E-COMMERCE MARKET IN POLAND

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The paper presents the changes that have occurred on the e-commerce market in Poland. We examined both the supply side and the demand side of the market. Very fast development of this market was possible due to technological innovation, eg. mobile Internet and mobile applications. The e-commerce market includes online stores and area of finance, communications, logistics, marketing and electronic training. The online stores are the most important part of e-commerce. Turnover of e-commerce in Poland increased very quickly, because the rate of 15% per year.

In 2014, the highest percentage of Internet shoppers were in the age group 25-34 years (59.9%) and the smallest in the group of 64-74 years (6.2%). The study concerned the years 2010-2014.

Keywords: e-commerce, online stores, Internet

1. Introduction

Electronic economy (e-economy) is a technical and marketing term, used to promote retail trade on the Internet [1]. It is a certain type of a virtual space for operation, where value is created and exchanged and transactions are entered [2]. Activity is conducted using electronic media, as well as universal and wide area networks, mainly the Internet [3, 4]. E-economy is associated with management of information, financial, material and personal resources in the process of commercial exchange using the Internet. Economy of this type pertains most often to electronic exchange of documents, banking, purchases, money transfers, interactive
voice information systems, reservation systems [5, 6]. Another significant term is e-business, which consists of business operation based on acquiring customers via the Internet. E-business does not necessarily have to be associated with sales over the Internet. E-business is the key to transaction; however, the main subject of activity here is information [7, 8].

E-commerce is a part of e-business, which, on the other hand, is a part of e-economy. E-commerce is the process of purchasing, selling and exchange of products, services and information via computer networks [9, 10]. Thus, e-commerce activity includes sales over the Internet, on Internet auctions via Web pages other than stores and via electronic mail [11]. The development of e-commerce took place in the early 1990s as the Internet emerged. The potential of the new distribution channel was first used by mail order companies [12, 13]. At first, the network was used only to publish company and product information. Introduction of the appropriate legislation allowed for commercial activity in the network. The first Web store was Amazon.com bookstore, launched in 1995 [14, 15]. The increased pace of development of e-commerce was associated with shifting of financial and human resources to this field of activity. Enterprises, which were skeptical at first, were forced by the competition to invest in e-commerce [16]. After year 2005, e-business developed very quickly. This was aided by development of mobile applications and improvement of the electronic distribution and payment systems [17].

The definitions of e-commerce vary. According to the Central Statistical Office, e-commerce encompasses transactions concluded via the network, based on IP protocol and via other computer networks, while final delivery of the product may take place outside the network. The transactions themselves may pertain to companies and individual persons, governmental institutions and other private and public organizations. Orders received via phone, fax or e-mail are not a component of e-commerce according to terminology used by the Central Statistical Office [18]. Other definitions state that e-commerce includes EDI, cable and satellite TV, electronic cards, telephone communication, Intranet and Extranet networks [19]. As for entities participating in e-commerce, the following systems have been identified: business-to-business (B-to-B), business-to-consumer (B-to-C) business-to-public (B-to-P), consumer-to-consumer (C-to-C), consumer-to-business (C-to-B) [20].

2. Research methodology

The main objective of the study was to assess the functioning and changes taking place on the market of e-commerce in Poland. The detailed objectives included: presentation of the meaning of e-commerce in economy, of the stages of changes on the e-commerce market, specification of changes on the e-commerce market, depicting of correlations between e-commerce and economic condition of the country. Research encompassed the period of 2010-2014. The source material includes foreign and domestic literature on the subject, numerical data provided by
the Central Statistical Office, reports and studies on e-commerce. The work was developed using the descriptive, tabular and graphic tools, as well as the correlation coefficient. In order to determine the relationship between the economic condition in the country and the e-commerce market, the correlation coefficient was applied. The indicators describing the economic condition of the country included indices of changes in GDP, gross value added, domestic demand, import and export. On the other hand, the parameters describing the condition of the e-commerce market included the market value and the dynamics of its changes, the number of e-shops and the associated change dynamics. The demand side of the market was presented on the basis of surveys conducted by the Central Statistical Office.

