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THE INFLUENCE OF CONSUMERS' FEATURES ON THE POPULARITY OF INDUSTRIES IN THE E-COMMERCE SECTOR

Abstract

The main objective of the study is to identify the forms of shopping among the Polish Internet users. The results of a survey conducted on the sample of over 13,000 respondents were analysed. Despite the dynamic development of the m-commerce sector, almost 90% of those polled use a traditional personal computer for online shopping. While analysing the results in terms of gender and the category of assortment, it was concluded that there are significant statistical differences. Men are more likely to buy in online shops, particularly large disparity was noticed in the pharmaceutical industry and the electronics and household appliances industry. While analysing the impact of the category of assortment on purchasing channel, differences exist in the area of tools, sport and pharmaceuticals where the products are more often purchased in conventional stores than in their online counterparts.

Keywords

E-commerce, e-consumers, Internet users, e-shops, purchasing channel.

Introduction

The number of Internet users in Poland is permanently increasing, the vast majority of Y generation use the Internet at least once a week, while the youngest generation (born after 2000) consider the Internet to be a part of their normal life [1]. Shopping online should be something natural and ordinary for Internet users and the main barriers of the development of e-commerce such as security of transactions, time and cost of delivery are regarded as a standard and truism.

The aim of the study is to identify the form of online shopping. In the process of operationalisation of research the following questions were asked: What is the ratio of the number of Internet users who shop online to the number of Internet users who shop on the traditional market? The following hypothesis were also specified: H1: Internet users much more often buy in e-commerce sector than in traditional stores and H2: a computer is the most popular tool used during online shopping.

The most important point for satisfying e-consumers' expectations and needs is their online behavior analysis, which aims to growth of profits of e-commerce market. Also it aims to identify the different online behavior of internauts (divided into men and women), especially used device, attitude, behavior and satisfaction. Online shops increasingly adapt the structure of the online service, products and advertising in order to perform detailed customer segmentation [2]. Analysis of the impact of the characteristics of clients on their behavior were analyzed from the beginning of e-commerce [3]. The behavior of individual customers do not only depend on gender or age, but also on many personal characteristics. You can highlight consumer decision-making dimensions: perfectionism, brand consciousness, Novelty-fashion consciousness, Recreational shopping consciousness, price-value consciousness, impulsiveness, carelessness, confused by overchoice and brand-loyal [4].

E-commerce

The Internet has become a catalyst for global changes and modern economy. Nowadays e-commerce is undergoing a phase of a dynamic development. The number of Internet users and buyers through the medium of the Internet is increasing permanently. Trading companies, which want to be competitive on the market, must meet the demands of the society and follow created trends. E-commerce business activity does not only refrain to electronic trading platforms but also includes activity in other related areas: banking [5], distribution and e-marketing. An escalation of e-commerce and the increase of the competitiveness of this sector shape pro-consumer and innovative attitudes among entrepreneurs whose job it is to follow the expectations of

customers and stand out among the competitors' offers. The effects of such attitudes are the following concepts: online group buying [6], crowdfunding and crowdsourcing [7] and innovative forms of advertising: prankvertising, viral and guerrilla marketing [8].

One of the most general definition characterises e-commerce as a process of buying and selling supported by electronic devices [9]. A similar description can be found in other studies [10], [11]. Whereas more detailed definition specifies the concept of e-commerce as an electronic platform for conducting a business activity on which contacts between participants of economic processes take place, transactions are being made and values are created and exchanged [12].

