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Green Purchasing – A Cross-sectoral Analysis of Drivers and Practices

Zielone zakupy – międzysektorowa analiza czynników motywujących i praktyk

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ABSTRACT

Objective: This article examines the scope of the implementation of green purchasing (GP), the drivers for its implementation and the use of green purchasing practices (GPP) in selected sectors of Poland's B2B (Business to Business) economy.

Research Design & Methods: A review of the literature and the survey study using CATI (Computer Aided Telephone Interview) were conducted. The literature reviewed concerned green purchasing and green purchasing practices. The main concepts introduced in this paper are green purchasing, green purchasing drivers and green purchasing practices. Green purchasing practices are intended to integrate environmental management into an organisation's purchasing function.

Findings: The results concern the scope of implementation of the green purchasing concept, the drivers of implementing the green purchasing concept and the use of identified green purchasing practices in selected sectors of Poland's B2B market.

Implications/Recommendations: The article provides a basis for further studies related to green purchasing drivers and practices. The results could provide the foundation for a framework for companies seeking to implement green purchasing.

Contribution: The article will help readers understand the extent to which green purchasing is being used in selected areas of Poland's B2B market, the drivers for its implementation and the use of green purchasing practices. Recommendations for future research are also included.

Article type: original article.

Keywords: green purchasing, environmental purchasing, environmental management, B2B market.

JEL Classification: L14, M29, Q57.

STRESZCZENIE

Cel: Celem artykułu jest określenie zakresu wdrożenia koncepcji zielonych zakupów oraz czynników sprzyjających jej wdrożeniu, a także wykorzystania praktyk zielonych zakupów w wybranych sektorach rynku B2B (*business to business*) w Polsce.
Metodyka badań: W artykule dokonano przeglądu literatury oraz przeprowadzono badanie ankietowe z wykorzystaniem techniki CATI (*computer aided telephone interview*). Przegląd literatury dotyczy obszaru zielonych zakupów i zielonych praktyk zakupowych. Głównymi pojęciami zastosowanymi w opracowaniu są zielone zakupy, czynniki stymulujące zielone zakupy i zielone praktyki zakupowe. Te ostatnie mają na celu integrację zarządzania środowiskowego z funkcją zakupową organizacji.
Wyniki badań: Wyniki dotyczą zakresu wdrożenia koncepcji zielonych zakupów, czynników stymulujących jej wdrożenie, a także wykorzystania zidentyfikowanych zielonych praktyk zakupowych w wybranych sektorach rynku B2B w Polsce.
Wnioski: Przeprowadzone badania mogą stanowić podstawę dalszych analiz dotyczących czynników stymulujących zielone zakupy i zielone praktyki zakupowe. Ich wyniki mogą posłużyć do stworzenia ram wdrożenia koncepcji zielonych zakupów w przedsiębiorstwie.
Wkład w rozwój dyscypliny: Oryginalność artykułu polega na określeniu zakresu wdrożenia koncepcji zielonych zakupów w wybranych sektorach rynku B2B w Polsce. W tym celu w badaniu uwzględniono czynniki motywujące do wdrożenia tej koncepcji oraz wykorzystanie praktyk zielonych zakupów. Ponadto wartość dodaną stanowią również rekomendacje dla przyszłych badań.

Typ artykułu: oryginalny artykuł naukowy.

Słowa kluczowe: zielone zakupy, zarządzanie środowiskowe, rynek B2B.

1. Introduction

Growing environmental consciousness has increased end consumers' expectations of products and services concerning their environmental impact (Hazaea *et al*. 2022, Kabaja *et al*. 2022, Ozaki & Sevastyanova 2011, Peattie 2010, Young *et al*. 2010). Those expectations extend to the producers of these products as well as service providers. One means of enforcing pro-environmental requirements is to implement the concept and practices of green purchasing (GP). GP is also seen

as a green supply initiative. Such initiatives are intended to minimise various types of environmental impacts along the supply chain (ElTayeb, Zailani & Jayaraman 2010).

The goal of this article is to determine the scope of the implementation of GP, the drivers of its implementation and the use of GP practices in selected sectors of the B2B (Business to Business) sector in Poland. The secondary goal is to determine to what extent implementing GP practices involves cooperation between the company studied and its suppliers.

The present research is essential given the overall scarcity of work on the practical application of GP, especially in Europe. It is also consistent with the EU's Environment Policy (*Environment Policy…* 2021).

