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RETURNABLE PACKING IN E-COMMERCE FROM THE SOCIO-ECONOMIC PERSPECTIVE – RESEARCH RESULTS

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ABSTRACT: Growth in online sales results in an increase in the number of containers remaining in economic circulation, causing both economic (increased costs of container production, storage and disposal) and environmental effects. One way to reduce the scale of this problem would be to introduce reusable packaging, which enterprises could use as part of their e-commerce solutions. The question remains, however, whether the customers are ready for this. What is their opinion on implementing such a solution? Would they be willing to pay a deposit for using such containers? This paper aims to suggest individual returnable packaging solutions that can be used in e-commerce to manifest corporate social responsibility and reflect customer attitudes towards them. The paper is empirical, with the empirical part presenting the results of the author's study.

KEYWORDS: e-commerce, corporate social responsibility, returnable packing

Introduction

Between 2020 and 2022, global online sales have increased significantly. The sector that has become the greatest beneficiary of the pandemic is the fashion industry (clothes, accessories, footwear), which in 2021 reached a global market value of USD 759.5 billion (leader in e-commerce sales), and whose forecast for 2025 reaches 1 trillion USD (COMMON THREAD, 2021), thereby elevating the number of containers used. This is becoming a significant environmental problem, posing an economic and ecological challenge for enterprises. By recalling the essence of corporate social responsibility (understood by the European Commission as „voluntarily taking into account the social and environmental dimension in its economic activities and relations with all stakeholders" (Lewicka-Strzelecka, 2008)), one can indicate that placing the packaging „in the centre of attention" becomes a justified necessity. It is important to note that the material from which a container is made (environmental aspect) may affect both the cost of the offer (economic part), customer convenience (marketing aspect) and storage and transport options (logistical aspect). In every company, stakeholders should co-create the idea of socially responsible packaging and be in charge of its implementation and operation.

This paper aims to indicate individual returnable containers that can be used in e-commerce as a manifestation of corporate social responsibility and the customers' attitudes towards this solution. The empirical part presents the results of the author's study, which will allow us to answer the following research questions:

- What is the respondents' opinion (considering their age) towards the possible introduction of reusable, returnable packaging into the market?
- What is the respondents' attitude (considering their age) towards implementing a deposit for (potential) reusable, returnable containers?

This study is empirical in nature.

Reusable, returnable packaging as an expression of corporate social responsibility: research methods

In 2011, the International Organization for Standardization, in their ISO 26000 standard, defined corporate social responsibility as „the responsibility of an organisation for the impact of its decisions and activities (products, services, processes) on society and the environment, through transparent and ethical behaviour that:

- contributes to the sustainable development, health and welfare of society,
- takes into account the expectations of stakeholders,

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- complies with applicable law and is consistent with international standards of behaviour,
- is consistent with the organisation and practically applied in its relations" (Adamczyk & Nitkiewicz, 2007; CSRinfo, 2022; Sadziewska, 2010).

This approach shows the necessity of adopting sustainable development on many levels, not only in terms of the product offered, but also in the packaging used for transporting goods purchased online. This can be associated with the growing ecological awareness of our society (which is shaped under the influence of changing social norms, information, formal and informal education, as well as state actions) or – more broadly – to the social awareness (understood as the state of knowledge about the methods and instruments of controlling the use and protection of the environment (Poskrobko, 2001)). Ecological awareness also pertains to our attitude towards the natural environment (a set of information and beliefs about it) and the system of values a person follows in their behaviour (Małachowski, 2007; Nycz-Wróbel, 2012). The Ipsos MORI report for DS Smith (2022) shows that 32% of respondents in Europe and 39% in Poland believe that „solving the problem of the waste we generate" is one of the three main issues related to environmental protection. The respondents expect, among others:

- buying optimally packaged products (85%),
- the smallest possible packaging (29%),
- packaging made of recyclable materials (26%),
- packaging manufactured using technologies with low environmental impact (22%),
- packaging made with the use of ecological materials (20%),
- packaging that is not made of plastic (24%),
- hygienic packaging (22%).

Only 15% of European respondents were aware of „circular packaging" (DS Smith, 2022). In Poland, 74% of respondents (above the European average) declare awareness of the existence of recyclable packaging, and only 18% the awareness of the presence of reusable packaging (that is why it is necessary to popularise the idea of sustainable development). This paper's research part presents references to this aspect of the study.

