et al., 2018)

Table 3 presents the evolution over the years of studies that addressed each of these OCSs. The studies are presented as codes (described in Appendix 1).

Table 3. Evolution of OCSs

	Year																						
OCS	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
OCS1	1			3						13	5		38	34; 30	18; 12	19; 14	27	22;45; 37	41; 42	28; 77; 66; 63; 47; 43	57; 40; 73; 72; 85	87	29
OCS2	1										4		33	17	15	19; 79	8; 31	54	51; 52	50; 70; 66; 77	49; 75; 59; 81; 60; 82;40; 73	87	25
OCS3	1									11; 13	4				18; 29	79; 24; 14	31	36; 39; 48	56	55; 28; 47; 46	59; 40; 88; 80	86; 62	24
OCS4				3							5			30; 9	12	79; 14	31	54; 36		50; 70; 66	59; 88; 80; 73		17
OCS6					2			16					7	35		24			42	28; 50	82; 40	87	11
OCS7				3							5			30; 35					83	28; 67	84; 78; 85		10

The OCS1 are those most frequent within the analyzed paper sample (29 publications in total); OCS6 and OCS7 were those with the lowest number of papers (10 and 11 in total, respectively). It is noticed that the concentration of studies increases between the most recent years. This demonstrates the relevance of the theme in the current context.

It can be seen that OCS1, OCS2 and OCS3 have a larger number of articles that have studied it and are also the pioneers, being first studied in 1998 by Sharma and Vredenburg (1998) and continued to gain relevance over the years. Already COS5 is the most recent, with studies from 2011.

4.2. Relations between organizational capabilities and expected corporate sustainability benefits

Since we identified the OCS categories, we extracted from the papers the expected corporate sustainability benefits related to OCS. Similar to the OCSs, such benefits have also been grouped into categories in order to synthesize knowledge and facilitate the understanding and operationalization of these constructs.

The sustainability benefits related to OCS were grouped into ten categories according to the similarity of their approaches. They are presented in the first column of Table 4 (the studies are presented as codes - see Appendix 1): support for environmental strategy/strategic proactivity (CSB1), sustainable innovation support (CSB2), support for environmental management systems/tools/practices (CSB3), improving the absorption of knowledge on sustainable issues (CSB4), support for corporate social responsibility (CSB5), green supply chain support (CSB6), improving environmental collaboration (CSB7), improving environmental adaptability (CSB8), improving green marketing (CSB9), and improving firm performance (CSB10).

The second column of Table 4 describes in detail these CSB categories and indicates how the literature relates them to the seven categories of OCSs. It can be observed that a large number of studies have addressed OCSs related to CSB10, CSB2 and CSB6. A low number of papers related to CSB8 and CSB4.

Table 4. Corporate sustainability benefits from OCSs

Categories of expected corporate sustainability benefits (CSBs)		OCS Categories						
CSB categories	Benefit Detailing	OCS1	OCS2	OCS3	OCS4	OCS5	OCS6	OCS7
Support for environmental strategy / strategic proactivity (CSB1)	Support environmental strategic proactivity capability	1; 13	17; 79; 1	79; 1; 13				
	Support sustainable strategy		33	55; 88; 80	88; 80			
	Impact on sustainable strategies based on innovation					23		
	Support proactive environmental management capability				79			
Support for sustainable innovation (CSB2)	Support/increase sustainable innovation/clean technologies		52; 21					
	Influence sustainable innovation	57	31	62		68		
	Influence the integration of the environment with the development of new products	19	24		31			
	Influence the performance of green products and process innovation	63	4; 70; 81	4	70			
	Support sustainable product development processes			55				
	Influence green innovation capability and eco-design capability	28					28	
	Support technologies for cleaner production	27						
	Impact on sustainable strategies based on innovation	85				23		85
	Moderates the relationship between environmental and innovation strategy					44		
	Sustainable supply chain innovation		60					
	Collaboration for green product innovation	73	73		73			
	Influence environmental innovation	43	82	56		24; 82	82	
Support for environmental management systems / tools / practices (CSB3)	Support the development of environmental management systems and related tools		50		50			
	Support the development/adoption of environmental/ socio-environmental practices	18; 47	51; 54; 75	29; 18; 47	54	83; 54		83; 84
	Mediate the relationship between environmental management systems and the company market performance			39		83		