3. The results

In the United States, which is the place of birth of e-commerce, the value of e-commerce market in 2014 amounted to USD 307 billion. It has been forecasted that in years 2015-2016, the average annual market growth will amount to 14%. In Europe, the market value in 2014 was EUR 156 billion. It has been estimated that in 2015, it will amount to 18.4%. The highest share in the European e-commerce market in 2014 was held by Great Britain (13.5%), Germany (10.0%), Sweden (7.6%), the Netherlands (7.1%), France (6.9%). The Polish market of e-commerce, according to valuations for year 2014, was worth EUR 4.23 billion [21]. According to methodology presented in the Polish reports, the market value in 2014 reached PLN 27 billion, which constituted 3.5 million PLN more than in the previous year (Fig. 1). Thus, the annual level of dynamics at 15% growth was maintained [22]. The share of e-commerce in overall sales in Poland in 2014 amounted to approximately 4-5%.

![Figure 1. The value and growth of e-commerce market in Poland in 2010-2014](image_url)
E-commerce is usually associated with e-shops, in which sales are conducted by enterprises. In 2014, according to sklepy24.pl, there were 14.1 thousand Web stores (Fig. 2). In the early years of development of the market, the number of stores kept increasing very quickly. In the subsequent years, as the market was becoming saturated, the dynamics slowed down. It has been forecasted that in year 2015, the number of e-shops will even decrease. Polish e-commerce was very much fragmented – 85% shops were managed by micro- and small-sized enterprises. The market is undergoing consolidation processes, but it is also subject to very high rotation. In 2014, more than 50% of all e-shops had operated for less than 2 years, and only 11% - for more than 5 years [23].

Apart from Web stores, e-commerce also includes Internet auctions. The most popular service in Poland is Allegro, used by more than a half of the Polish Web users (table 1). About ¼ users have taken advantage of Ceneo group services. Other providers have been much less popular.

Table 1. The most popular e-commerce sites in Poland in September in 2014

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Number of Internet users</th>
<th>Participation in the total number of Internet users (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Allegro</td>
<td>12544104</td>
<td>57.7</td>
</tr>
<tr>
<td>Group Ceneo</td>
<td>5869297</td>
<td>27.0</td>
</tr>
<tr>
<td>Group Empik Media Fasion</td>
<td>2438221</td>
<td>11.2</td>
</tr>
<tr>
<td>Group Okazje.info</td>
<td>2271359</td>
<td>10.4</td>
</tr>
<tr>
<td>zalando.pl</td>
<td>2238245</td>
<td>10.3</td>
</tr>
<tr>
<td>Group Onet</td>
<td>2204264</td>
<td>10.1</td>
</tr>
<tr>
<td>euro.com.pl</td>
<td>1863189</td>
<td>8.6</td>
</tr>
<tr>
<td>Group Nokaut.pl</td>
<td>1817111</td>
<td>8.4</td>
</tr>
<tr>
<td>groupon.pl</td>
<td>1751317</td>
<td>8.1</td>
</tr>
<tr>
<td>doz.pl</td>
<td>1498388</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Table 2 presents results of the Pearson correlation coefficient and p value. The limit value of significance level was assumed to be $p = 0.05$. Significant correlations were marked by grey background of the text. Correlation coefficients were calculated for years 2006-2014. Very strong positive correlation values were found to exist between the condition of economy and value of the e-commerce market and the number of e-stores in Poland. Electronic commerce developed faster and independent from economy; therefore, no significant correlation was found. The research conducted confirms only a weak correlation between the dynamics of changes in the export values and dynamics of changes in the number of stores.