When discussing containers the use of which is environmentally friendly, one can refer to three aspects (Global Web Index, 2022):

- packaging material: containers manufactured from 100% biodegradable materials or materials obtained from recycling,
- production method: selection and use of solutions that minimise, among others, water consumption and carbon footprint,
- reusability: designing containers that can be reused (not necessarily in the same form) and extending their life cycle (e.g. returnable packaging – reusable packaging that could be used in online shopping).

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A manifestation of corporate social responsibility in the field of packaging is manifesting its strong connection to ecology and the practical implementation of the 3×R (reduce, reuse, recycle) principle, which includes:

- reduction of the amount of waste and raw materials used,
- extending the life of raw materials (e.g. by reusing or repairing them),
- recycling.

An example of such a solution is paper packaging (paper cups, ecological bags, paper bags, etc.), which is not only a way to reduce the amount of waste generated, but also significantly improve the identification of the company, thanks to additional personalisation. Another example is introducing reusable, returnable packaging that the market leader – the fashion industry – could use in online sales. This industry is interested in using reusable packaging for e-commerce, which undoubtedly corresponds with the idea of corporate social responsibility (more: Yusuf et al., 2017; Akabane et al., 2018; Coelho et al., 2020). Nevertheless, in addition to the benefits of a possible reduction in the number of containers and a better perception of the company by customers, there are several challenges. They could be as follows:

- the costs of purchasing such packaging (more: Granato et al., 2022),
- reusability – from the point of view of the durability of the packaging (more: Radhakrishnan, 2015),
- reverse logistics related to the method of returning the container or requirements regarding hygiene (more: Demajorovic et al., 2019),
- customer attitudes towards a new market solution (this issue is analysed in the empirical part of this paper).

Results of the research

In the Department of Logistics and Innovation, the University of Lodz, extensive research has been carried out. It was undertaken as part of this publication and was financed based on cooperation with ARVATO Polska Sp. z o. o. company: an operator of comprehensive services for the e-commerce sector in Poland and worldwide. Activities related to the „Development of ecological reusable packaging for use in e-commerce logistics services" were carried out. The research contributed significantly to transferring knowledge in the interregional system between the sectors of enterprises, academia, and science and research. The undertaken study was related to the possibility of implementing ecological returnable packaging; one that is reusable and could be used in e-commerce. This article presents the results pertaining to the following questions:

1. What is the respondents' opinion (considering their age) towards the possible introduction of reusable, returnable packaging into the market?

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2. What is the respondents' attitude (considering their age) towards implementing a deposit for (a potential) reusable, returnable containers?

In the period between May 4, 2021, and June 26, 2021, an online survey (CAWI) was conducted, in which the respondents answered the questions on their own. The questionnaire was distributed nationally. The study was anonymous, and the sample selection was non-random (the snowball method was used). Due to the sampling method, the study is not representative, so the results cannot be generalised to the entire population of Poland. Therefore, all conclusions will relate to the studied sample, i.e. the respondents who participated in the study.

Gender	Age
Size of the place of residence 24% Countryside 14% City up to 50 thousand inhabitants 11% City between 51 and 150 thousand inhabitants 7% City between 151 and 500 thousand inhabitants 44% City with over 500 thousand inhabitants	**Type of residence** 43% single-family house 7% multi-family house 48% apartment building/skyscraper 2% other
Education 1.5% Lower 42.4% Secondary 56.1% Higher	**Professional status** 44% Student 53% Employed 2% Retired or pensioner 1% Unemployed