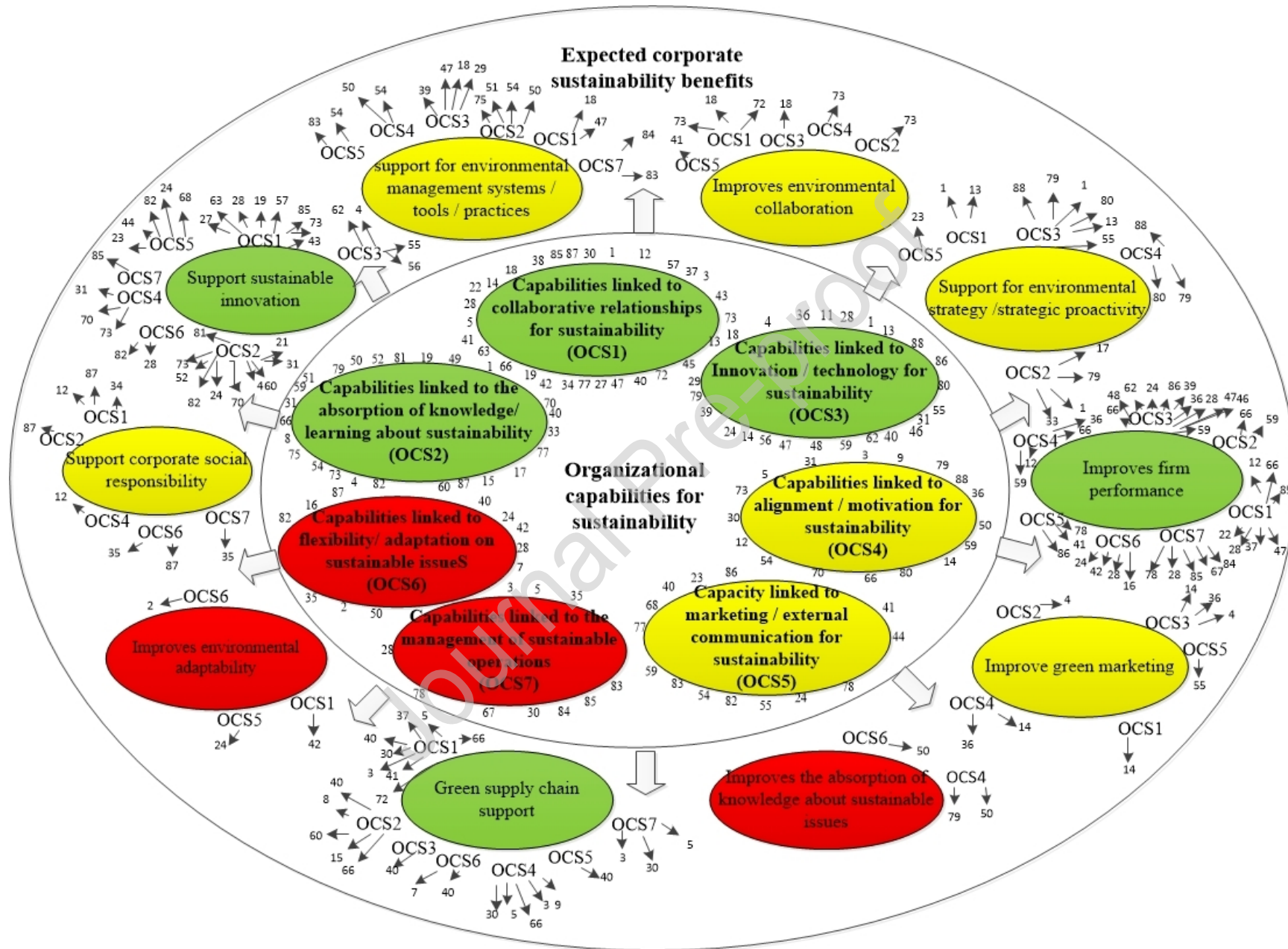
Categories of expected corporate sustainability benefits (CSBs)		OCS Categories						
CSB categories	Benefit Detailing	OCS1	OCS2	OCS3	OCS4	OCS5	OCS6	OCS7
Improving the absorption of knowledge on sustainable issues (CSB4)	Improve the capability to absorb knowledge on sustainable issues						50	
	Associated with learning ability that supports proactive environmental management				79			
	Support the absorption of knowledge on sustainability issues and related tools				50			
Support for corporate social responsibility (CSB5)	Support the success of strategic social responsibility	34					35	
	Moderate the relationship between customer pressure and CSR practices	87	87				87	
	Influence corporate social responsibility	12			12			35
Green supply chain support (CSB6)	Moderate the relationship between GSCM and financial performance	37; 40	40	40		40	40	
	Support GSCM/Facilitate Green Procurement	41; 3; 66	8; 15; 66		3; 9; 66		7	3
	Sustainable supply chain innovation		60					
	Supply chain collaboration for sustainable performance	72						
	Support voluntary supply chain sustainability initiatives	30; 5			30; 5			30; 5
Improving environmental collaboration (CSB7)	Support environmental collaboration	18		18				
	Supply chain collaboration for sustainable performance	72						
	Collaboration for green product innovation	73	73		73			
	Improve environmental collaboration					41		
Improving environmental adaptability (CSB8)	Mediate strategic flexibility	42						
	Influence environmental adaptability/adaptability					24	2	
Improving green marketing (CSB9)	Influence a marketing strategy	14		14	14	55		
	Identify and access new customers who are environmentally aware					55		
	Influence the perceived quality of supply			36	36			
	Influence green image performance		4	4				
Improving firm performance	Influence environmental performance	22; 66; 85	66; 59	24; 48; 62; 59	66; 59		24; 42; 16	84; 67; 85

