Eco-innovation in the upstream supply chain: re-thinking the involvement of purchasing managers

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Abstract

Purpose – In a context of ecological transition, this study aims to explore and understand what fosters the participation of purchasing departments and identify the drivers and difficulties encountered during the development of eco-innovation within firms.

Design/methodology/approach – The authors adopt a qualitative methodology that provides tools to study complex phenomena. In-depth interviews with highly knowledgeable respondents from multi-sectoral organisations enable us to explore the eco-innovation process within firms.

Findings – From the perspectives of resource-based theory and stakeholder theory, the study contributes to the literature by investigating firms' internal resources and exploring further dimensions based on sustainable supply chain management and purchasing. Internal stakeholders (e.g. purchasing agents) and external stakeholders (e.g. suppliers) were identified with regard to the business eco-innovation activities of focal companies in relation to upstream stakeholders. The authors examine this complex phenomenon by raising certain intra- and inter-organisational factors, as well as more individual aspects, such as the sensitivity of the purchasing manager to ecological transition. Purchasing agents are involved in increasing the propensity of organisations to eco-innovate and, as internal stakeholders, appear to be influential in eco-innovation.

Research limitations/implications – Given the nascent state of eco-innovation practice and accessibility to primary data about ongoing efforts, this research could not consider all possible drivers.

Practical implications – This study presents an opportunity for purchasing managers to understand challenges more comprehensively to add value within the eco-innovation process. The results highlight recommendations for how best to undertake eco-innovation in upstream supply chains.

Originality/value – The study provides new insights into the constituent resources needed for purchasing participation during eco-innovation to achieve sustainable competitive advantage. This paper is an initial attempt at research in the area.

Keywords Eco-innovation, Ecological transition, Purchasing management, RBV, Stakeholder theory

Paper type Research paper

1. Introduction

Since the presentation of Brundtland's report to the United Nations (UN) General Assembly in 1987, a collective awareness of the issues of sustainable development has gradually grown in society. At the Assembly, the concept of "sustainable development" was defined, for the first time, as "development that meets the needs of the present without compromising the ability of future generations to meet theirs" (Brundtland, 1987). Recently, Greta Thunberg's impassioned speech at the UN Climate Action Summit in September 2019 seems to have had an important echo, especially with young people, in the awareness of the need to escape this planetary cataclysm (Gajanan, 2019). Change is the responsibility of everyone: consumers, governments but also businesses. A growing number of firms recognise environmental awareness as a business imperative. Although environmental initiatives are perceived as restrictive and costly, they have increasingly become a source of competitive parity (Hollos *et al.*, 2012).

The managerial version of sustainable development has its source in Bowen (2013). The notion of social responsibility is gradually establishing itself within companies, in particular through regulatory frameworks,

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echoing the growing involvement of civil society in ecological issues. In reasoned resource management, companies must then be part of a sustainable approach to be viable in the long-term (Fel, 2011). Factors such as respect for the environment, social conditions and control of the entire production chain are becoming increasingly important for firms (Lu *et al.*, 2018) and generally involve a change in modes of production, supply, product design and innovation (Venkatesh *et al.*, 2020).

The recent concept of eco-innovation has evolved within the literature. Back in the 90 s, eco-innovation relates to products and processes which "significantly decrease environmental impact" (Fussler and James, 1996). Little by little, the definition encompasses more aspects, such as the innovation in technologies (Chen *et al.*, 2006) or resource use, including energy (Kemp and Pearson, 2007). In the meanwhile, the description of the environmental impact is also sharpened, including "reduction of environmental risk, pollution and other negative impacts" (Arundel and Kemp, 2009). Through its evolution, the notion of eco-innovation is clearly related to the UN Goal n°12 "ensure sustainable consumption and production pattern" (United Nations, 2020, p. 48). The UN goal n°12 highlights the actual unsustainable use of natural resources, while emphasises the need of a sustainable economic growth, from government national policy initiatives to the implantation of sustainability indicators by companies.

Many determinants can influence the propensity of firms to adopt eco-innovation (Horbach *et al.*, 2012). The national context (Jaffe *et al.*, 2002), legislation (Costantini and Crespi, 2008) and regulatory instruments can favour the engagement of market actors in eco-innovation activity (Stavins, 2003). In their empirical results, Van Kemenade and Teixeira (2017) highlight that the firm size, environmental R&D-oriented, cost reduction or commitment to environmental certifications are determining factors of eco-innovation performance.

Purchasing and supply activities are both recognised for their strategic importance in achieving a firm's long-term performance and in addressing sustainability issues (Touboulic and Walker, 2015). The impetus for innovation can lie in value chain members, such as customers and suppliers (Von Hippel, 2007; Pavitt, 1984). As purchasing is concerned with the acquisition of materials, components or services, it might be in a prime position to foster innovation among the various value chain members (Castaldi *et al.*, 2011). For example, Melander and Pazirandeh (2019) show that companies share their knowledge of these issues and ideas for eco-innovation across industries through collaborations with their suppliers and clients. These collaborations between actors improve environmental sustainability.

In their literature review on eco-innovation, Díaz-García *et al.* (2015) underline important opportunities for research, such as investigations into firms' internal factors (e.g. capabilities and resources). There is also a lack of research concerning the involvement of employees in the development of eco-innovations (Buhl *et al.*, 2016).

From this perspective, we study the extent to which the purchasing agent contributes to eco-innovation within firms. We first establish and discuss our theoretical framework through the lenses of the resource-based view (RBV) and stakeholder theory and define the key concepts. Next, we opted for a qualitative and exploratory study. We analyse in depth-interviews conducted with 10 highly knowledgeable respondents from multi-sectoral organisations, associated with secondary data as supplemental. Within the overall supply chain, the focus of this paper is on the upstream and on the purchasing managers within companies.

2. Theoretical approach

2.1 Resource-based view

Penrose (1959) identifies a firm as an organised network of individual and collective activities and a set of productive resources. These resources can be either elastic or inelastic in nature. Thus, in the approach taken by Penrose, human resources, characterised by the employees of the firm, are considered to be elastic because this productive resource can act beyond its functions, and thus, generate growth for the benefit of the firm.

Wernerfelt (1984) values the contribution of resources in a strategic analysis of the firm by placing them at the same level as the firm's products. These resources can be internal or external and participate in the creation of value. Strategic resources are a source of sustainable competitive advantage when they are valuable, scarce, difficult to imitate, non-substitutable and non-transferable (Barney, 1991). This characterisation helps organisations to identify which resources to prioritise when making strategic choices. These resources are often tacit and not easily accessible or negotiable on the market because they are specific to an organisation and are developed and controlled internally. To simplify the characterisation of resources, Barney (1991) classifies them into three categories, namely, physical capital resources, human capital resources and organisational capital resources. Resources can be tangible or intangible, the latter covering capabilities, skills and knowledge. According to Bhupendra and Sangle (2016), for example, resources such as cleaner technology implementation can facilitate eco-friendly product production.