Modern e-commerce can be divided into even more specific forms: m-commerce, s-commerce and TV-commerce, where m-commerce is defined as trading via mobile devices with special emphasis on smartphones and tablets. While the f-commerce form is linked to the conduction of a trading activity using Facebook, which can be widely seen under the concept of social commerce (s-commerce). The basic division of e-commerce is classified in two ways today: the m-commerce and trading with the use of desktops or laptops. Whereas the TV-commerce seems to be the least popular form of e-commerce, sale of products using the medium of television faces a lot of constraints. However, the facts speak in favour: more than 90 million of annual revenue of the company Mango24, the increase in the number of television sets with an access to web applications, technological progress allowing to control the TV with voice or hand movements. Although e-commerce is a broader concept of Internet commerce (and i-commerce) by definition, due to the massive participation of the internet medium the terms: e-commerce, online and virtual commerce shall be applied interchangeably for the need of this study, considering them identical and referring only to the aspect of the actions using the Internet as a channel for transactions and communication.

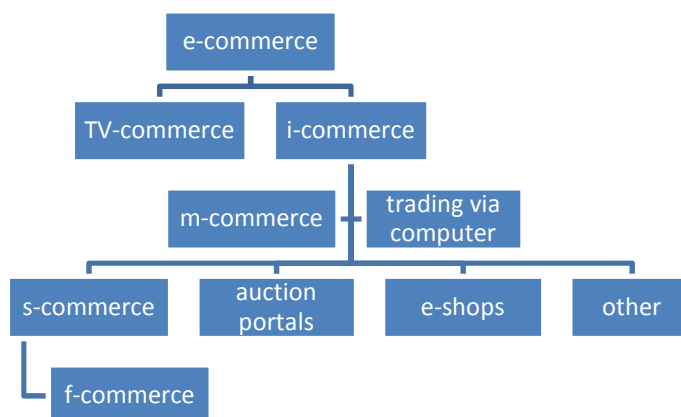


Fig. 1. The interdependence of the various e-commerce forms
Source: own study.

The Polish e-commerce is still growing rapidly according to the CSO report 'in 2014 34% of people stated that they ordered various goods in this way, mostly clothing and sports equipment, within the period of 12 months preceding the start of the study' [13]. Whereas the Gemius says that 55% of Internet users shop online, these are mostly people aged 25-34 years old (34%). The results of the relationship between the used equipment and the popularity of e-shopping are puzzling because they indicate that each of the analysed groups shop online (laptop - 98%, PC - 99%, tablet - 99% and smartphone - 97%) [14]. These results differ significantly from the data from other reports where the differences are substantial [15], especially in Asian countries where smart phones have been leaders of e-commerce market for several years [16].

An e-consumer is the most active consumer who, on the one hand, obtains information from various sources in the purchasing process, and, on the other, actively comments and transmits information about the company and purchased products [17]. A consumer on the electronics market is willing to use the opportunity to interact with a bidder, this activity also constitutes an important factor while making purchasing decisions [18]. Customers' concerns including fraud, the lack of the possibility to address a complaint and a doubt that the purchased product is not in compliance with the offer are among the biggest barriers to escalate the development of e-commerce in Poland [19]. However, generalizing the obtained results of the overall group of

e-consumers may have a negative impact on the reliability of the analysis because the age of e-consumer is a very important determinant.

The most popular division of the society into generations which appears in the contemporary organizations has 5 generations: Mature (born between 1930-1945), Baby Boomers (1946-1960), X Generation, also called Baby Busters (1961-1982), Y Generation known as: Millennials, WWW Generation, Digital Generation, Google Generation (1983-1999) and Z Generation (born after 2000) [20, 21]. The most active customers in the e-commerce sector is Y Generation, whose representatives have the ability to work, willingness to share knowledge, are ambitious and open to changes, know the advantages and risks of the Internet [22]. Although Z Generation is a generation of people growing up among the ubiquitous Internet communication, their contemporary smaller relevance for e-commerce sector is a result of the lack of financial independence. However, their behaviour and needs should be important determinants of creating future strategies of companies.