Categories of expected corporate sustainability benefits (CSBs)		OCS Categories						
CSB categories	Benefit Detailing	OCS1	OCS2	OCS3	OCS4	OCS5	OCS6	OCS7
(CSB10)	Influence social performance	22; 66	66	48; 86	66	86	42	
	Influence corporate social responsibility associated with firm performance	12						
	Moderate the relationship between GSCM and financial performance	37			12			
	Mediate the relationship between environmental management systems and the company market performance			39				
	Influence economic performance/market	22; 28;47; 66; 85	66; 59	24; 36; 28; 47; 66; 59; 46; 86	36; 59	41; 78; 86	24; 42; 28	28; 78;67; 85

The achievement of these benefits is related to the development of different OCSs. The benefits linked to “improving firm performance” and “support for sustainable innovation” and “support the green supply chain”, for example, are linked to all the seven OCSs identified in this survey. Just as a single OCS can be tied to different benefits, such as OCS related to collaborative relationships for sustainability can bring companies nine of the ten sustainability benefits identified in the survey. This represents how important OCSs development is for companies to achieve a number of sustainability benefits.

By converging content analysis results from the seven OCS categories and the ten associated expected corporate sustainability benefits, an integrative conceptual framework emerged (Fig. 9). The framework summarizes the main findings of this research. The OCSs categories are presented along with the code of the articles that addressed them. CSBs categories are also presented along with OCS categories to which they are related, and along with the code of the article that addressed such relationships (codes are detailed in Appendix 1).

Fig. 9. Conceptual integrative framework relating OCS and expected corporate sustainability benefits.



The colors demonstrate the presence of these categories in the analyzed papers. For example, the OCS categories and the CSB categories in green are the most studied by the sample's paper; the yellow has a moderate number of studies, while the red ones were categories with a greater scarcity of researches. Thus, based on the framework, it is possible to identify OCS and CSB categories that have already been related in the literature, as well as those that still need further investigation. Through the framework, it is also possible to identify articles referring to each category (OCSs and CSBs), and the relations between these categories as addressed in each of the articles, thus helping to disseminate knowledge about these topics and further the development of new research associated to these constructs.

5. Literature gaps and opportunities for future research

From the quantitative and qualitative analyses, it was possible to analyze the characteristics and tendencies of the articles that addressed OCSs. Thus, we identified the main gaps in the literature and, from them, we proposed opportunities for future researches in relation to method used, sustainability pillars, business arrangements, countries and relationships between OCS and CSB categories.

- Methods

Regarding the methods used (Fig. 4), qualitative approaches require more research, such as single and multiple case studies, longitudinal case studies (which appear in a small number in the sample). Salim et al. (2019) corroborate with our findings, although the authors suggested focusing on internal eco-innovation capabilities by developing action research. Longitudinal case studies are relevant since sustainable actions and results from the development of OCS can, in most cases, be better visualized and measured over time. Qualitative approaches, in spite of limitations in relation to the generalization of results, are able to make in-depth and detailed analyses of the phenomenon under study. Surveys are *not* able to accomplish this because they are descriptive. New research can also use mixed approaches, as also recommended by Amui et al. (2017).

The survey method was predominant (Fig. 4). Thus, future studies can use mathematical modeling, such as multicriteria tools to evaluate the maturity degree of

companies in relation to OCSs and prioritize factors and sub-factors relevant to the development of OCSs, for example.

- Sustainability pillars

Upon analyzing the studies, there are opportunities for new studies relating OC to social issues, since this pillar has been studied separately from the environmental pillar only by Ramachandran (2011) (see Fig. 5). Further studies should deal with more than one pillar (environmental, social and economic), since most papers dealing with the environmental pillar along with other pillars, nevertheless, have a main focus on the environmental pillar.