RBV theory is often mobilised in the supply chain management (SCM) field (Fryman and Haile, 2011). Diverse SCM-related activities, supply management practices and environmental management practices are considered important resources for improving operational performance (Gavronski *et al.*, 2011; Narasimhan and Schoenherr, 2012). It is important to manage these resources to maintain them and acquire new ones. Consequently, purchasing departments, which manage external resources, have a key role to play and must develop a supplier-oriented strategy (Arnold, 2000). Recently, Mardani *et al.* (2020) suggested in their literature review that the RBV had the first rank among the theories that have been used in the past decades in the assessment of green and sustainable SCM. The RBV lens has also been the most prevalent theoretical framework of study in the fields of purchasing and supply management (Wynstra *et al.*, 2019), purchasing social responsibility (Carter, 2005) and the involvement of purchasing in innovation (Luzzini *et al.*, 2015).

2.2 Stakeholder theory

Stakeholder theory states that a firm's environment is made up of stakeholders, who can influence or be influenced by the

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firm's activities (Freeman, 1984). In their review of the literature, Lozano *et al.* (2015) consider it interesting to mobilise stakeholder theory to explain the relationships that develop between a firm and its stakeholders. Primary (e.g. employees and managers, customers, suppliers and other business partners), secondary (e.g. social pressure groups, the media, academia and competitors) and regulatory stakeholders contribute to a firm's environmental commitment. Primary stakeholders are essential to the survival of firms and comprise suppliers, customers, employees and shareholders (Clarkson, 1995).

Stakeholder theory is an appropriate lens through which to study SCM (Gligor *et al.*, 2019) and sustainable SCM (Touboulic and Walker, 2015). Indeed, managers should make decisions by taking the interests of all supply chain stakeholders into account (Silvestre, 2015). Taking account of such concerns helps to overcome uncertainties and builds trust and legitimacy in a sustainable supply chain.

Some streams of research regarding stakeholder theory related to the natural environment have been underlined by Céspedes-Lorente *et al.* (2003), such as the role of external stakeholders in assessing environmental performance and corporate environmental risks, the influence of stakeholders on the environmental strategy of firms and the development of environmental cooperation between a firm and its various stakeholders. Cooperation with stakeholders seems to be more prominent in eco-innovative firms (Da Silva Rabêlo and de Azevedo Melo, 2019).

However, less is known about the detailed profiles of stakeholders and few researchers have gathered empirical data on the approaches taken during eco-innovation (Silvestre, 2015). Therefore, we chose to mobilise both the RBV and stakeholder theory, the complementarity of which will make it possible to highlight the influence exerted by the purchasing agent's activities in the development of eco-innovation.

2.3 Development of sustainable purchasing

Kurnia *et al.* (2014) define sustainable supply chain capability as "an organisation's capacity to deploy its resources exercised through organisational processes involved in sustainable practices" (p. 6). To implement sustainable supply chain practices successfully, companies must collaborate with suppliers and customers. Suppliers play an essential role in purchasing management and help achieve the firm's environmental objective (Preuss, 2007; Tseng *et al.*, 2019). Johnsen *et al.* (2014) consider that sustainability should be integrated into all procurement processes. Managers must be prepared to implement mechanisms at the corporate level to evaluate and improve the environmental performance of their suppliers.

As a growing research topic, sustainable purchasing is increasingly on the agenda of practitioners seeking to demonstrate the value of implementing these practices (Walker *et al.*, 2012). According to Maignan *et al.* (2002), sustainable purchasing practices consist of:

> [. . .]defining socially responsible objectives for the traditional purchasing function, designating members within the organisation who are responsible for these purchases, educating suppliers, managing suppliers, controlling suppliers, sanctioning suppliers, communicating achievements to stakeholders, collecting feedback from stakeholders (pp. 643–644).

More recently, other authors have defined sustainability practices in purchasing departments as those that help companies achieve their goals by taking into account environmental aspects and social values, in addition to economic considerations (Giunipero *et al.*, 2012). According to Appolloni *et al.* (2014), "green purchases" are motivated by environmental and financial performance in relation to pressures from competitors, from legislation and from society (Fan and Stevenson, 2018). These authors present the integration of environmental aspects into the purchasing decision-making process, as well as stressing the importance of the influence of suppliers in the eco-innovation process. Based on their review of the literature, Appolloni *et al.* (2014) developed a model that includes factors and obstacles (internal and external) related to green procurement. They underline the importance of internal buy-in, top management support and ways of working with suppliers, for example, but also customers and regulatory and environmental orientations.

To take all the aspects above into account, we here use the definition from Lindgreen *et al.* (2009), which seems the most complete as it includes environmental, ethical and green issues:

> Sustainable procurement is procurement that is consistent with the principles of sustainable development, such as ensuring a strong, healthy and just society, living within environmental limits, and promoting good governance (p. 129).

The levers for implementing sustainable and green purchasing practices are more proactive than reactive (Igarashi *et al.*, 2013). Collaboration with suppliers seems crucial within a sustainable supply chain. Yen (2018) demonstrates that if the senior management of a firm shows commitment, the purchasing department will be encouraged and valued in its activities of environmentally responsible collaboration with its suppliers.

Most of the literature on sustainable purchasing and supply management has focussed on the economic issues related to recycling (Arora *et al.*, 2020). Research on broader managerial concerns, such as the economic, environmental and social impact of purchasing activities, needs to be developed (Lopes de Sousa Jabbour *et al.*, 2018; Montabon *et al.*, 2016).

2.4 Involvement of purchasing within innovation processes

When looking to innovate, organisations involve many functions that can interact with suppliers. As the means of managing external resources, the purchasing department plays an important role in facilitating supplier integration (Lakemond *et al.*, 2006). According to Castaldi *et al.* (2011), the purchasing function is truly strategic during innovation when, on the one hand, relations with suppliers are considered strategic in the organisation and, on the other, the organisation recognises suppliers as potential sources of innovation. It is essential in this context that purchasing is integrated into the strategic activities of the firm and develops effective collaborations with other functions (Castaldi *et al.*, 2011; Preuss, 2007; Viale, 2019).

The involvement of the purchasing makes it possible for it to contribute to the success of innovation and a few authors have sought to understand the explanatory factors that promote this participation (Luzzini *et al.*, 2015). Castaldi *et al.* (2011) define the key role of three variables, namely, the quality of the

purchasing function, supplier involvement and the integration of the purchasing function. In their study on the role of the upstream involvement of the purchasing function, Luzzini *et al.* (2015) detail the factors favouring involvement in the innovation process, such as the strategic place of purchasing in the organisation, the organisational structure of the purchasing department, the technical skills of the purchasing teams and the input from purchasing agents. Numerous authors agree that these factors allow the involvement of the purchasing function and the strategic recognition of the function internally (Castaldi *et al.*, 2011; Viale, 2019). Table 1 details those factors.

2.5 Eco-innovation and the involvement of purchasing

It is through eco-innovation that firms can deal with challenges related to the environment. Kemp and Pearson (2007) proposed the following definition of eco-innovation used by the European Union:

> [. . .]the production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organisation (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives (p. 7).

Table 2 presents a chronological list of some of the definitions of eco-innovation given by other authors.