The following research questions were formulated:

1. Has GP been implemented in companies operating in Poland? Is it going to be?
2. What are GP practices and how are they important?
3. What are the drivers of GP and how are they important?

GP can be defined as measures taken to reduce the different kinds of negative environmental impact in the purchasing process (ElTayeb, Zailani & Jayaraman 2010, Luthra, Garg & Haleem 2014, Min & Galle 2001). Negative environmental impacts include the results of activities that pollute the environment, including solid waste emission, GHG emission and waste water discharge.

Hence, GP practice can be defined as the business practice of reducing the different kinds of negative environmental impacts that occur in the purchasing process. The goal of GP is to facilitate recycling, reuse and reducing resource use and waste production that uses purchasing activities (ElTayeb, Zailani & Jayaraman 2010, Large & Gimenez Thomsen 2011).

Several phrases other than "green purchasing" are used by scholars to characterise GP, including: "environmental purchasing" (Björklund 2011), "green supply" (Bowen *et al*. 2006), "green procurement" (Blome, Hollos & Paulraj 2014), and "sustainable sourcing" (Appolloni *et al*. 2014, Giunipero *et al*. 2019). However, "green public procurement" is distinct from these. This form of procurement involves reducing different kinds of environmental impacts in public procurement (Cheng *et al*. 2018, De Giacomo *et al*. 2019). Public procurement depends on the legal regulations and the environmental policy of the respective countries involved. Hence, green public procurement is also related to these issues. Another concept, circular purchasing, involves closing the supply chain loop, but not necessarily minimising different kinds of environmental impacts (Neessen *et al*. 2020).

This article consists of an introduction, a description of the study, a description of GP drivers and GP practices, a results and discussion section, and a conclusion describing limitations of the study, the implications for business practice, and areas for future research.

2. Description of the Study

The study consisted of the following six stages:

1) literature query using selected keywords,
2) the literature review,
3) GP practices and the GP drivers were identified,
4) the empirical study and the CATI (Computer Aided Telephone Interview) questionnaire were prepared,
5) the study was performed using CATI technique,
6) the results of the study were analysed.

The literature review was done in July of 2019 using the Scopus database, with the initial query performed as follows. The phrases "green purchasing" and "environmental purchasing" found in the title, abstract or as keywords were searched for. No limits on the year of publication were set. Table 1 presents the numbers of publications for the specific keywords.

Table 1. Results of the Literature Query

Years	Keywords		Total
	green purchasing	environmental purchasing	
2011–2019	207	20	227
2001–2010	65	10	75
1994–2000	9	7	16
Total	281	37	318

Source: the author.

After the initial query, papers related to the focus area were selected. Some phrases referenced the same articles. Articles not related to the focus area were not subjected to wider analysis. This phase of the study resulted in the typology of identified GP practices that is described in the next section.

The CATI study was prepared using the GP practices identified. The empirical study was performed on a group of 151 medium and large companies from six production sectors operating in Poland: chemical, pharmaceutical, IT and optical equipment, electrical, automotive and furniture production. These industries were chosen due to the relatively high level of environmental impact they generate. Larger companies were chosen because they have more complex management systems than smaller ones. Company size was determined by number of employees. Purposive sampling was chosen as the sampling method because the research had an exploratory character. A medium company employs between 50 and 249 employees while a large company employs at least 250. The focal companies were chosen using the

Polish Classification of Economic Activities (pl. Polska Klasyfikacja Działalności). The purpose of the empirical research was to determine the scope and drivers of GP implementation and the use of GP practices in selected sectors of B2B market in Poland.

The 151 companies comprised 92 Polish, 30 foreign and 29 mixed-source capital (joint-venture) companies. The respondents were managers and specialists responsible for purchasing management in their companies. They were asked these questions:

Q1: Have you implemented GP in your company?

Q2: What is the importance of the following GP practices for your company?

Q3: What is the importance of the following GP drivers for your company?

Question 1 (Q1) concerned the practical application of GP in the company. It was designed to reflect the key assumption of the article: the introduction of GP in the company can be measured by the company's use of GP practices. The Likert scale was used to enumerate the scope of possible answers. The scale was adjusted for the first question insofar as it contained six possible answers (despite the fact that the Likert scale should contain an odd number of possible answers). The number of potential possibilities regarding the knowledge and practical application of GP made this adjustment necessary. The following were the possible answers to Q1:

0 – We have not and we do not know about the concept.