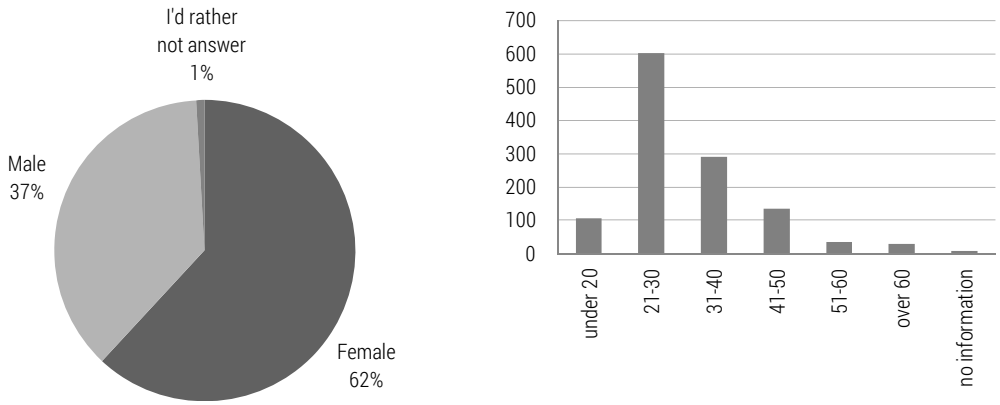

Figure 1. The characteristics of the surveyed respondents

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The survey questionnaire contained an individual data part, which allowed us to verify the gender (62% of respondents were women, 37% – were men, and 1% of the respondents did not specify their gender), age (it should be noted that about 1% of the respondents did not indicate their age; however, this incompleteness did not have a negative impact on the data analysis), size of the place of residence, type of residence (the type of building), education and professional status of the respondents. 1213 respondents (details in Figure 1) aged 17 to 79 participated in the study. The most significant number, as many as 600 (which accounted for nearly 50% of the total), were people aged 21-30. Moreover, about 9% of the respondents were under the age of 20, 24% – were aged 31-40, 11% – were aged 41-50, 3% – were aged 51-60 and 2% – were over 60 years old. The age factor has become a classifier for the answers given by the respondents.

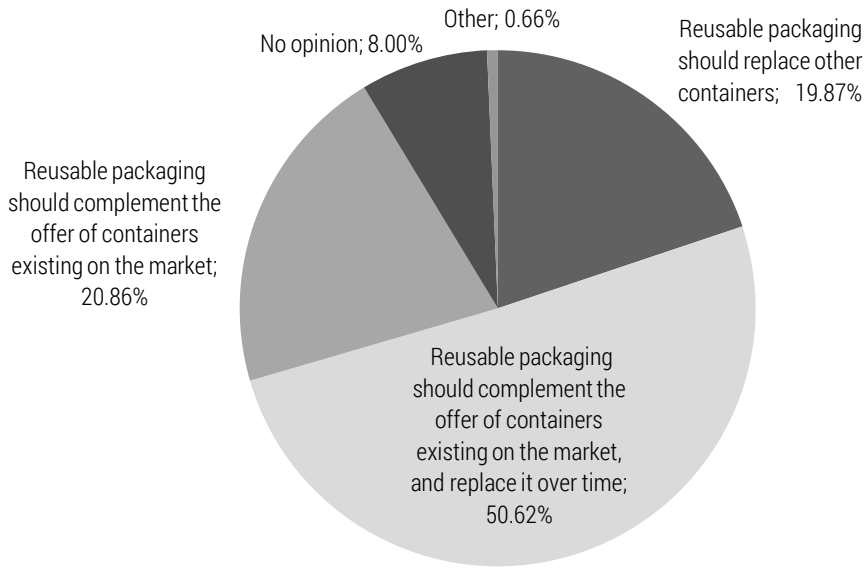

Figure 2. The existence of a potential returnable, reusable packaging for online purchases

Introducing new returnable packaging solutions involves the elimination of standard packaging or the simultaneous coexistence of both solutions. Figure 2 shows the distribution of respondents' replies pertaining to this issue. More than half of the respondents indicated that reusable packaging should complement the offer of existing containers on the market and should replace it over time. Almost 20% of respondents say that reusable returnable packaging should replace other containers, and 21.9% – say that reusable packaging should complement the offer of containers already existing on the market.

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Table 1 shows the relationship between the opinion on how potential returnable packaging should function on the market, as part of online shopping, in relation to the age of respondents.

Table 1. Opinion on how potential returnable packaging should function in the market as part of online shopping according to the age of respondents [%]

Opinion / Age group	Under 20	21-30	31-40	41-50	51-60	Over 60
No opinion	10.3	8.0	7.9	5.9	5.6	10.0
Reusable packaging should complement the offer of containers existing on the market	15.9	20.2	20.5	25.2	16.7	26.7
Reusable packaging should complement the offer of containers existing on the market, and replace it over time	55.1	53.9	46.2	45.9	52.8	43.3
Reusable packaging should replace other containers	18.7	17.6	24.0	23.0	22.2	16.7
Other	0.0	0.3	1.4	0.0	2.8	3.3

All respondents see the legitimacy of introducing reusable packaging into economic circulation. When interpreting the data in the table, the following patterns can be noticed:

- the awareness of the assessment among the respondents about the existence of returnable packaging increases with age (according to the study, up to 60 years of age; the answer „No opinion" was given almost twice as often by respondents under 20 than by people aged 51-60),
- respondents who are more afraid of introducing returnable packaging are people over 60 years of age (as many as 26.7% of respondents propose that reusable packaging should complement the offer of other containers on the market, for comparison, this opinion is expressed only by 15.9% of people under the age of 20),
- respondents aged 31-50 showed the greatest approval rate for innovative solutions (as many as 47% of respondents at this age indicate that reusable packaging should replace other containers),
- slightly more often, respondents aged under 30 and aged 51-60 say that reusable packaging should complement the offer of containers existing on the market and replace it over time.