Eco-innovations have a positive influence on firm performance, such as better perceived quality, brand awareness and trust, as well as a firm's reputation (Weng *et al.*, 2015). Proactive eco-innovation activities can correspond to a competitive advantage for a firm (Buhl *et al.*, 2016). Giunipero *et al.* (2012) also highlight the importance of vision, anticipation and leadership support in this context. This is in line with the model developed by Appolloni *et al.* (2014), which adds the importance of alignment with the corporate strategy. The commitment of organisations to eco-innovation enables the development of superior environmental performance, which has a positive impact on customer satisfaction and helps attract additional customers (Chen and Chen, 2008). In addition, Renwick *et al.* (2013) show that eco-innovation can enhance the attractiveness of a firm as an employer and increase the productivity and engagement of its employees.

Eco-innovation practices are pursued within the supply chain of firms and involve all the supply chain actors. Thus, inter-organisational relationships play a major role in the eco-innovation activity. All actors then activate managerial and operational processes, information systems and technologies to optimise the entire supply chain through several innovative practices, such as supply chain agreements, reverse logistics, after-sales service and transportation (Ageron *et al.*, 2013). Even if these innovation practices are not always characterised as eco-innovation (Ageron *et al.*, 2013), they are aimed at reducing the negative externalities resulting from supply chain activity (Ageron *et al.*, 2012; Ashby *et al.*, 2012). Eco-innovation in the supply chain is essential to ensure the performance of all the actors involved. Cicconi (2020) considers the importance of collaboration between a purchasing company and its suppliers throughout the engineering activities and the value chain for the success of eco-innovation.

Among eco-innovation practices within the supply chain, several are carried out upstream, involving suppliers, and thus, purchasing managers. Some suppliers propose eco-innovations to the purchasing team, and some certifications (e.g. Standard ISO14001) could be of great interest for procurement to bring value during eco-innovation (Preuss, 2007).

The literature regarding eco-innovation remains in its infancy and numerous researchers consider that the subject lacks research with empirical data (Klewitz and Hansen, 2014). It has recently been argued that "the studies related to eco-innovation are still preliminary and that the subject lacks specific research with empirical data from survey and in-depth case studies" (Maçaneiro *et al.*, 2013, p. 179). For Buhl *et al.* (2016), there is a lack of research concerning the involvement

Table 1 Main factors in the success of the involvement of the purchasing department in the innovation process

Factors in the success of the involvement of the purchasing department during the innovation process	References
Innovation is a strategic priority of the organisation	Luzzini *et al.* (2015) Viale (2019)
Support from general management, recognition of the purchasing department by top management	Hillebrand and Biemans (2004)
Strategic position of the purchasing department	Ellram and Carr (1994) Viale (2019)
Importance of R&D expenditure	Wynstra *et al.* (2000)
Importance of the innovation project	
Suppliers are seen as potential sources of innovation	Castaldi *et al.* (2011) Monczka *et al.* (2015) Vacher (2019)
The quality of supplier-buyer relationships (trust, cooperation, mutual interests, etc.)	Monczka *et al.* (2015)
One of the objectives of the purchasing department is participation in innovation	Viale (2019)
Efficient integration and collaboration of the purchasing department with other departments	Castaldi *et al.* (2011) Viale (2019)
Buyers' skills (technical expertise)	Bals *et al.* (2019) Luzzini *et al.* (2015) Schiele (2006)

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Table 2 Few definitions of eco-innovation

References	Definition of eco-innovation (EI)
Fussler and James (1996)	"New products and processes which provide customer and business value but significantly decrease environmental impacts" (cited from Bartlett and Trifilova, 2009, p. 911)
Chen *et al.* (2006)	"related to green products or processes, including the innovation the innovation in technologies that are involved in energy-saving, pollution-prevention, waste recycling, green product designs, or corporate environmental management" (p. 332)
Kemp and Pearson (2007)	"[EI] results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives" (p. 7)
Arundel and Kemp (2009)	"For the European Commission, eco-innovation is defined as the production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organisation (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives" (p. 5)

of employees in the development of eco-innovations. In addition, according to some authors, the majority of studies examining the development of eco-innovations in the automotive industry have focussed on the R&D efforts of manufacturers, with little consideration of the eco-innovation capabilities of suppliers (Borgstedt *et al.*, 2017).

As referred to earlier, purchasing and supply activities are acknowledged for their strategic importance in achieving long-term performance and addressing sustainability issues (Touboulic and Walker, 2015). The *locus* of innovation can be found in value chain members, such as customers and suppliers (Von Hippel, 2007; Pavitt, 1984). Purchasing is concerned with the acquisition of materials, components or services, so could be in a prime position to foster innovation among the various value chain members (Castaldi *et al.*, 2011).

Preuss (2007) shows that purchasing managers can play a role in managing eco-innovations in supply chains, such as: addressing arm's-length requests of suppliers to innovate, facilitating collaboration among supply chain members, lobbying for internal acceptance of supplier innovation and defining supplier evaluation criteria and component specifications. Most of the eco-innovations in Preuss's (2007) sample are focussed on green innovations, such as packaging and waste recycling, in response to specific legislation. Other gaps have been highlighted in previous studies, such as the need to explore more deeply how the human side of organisations can support green production processes (Jabbour and Renwick, 2018).

In a context of ecological transition, this study aims to fill the existing gaps and explore what fosters the participation of the purchasing agent and identify the drivers of and difficulties encountered during the development of eco-innovation within firms.

3. Research methodology

As the literature regarding eco-innovation remains scarce, we opted for a qualitative and exploratory study (Tukamuhabwa *et al.*, 2017) to answer the following research question:

RQ1. What are the constituent resources needed to foster the involvement of purchasing in eco-innovation to achieve a sustainable competitive advantage?

The aim of a qualitative and exploratory approach is to better understand and contextualise a phenomenon (Papalexi *et al.*, 2020). A call for more qualitative research has been made by several authors (Mangan *et al.*, 2004; Näslund, 2002), as well as for more exploratory-based knowledge methodologies (Towers *et al.*, 2020), in order not to reduce SCM studies to a single research paradigm (Wagner and Fearne, 2015). Firstly, the context of eco-innovation is specified, based in particular on a study by the National Institute of Statistics and Economic Studies (INSEE). Then, semi-structured in-depth interviews were done to understand why a purchasing agent carries out eco-innovation practices.

3.1 Supplemental data source to analyse eco-innovation in firms

As Ellram and Tate (2016, p. 250) mentioned, secondary data is growing in importance in purchasing and supply management research and can be an interesting supplemental data source. Secondary data sets often use well-established measures that add credibility when combined with the results of another study (Ellram and Tate, 2016, p. 251). The use of secondary data allows researchers in purchasing in supply management (Ellram and Tate, 2016) to triangulate findings from principal data collection such as interviews, for example. For our research, the secondary data help us determine whether eco-innovation is a reality among numerous firms.

A sample of 80,445 firms from various sectors were examined. The data were gathered from a survey conducted by the INSEE in May 2019. The secondary data must also have contextual validity to be meaningfully used (Ellram and Tate, 2016). The INSEE study was compiled from the Sirus business register and seeks to establish an inventory of firms engaged in sustainable development and corporate social responsibility (CSR) by taking account of various dimensions: environmental, economic and social. The 55 questions used in the INSEE study are closed-ended (yes, no, do not know/not concerned or, in some cases, multiple choice). The information collected is, therefore, strictly quantitative and discontinuous. This INSEE study is considered as a well-established source of data.