E-customer in the e-commerce

In order to achieve the goal, the raw data received from the Opiniac company, as part of the scientific cooperation, was analysed and used to prepare the 'ROPO Effect in the Polish E-commerce Segments - 2015' report [23]. The study was conducted on a group of 13778 Polish Internet users at the end of May and the beginning of June 2015. 66% were women, indicating an asymmetrical test, and therefore individual results are recognized in relation to the total number of women or men. A total of 14932 responses were obtained because each respondent could answer the same questions in several assortment categories. Purposeful, convenient selection procedure of the sample was used, distributing a questionnaire on the popular information portal (Onet.pl) and a number of industry portals. The confidence level of 0.99 and the error of estimate of 0.011 were obtained for the population of Internet users in Poland at 35% (approx. 12 250 000).

Table 1 shows the results of the popularity of Internet devices used while shopping online. The results strongly suggest that computer is currently the most popular tool among e-customers. Although m-commerce is growing rapidly in Poland, tablet and smartphone achieved results at the level of 5% of the share in the survey.

Table 1. Device preference among Internet users when shopping online

used device	number of responses	%
computer	13224	88.56%
tablet	740	4.95%
smartphone	797	5.34%
I don't remember	171	1.15%

Source: own study based on raw data provided by the Opiniac company used for the 'ROPO Effect in the Polish E-commerce Segments - 2015' report.

An observation of the general results of the answer to the question 'Have you recently made a purchase in a traditional shop or online?' was that the majority of respondents (62%) indicated a traditional shop. The term "recently" was identified as the period of the last 3 months. Whereas the important issue of this question was to identify the clients of the industry of market. When making a statistical analysis in the form of Chi-square test for the dependent variable as gender in relation to the category of product range (Table 2), the value was 766.25 and $p < 0.000001$ which proves the existence of the relationship between e-customer's gender and assortment category. More women buy products from the categories: sport, books, film and music as well as medicines and cosmetics than men. While the results obtained for cosmetics and dietary supplements are not surprising, the predominance of women purchasing goods, clothes or sports shoes may seem unexpected. In order to identify the cause, an in-depth study to verify the individual parameters should be carried out.

Men more often tend to buy electronics and household appliances as well as DIY (Do It Yourself) - tools, building materials and gardening products. A lower male prevalence was found among tourist products.

Table 2. The popularity of the assortment category among the Polish Internet users divided by gender

assortment category	gender	number of responses	% in relation to the total number of polled women n=9093 or men n=4547
sport	men	2856	62.81%
	women	6177	67.93%
tourism	men	1237	27.21%
	women	2171	23.87%
DIY - tools, building materials and gardening products	men	2184	48.03%
	women	2806	30.86%
books, films, music	men	1623	35.70%
	women	3580	39.37%
medicines, dietary supplements, cosmetics	men	2107	46.34%
	women	6475	71.20%
electronics, household appliances	men	2874	63.21%
	women	4099	45.08%

Source: own study based on raw data provided by the Opiniac company used for the 'ROPO Effect in the Polish E-commerce Segments - 2015' report.

While analysing the impact of forms of purchase (traditional or electronic shop) on the assortment category, it is also possible to affect the existing dependencies, the value of statistical test Chi-square was 2743, while the level of $p < 0.000001$, Table 3.

Table 3. The popularity of forms of purchasing and assortment category among the Polish Internet users divided by gender

assortment category	gender	Form of purchase	Number of responses	%
sport	men	electronic	1000	35.0%
		traditional	1856	65.0%
	women	electronic	2279	36.9%
		traditional	3898	63.1%
trips and holidays	men	electronic	682	55.1%
		traditional	555	44.9%
	women	electronic	1095	50.4%
		traditional	1076	49.6%
tools, building materials and gardening products	men	electronic	418	19.1%
		traditional	1766	80.9%
	women	electronic	408	14.5%
		traditional	2398	85.5%
books, films, music	men	electronic	896	55.2%
		traditional	727	44.8%
	women	electronic	1934	54.0%
		traditional	1646	46.0%
medicines, dietary supplements, cosmetics	men	electronic	675	32.0%
		traditional	1432	68.0%
	women	electronic	1655	25.6%
		traditional	4820	74.4%
electronics, household appliances	men	electronic	1579	54.9%
		traditional	1295	45.1%
	women	electronic	1876	45.8%
		traditional	2223	54.2%

Source: own study based on raw data provided by the Opiniac company used for the 'ROPO Effect in the Polish E-commerce Segments - 2015' report.