- Business arrangement

Considering that OCSs were studied to a large extent in the context of individual firms (Fig. 6), the importance of developing researches in different productive arrangements is stressed, such as industrial clusters, since only Hilliard and Jacobson (2011) studied OCS using this focus. Galdeano-Gómez et al. (2008) indicated that the findings on the effects external to firms on the achievement of competitive advantages based on environmental capabilities have important implications for future research in both environmental management strategy and the study of industrial agglomerations and geographic clusters. This is because clusters reveal that the business environment outside companies also plays a vital role in their performance (Porter, 1998). **The cluster analysis (Fig. 8) has the same indication; that is, collaboration is a new subject, and the OCS could be studied in the context of networks.**

Another alternative is related to the development of studies within the context of multinational companies, since only two studies had this focus: Chakrabarty and Wang (2012) and Pinkse et al. (2010). Such studies may produce interesting results because, depending on the location/country where the multinationals are located, comparative analyses can be done since aspects for the development of OCSs can be facilitated or made difficult by local characteristics such as culture, access to specialized labor, local development etc. OCSs can also be influenced by the location of companies. For example, in some regions, customers are more aware and more easily influenced to take sustainability issues into account in the consumption of goods and services, and pressures for environmental certifications, for example, are higher than in other regions. This can be captured and compared by studying multinationals.