Using the definition proposed by Arundel and Kemp (2009), the INSEE study poses companies questions about their eco-innovation activities. Thus, defined for the respondents, the concept of eco-innovation is then addressed in the

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questionnaire in its operational form through the following question:

Q1. Are you developing eco-innovations, that is, goods or services that are more respectful of the environment? (Answer: Yes/No).

The data collected were analysed using descriptive statistics.

Additional data extracted from INSEE allowed us to think that elements which apparently really count in eco-innovation activity are size and sectors. Firstly, we notice that, on average, one quarter of the companies with a workforce of fewer than 250 employees reported eco-innovation activity. We also note that eco-innovation activity is developed in greater proportions in mid-size companies (250 employees and more; 35.9%) and large companies (500 employees and more; 46.3%). This can be explained mainly by the perception of small and medium-sized enterprises regarding the concept and definition of eco-innovation (Table 3). There is also a size effect, which is linked to organisational structure. Both large and medium-sized companies are more likely to have an operational and structured purchasing department compared with smaller companies.

Secondly, concerning sector analysis, energy (29.8%) occupies the top position and real-estate and administrative services hold a joint second place (28.4%) (Table 4). The two sectors bringing up the rear are professional, scientific and technical activities (13.3%) and information and communication (9.3%). Companies within the sectors of activity linked to the production and transformation of natural resources are more involved in the activity of eco-innovation. The results of this study indicate that the position of a firm within its supply chain did not affect the respondents' answers (Table 4).

Thus, companies are visibly progressively engaging in eco-innovation. However, a question remains as to the possibility of being able to identify which are the major actors of eco-innovation activity within a supply chain. The purchasing function plays a major role in optimising the procurement process. We can, therefore, reasonably put forward the idea that the purchasing agent represents a key source of eco-innovation activity.

Table 3 The main factor: Eco-innovation of companies according to the numbers of employees

Size	Population	Developing eco-innovation	
		Yes (%)	No (%)
Sample	80,445	23.3	76.7
20 to 49 employees	52,488	20.2	79.8
50 to 249 employees	22,938	26.7	73.3
250 to 499 employees	2,878	35.9	64.1
500 employees and more	2,141	46.3	53.7

3.2 In-depth interviews with purchasing agents

To highlight the mechanisms underlying the activity of eco-innovation revealed, we studied the perceptions, accounts and practices of purchasing agents.

A semi-structured interview guide allows researchers to enhance the reliability of results (Yin, 2003) and to gather information about the experiences, views, beliefs or motivations of individuals (Papalexi *et al.*, 2020). We drew up an interview guide comprising 14 questions, divided into 5 parts, namely, introduction, context, process, contributions of actors and key factors of success and difficulties. Our goal was to ascertain the current roles and challenges related to eco-innovation within a purchasing department.

To conduct the in-depth interviews, we targeted actors in purchasing departments who have a proven track record and have participated in eco-innovation projects. One of the critical factors was the selection of highly qualified respondents. We looked for respondents with at least three years of experience in purchasing and with experience in eco-innovation projects. We contacted several potential respondents by email and asked them to recommend other profiles that matched our search criteria. We were, therefore, able to select purchasing agents who are specialists in their field of expertise, come from different sectors of activity and belong to firms of various sizes, all located in Europe. All these criteria contribute to the robustness of our work. Of a total of 65 potential responders, 10 (whose profiles corresponded to our objectives) agreed to

Table 4 The second main factor: Eco-innovation of companies according to sector

Sector	Population	Developing eco-innovation	
		Yes (%)	No (%)
Sample	80,445	23.3	76.7
Food processing	3,176	22.5	77.5
Extractive and manufacturing	14,757	26.4	73.6
Energy and environment	1,052	29.8	70.2
Construction	9,956	21.2	78.8
Retail trade, repairs	11,299	23.9	76.1
Wholesale trade	8,655	27.7	72.3
Transportation and warehousing	6,113	23.9	76.1
Accommodation and catering	5,936	24.6	75.4
Information and communication	3,802	9.3	90.7
Real estate	1,411	28.4	71.6
Professional, scientific and technical activities	7,421	13.3	86.7
Administrative and support activities	6,867	28.4	71.6

take part in our study. We then explained the objectives of the research to the 10 respondents. Table 5 presents a profile of the 10 respondents.

An iterative process begins with theoretical questioning and evolves as it is confronted with empirical data (Yin, 2003). We used a multi-thematic coding method (Saldaña, 2014) to analyse transcripts of the respondents' interviews. We first systematically cut and coded all the material into units of meaning. We then began the dual task of identifying similarities and differences. We also tried to highlight recurrences or repetitions. The coding made it possible to identify and retain eight themes:

1 Strategy of the organisation in relation to innovation.
2 Organisation of innovation (teams involved, etc.).
3 Internal integration of the purchasing function.
4 Integration of suppliers.
5 Nature of the implications and involvement of the purchasing function.
6 Drivers or prerequisites.
7 Nature of the suppliers' relationship.
8 Challenges and difficulties encountered.

4. Empirical findings

To answer our question concerning the purchasing function, we studied whether the purchasing agent constitutes an unavoidable strategic key actor in eco-innovation activity. Based on the discourse of professionals working in purchasing, we shed light on why and how purchasing influences eco-innovation. We will then be able to understand in what way(s) the purchasing function can influence the emergence of eco-innovation in companies and throughout the value chain. Our in-depth interviews allow us to present the set of intra-organisational and inter-organisational factors that are considered as key in this context according to the majority of respondents, and also the most frequently cited elements, such as drivers and barriers.

4.1 Intra-organisational factors in fostering the involvement of purchasing in eco-innovation

All the participants affirm that the support of the general management strategy in a sustainable and environmentally-oriented approach is a favourable condition, as well as the involvement of the actors in the development of eco-innovation:

> *We define ourselves as a company that uses its business practices to drive long-term environmental, social, governance and financial value creation. The CSR approach is based on the Group's guidelines and is applied at the territory and entity levels in an ethical and responsible manner.* (Resp 6)

This strategy is not simply a display, but a reality experienced on a day-to-day basis by all the company's players:

> *We believe that sustainable development should not be an idea, but an everyday reality. Therefore, we have developed a way of being and producing responsibly at all levels, from processes to materials, from the environment to health, to our responsibility as citizens and towards our employees. A state of mind recognized today by the main labels and certifications.* (Resp 4)

Some of the respondents' companies are embarking on a B Corp audit (B Corporation certification is awarded by B Lab, a non-profit organisation, on the basis of a for-profit organisation's social and environmental performance) and others were already certified.