1 – We have not, but we are familiar with the concept.

2 – We have not, but we are planning to.

3 – We are currently implementing it.

4 – We have, but it did not meet our expectations.

5 – We have and it met our expectations.

Q2 and Q3 related to the use of GP practices and the drivers of its implementation. The scale used for both those questions contained five possible answers: 1 – no importance, 2 – little importance, 3 – medium importance, 4 – high importance, 5 – key importance.

If the answer to Q1 was "We have not and we do not know about the concept", then Q2 and Q3 were skipped. Furthermore, if the answer to Q1 was "We have not, but we are familiar with the concept", then Q3 was skipped (see Table 2).

Table 2. Questioning Methodology

Answers for Q1: Have you implemented GP in your company?	Was Q2 used?	Was Q3 used?
We have not, we do not know this concept	no	no
We have not, but we know this concept	yes	no
We have not, but we are planning on it	yes	yes

Table 2 cnt'd

Answers for Q1: Have you implemented GP in your company?	Was Q2 used?	Was Q3 used?
We are doing so currently	yes	yes
We have, but it did not meet our expectations	yes	yes
We have and it met our expectations	yes	yes

Source: the author.

The questioning methodology resulted from two assumptions. The first was that unbiased answers for Q2 can be given only by respondents that are familiar with GP. The second was that unbiased answers for Q3 can be given only by respondents at companies where GP has been, is being or is going to be implemented in the near future.

3. Green Purchasing Drivers

The main assumption regarding GP drivers is as follows: a GP driver is a driver that can be directly related to the implementation of GP or the implementation of at least one GP practice. The most complex classification of drivers directly related to GP was provided by Bowen *et al*. (2006), who described or mentioned nearly all of the GP drivers listed.

Chien and Shih (2007) developed a framework linking the implementation of practices related to green supply chain management practices (including GP practices) with stakeholder pressures and environmental and financial performance. While they did not distinguish individual GP practices, their results support the relationship between GP practices and measures including cost reduction, market pressure and regulatory pressure. GP practices are also considered external practices of green supply chain management that might not be controlled by one company, since there are at least two companies involved (Khan *et al*. 2022). Hsu *et al*. (2013) added market pressures and regulatory pressures to the list of drivers while Wu, Tseng and Vy (2011) contributed satisfying customer needs as one of the drivers of green supply chain management.

ElTayeb, Zailani and Jayaraman (2010) provided another overview of GP drivers, listing customer pressure, expected business benefits, regulatory pressures and social responsibility among the drivers. Factors listed by Yang and Zhang (2012) were consistent with the previous findings. A comprehensive classification of the GP drivers identified is shown in Table 3.

A majority of scholars point to the significance of market pressures and regulatory pressures as GP drivers. This may be because all other drivers might grow indirectly out of regulatory and market pressures. However, adopting such an

approach can lead to the conclusion that all company activities are related (directly or indirectly) to regulatory and market pressures.

Table 3. Overview of Green Purchasing Drivers

Green purchasing drivers	Source and year
Firm performance / firm profitability	Dubey *et al*. (2013), ElTayeb, Zailani & Jayaraman (2010), Giunipero, Hooker & Denslow (2012)
Image / manage reputational risks	Bowen *et al*. (2006), ElTayeb, Zailani & Jayaraman (2010), Giunipero, Hooker & Denslow (2012), Micheli *et al*. (2020), Sarkar *et al*. (2021), Zimon, Tyan & Sroufe (2020)
Eliminating / reducing demand for environmentally harmful raw materials	Bowen *et al*. (2006), Yang & Zhang (2012)
General cost reduction / resource cost reduction / energy cost reduction	Bowen *et al*. (2006), Chien & Shih (2007), Giunipero, Hooker & Denslow (2012), Sarkar *et al*. (2021), Sarkis (2014)
Responding to public concern / socio-cultural responsibility / corporate social responsibility	Appolloni *et al*. (2014), Bowen *et al*. (2006), ElTayeb, Zailani & Jayaraman (2010), Grzybowska (2012), Micheli *et al*. (2020), Sarkar *et al*. (2021), Thaib (2020), Yang & Zhang (2012)
Market pressures / competition / meeting market expectations / customer satisfaction	Appolloni *et al*. (2014), Blome, Hollos & Paulraj (2014), Bowen *et al*. (2006), Chien & Shih (2007), Dubey *et al*. (2013), ElTayeb, Zailani & Jayaraman (2010), Giunipero, Hooker & Denslow (2012), Guo *et al*. (2021), Hsu *et al*. (2013), Micheli *et al*. (2020), Sarkar *et al*. (2021), Thaib (2020), Wu, Tseng & Vy (2011), Yang & Zhang (2012), Zimon, Tyan & Sroufe (2020)
Facilitating legislative compliance / regulatory pressure / meeting standardisation requirements	Appolloni *et al*. (2014), Bowen *et al*. (2006), Chien & Shih (2007), Dubey *et a*l. (2013), ElTayeb, Zailani & Jayaraman (2010), Giunipero, Hooker & Denslow (2012), Hsu *et al*. (2013), Micheli *et al*. (2020), Sarkar *et al*. (2021), Tarigan, Tanuwijaya & Siagian (2020), Thaib (2020), Wu, Tseng & Vy (2011), Yang & Zhang (2012), Zimon, Tyan & Sroufe (2020)