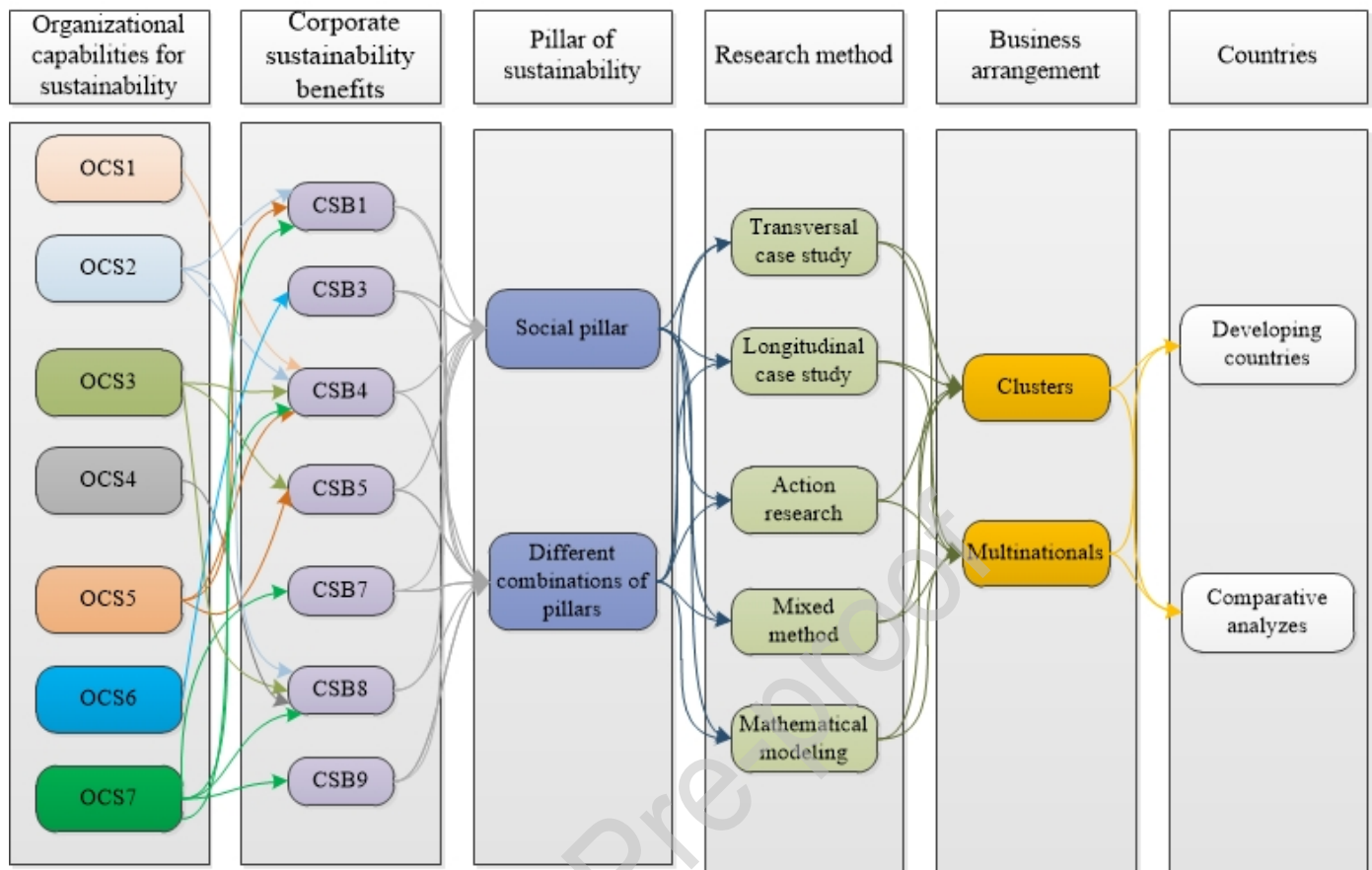
- Countries

Since most of the studies carried out empirical studies in countries with advanced economies, there is an opportunity for research in developing countries and in different countries. This research opportunity was also analyzed by Amui et al. (2017) and Salim et al. (2019), who both had developed SLR with research themes related to this article. Therefore, it will be possible the development of comparative analyses on how aspects of the local context, such as economy and culture, influence the development of OCSs, as well as the expected CSB.

- OCSs and expected corporate sustainability benefits

As can be seen in Table 3, research on OCS and consequently on CSB has increased over the years and can be considered quite relevant in the current context. Studies focusing on OCS6 and OCS7 are still necessary, since they received less attention by the researchers in the sample. Regarding CSBs (Table 4), several OCSs are related to the same groups of expected benefits. However, some of them are unrelated, as can be seen in the Table 4, and therefore means future research opportunities.

Finally, from the research opportunities, it was possible to elaborate Fig. 10, which synthesizes the research agenda presented here. All relationships between OCSs and CBSs that have not yet been studied are identified by arrows between the first two columns. For all proposed relationships, there are opportunities for methods (column 3), geographical contexts (column 4) and, finally, countries (column 5).

Fig. 10. Research agenda on OCSs

6. Conclusions, **contributions**, limitations and future research

This research systematized the available knowledge on strategic OCS. Therefore, this paper performs an SLR by providing: (i) an overview of the studies that addressed OCS, (ii) research gaps, and (iii) a research agenda. Based on the main findings, it was possible to identify CSB from the OCS and propose an integrative framework linking both.

6.1. **Contributions for theory and practice**

This paper presents relevant contributions. The main contribution is the proposed framework (Fig. 9) that relates to OCSs (Table 2, Table 3, and Fig. 9) and CSBs (Table 4). The framework is relevant as it identifies and categorizes OCSs and CSBs that companies can acquire by developing and improving those OC. OCSs and CSBs have been studied over the years by a large number of authors, but no survey so far has been proposed to map the **studies** through an analysis of all existing literature. Based on this, we develop a framework that synthesizes all the OC developed by the companies (internal

and external) and the sustainability benefits tied to those capabilities. This is the great contribution of this article.

Based on the framework, it is possible to identify OCS and CSB categories that have already been related in the literature. The OCS1 is the most relevant in the analyzed sample of articles. The OCS6 and OCS7 were the ones with the lowest number of articles, providing indications that still need further investigation. It is noticed that the concentration of studies increases between the most recent years. This demonstrates the relevance of the theme in the current context.

In practice, the framework can contribute as a support tool for managers, by providing an explicit guideline on which capabilities that can be developed and/or improved in the organization in order to achieve a certain expected sustainability benefit. Besides, the framework provides an overview on core aspects that can serve as basis for a comprehensive sustainability performance measurement system, providing a structured decision-making background for practitioners. This is crucial since decisions regarding sustainable issues combine a series of factors such as social responsibility issues, risks, economic issues, personal preferences and others (Maroušek et al., 2014) and according to Maroušek (2013) decision-makers of the current generation, who have more contact with academic knowledge, are more concerned with sustainability.

The second contribution is related to the overview of the studies that addressed OCS. Overall, through the overview, it was possible to identify the evolution of the research on the subject (Fig. 3), the research methods (Fig. 4), and the sustainability pillars over the years (Fig. 5). We also identified the business arrangement (Fig. 6), the industrial sector (Table 1), as well as the countries where the empirical studies were carried out (Fig. 7). Finally, a cluster analysis of the co-occurrence of keywords over time (Fig. 8) was developed.