> *We are expecting the collective of its water brands to achieve B Corp certification worldwide by 2022. In this way, we join the collective of companies that act to make a positive contribution to society. For example, we are aiming to reach 50% recycled PET use worldwide and 100% across Europe in 2025.* (Resp 5)

The audits sometimes reveal a lack of analysis and data on carbon impact and water and energy consumption. Decarbonising supply chains is, therefore, a key challenge:

> *Production requires energy and also steam. Steam is used to melt the chocolate. We have decided to reach "Zero carbon emissions by 2040" and chosen to review the operation of our factories. The largest factory in France was the first to benefit from "green steam". A 1,300-metre heating network connects the factory to the energy recovery unit for household waste in the town near the factory. The results were very positive: this new network now satisfies 90% of our needs. At the same time, it leads to a 60% reduction in greenhouse gas emissions. This is the result of a partnership with key stakeholders.* (Resp 9)

According to the majority of respondents, eco-innovation (or at least innovation and sustainable development taking place at the same time) should also be part of the strategic objectives of the purchasing department:

> *For me it is essential, people are open and curious. Any kind of initiative is encouraged and even valued within my department, and even more so in strategic innovation projects related to sustainable development.* (Resp 6)

> *I am working day to day with the Global Circular packaging director in order to screen all our new packaging through a design tool dedicated to recyclability to anticipate their end-of-life. We are also working on design and materials, for example by simplifying flexible packaging, such as water bottles, with the use of a single type of plastic, to facilitate their end-of-life and recyclability.* (Resp 5)

Table 5 Respondent's list

Respondent's code	Respondent's position	Sector (country)	Duration of interview
Resp 1	Sourcing Manager, Packaging	Pharmaceutical (Germany)	1 h 04 min
Resp 2	Raw materials procurement	Agrifood (France)	2 h 09 min
Resp 3	Corporate Purchasing Manager	Energy (France)	45 min
Resp 4	Head of Procurement	Furniture and wood (France)	1 h 20 min
Resp 5	European innovation procurement	Food and beverage FMCG (The Netherlands)	50 min
Resp 6	Head of Technical Procurement	Pharmaceutical and biological (France)	1 h 15 min
Resp 7	Procurement Head	FMCG (France)	45 min
Resp 8	Purchasing Manager	European manufacturer of domestic and industrial heating appliances (France)	1 h 30 min
Resp 9	Head of Procurement	European food and snacks (UK)	1 h
Resp 10	Chief Procurement Officer	Multi-national contract food service firm (UK)	1 h 10 min

Note: FMCG = fast-moving consumer goods

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4.2 Inter-organisational factors in fostering the involvement of purchasing in eco-innovation

The importance of developing a high-quality relationship with suppliers appears to be an essential solution to the development of eco-innovation. Indeed, before a supplier can be integrated into innovation projects, the relationship must be based on mutual trust and fair conditions. These terms are above all developed with strategic suppliers, who are best able to know the company and bring their expertise to it. For example:

> *In my opinion, thanks to the reflections on these subjects, we are engaging in a partnership with suppliers, based on shared values on sustainable development issues. We enter into a real dynamic of value creation with the supplier.* (Resp 5)

> *We also have to make suppliers want to come and work with us, and when we make them want to and when we show that we have a potential in line with real values and that behind this potential lies a virtuous circle. Seeing that the commitment made is respected, the following year the supplier has confidence and that's how it is built and we move forward with the supplier.* (Resp 1)

It is, therefore, essential to select reliable suppliers carefully who will be able to provide support and solutions to the firm over the long-term. The purchasing agent will then be able to support innovation processes with the supplier.

One respondent recounted an example in which a supplier proactively proposed a new, greener solution. This solution consisted of a reusable odour filter to replace the disposable filters used previously. The innovation suggested by the supplier led the company to co-develop the new filters with him to integrate this solution within the group. As a result of this eco-innovation, the partners have achieved a significant reduction in waste, as well as a decrease in their costs, and the product's lifespan has been increased. The purchasing department encourages its suppliers to be proactive:

> *I spend a lot of time with the suppliers, they come to see us on site or they send samples. If I have an environmentally friendly product to develop, I will first talk to my suppliers to see if they can help us do it.* (Resp 2)

4.3 The individual purchasing agent's willingness and sensitivity in focussing on the end customer

We observed in many of the interviews that, through their detailed understanding of the needs of the end customers, the purchasing agents act upstream and can anticipate future eco-innovations:

> *We are integrated at a very early stage of the innovation process, known as sustainable innovations. I consider that the further away the buyers are from reality, from our end customer, the less innovation there will be adapted to the customer's real needs[. . .] Never forget, the client is our boss!* (Resp 9)

The purchasing agent is sensitive to the expectations of the end customer, particularly with regard to sustainability. By focussing on these aspects, the agent can proactively propose ideas to suppliers and internally through lobbying:

> *Suppliers and production management are not aware of the level of demand from the end consumer. We explain what is important for us and therefore for our end customer!* (Resp 6)

This can be linked to curiosity and the capacity to have a holistic view that influences the individual's innovation behaviour.

4.4 The intrinsic and societal values of the purchasing agent

During the interviews we conducted, we observed that eco-innovation initiatives are mainly and surprisingly the result of personal initiative on the part of the purchasing agent. Through personal convictions and values, the purchasing agent will seek and propose a more ecological and innovative approach to internal customers when they submit what they need, favouring a co-development or evolutionary development of the specifications to bring the agent's expertise and that of the suppliers in terms of eco-innovation:

> *I'm involved as a citizen, also in professional buyers' networks to keep an eye on the market every week, to follow the ecological innovations that could fuel my ideas and the projects I believe in.* (Resp 2)

Purchasing agents will be quicker to use their resources, time, in this case, to achieve goals that correspond to their values and which they can achieve individually. Through their convictions, purchasing agents, thus, build a unique body of knowledge that is their own (through the active capture of knowledge regarding their interests), step by step becoming an expert in eco-innovation in relation to their particular commodity:

> *A buyer in my team proposed to recover fruit water, low in calories and mix it with the fruit juice. The objective is to reduce sugar and calories: to obtain a product 100% from the same fruit. This is a radical innovation for the market.* (Resp 7)

This point echoes the importance of the personal values: a purchasing agent convinced of the importance of eco-innovation will pose less resistance and will even suggest ideas on some eco-innovation projects.

4.5 What barriers and obstacles are encountered?

Resistance to change on the part of the purchasing agent was widely cited by the respondents. It appears to be one of the main limits to the integration of purchasing, as eco-innovation objectives are sometimes considered an additional constraint and not a strong added value. For example:

> *We realize that people do not like change. Indeed, to transform processes, to innovate while considering environmental or social constraints, purchasing should necessarily be a source of change and propose to work differently with suppliers and internal clients. You can't work in your own corner, it's much too dangerous! So, you need to be convinced as well as the project's team.* (Resp 9)

The lack of harmonised indicators on sustainable procurement was found to be another of the most frequently cited barriers. One of the main obstacles to the development of eco-innovation is that the purchasing agent is still often seen as simply a "cost-killer." For many respondents, the objectives of economic profitability and financial performance are at the heart of their concerns. The senior management, therefore, sets cost reduction objectives that the purchasing department must achieve. To measure the purchasing department's performance on these objectives, one of the only indicators used is directly related to the savings achieved. Thus, these objectives and indicators lock purchasing agents into a purely cost-reduction role. This does not encourage them to take further action, as most of them are not evaluated on other criteria. As the long-term savings do not figure into any envisioned business plans or budgetary cycles, it is difficult to justify spending more money than allotted for the procurement of sustainable solutions or products.