Source: the author.

Taking into account the GP practices listed above, the following question arises: to what extent do individual drivers influence the implementation of the individual practices in the focal company?

4. Green Purchasing Practices

Bowen *et al*. (2006) described the "apparent paradox" between the increasing need to implement the GP in theory and its slow implementation in practice.

They attribute this paradox to a diverse range of practices implemented by companies and a diverse range of drivers leading to these practices being implemented.

The key assumption of this article is the following: the introduction of GP in a company can be measured by its use of GP practices. Dubey *et al*. (2013) see such an introduction as the first step in greening an organisation. A purchasing practice can be defined as a practice aimed at fulfilling the company's purchasing needs. A GP practice can be defined as a purchasing practice intended to reduce the different kinds of environmental impacts.

There are numerous GP practices described in the literature. Min and Galle (1997) developed one of the first classifications of GP practices. They focused mainly on practices related directly to the objects being purchased, e.g. biodegradability or reuse capability. Later, they listed supplier involvement in developing environmentally friendly products and providing environmentally friendly packaging (Min & Galle 2001). Bowen *et al*. (2006) described the classification of GP practices, including product- and product-oriented practices. Other practices associated with GP are environmental collaboration and environmental monitoring (Vachon & Klassen 2006). Zhu and Sarkis (2006) also outlined cooperation with suppliers on environmental issues. Such issues included requiring suppliers to have an environmental management system, conducting an environmental audit of suppliers, providing design specification to suppliers that include environmental requirements for a purchased item, a requiring suppliers to have a certified environmental management system, an environmental audit of suppliers and evaluating suppliers for having environmentally friendly practices. Another classification provided by Chien and Shih (2007) includes the recovery and reuse of used products, assessment tables for the environmental management of suppliers and establishing a control list of environmentally hazardous substances.

Other GP practices include: cooperation and collaboration with a supplier to reduce or eliminate packaging, including environmental criteria in the selection of suppliers, joint clean technology and clean process development with suppliers, seeking to influence legislation in cooperation with suppliers, coordinating the minimisation of environmental impact over the whole supply chain, building environmental criteria into supplier contract conditions (Sarkis 2014), supplier environmental questionnaire, product content requirements, restrictions and disclosure, an environmental audit of suppliers (ElTayeb, Zailani & Jayaraman 2010) and a scoring system to rank suppliers on their environmental performance (Tate, Ellram & Dooley 2012).

There are also classifications of GP practices developed using a different approach. For example, Foo *et al*. (2019) described these GP practices: green supplier selection, green supplier development, green supplier collaboration and

green supplier evaluation. However, green supplier development and green supplier collaboration might be related to all other GP practices. Hence, only green supplier selection and evaluation were taken into account. Table 4 presents an overview of GP practices.

