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GROWTH OF THE INTERNET MARKET AND ITS IMPACT ON DIGITAL DIVIDE IN LATVIA

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The paper aims to analyze the growth of the Internet market in Latvia and its impact on digital divide among residents and enterprises. For the dynamic analysis of statistical data, the method of assessing the con(di)vergence of indicators of the involvement of various socio-demographic and geographical groups of residents and enterprises in the Latvian Internet market is used. The empirical basis of this study is the data of Latvian statistics for 2013–2022 (for some indicators – 2023). The results of the study show that the growth of the Internet market in Latvia is very fast, but at the same time the potential for further growth is still very high. The growth of the Internet market in Latvia reduces digital divide among residents and enterprises in relation to the access to the Internet market, but in relation to the returns from this access, the equalizing opportunities of the Internet market in Latvia (especially in its regions) are limited by the specifics of the functioning of the economy based on social capital. The novelty of this study is a comprehensive analysis of the general background and dynamics of the Latvian Internet market in the context of digital divide among residents and enterprises.
Keywords: Jnternet market, digital divide, digital inequality, con(di)vergence, coefficient of variation, Latvia.

Internettirgus izaugsme un tās ietekme uz digitālo plaisu Latvijā
Raksta mērķis ir analizēt internettirgus izaugsmi Latvijā un tās ietekmi uz digitālo plaisu iedzīvotāju un uzņēmumu vidū. Statistisko datu dinamiskai analīzei tiek izmantota dažādu sociāli demogrāfisko un ģeogrāfisko iedzīvotāju un uzņēmumu grupu iesaistes Latvijas internettirgū rādītāju kon(di)verģences novērtēšanas metode. Šī pētījuma empīriskā bāze ir Latvijas statistikas dati par 2013.g.–2022.g. (dažiem rādītājiem – 2023.g.). Pētījuma rezultāti liecina, ka internettirgus izaugsme Latvijā ir ļoti strauja, taču tajā pašā laikā potenciāls turpmākai izaugsmei joprojām ir ļoti augsts. Internettirgus izaugsme Latvijā samazina digitālo plaisu iedzīvotāju un uzņēmumu vidū saistībā ar pieeju internettirgum, bet attiecībā uz atdevi no šīs piekļuves internettirgus izlīdzināšanās iespējas Latvijā (īpaši tās reģionos) ierobežo uz sociālo kapitālu balstītas ekonomikas funkcionēšanas specifika. Šī pētījuma novitāte ir visaptveroša Latvijas internettirgus vispārējā fona un dinamikas analīze iedzīvotāju un uzņēmumu digitālās plaisas kontekstā.
Atslēgvārdi: internettirgus, digitālā plaisa, digitālā nevienlīdzība, kon(di)verģence, variācijas koeficients, Latvija.

Introduction

The global Internet market will reach a value of nearly USD 363.05 billion in 2023, driven by the growing number of users of digital channels (Expert Market Research 2023). Owing to the rapid adoption of online advertising and increasing investments in ICT and digital platforms, the Internet market is expected to further grow at a compound annual growth rate (CAGR) of 13.1% during the forecast period 2024–2032 (Expert Market Research 2023). North America is the leading regional Internet market and will continue to dominate in the coming years. The region is expected to account for 38% to 42% of the total digital marketing expenditure during the forecast period (Expert Market Research 2023). The large target audience of the region is encouraging key players and brands in North America to promote their content, products and services online, which in turn is fueling the growth of the Internet market. Asia Pacific is also expected to witness significant growth of the Internet market in the coming years, owing to the high population density in the region, spread of Internet and growing popularity of smartphones among the population (Expert Market Research 2023).

In turn, Latvia, according to the Digital Economy and Society Index (DESI) for 2021, is doing well in terms of connectivity, use of Internet services and digitalization of public services, but the degree of business digitalization among small and medium-sized enterprises (SMEs) and e-commerce lags far behind the European Union (EU) average (European Commission 2021). This makes Latvia one of the

least developed countries in the EU in this aspect, with the lowest level of web sales to enterprises and governments in the EU (European Commission 2021). SMEs in Latvia are undergoing a digital adaptation, while lagging behind large enterprises in all areas of digitalization.

Despite the fact that there are currently tens of thousands of enterprises' websites registered in Latvia, only a small part of them are able to attract visitors from the world's largest search engine Google. Insufficient content, incorrect technical settings or lack of popularity means that only their owners know about the existence of such websites (Ministry of Environmental Protection and Regional Development of the Republic of Latvia 2020). The so-called digital divide (Compaine 2001; Dobrinskaya, Martynenko 2019; Arbeláez-Rendón et al. 2023) or digital inequality (Buhtz et al. 2014) among enterprises can be observed here, which is the disparity in technical, professional, cultural and other capabilities and abilities to successfully operate in the Internet market.

As for the potential participants of the Internet market in Latvia, in 2022, 10% of the country's population (in Latgale, traditionally lagging behind Latvian southeastern region (Voronov 2022), 16.3%) do not use the Internet at all on a regular basis (at least once a week) (Central Statistical Bureau of the Republic of Latvia 2024a), which means they are practically out of reach of the Internet market. In turn, in 2019 (before the Covid-19 pandemic, which was the impetus for increased digitalization of many spheres of activity in most countries of the world) the share of Latvians who do not use the Internet at least once a week was 16.3% (in Latgale, 23.5%) (Central Statistical Bureau of the Republic of Latvia 2024a).