At last, our respondents also consider that consumer adoption of eco-innovation is key for the business, and innovation success. If it is not the case then, the eco-innovation cannot be kept on the marketplace in a sustainable manner:

> *The cost and the willingness (or not) of the end customer to accept and buy-in this innovation. The market has to be ready!* (Resp 10)

5. Discussion

In this study, we aimed to investigate the involvement of purchasing agents for the purpose of eco-innovation, a topic deemed necessary (Preuss, 2007) but not often studied empirically in the literature (Klewitz and Hansen, 2014; Maçaneiro *et al.*, 2013). We considered firms' internal factors (e.g. capabilities and resources) and the external factors that foster the involvement of purchasing in the development of eco-innovations.

5.1 Intra-organisational factors in fostering the involvement of purchasing in eco-innovation

Similar to previous studies, our results show that firms develop a general management strategy as part of a sustainable and environmentally-oriented approach (Appolloni *et al.*, 2014; Giunipero *et al.*, 2012). This strategy is not simply a display, but a reality experienced on a day-to-day basis by all the company's players. This result complements those of Buhl *et al.* (2016), who stress the importance of a deliberate corporate strategy.

In line with, for example, Preuss (2007) and Van Kemenade and Teixeira (2017), commitment to environmental certifications is of great interest for procurement to bring value during eco-innovation, and determining factors of eco-innovation performance (Resp 4–6). Some respondents in our study stressed that innovation and sustainable development must also be part of the strategic objectives of purchasing departments (Resp 1–7, 9 and 10).

Firms give their employees the freedom to undertake innovative projects. Moreover, our results show the willingness of purchasing agents to contribute to eco-innovation. The notion of commitment to employee initiative was raised by Renwick *et al.* (2013). In a complex, uncertain and rapidly changing world, purchasing agents must carefully observe, find and seize opportunities arising from meetings at trade fairs or with suppliers or have sufficient confidence in their own creativity to propose eco-responsible ideas. Thus, according to our respondents, the innovation process starts with "one person," in this case, the purchasing agent, who innovates. The ability to take on the role of an individual entrepreneur is known and dear to Schumpeter (1980).

Through the lens of stakeholder theory, "some of the stakeholders that are influential inside the firm include employees and mid-level managers" (Meixell and Luoma, 2015, p. 70). The purchasing agent is involved early in the innovation process and can add value (Luzzini *et al.*, 2015) and influence, as well as being able to involve the supplier early in the strategic process (Schiele, 2006).

5.2 Inter-organisational factors in fostering the involvement of purchasing in eco-innovation

It is known that firms rely on the products and services they buy from their suppliers to improve their own market offering and to increase the overall profitability of their firm (Ulaga, 2003). Organisations with proactive approaches to collaboration with supply chain actors develop more innovative solutions (Soosay *et al.*, 2008). Kern *et al.* (2011) consider that suppliers are the stakeholder group with the strongest impact on purchasing performance. The importance of developing a high-quality relationship with suppliers appears to be essential to the development of eco-innovation. Within eco-innovation, our results point to the exchange of information, cooperation and the pooling of the resources of each party as being essential. In this way, the supplier will have better knowledge of the internal organisation (its processes and implicit needs) and be in a better position to help its customers. The supplier will also be able to be a force for offering suggestions and sharing practices or ideas for eco-responsible innovations. This attitude requires a strong integration of the stakeholders and a consequent commitment from them in the implementation and follow-up of a common decision system. For optimal collaboration, communication and exchanges between the two parties must, therefore, be regular and valued (Awan *et al.*, 2019).

It is, therefore, essential to take the time to select reliable suppliers who will be able to provide support and solutions to the company over the long-term. These results are in line with the work of Castaldi *et al.* (2011), who stress the importance of supplier involvement in the context of innovation, and of Cicconi (2020) in projects specifically related to eco-innovation.

5.3 The individual purchasing agent's willingness and sensitivity in focussing on the end customer

We observed because of the respondents' answers, that, through a detailed understanding of the needs of end customers, purchasing agents act upstream and are able to anticipate future eco-innovations. Purchasing agents are sensitive to, and therefore, influenced by the expectations of end customers, particularly with regard to aspects of sustainability. By focussing on these aspects, agents can proactively propose ideas to suppliers and internally through lobbying (Resp 2, 5, 7).

5.4 The intrinsic and societal values of the purchasing agent

Previous study has underlined that eco-innovation was predominantly brought about by legislation (Preuss, 2007). Although standards and regulations in terms of sustainable development are increasingly becoming more rigorous and are no longer simply recommendations, our results highlight that eco-innovation approaches are mainly the result of personal initiative on the part of the purchasing agent. Indeed, through personal convictions and values, purchasing agents will seek and propose more ecological and innovative approaches to their internal customers when they put forward a requirement, favouring the co- or evolutionary development of the specifications to bring the agents' expertise and that of their suppliers to an eco-innovation.

As individuals, purchasing agents will be quicker to use their resources to achieve goals that correspond to their values and which they can achieve individually. Personal involvement seems to be a necessary component to circumvent the many difficulties. By virtue of their personal values and intrinsic motivations, purchasing agents will tend to seek, detect and favour eco-innovation actions and in their initiatives that are within the scope of their area of technological expertise. Our results address social dimensions that have not previously been studied in the sustainability SCM and purchasing literature (Lopes de Sousa Jabbour *et al.*, 2018).

Buhl *et al.* (2016) considered that the multiple potential and innovative capacity of employees in eco-innovation processes had hardly been examined. Our results reveal a potential differentiating role of the purchasing agent in the eco-innovation process. In this sense, this result highlighted something unexpected.

If a purchasing agent is to bring an eco-innovation project to the management committee and defend it to all internal and external stakeholders, the purchasing department must develop the leadership and influence skills to persuade internal departments to accept the shift in approach and collaborate on projects to bring about a change in processes. This result is, to the best of our knowledge, a contribution to the literature. From the stakeholder lens, we show the role and influence of the internal stakeholder, here purchasing agent, in the eco-innovation activity.

Our analysis of the cases revealed some differences of opinion that can be linked to the size of the company, such as the reason for implementing eco-innovation projects. For example, Resp 2 (a raw material purchasing manager) acknowledged that it is essentially because of the growing demand of customers and the regulatory and legal requirements that her organisation has adapted a strategy for certain categories of purchase. Thus, this organisation has a reactive adoption profile as a response to constraints or pressures from its stakeholders (Porter and Kramer, 2006).

5.5 What are the barriers to resources?

Resource barriers are issues to do with capacity (e.g. resource shortages) and capability (e.g. gaps in knowledge). Purchasing agents should not simply be seen as cost-killers because a mature purchasing department is an asset to developing competitive advantages through innovation (Luzzini *et al.*, 2015). This is all the more relevant given that environmental clauses are increasingly being imposed that means that suppliers must be involved upstream to capture the innovations needed to achieve performance objectives, particularly in terms of energy efficiency. This result confirms previous research (Lintukangas *et al.*, 2019).