Table 4. Overview of Green Purchasing Practices

Green purchasing practices	Source and year
Cooperation / collaboration with suppliers on reducing environmental impacts	Blome, Hollos & Paulraj (2014), Bowen *et al*. (2006), ElTayeb, Zailani & Jayaraman (2010), Large & Gimenez Thomsen (2011), Liu & Liu (2010), Micheli *et al*. (2020), Sarkis (2014), Tarigan, Tanuwijaya & Siagian (2020), Tate, Ellram & Dooley (2012), Uygun & Dede (2016), Vachon & Klassen (2006), Zhu & Sarkis (2006)
Cooperation / collaboration with suppliers on reducing the use of packaging	Blome, Hollos & Paulraj (2014), Bowen *et al*. (2006), Large & Gimenez Thomsen (2011), Liu & Liu (2010), Min & Galle (2001), Nkrumah *et al*. (2021), Sarkis (2014), Tate, Ellram & Dooley (2012), Uygun & Dede (2016), Zimon, Tyan & Sroufe (2020)
Cooperation / collaboration with suppliers on recycling Cooperation / collaboration with suppliers on reuse of resources	Blome, Hollos & Paulraj (2014), Bowen *et al*. (2006), Chien & Shih (2007), Large & Gimenez Thomsen (2011), Liu & Liu (2010), Sarkis (2014), Tate, Ellram & Dooley (2012), Uygun & Dede (2016), Zimon, Tyan & Sroufe (2020)
Environmental selection and evaluation of suppliers Using environmental criteria in supplier assessment	Blome, Hollos & Paulraj (2014), Bowen *et al*. (2006), Chien & Shih (2007), ElTayeb, Zailani & Jayaraman (2010), Lahri (2020), Large & Gimenez Thomsen (2011), Liu & Liu (2010), Sarkis (2014), Shen *et al*. (2013), Tate, Ellram & Dooley (2012), Urbaniak & Sosnowski (2017), Zhu & Sarkis (2006), Zimon, Tyan & Sroufe (2020)
Cooperation / collaboration with suppliers on clean technologies	Bowen *et al*. (2006), Nkrumah *et al*. (2021), Sarkis (2014), Uygun & Dede (2016), Zimon, Tyan & Sroufe (2020)
Cooperation / collaboration with suppliers on reducing the use of resources Cooperation / collaboration with suppliers on reducing the use of energy	Chien & Shih (2007), ElTayeb, Zailani & Jayaraman (2010), Liu & Liu (2010), Tate, Ellram & Dooley (2012), Zhu & Sarkis (2006), Zimon, Tyan and Sroufe (2020)
Cooperation / collaboration with suppliers on LCA (Life Cycle Assessment) Cooperation/collaboration with suppliers on eco-design Cooperation / collaboration with suppliers on eco-innovation	ElTayeb, Zailani & Jayaraman (2010), Lahri (2020), Large & Gimenez Thomsen (2011), Micheli *et al*. (2020), Min & Galle (2001), Sarkis (2014), Tate, Ellram & Dooley (2012), Yang & Zhang (2012), Zimon, Tyan & Sroufe (2020)

Source: the author.

In view of the character of GP practices, some items on the lists were aggregated. For example, environmental criteria, environmental selection and the evaluation of suppliers were aggregated because both environmental selection and evaluation use environmental criteria to determine the value of activities and results obtained by suppliers (Ji, Ma & Li 2015). Aggregation was also used to help respondents better understand the survey.

All of the GP practices identified require the active or passive involvement of suppliers (Sosnowski 2019). The active involvement of a supplier might be described as involvement requiring the supplier to engage in activities such as joint-planning of goals or joint product design. This is outlined as collaboration with suppliers. Passive involvement of suppliers, on the other hand, can be understood as involvement requiring only the sharing the data or information regarding the supplier. This is outlined as cooperation with suppliers. Lamming and Hampson (1996) observed that collaboration with suppliers is a key issue.

Furthermore, environmental selection and evaluation of suppliers might involve not only initial and periodic assessment of suppliers, but also supplier certification and compliance auditing (ElTayeb, Zailani & Jayaraman 2010).

5. Results and Discussion

To continue the study, the results were divided into three totals: the sum of all answers ("TOTAL"), the sum of all answers implying that the respondent is familiar with GP ("1 + 2 + 3 + 4 + 5") and the sum of all answers implying that the respondent believed GP had been or was going to be introduced in the focal company. The results of the sector analysis, taking into account the scope of answers for Q1, are presented in Table 5.

As can be seen in Table 5, a relative majority (74.2%) of the respondents does not know about GP. Less than one-fifth of the respondents (16.6%) declared that GP had been or was going to be introduced in the focal company. However, this percentage is relatively higher in the pharmaceutical and furniture sectors. (At the same time, it is worth noting that only three respondents from the pharmaceutical sector declared having implemented GP).