The general results obtained show that both women and men are more likely to make purchases in traditional shops in the analysed sectors, the answer was given by 59.2% of male respondents and 63.5% of female respondents respectively. The only category, that shows important differences, is the electronics and household appliances, in which almost 55% of men and only 45% of women use an electronic channel. However, in the pharmaceutical industry both sexes prefer the traditional channel but the percentage of women is higher because it makes up 74%, with 68% share among men. Five percentage points difference was also recorded in a group of DIY products, almost 86% of female respondents and 81% of male respondents prefer shopping in traditional shops. The categories of sport and books, music and film does not show the diversity as far as the e-client's gender is concerned in terms of the selection of a shopping channel. Products from some industries (trips and holidays, electronics, household appliances), are purchased more frequently in e-shops. The reason is the lower price and no need to check the quality of the product. In the sports industry, an important element for consumers the quality and fulfil the expectations of the products. Low popularity of online purchases of medicinal products is caused by too long delivery times and a lack of opportunities to buy prescription drugs. A wide range of forms and types of tools, building materials and gardening products means that customers very rarely decide to purchase online (only 19% men and 14% women). The proposals are subjective, because these issues have not been verified in this research. Identifying the reasons for the selection of individual forms and channels of purchase is an interesting problem that requires further studies.

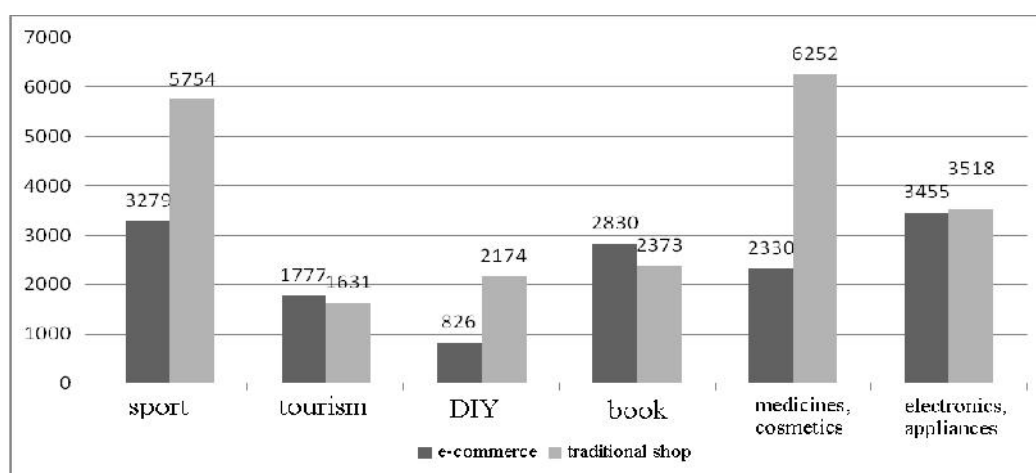


Fig. 2. The global data of the table 3 regardless of gender

Source: own study based on raw data provided by the Opiniac company used for the 'ROPO Effect in the Polish E-commerce Segments - 2015' report.

Having analysed the results of each assortment category in the classification based on shopping channels, it was concluded that the biggest differences are present in the category called medicines, dietary supplements and cosmetics, where three-quarters of women and more than two-thirds of men opt for the traditional sales channel. This is probably due to the law provisions that prohibit the sale of prescription medicines by electronic means and the greater need to get the pharmaceutical product immediately. Another assortment category, whose products are often purchased on the traditional market is the sports and DIY industry, or 'do it yourself'. Tools, building materials and gardening articles are products whose appearance and functioning customers want to know organoleptically before making a purchase. Just like clothing and sports equipment. The only categories, among which there was a little advantage of online shopping, are tourism and books, music and film. Products from these industries do not require prior knowledge of the properties or, as in the case of tourism, the offer presented in the office and on the website is very often just as valuable to a potential customer.