Resistance to change was cited by the respondents we surveyed. This resistance appears to be an important limit, as it means that eco-innovation objectives are considered an additional constraint and not as having strong added value. The purchasing agent's ability to support internal and external actors in change management seems to be a major asset in this context. At last, our respondents (Resp 2, 7, 9 and 10) consider that consumer adoption of eco-innovation and their readiness for the eco-innovation is key for the business, and eco-innovation success. This is an additional proof that the purchasing agent because of his holistic view, develops his behaviour versus innovation and takes into consideration the end-consumer.

6. Conclusion

This study provides new insights into the constituent resources needed for successful purchasing considerations during eco-innovation to obtain a sustainable competitive advantage. We first and foremost show empirical evidence from our results that firms are visibly progressively engaging in eco-innovation.

Purchasing and supply activities are both recognised for their strategic importance in achieving a firm's long-term performance and in addressing sustainability issues. Limited research is available regarding what capabilities are needed for sustainable purchasing during eco-innovation. Therefore, we aimed to investigate the involvement of purchasing agents for the purpose of eco-innovation, a topic deemed important but not often studied empirically in the literature (Klewitz and Hansen, 2014; Maçaneiro *et al.*, 2013). We can reasonably put forward the idea that the purchasing agent represents a key resource in an eco-innovation activity. Thus, we considered firms' internal factors (e.g. capabilities and resources) and the external factors that foster the involvement of purchasing in the development of eco-innovation.

The results showed that the support of the general management strategy in a sustainable, environmentally-oriented approach is also conducive to the development of eco-innovation. Without an overall strategy, the introduction of objectives at the level of the purchasing department and potential performance indicators that bring together ecology and innovation are limited. This result complements those of Buhl *et al.* (2016), who show the importance of establishing a deliberate sustainability strategy at the level of the company's management. Finally, statements collected from some participants indicate that engagement in environmental certifications generates great opportunities for eco-innovation, which tends to confirm the results of previous studies (Van Kemenade and Teixeira, 2017).

Drawing on Silvestre's (2015) recent call for further research on the interaction between stakeholder theory and the sustainable SCM discourse, this study provides empirical findings on a functional level. We aim to address a gap in previous research regarding the extent to which companies consider the internal and external stakeholders in their upstream supply chains in their eco-innovation activities.

Using the stakeholder lens, we show the role and influence of some of the internal and external stakeholders in the eco-innovation activity generated and driven by purchasing agents. In addition, with regard to external stakeholders, purchasing departments are increasingly looking outwards to capture innovation. Collaboration with strategic suppliers allows the emergence of ideas and the creation of new concepts, processes or products that will help the company to differentiate itself. The purchasing department is, thus, encouraged to communicate to suppliers its desire to create a partnership and to adopt an Open Innovation model that focusses primarily on eco-innovation projects. The strong relationships built over time between business partners help to strengthen their commitment and involvement in innovative projects. Moreover, the ideas carried by suppliers often represent powerful relays for potential value creation. The proactivity shown by purchasing agents often favours the commitment of stakeholders who are prominent in innovative thinking.

Finally, the profile of purchasing agents must be in line with the firm's current issues. The adoption of systems thinking (Bals *et al.*, 2019) is a key capability for the purchasing agent to acquire within the eco-innovation context. Furthermore, we show that entrepreneurial capacity, purchasing agents' individual sensitivity to issues related to sustainable development, as well as their personal values, have a strong

impact on the missions and choices made. By virtue of their personal values and intrinsic motivations, purchasing agents will tend to seek, detect and favour eco-innovation actions and initiatives. Furthermore, our results address social dimensions that have not previously been studied in the sustainability SCM and purchasing literature (Lopes de Sousa Jabbour *et al.*, 2018). Our study contributes to the literature and shows that there is also a need to raise awareness and possibly train the various actors in this subject.

The skills and resources held and mobilised by buyers are essential to a firm's operating activities. Nevertheless, these factors are not sufficient to explain the eco-innovation generated by the buyers' actions. Overcoming constraints on functions useful for exploration activities requires the mobilisation of resources and skills held by internal stakeholders, as well as others present outside the firm's boundaries. Thus, the combination of buyers' know-how and skills in their relations with stakeholders will contribute to the emergence of proactive sustainable behaviours that are a vector for eco-innovations on the part of their partners in the supply chain.

7. Limitations and research perspectives

The majority of our respondents come from organisations in which the observation of eco-innovation was possible during our interviews. Often, those organisations are large firms that belong to international groups. Contextual factors, such as the significance of the sector of activity, represent interesting perspectives when studying eco-innovation and indicate a path for further research.

We did not include respondents from start-ups with a business model developed entirely around the issue of sustainable development and eco-innovation. We can observe this trend as a result of the flourishing number of innovative start-ups on this theme. For example, the French Too Good To Go fights against food waste across 14 European countries, and the fully edible and biodegradable Ooho water bubble of the British Skipping Rock Labs aims at reducing the production of plastic waste. These start-ups have a very specific culture and strategy, and we can assume that eco-innovation will be part of their DNA. Studying the role and place of the purchasing department in these structures represents relevant research perspectives. At the same time, this raises the issue of Open Innovation (Chesbrough, 2003), defined as the collaboration between start-ups offering eco-innovation and large groups offering financial resources. Many large international groups are developing start-up incubators to capture innovation, and eco-innovation, at the source. The role and place of the Open Innovation purchasing agent with start-ups in the field of eco-innovation is, therefore, a line of thought to be considered in future research.

As our study is exploratory, we suggest extending this work in the future by mobilising resources oriented towards environmental protection within the framework of the innovation activity in Hart's (1995) natural-RBV model. This model would allow us to identify which strategy is implemented by purchasing agents in SCM to adopt eco-innovation. The model would potentially be very helpful for managers intending to define and develop eco-innovation in SCM more simply.

Another future research direction could be to address in depth the issue of conflict within the supply chain of implementing eco-innovation solutions at potentially higher costs and the inherent push by companies on their supply chains to deliver lower costs.

There are other potential opportunities for future research. In regard to the COVID-19 pandemic and uncertain business environment, digitalisation is viewed as a driver to obtain greater supply chain resilience (Zouari *et al.*, 2021). Furthermore, numerous studies underline the need to explore the implications of technologies for sustainability in SCM (Liu *et al.*, 2020; Sarkis *et al.*, 2020), together with innovation (Bag *et al.*, 2020). For example, big data, known as one of digital tools, refers to cleaner production through eco-innovation and to the potential in decreasing CO_2 emissions (Munodawafa and Johl, 2019). Also, digitalisation can improve eco-design. As Gu *et al.* (2019) note, information sharing among stakeholders and data exchanges during the development and manufacturing phases can provide useful data to make products and production processes more sustainable. Digitalisation can impact working conditions in a positive or negative manner; therefore, it relates to social sustainability performance (Beltrami *et al.*, 2021). Indeed, digitalisation talent capabilities result in effective employee development, which can generate new employee competencies (Bag *et al.*, 2020).