The higher percentage in the furniture sector might be explained by the relatively higher interest of furniture sector companies in reducing negative environmental impacts. However, this remains an open question.

Less than one-tenth (9.3%) of respondents indicated having implemented GP. At the same time, there was not a single case in which GP had been implemented that did not result in the expectations of the focal company's management being met.

In contrast to the first question, the scope of answers for the second and third questions was consistent with the Likert scale (an even number of possible answers).

These answers provided information regarding the significance of the individual GP practices and individual GP drivers.

Table 5. Results of the Sector Analysis, Taking into Account the Scope of Answers to Q1

Sector	Number of companies								
	0	1	2	3	4	5	1+2+3+4+5	2+3+4+5	Total
Chemical	18	1	3	1	0	0	5	4	23
Pharmaceutical	3	1	1	0	0	1	3	2	6
IT and optical equipment	14	1	0	0	0	0	1	0	15
Electrical	22	3	0	1	0	2	6	3	28
Automotive	30	4	0	3	0	1	8	4	38
Furniture	25	4	0	2	0	10	16	12	41
Total	112	14	4	7	0	14	39	25	151
Total (%)	74.2	9.3	2.6	4.6	0.0	9.3	25.8	16.6	100.0

Source: the author.

Additionally, weighted average was calculated using the following formulae:

$$\text{Weighted average} = \frac{N_1 \cdot 1 + N_2 \cdot 2 + N_3 \cdot 3 + N_4 \cdot 4 + N_5 \cdot 5}{N_{Total}}$$

where:

N_1 – number of respondents that gave answer 1,
N_2 – number of respondents that gave answer 2,
N_3 – number of respondents that gave answer 3,
N_4 – number of respondents that gave answer 4,
N_5 – number of respondents that gave answer 5,
N_{Total} – total number of respondents that gave any answer for $Q_2 = 39$.

Results regarding GP practices are shown in Table 6.

It can be observed that the most important GP practices are cooperation and (or) collaboration with suppliers on recycling, reducing the use of packaging and reducing the use of resources. Using environmental criteria in supplier assessments was also indicated to be a relatively significant practice.

As described earlier, every GP practice identified requires either active or passive engagement on the part of the supplier company's management. Selection and evaluation can be conducted without its participation. Still, it requires data and (or) information to be provided by the supplier. Hence, the key factor in implementing GP practices is either direct involvement of the supplier or data and information being shared between the focal company and the supplier company.

Table 6. Results Regarding Green Purchasing Practices

Green purchasing practices	Number of companies (total = 39)					
	1	2	3	4	5	weighted average
Cooperation/collaboration with suppliers on recycling	8	3	9	9	10	3.26
Cooperation/collaboration with suppliers on reducing the use of packaging	10	4	6	12	7	3.05
Cooperation/collaboration with suppliers on reducing resource use	12	3	6	11	7	2.95
Using environmental criteria in supplier assessments	10	4	10	10	5	2.90
Cooperation/collaboration with suppliers on reducing environmental impacts	16	1	8	6	8	2.72
Cooperation/collaboration with suppliers on reducing energy use	18	0	5	9	7	2.69
Cooperation/collaboration with suppliers on reusing resources	13	5	7	9	5	2.67
Cooperation/collaboration with suppliers on LCA	15	4	6	10	4	2.59
Environmental selection and evaluation of suppliers	18	3	7	9	2	2.33
Cooperation/collaboration with suppliers on clean technologies	20	4	4	7	4	2.26
Cooperation/collaboration with suppliers on eco-design	21	3	4	8	3	2.21
Cooperation/collaboration with suppliers on eco-innovation	22	3	4	8	2	2.10

Source: the author.

These findings are consistent with green supply chain practices described by Li and Huang (2017), among others. The pair also highlight the significance of cooperation with suppliers to achieve environmental goals.

Apart from sharing data and information, the exchange of know-how between the focal company and its suppliers may also prove crucial for implementing GP practices.

For Q3, weighted average was calculated using the same formulae as for Q2.

Results for GP drivers are shown in Table 7.