The third contribution of this research was the presentation of a research agenda developed from the overview of the articles and the proposed framework. We concluded that various OCS and CSB still need to be identified and better explored in the literature, as well as the companies. The research agenda is important because it aids researchers by presenting several options for new studies, which allow furthering the knowledge on these themes (Fig. 10). Briefly, the research agenda shows that more qualitative and mixed research is needed, with a primary focus on the social pillar, or the three pillars together (social, environmental and economic), in the context of different productive arrangements (such as industrial clusters), multinationals companies, and in developing and different

countries, enabling the development of comparative analyzes. Finally, further research can be conducted in some OCS (and their related CSB), due to the scarcity of studies, such as OCS6 and OCS7.

Lastly, the research concludes from the several benefits of sustainability linked to OCS mapped in the literature that corporate sustainability is strongly related to business strategy and the ability of companies to develop specific capabilities such as signaling by Hart (1995) and Hart and Dowell (2011). The findings of our research also corroborate with the results from the previous literature, which analyzed that organizational capabilities positively affect the implementation of corporate sustainability (Amui et al., 2017; Annunziata et al. 2017; Salim et al., 2019). This represents how important OCSs development is for companies to achieve a variety of sustainability benefits. Therefore, this research contributes to the broad understanding of these relationships among academics and managers.

6.2. Limitations and opportunities for future research

This paper has some limitations. For example, in relation to the search and selection of articles related to the OCS, only one database was adopted. We use exclusion criteria such as conference documents and refinement by categories of research areas. This may have led to the loss of content. Thus, if other researchers refined this research using other criteria different results could be found. The research also focused on linking the OCS knowledge area with the CSBs and their results are based on this relationship. Future research can broaden the scope of OCS research using different search criteria, deepen the relationships found between OCSs and CSBs, or explore different relationships between OCSs and sustainability.

Another limitation is related to the lack of empirical validation of the developed framework. However, the relationships contemplated in the framework were developed from mapping the results from previous literature, which materializes its support. Even so, future research may validate the relations between OCS and CSB presented in the framework through empirical research, and, analyzing the practical results of this relationship.

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Appendix 1. Sample papers

Authors (year)	Article code	Title	Number of citations (Wos - 2019)
Sharma and Vredenburg (1998)	1	Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities	991
Folke et al. (2002)	2	Resilience and sustainable development: Building adaptive capacity in a world of transformations	884
Bowen et al. (2001)	3	The role of supply management capabilities in green supply	375
Chen (2008)	4	The driver of green innovation and green image - Green core competence	270
Lee and Klassen (2008)	5	Drivers and Enablers That Foster Environmental Management Capabilities in Small- and Medium-Sized Suppliers in Supply Chains	219
Lehtonen (2004)	6	The environmental - social interface of sustainable development capabilities, social capital, institutions	217
Reuter et al. (2010)	7	Sustainable global supplier management: the role of dynamic capabilities in achieving competitive advantage	197
Beske (2014)	8	Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature	167
Paulraj (2011)	9	Understanding the relationships between internal resources and capabilities, sustainable supply management and organizational sustainability	150
Shang et al. (2008)	10	A taxonomy of green supply chain management capability among electronics-related manufacturing firms in Taiwan	130
Kleef and Roome (2007)	11	Developing capabilities and competence for sustainable business management as innovation: a research agenda	112
Torugsa et al. (2012)	12	Capabilities, Proactive CSR and Financial Performance in SMEs: Empirical Evidence from an Australian Manufacturing Industry Sector	91
Sharma et al. (2007)	13	The contingent influence of organizational capabilities on Proactive environmental strategy in the service sector: An analysis of North American and European ski resorts	87
Leonidou et al. (2013)	14	Resources and capabilities as drivers of hotel environmental marketing strategy: Implications for competitive advantage and performance	87
Beske (2012)	15	Dynamic capabilities and sustainable supply chain management	81
Judge and Elenkov (2005)	16	Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms	77
Delmas and Hoffmann (2011)	17	Under the Tip of the Iceberg: Absorptive Capacity, Environmental Strategy, and Competitive Advantage	74
Hofmann et al. (2012)	18	Identifying Firm Capabilities as Drivers of Environmental Management and Sustainability Practices - Evidence from Small and Medium-Sized Manufacturers	68
Dangelico et al. (2013)	19	Developing Sustainable New Products in the Textile and Upholstered Furniture Industries: Role of External Integrative Capabilities	53
López-Gamero et al. (2008)	20	Complementary Resources and Capabilities for an Ethical and Environmental Management: A Qual/Quan Study	52
Albort-Morant et al. (2016)	21	The antecedents of green innovation performance: A model of learning and capabilities	51
Luzzini et al. (2015)	22	From sustainability commitment to performance: The role of intra- and inter-firm collaborative capabilities in the upstream supply chain	48
Mariadoss et al. (2011)	23	Marketing capabilities and innovation-based strategies for environmental sustainability: An exploratory investigation of B2B firms	46
Wong (2013)	24	Leveraging Environmental Information Integration to Enable Environmental Management Capability and Performance	43
Berchicci et al. (2012)	25	Environmental capabilities and corporate strategy: exploring acquisitions among US manufacturing firms	42
Amui et al. (2017)	26	Sustainability as a dynamic organizational capability: a systematic review and a future agenda toward a sustainable transition	40
Hoof and Thiell (2014)	27	Collaboration capacity for sustainable supply chain management: small and medium-sized enterprises in Mexico	38
Dangelico et al. (2017)	28	Green Product Innovation in Manufacturing Firms: A Sustainability-Oriented Dynamic Capability Perspective	37
Chakrabarty and Wang (2012)	29	The Long-Term Sustenance of Sustainability Practices in MNCs: A Dynamic Capabilities Perspective of the Role of R&D and Internationalization	36