It is worth noting that many cases were reported in the study where single respondents bought product from some categories on the electronic market and from other categories in the traditional form. These examples can confirm the existence of a relationship between the choice of a purchasing channel and an assortment category of the purchased products.

Summary and conclusions

The development of e-commerce in Poland is still in the growth phase. The increasing number of Internet users and e-customers are determinants that indicate a further tendency for intensification of this trend. The popularisation of m-commerce and social commerce which result from the expectations of Internet users is also significant. The main advantages of e-commerce is the lower price of the product, convenient shopping and the ability to quickly compare competing offers. These features indicate that Internet users should use the electronic form of purchases more frequently than traditional solutions. However, the analysis of the results of the survey indicates that only 38% of respondents are more likely to make purchases on the Internet, which negatively verifies the H1 hypothesis proposed in the introduction, considering an alternative version to be true: the Internet users are significantly more likely to make purchases in traditional shops than in the sector of e-commerce. Responding simultaneously to the research question, the proportion of Internet shoppers to the traditional forms of shopping is 3:5.

Both the assortment category and the e-client's gender are relevant for the popularity of the shopping channel. Results show a statistically significant difference across all industries for men and women, but the categories which achieved the greatest discrepancies based on gender are: tools, building materials and gardening articles (approx. 18 percentage points), pharmaceuticals (approx. 25 percentage points), equipment and household appliances (approx. 18 percentage points). Some popular industries were excluded from the study, for example, the food sector was omitted due to the low popularity of online shopping in Poland, while the automotive industry is growing rather on the level of exploration, verification and comparison of offers, and not on the finalisation level.

Disparities are also found in the analysis of the comparison of the assortment category due to the form of purchase. DIY, sport and pharmaceuticals are the areas where the products are more often purchased in the traditional shops. While tourist services as well as books, music and films are more often purchased in the e-commerce sector.

While analysing the results of the study it can be easily concluded that a personal computer is the most popular device for online shopping. Almost 90% of respondents use it. The result positively verifies the H2 hypothesis. Despite the relatively large sample research, the subject of the popularity of devices and shopping channels among Internet users has not been exhausted. It would be valuable to identify the factors influencing the choice of a specific device or a channel by respondents, with particular emphasis on the assortment categories.

References

- [1] Park N., Kee K., Valenzuela S., Is There Social Capital in a Social Network Site?: Face-book Use and College Students' Life Satisfaction, Trust, and Participation w: *Journal of Computer-Mediated Communication* 14 (4), (2009) 875-901
- [2] Mitrevski P., Hristoski I., e-Consumer Online Behavior: A Basis for Obtaining e-Commerce Performance Metrics, *International Conference on ICT Innovations*, Springer, 2010, 142-151
- [3] Dickey M.H., Piccoli G., Ives B. , *Electronic Commerce: Markets and Users* [in:] *Handbook on Electronic Commerce*, (ed.) Blanning,Troy Strader,Andrew Whinstons. 110 -114.
- [4] Walsh G., Hennig-Thurau T., Wayne-Mitchell V., Wiedmann KP, Consumers' decision-making style as a basis for market segmentation, *Journal of Targeting, Measurement and Analysis for Marketing*, 2001, 10/2, 118
- [5] Polasik M., *Rozwój bankowości elektronicznej w Polsce - w świetle badań ankietowych*, Bank i Kredyt, nr 8, NBP, Warszawa, 2005, 57-67
- [6] E. Prałat, *Analiza rozwoju zakupów grupowych w Polsce*, Zeszyty Naukowe. Organizacja i Zarządzanie, z. 79, Wydawnictwo Politechniki Śląskiej, Gliwice, 2015, 261-270
- [7] B. Iwankiewicz-Rak, B. Mróz-Gorgoń, *Crowdfunding - nowe zachowania internautów*, w: *Marketing i Rynek*, nr 8/2015, Polskie Wydawnictwo Ekonomiczne SA, Warszawa, 2015, 196-204.
- [8] M. Karpinska-Kraskowiak, A. Modlinski, *Prankvertising – Pranks as a New Form of Brand Advertising Online*, w: *Modern Management Review*, vol. XIX, 21 (3/2014), Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów, 2014, 31-44
- [9] Ph. Kotler, G. Armstrong, J. Saunders, V. Wong, w: *Marketing. Podręcznik europejski*, PWE, Warszawa, 2002, 1055
- [10] B. Gregor, M. Stawiszyski, *e-Commerce*, Oficyna Wydawnicza Branta, Bydgoszcz – Łódź, 2002, 79