In general, most of the respondents showed interest in the new solution. To deepen the analysis, the responses were compared in the context of environmental awareness (defined in the first part of this paper) and the existence of returnable packaging (see Table 2). On this basis, we can conclude

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that the most hesitant and uncertain group of respondents indicated that their knowledge of ecology is at a very low level, which may signal that society needs to be educated about the benefits of implementing closed-loop packaging.

Table 2. Environmental awareness of the respondents (on a scale from 1 – very poor to 5 – very good) and the introduction of returnable packaging [response frequency in %]

Introducing returnable packaging / Environmental awareness	1	2	3	4	5
No opinion	33.3	10.8	11.0	5.2	6.6
Reusable packaging should complement the offer of containers existing on the market	22.2	32.3	20.7	20.2	18.2
Reusable packaging should complement the offer of containers existing on the market, and replace it over time	11.1	46.2	51.2	52.0	47.1
Reusable packaging should replace the offer of containers existing on the market	33.3	9.2	16.5	22.0	27.3
Other	0.0	1.5	0.7	0.5	0.8

In summary, the majority of respondents see the possibility of introducing reusable returnable packaging into the market: 1/5 sees a chance for it to complement the offer of containers already existing on the market (the highest percentage among people 41-50 years old), and others, for it to replace the previously used containers: immediately (most indications in the group of people aged 31-60), or after some time (most indications in the group of people under 30).

Another issue that was the subject of this analysis is the attitude of the respondents towards introducing a deposit for returnable packaging. Taking into account the age of the respondents (Table 3), one can indicate that the willingness to purchase a product in returnable packaging (when a deposit is required in the store) increases with up to about 50 years of age. Most undecided respondents were people over 60 and under 20 years of age.

In summary, over 40% of respondents in each age group (and even over 50% in the group of 31-60 years of age) said „yes" when it comes to the necessity of paying a deposit for packaging. Additionally, the respondents who expressed their approval to use returnable packaging were asked about the amount of money they would be willing to pay for it (see Figure 3). Slightly over 40% of respondents estimated the amount of the deposit for returnable packaging to be in the range of PLN 0.50-5.00, and 11.9% – of PLN 5.01-10.00.

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Table 3. Willingness to purchase a product in returnable packaging and paying a deposit in an online store sorted by the respondents' age groups [%]

Age group / Willingness to purchase	Definitely yes	Rather yes	Yes	I don't know	Rather not	Definitely not
under 20	12.1	27.1	1.9	36.4	21.5	0.9
21-30	10.3	33.3	4.3	33.5	13.6	5.0
31-40	11.6	34.9	7.2	28.8	13.0	4.5
41-50	14.1	32.6	5.2	27.4	15.6	5.2
51-60	13.9	33.3	11.1	16.7	19.4	5.6
over 60	10.0	20.0	10.0	46.7	10.0	3.3