Peter et al. (2008)	30	Institutional entrepreneurship capabilities for interorganizational sustainable supply chain strategies	35
Ketata et al. (2014)	31	The role of internal capabilities and firms' environment for sustainable innovation: evidence for Germany	35
Burger and Christen (2011)	32	Towards a capability approach of sustainability	31
Pinkse et al. (2010)	33	On the implementation of a 'global' environmental strategy: The role of absorptive capacity	30
Renouard (2011)	34	Corporate Social Responsibility, Utilitarianism, and the Capabilities Approach	28
Ramachandran (2011)	35	Strategic Corporate Social Responsibility: A 'Dynamic Capabilities' Perspective	27
Gabler et al. (2015)	36	Developing an eco-capability through environmental orientation and organizational innovativeness	21
Choi and Hwang (2015)	37	The impact of green supply chain management practices on firm performance: the role of collaborative capability	20
Worley et al. (2010)	38	Building a collaboration capability for sustainability: How Gap Inc. is creating and leveraging a strategic asset	19
Amores-Salvadó et al. (2015)	39	The importance of the complementarity between environmental management systems and environmental innovation capabilities: A firm level approach to environmental and business performance benefits	19
Hong, Zhang e Ding (2018)	40	Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance	17
Woo et al. (2016)	41	Suppliers' communication capability and external green integration for green and financial performance in Korean construction industry	15
Gelhard and Von Delft (2016)	42	The role of organizational capabilities in achieving superior sustainability performance	12
Watson <i>et al.</i> , (2017)	43	Harnessing Difference: A Capability-Based Framework for Stakeholder Engagement in Environmental Innovation	11
Yu, Ramanathan e Nath (2017)	44	Environmental pressures and performance: An analysis of the roles of environmental innovation strategy and marketing capability	10
Spekkink (2015)	45	Building capacity for sustainable regional industrial systems: an event sequence analysis of developments in the Sloe Area and Canal Zone	10
Ramanathan, Ramanathan e Bentley (2017)	46	The debate on flexibility of environmental regulations, innovation capabilities and financial performance - A novel use of DEA	9
Annunziata <i>et al.</i> , (2017)	47	The role of organizational capabilities in attaining corporate sustainability practices and economic performance: evidence from Italian wine industry	8
Lai et al. (2015)	48	Exploring the interoperability of innovation capability and corporate sustainability	7
Albort-morant <i>et al.</i> (2018)	49	Absorptive capacity and relationship learning mechanisms as complementary drivers of green innovation performance	7
Johnson (2017)	50	Knowledge acquisition and development in sustainability-oriented small and medium-sized enterprises: Exploring the practices, capabilities and cooperation	7
Upstill-Goddard et al. (2016)	51	Implementing sustainability in small and medium-sized construction firms The role of absorptive capacity	7
Xie et al. (2016)	52	Green Process Innovation and Financial Performance in Emerging Economies: Moderating Effects of Absorptive Capacity and Green Subsidies	7
Hilliard and Jacobson (2011)	53	Cluster versus Firm-specific Factors in the Development of Dynamic Capabilities in the Pharmaceutical Industry in Ireland: A Study of Responses to Changes in Environmental Protection Regulations	6
Kim et al. (2015)	54	General managers' environmental commitment and environmental involvement of lodging companies The mediating role of environmental management capabilities	6
Ko and Liu (2017)	55	Environmental Strategy and Competitive Advantage: The Role of Small- and Medium-Sized enterprises' Dynamic Capabilities	6
Rodriguez e Wiengarten (2016)	56	The role of process innovativeness in the development of environmental innovativeness capability	5
Behnam, Cagliano e Grijalvo (2018)	57	How Should Firms Reconcile Their Open Innovation Capabilities for Incorporating External Actors in Innovations Aimed at Sustainable Development?	5
Sánchez and Sahuquillo (2010)	58	Integration of the environment in managerial strategy: application of the resource-based theory of competitive advantage, dynamic capabilities and corporate social responsibilities	5
Jiang <i>et al.</i> (2018)	59	Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective	5
Rodriguez e Cunha (2018)	60	Impacts of big data analytics and absorptive capacity on sustainable supply chain innovation: a conceptual framework	3