Table 7. Results of Green Purchasing Drivers

Green purchasing drivers	Number of companies (total = 25)					
	1	2	3	4	5	weighted average
Facilitating legislative compliance / regulatory pressure	1	0	3	7	14	4.32
Resource cost reduction	1	0	3	8	13	4.28
Energy cost reduction	0	1	2	12	10	4.24
Eliminating / reducing demand for environmentally harmful raw materials	1	0	3	9	12	4.24
Meeting standardisation requirements	1	0	6	6	12	4.12
Image / manage reputational risks	1	1	6	5	12	4.04
Market pressures / competition	2	1	4	8	10	3.92
General cost reduction	3	0	4	8	10	3.88
Responding to public concern / socio-cultural responsibility / corporate social responsibility	2	0	8	8	7	3.72
Meeting market expectations / customer satisfaction	5	1	4	5	10	3.56
Firm performance / firm profitability	5	2	7	2	9	3.32

Source: the author.

The most frequently indicated GP driver was *facilitating legislative compliance/regulatory pressur*e. This may be due to the increasing role that reducing environmental impacts plays in environmental regulations. Issues related to legislative compliance, regulatory pressure and meeting standardisation requirements depend on the nature of the relevant regulation. They might or might not involve suppliers.

Other relatively important GP drivers are resource cost reduction, energy cost reduction and eliminating or reducing demand for environmentally harmful raw materials.

Different kinds of cost reduction, firm performance and firm profitability remain internal factors for the focal company. However, all of the following – eliminating or reducing demand for environmentally harmful raw materials, managing image, reputational risks, socio-cultural responsibility and corporate social responsibility in dealing with market pressure and competition, providing customer satisfaction and response to public concern – might directly involve suppliers due to their role in manufacturing finished product.

Creating an image of a product or the company itself is directly related to company policy. If the management of the company plans to reduce environmental

impacts, it might also aim at implementing GP practices. Whether that involves cooperation with suppliers or not depends on the company policy.

6. Conclusion

The main conclusion is that GP has been limited in scope in selected sectors of Poland's B2B economy. A quarter of respondents (25.8%) has knowledge about GP, 16.6% indicated that it had been either implemented or considered implementing it and a mere 9.3% has it implemented. Due to increasing interest in reducing environmental destruction, further investigation of the relationship between GP and activities that indeed effectively limit negative environmental impacts might be helpful.

The secondary goal was to determine the extent to which implementing GP practices involves cooperation between the focal company and its suppliers. In fact, all identified GP practices involve such cooperation. Hence, the role of cooperation with suppliers in implementing GP is crucial – without it, the focal company cannot engage in any GP practice.

Taking into account the results related to the scope of GP implementation, the main limitation of this study is that the majority of companies that were studied in the second part of the empirical study were not included. The second part of the article examined the scope of the use of specific GP practices. However, this part was limited to companies that had indicated they possessed knowledge of GP. This is crucial as GP practices could be used without implementing GP – for example, using environmental criteria in supplier assessments.

A final limitation of the research is that the empirical study was conducted only on companies operating in Poland. However, it includes both Polish and multinational companies, operating on the Polish market.

At the same time, the results of the study could provide a basis for implementing GP in a company. In all of the cases studied, expectations related to the implementation were met (see Table 5). However, to use the results, the relationship between GP practices and GP drivers must be studied.

The main implication of the research is that it provides a basis for further studies on GP practices and GP drivers. The results might provide a foundation for a framework for implementing GP in a company.

Since all of the cases of implementing GP were successful, three questions arise:

First, what are the barriers to implementing GP? Second, what enables its implementation? And third, what is the scope of activities for minimising environmental impacts related to purchasing management in companies that know nothing about GP?

The first question refers to challenges resulting from the implementation of a new concept in an organisation. The second question concerns factors affecting the effectiveness of implementing GP. Dou, Zhu and Sarkis (2018) provided a clas-

sification of enablers for sub-suppliers seeking to improve their environmental performance. Their work is consistent with the assumption that to enable the implementation of GP practices, cooperation between supply chain partners is crucial.

Finding an answer to the third question might help to understand the relationship between the implementation of GP practices and the concept of GP itself. Such practices as using environmental criteria in supplier assessments may well be used in contexts that have nothing to do with GP. Furthermore, there is the relationship between GP drivers and GP practices. Understanding it may provide any company seeking to implement GP with substantial insight. Finally, identifying measures for implementing GP practices as elements of the GP concept would provide a basis for the development of a framework for GP implementation. Such a framework would function as an element of a green supply chain management system.

Another, separate direction for future research would be to study the influence of the COVID-19 pandemic on the implementation of green purchasing and performing green purchasing activities. However, such a study might best be done when the pandemic is officially over.

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