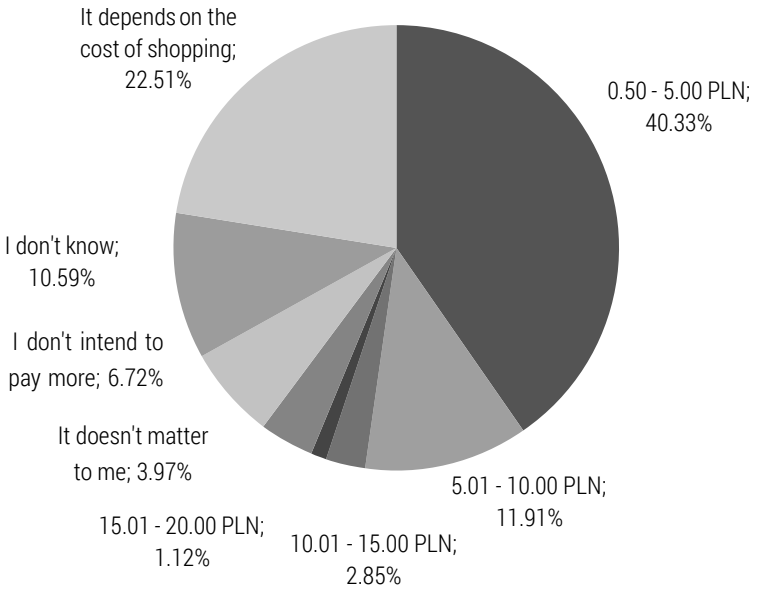

Figure 3. Deposit amount for potential returnable packaging when shopping online

This means the respondents do not want to incur higher costs related to the returnable deposit for the packaging they will receive as part of online purchases. It should be noted that as many as 22.5% of the respondents indicated that, according to them, the deposit amount depends on the purchase cost. Some of the respondents replied that they did not intend to pay more (6.7%), did not have an opinion on this subject (4.0%), and 10.6% of them did not know the amount of the deposit (they have not thought about it

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before, therefore it was difficult for them to estimate). Based on this analysis, one can indicate that most respondents are ready to cover the additional amount of the deposit, provided that it will later be returned.

Table 4. Deposit amounts and the willingness to purchase the product in returnable packaging [share of the response frequency in %]

Willingness to purchase the product in returnable packaging / Deposit amount	I don't know	Rather yes	Yes	Definitely yes
0.50-5.00 PLN	33.5	45.3	46.0	42.3
5.01-10.00 PLN	3.6	18.9	11.1	15.3
10.01-15.00 PLN	1.3	3.5	3.2	5.1
15.01-20.00 PLN	0.8	1.3	0.0	2.2
I don't care	1.8	4.0	3.2	10.2
I don't know	22.9	2.5	3.2	2.9
I don't intend to pay more	14.8	1.0	6.3	0.7
It depends on the cost of shopping	21.3	23.4	27.0	21.2

Table 4. lists the respondents' responses regarding the propensity to purchase products (answers „yes", „rather yes", „definitely yes", and „I don't know" were taken into account) in returnable containers along with the amount they are willing to pay for a deposit. It should be noted that people who are hesitant to use returnable packaging often do not know what amount they would be willing to pay, or do not intend to pay more for returnable containers. People who indicated that they are rather convinced to use returnable packaging, are open to the amount of the deposit required for it. Respondents who showed the highest approval of the idea of returnable packaging often indicated that they did not care about the deposit's amount. Within this relationship, all surveyed respondents are most likely to cover the lowest possible amount of the returnable deposit.

Conclusions

In the constantly growing online sales environment, a comprehensive evaluation of the company's offer cannot be limited to the product itself. As people pay more and more attention to transport packaging, those attitudes become an indispensable part of corporate social responsibility.

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Packaging in e-commerce should be socially acceptable ecologically (e.g., considering the materials it is made of) and economically (cost). It should protect the product from damage and allow it to reach the customer unchanged, and – in the case of returnable packaging – it should reach customers in its unchanged form several times. Returnable packaging should not only be made of recycled materials, reducing the consumption of raw and processed materials (although one is not able to "escape" a dedicated production process), but it should become an integral part of responsible production processes and be subject to ecological disposal. It is necessary to maintain the packaging's shape (size parameters) that enables storage and transport in standard forms (e.g. palleting). An important issue about reusable packaging is the possibility of cleaning/disinfecting the packaging, so its material should be resistant (both physically and chemically) to such processes.

The decision regarding the choice of a specific material used for the production of the packaging will be in the hands of technologists/chemists who –by changing the proportions of ingredients/manufacturing conditions – may affect the wear time/strength/brittleness/ flexibility of the material the container will be made of. The number of use cycles of reusable packaging will also be influenced by the activities of people involved in circling such containers. While the diligent work of employees packing the goods will instead (undoubtedly?) be maintained, the quality of work of subcontractors – such as couriers – may significantly impact maintaining proper packaging parameters. Similarly, the consumer's behaviour towards the packaging (throwing away, using it at home, careless storage before return) will affect its life expectancy in e-commerce. The study shows that online buyers are open to the marketing of (reusable) ecological returnable packaging and are willing to pay a deposit.

The contribution of the authors

Agnieszka Bukowska-Piestrzyńska – 50% (conception, literature review, acquisition of data, analysis and interpretation of data).

Joanna Górniak – 50% (conception, literature review, acquisition of data, analysis and interpretation of data).

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