- [11] G. Szymański, *Innowacje marketingowe w sektorze e-commerce*, Wydawnictwo Politechniki Łódzkiej, Łódź, 2013, 34.
- [12] M. Niedźwiedziński, *Globalny handel elektroniczny*, Wydawnictwo Naukowe PWN, Warszawa, 2004, 7-9.
- [13] GUS, *Społeczeństwo informacyjne w Polsce w 2014 r.*, Warszawa, stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/spoleczenstwo-informacyjne/spoleczenstwo-informacyjne-w-polsce-w-2014-r-,2,4.html, 2014, (12.05.2016)
- [14] Gemius, *E-commerce w Polsce 2015* Gemius dla e-Commerce Polska, s. 141, <https://www.gemius.pl/files/reports/E-commerce-w-Polsce-2015.pdf>, 2015, (12.05.2016).
- [15] Twenga, *M-commerce in Europe 2015: the latest buying trends on mobile*, <https://www.twenga-solutions.com/en/insights/m-commerce-europe-2015>, (12.05.2016).
- [16] Criteo, *State of Mobile Commerce Growing like a weed Q1 2015*, <http://www.criteo.com/media/1894/criteo-state-of-mobile-commerce-q1-2015-ppt.pdf>, (12.05.2016).
- [17] A. Dejnaka, *E-konsument i zakupy przez Internet w świetle raportów badawczych w: Zeszyty Naukowe Wyższej Szkoły Bankowej we Wrocławiu*, nr (2)34, Wrocław, 2013, s. 103
- [18] C. Lorenzo, E. Constantinides, P. Geurts, M.A. Gómez, *Impact of Web Experience on e-Consumer Responses*, w: *Lecture Notes in Computer Science, E-Commerce and Web Technologies, Web Marketing*, Springer Berlin Heidelberg, 2007, 198.
- [19] G. Maciejewski G., *Sposoby radzenia sobie e-konsumentów z ryzykiem nieudanego zakupu*, w: *Studia Ekonomiczne nr 187/2014*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice, 2014, 232.
- [20] M. Kaczkowska-Szafrańska, K. Michalska, *Employer branding-nowe możliwości dla efektywnych procesów rekrutacji pokolenia Y*, w: *Zeszyty Naukowe Uczelni Vistula, Kształtowanie wizerunku pracodawcy*, nr 44(6), Warszawa, 2015, 98.
- [21] Ordun, G. Millennial (Gen Y) consumer behavior their shopping preferences and perceptual maps associated with brand loyalty. *Canadian Social Science*, 11(4), 2015
- [22] B Mróz B, *Konsument w sieci – wyzwania i zagrożenia*, w: *Handel Wewnętrzny*, nr 4(351), (2014) s. 204.
- [23] Opiniac, *Efekt ROPO w segmentach polskiego e-commerce – 2015*, http://opiniac.com/files/report/2015_opiniac.com_badanie_panelowe_ROPO.pdf, 2015, (13.04.2016)