Mousavi, Bossink e Vliet (2018)	61	Dynamic capabilities and organizational routines for managing innovation towards Sustainability	3
Fernando <i>et al.</i> (2019)	62	Pursuing green growth in technology firms through the connections between environmental innovation and sustainable business performance: Does service capability matter?	3
Scarpellini <i>et al.</i> (2017)	63	Green patents in the manufacturing sector: the influence of businesses' resources and capabilities	3
Prime and Čater (2016)	64	The Influence of Organizational Life Cycle on Environmental Proactivity and Competitive Advantage: A Dynamic Capabilities View	3
Eltantawy (2015)	65	Towards sustainable supply management: requisite governance and resilience capabilities	2
Chen e Kitsis (2017)	66	A research framework of sustainable supply chain management: the role of relational capabilities in driving performance	2
Yook, Choi e Suresh (2017)	67	Linking green purchasing capabilities to environmental and economic performance: The moderating role of firm size	2
Kamboj e Zillur (2017)	68	Market orientation, marketing capabilities and sustainable innovation: the mediating role of sustainable consumption and competitive advantage	2
Sarpin (2016)	69	Developing a people capability framework to promote sustainability in facility management practices	2
Chang (2017)	70	How to Enhance Green Service and Green Product Innovation Performance? The Roles of Inward and Outward Capabilities	1
Gruchmann and Seuring (2018)	71	Explaining logistics social responsibility from a dynamic capabilities perspective	1
Kumar, Subramanian e Maria Arputham, (2018)	72	Missing link between sustainability collaborative strategy and supply chain performance: Role of dynamic capability	1
Melander (2018)	73	Customer and Supplier Collaboration in Green Product Innovation: External and Internal Capabilities	1
Salim, Rahman e Wahab (2019)	74	A systematic literature review of internal capabilities for enhancing eco-innovation performance of manufacturing firms	1
Charan e Murty (2018)	75	Institutional pressure and the implementation of corporate environment practices: examining the mediating role of absorptive capacity	0
Essid, Berland e Berland (2018)	76	Adoption of environmental management tools: the dynamic capabilities contributions	0
Grewatsch e Kleindienst (2017)	77	How organizational cognitive frames affect organizational capabilities: The context of corporate sustainability	0
Hirunyawipada, (2018)	78	Corporate environmental commitment and financial performance: Moderating effects of marketing and operations capabilities	0
Fraj Andrés <i>et al.</i> (2013)	79	Learning and innovation as determining factors in the development of proactive environmental management capability	0
Kang e He (2018)	80	Institutional Forces and Environmental Management Strategy: Moderating Effects of Environmental Orientation and Innovation Capability	0
Pacheco <i>et al.</i> (2018)	81	Green absorptive capacity: A mediation-moderation model of knowledge for innovation	0
Zhou <i>et al.</i> (2018)	82	Dynamic capability matters: Uncovering its fundamental role in decision making of environmental innovation	0
Yu and Ramanathan, (2016)	83	Environmental management practices and environmental performance The roles of operations and marketing capabilities	0
Betts, Super e North (2018)	84	Exploring the influence of institutional pressures and production capability on the environmental practices - environmental performance relationship in advanced and developing economies	0
Liu <i>et al.</i> (2018)	85	Supply chain integration capabilities, green design strategy and performance: a comparative study in the auto industry	0
Bhattarai, Kwong e Tasavori (2019)	86	Market orientation, market disruptiveness capability and social enterprise performance: An empirical study from the United Kingdom	0
Choi <i>et al.</i> (2019)	87	Motivating corporate social responsibility practices under customer pressure among small- and medium-sized suppliers in China: The role of dynamic capabilities	0
Cezarino <i>et al.</i> , (2018)	88	Dynamic Capabilities for Sustainability: Revealing the Systemic Key Factors	0

Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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