It appears that the literature focusses on the pros of these new technologies but rarely on the cons, and especially from the social perspective (Liu *et al.*, 2020). As moving forward with technological innovativeness is highly desirable (Bag *et al.*, 2020), it would be essential to investigate further this in the context of eco-innovation in the upstream supply chain.

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VIALE Laurence, VACHER Stéphano, BESSOUAT Jeanne (2022), Eco-innovation in the upstream supply chain: re-thinking the involvement of purchasing managers. Supply Chain Management: An International Journal

En lien avec l'objectif n°12 de l'ONU « ***assurer des modes de consommation et de production durables*** » (Nations Unies, 2020, p. 48)[1], le concept d'éco-innovation (E-I) renvoie à la fois aux produits et processus qui diminuent de manière significative l'impact sur l'environnement (Fussler et James, 1996), à l'innovation dans les technologies (Chen et al., 2006) ou encore à l'utilisation des ressources (Kemp et Pearson, 2007). Dans tous les cas, l'analyse **des facteurs internes des organisations** favorisant l'E-I demeure une perspective de recherche (Díaz-García et al. 2015) – questionnant notamment l'implication des employés (Buhl et al., 2016). Dans cette perspective, notre étude s'intéresse à l'intégration par les entreprises des parties prenantes internes et externes dans leurs activités d'E-I, en répondant à la question suivante : **Quelles sont les ressources constitutives nécessaires pour favoriser l'implication des achats dans l'éco-innovation afin d'obtenir un avantage concurrentiel durable ?**

Davantage de recherches qualitatives sont nécessaires (Mangan et al., 2004 ; Näslund, 2002 ; Towers et al., 2020), afin de ne pas réduire les études sur le management des Achats à un seul paradigme de recherche (Wagner et Fearne, 2015). L'étude qualitative exploratoire proposée (Tukamuhabwa et al., 2017) est complétée par d'importantes données secondaires complémentaires. **Les données secondaires gagnent en importance dans la recherche sur le management des achats (**Ellram et Tate, 2016, p. 250) et offrent souvent des mesures qui ajoutent de la crédibilité lorsqu'elles sont combinées aux résultats d'autres études (Ellram et Tate, 2016, p. 251). Les données secondaires doivent également avoir une validité contextuelle pour être utilisées

de manière significative (Ellram et Tate, 2016). Pour notre recherche, **les données secondaires nous aident à déterminer si l'éco-innovation est une réalité dans de nombreuses entreprises**.

En se basant sur une étude de l'Institut national de la statistique et des études économiques (INSEE, mai 2019), **un échantillon de 80 445 entreprises de différents secteurs** permet de préciser la réalité du contexte de l'éco-innovation dans les entreprises françaises. L'étude de l'INSEE vise à établir un inventaire des entreprises engagées dans le développement durable et la responsabilité sociale des entreprises. Le concept d'éco-innovation (Arundel et Kemp, 2009) est abordé dans le questionnaire par la question suivante : *Développez-vous des éco-innovations, c'est-à-dire des biens ou services plus respectueux de l'environnement ? (Oui/Non).*

Ces importantes données complémentaires soulignent l'importance de la taille et des secteurs d'activités pour l'activité d'E-I. En effet, l'E-I est davantage développée dans les entreprises de taille moyenne (250 employés et plus ; 35,9%) et les grandes entreprises (500 employés et plus ; 46,3%). Cela peut s'expliquer par la perception qu'ont les petites et moyennes entreprises du concept et de la définition de l'E-I. Il existe également un effet de taille, lié à la structure organisationnelle. Les grandes et moyennes entreprises sont plus susceptibles de disposer d'un service d'achat opérationnel et structuré que les petites entreprises. Ces données complémentaires contextualisent l'E-I au sein des entreprises françaises – qui **s'engagent visiblement de manière progressive dans l'E-I,** sans pour autant identifier quels sont les principaux acteurs de l'activité d'E-I au sein d'une chaîne d'approvisionnement.

Pour mettre en évidence les mécanismes sous-jacents à l'activité d'E-I révélée, nous avons étudié les perceptions, les récits et les pratiques des acheteurs au travers d'entretiens semi-structurés (Yin,

2009), recueillant des informations sur les expériences, les opinions, les croyances ou les motivations des individus (Papalexi et al., 2020). Au total, 10 répondants hautement qualifiés ont été interviewés, tous acteurs au sein de départements achats ayant participé à des projets d'E-I.

Au niveau organisationnel, nous démontrons qu'une stratégie de l'entreprise incluant une approche durable est propice au développement de l'E-I – au travers par exemple de la mise en place d'indicateurs de performance réunissant écologie et innovation au niveau du département des achats. Ce premier résultat complète ceux de Buhl et al. (2016) sur l'innovation pilotée par les employés, en l'appliquant au cas spécifique de l'E-I et des acheteurs. Nous montrons également que l'engagement dans des certifications environnementales génère des opportunités d'E-I, dans la lignée des travaux de Van Kemenade et Teixeira (2017).

Au niveau individuel, plusieurs facteurs émergent de nos données.

- **La sensibilité de l'acheteur aux enjeux du développement durable**

Grâce à une compréhension détaillée des besoins des clients finaux, notamment en matière de durabilité, l'acheteur peut proposer des idées d'E-I de manière proactive aux fournisseurs ou en interne, par le biais du lobbying.

- **Les valeurs intrinsèques et sociétales de l'acheteur**

Des études antérieures ont souligné l'impact de la législation sur les E-I (Preuss, 2007). Bien que les normes et réglementations en matière de développement durable soient de plus en plus rigoureuses, nos résultats prouvent que les démarches d'E-I sont davantage le fruit d'une initiative personnelle de l'acheteur – basée sur ses convictions et ses valeurs personnelles. La théorie des parties prenantes nous permet alors de démontrer l'influence de certaines parties prenantes internes

et externes dans l'activité d'E-I conduite par les acheteurs. Les services d'achat se tournent de plus en plus vers les fournisseurs pour capter l'innovation. La collaboration renforcée et avec les fournisseurs stratégiques facilite l'émergence d'un modèle d'innovation ouverte, favorisant les projets d'E-I. La proactivité des acheteurs garantit alors les réflexions innovations et l'engagement des fournisseurs, ces derniers permettant le partage d'idées ayant un potentiel de création de valeur. Dans la perspective de la théorie des ressources et de la théorie des parties prenantes, les parties prenantes internes et externes ont été identifiées en ce qui concerne les activités d'EC. Nous examinons ce phénomène complexe en soulevant certains facteurs intra- et inter- organisationnels, ainsi que des aspects plus individuels, tels que la sensibilité de l'acheteur au développement durable. Ainsi, les acheteurs influencent et favorisent l'E-I en tant que parties prenantes internes. Nous montrons donc que les relations inter-organisationnelles sont portées par les individus au nom des organisations.

Bibliographie accessible et consultable https://hal.science/hal-03695500/document

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[1] United Nations. (2020), "The sustainable development goals report", available at: https://unstats.un.org/sdgs/report/2020/ The-Sustainable-Development-Goals-Report-2020.pdf