Table 2. Pearson correlation coefficients between the situation and changes in the e-commerce market and selected parameters of the economy

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pearson correlation coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The coefficients of correlation between the value of e-commerce market and value of GDP</td>
</tr>
<tr>
<td>correlation</td>
<td>0.985</td>
</tr>
<tr>
<td>p value</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>The coefficients of correlation between the dynamics of change in value of e-commerce market and dynamics of change GDP</td>
</tr>
<tr>
<td>correlation</td>
<td>0.749</td>
</tr>
<tr>
<td>p value</td>
<td>0.145</td>
</tr>
<tr>
<td></td>
<td>The coefficients of correlation between the number of e-shops and value of GDP</td>
</tr>
<tr>
<td>correlation</td>
<td>0.988</td>
</tr>
<tr>
<td>p value</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>The coefficients of correlation between the dynamics of change in the number of e-shops and dynamics of change GDP</td>
</tr>
<tr>
<td>correlation</td>
<td>0.588</td>
</tr>
<tr>
<td>p value</td>
<td>0.297</td>
</tr>
</tbody>
</table>

Demand on the market of e-commerce is reported by individual customers and enterprises making purchases. The article focuses on individual customers. In research conducted by the Central Statistical Office, changes in preferences for use of the Internet and making purchases were determined on the basis of the sam-
ple of 8100 households. The sample selection ensured its representativeness for the entire population.

The basis for e-commerce is access of both parties to the transaction to computers and to the Web. In years 2010-2014, household equipment improved gradually, as in 2010, 77% of all households had a computer (Fig. 3). Substantial disproportions were found between households with children and without children. Having children resulted in the necessity and obligation to have a computer. Differences between the two groups were very high. A similar correlation was observed with regard to Internet access (Fig. 4). In year 2014, as many as 74.8% households had such access. The greatest needs were recorded by households with children. The place of residence had less impact on having access to the Internet.

![Figure 3. Access to computers in households in Poland in 2010-2014 (in % of total households in a group). Source: Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2010-2014 (2014) GUS, Warszawa.]

![Figure 4. Households with access to the Internet at home in Poland in 2010-2014 (in % of total households in a group). Source: Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2010-2014 (2014) GUS, Warszawa.]

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The share of persons making purchases via Internet increased systematically (Fig. 5). In 2014, as many as 17.4% of all Internet users made such purchases. It can thus be stated that the number of customers of e-commerce is growing. Electronic purchases are made easier, among other things, by development of mobile Internet, allowing us to make purchase from any location.

In years 2010-2014, the share of persons making purchases on the Internet increased gradually (Fig. 6). It should be noted, however, that access to modern technologies and distribution channels is easier for young people in comparison with the older generation. In 2014, the highest percentage of Internet buyers belonged to age group of 25-34 (59.9%), and it was the lowest in the group aged 64-74 (6.2%).
Web users purchased various products (Fig. 7). In 2014, they most often purchased clothing and sports equipment (60.6%), and then – the remaining equipment, such as furniture, vehicles, household appliances, hobby and gardening articles, tools, toys, jewelry, art and trinkets (41.6%), books and periodicals (22.9%), electronic equipment excluding computers (19.0%), food (23.8%). It should be noted that buyer preferences changed in years 2010 – 2014. The sales of some products kept increasing, while others were becoming less and less popular.

4. Summary

The market of e-commerce in Poland is among the fastest developing markets – the dynamics of development in years 2010 – 2014 exceeded ten percent of growth annually. The supply side consists mainly of e-shops – their number increased somewhat slower than the market value. The market was very fragmented, dominated by entities existing for less than 2 years. Access to the market is very easy. Only one in ten e-shops had operated for more than 5 years. Consolidation processes are expected to take place on the market. The supply side also includes actions organized by individual customers and enterprises using the popular Web services, such as Allegro. A very high level of correlation between the market value and the number of shops in years 2006-2014 and the measures of economic condition of Poland. No correlation was found when comparing the dynamics of market changes and economic condition. E-commerce developed faster and independent of economy.

The supply side consists of customers, who make purchases over the Internet. In years 2010 – 2014, the share of households having computers and Internet access grew systematically. Substantial differences were recorded between house-
holds with and without children. In 2014, almost all households with children had computers and Internet access, which was not a rule in households without children. The products that were most often purchased over the Internet included clothing and sports equipment (60.6% persons purchasing over the Internet in 2014). The purchasing preferences changed, depending on goods and services. The sales of some products kept increasing, while others were becoming less and less popular.

REFERENCES