Scientific literature (Umit Kucuk 2009; Ali et al. 2022) and business practices (Pellicelli 2023) recognize that the Internet market has the potential to reduce digital divide among residents and enterprises. On the other hand, the results of some studies suggest that equalization of opportunities in the sense of access to the Internet leads to even greater technological divide, because individuals with an initially higher socio-economic status are much more successful in using the opportunities offered by the Internet in general and by the Internet market in particular (Larina 2017).

Thus, despite the widespread use of ICT and their potential to reduce traditional barriers in business and communication, there are significant divide in access to the Internet market and benefits from such access among residents and enterprises in Latvia. This divide is manifested both in differences in technical equipment and professional competencies, as well as in geographical and socio-economic divisions, which significantly affects the involvement of residents and enterprises in the īnternet market.

The purpose of this article is to analyze the growth of the Internet market in Latvia and its impact on digital divide among residents and enterprises. We assume that the growth of the Internet market in Latvia is very fast and reduces digital divide among residents and enterprises. The empirical basis of this study is the data of the Central Statistical Bureau of the Republic of Latvia (Latvian: *Latvijas Republikas Centrālā statistikas pārvalde*) for the last 10–11 years (from 2013 to 2022 (for some indicators – to 2023)) on the involvement of various groups of residents and enterprises in the Internet market.

Literature review

According to the reselts of recent studies, comprehensive digitalization of an enterprise includes four interrelated components (ICT development (infrastructure modernization), digitization of operations, digital marketing and digital business), and all these components "are stages in the digital journey of most enterprises" (Pellicelli 2023, p. 3). The concept of digital journey as a long process (and the thesis 'transform or die') is also used by the authors of the "SMEs Digital Journey Report Latvia 2021: Mechanism of the Digital Transformation" to analyze the digital transformation process

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of Latvian small and medium-sized enterprises (SMEs), which usually start their digital journey with digitization of general administration and marketing operations (Rupeika-Apoga, Bule 2021).

The next step is the use of social media or participation in e-commerce. However, as more sophisticated technologies (such as big data and artificial intelligence) enter the market, the ability of SMEs to adopt them is significantly reduced compared to large enterprises (Rupeika-Apoga, Bule 2021). And while some experts argue that digital marketing provides equal growth opportunities for every enterprise (Umit Kucuk 2009; Zwilling 2014), the competence of enterprises in digital marketing often leaves much to be desired because "digital marketing is more than just technology adoption, it is also about strategies for integrating technology into business processes" (Masrianto et al. 2022, p. 4).

As for the behavior of potential customers of enterprises in the Internet market, for example, the results of a study conducted in Lithuania show that Lithuanian customers prefer traditional shopping in stores rather than online shopping (Davidavičienė et al. 2021). Thus, 44% of shoppers visit physical stores more than three times a week. Despite the preference for traditional shopping, the authors of Lithuanian study indicate that the online shopping market in Lithuania is still growing. The Lithuanian study also identified the key characteristics of online stores that have the greatest influence on online shopping behavior. They were website design, informativeness, convenience, security and popularity of the online store (Davidavičienė et al. 2021). Overall, Lithuanian researchers emphasize the importance of adapting digital marketing and online sales strategies to the preferences and behavior of local consumers, as well as the need for further research in this area, especially in other geographical regions with similar economic and cultural conditions (Davidavičienė et al. 2021) – for example, in Latvia.

The scientific literature recognizes young people as the most promising target audience in the Internet market (Dunlop et al. 2016; Ali et al. 2022; Varlamova 2022). For example, the results of a study conducted in Pakistan show that young Pakistanis prefer attractive and well-designed websites or social networks with many unique features to purchase goods and services. In particular, good website design and features increase shopping intention by 55.2% (Ali et al. 2022). The results of factor analysis show that overall social media marketing (SMM) determines the shopping behavior of youth in Pakistan by 53.5% and the remaining 46.5% is due to other external and internal factors that are not related to SMM (such as personal, social, psychological, cultural differences or environmental factors) (Ali et al. 2022).

The rapidly growing Internet market worldwide has also created its own stratification, most often referred to in the scientific literature by the terms 'digital divide' or 'digital inequality'. Researchers identify several levels of digital divide, such as a first- and a second-order effect: a first-order effect is created by divide in access to ICT, and a second-order effect is created by divide in the use of ICT (Buhtz et al. 2014). Despite claims by some researchers that the digital divide will disappear over time due to increasing access to the Internet (Compaine 2001), the results of a six-month study of the online behavior of 2,819 e-commerce users in the United States show a different picture: even with comparable levels of Internet access, users with relatively high socio-economic status benefit more from e-commerce than those with relatively low socio-economic status (Buhtz et al. 2014). Specifically, higher income users shop on more websites within a certain category of digital platforms; higher income users are also more likely to shop on more digital platforms; a direct and statistically significant ($p < 0.01$) effect of income on the use of alternative e-commerce platforms was found; a direct relationship between income and the use of price comparison websites was also found; higher income users are more likely to shop on more digital platforms. Thus, a second-order effect describes that some individuals benefit less from digital opportunities not so much because of limited access to ICT, but because of limited ability to use it.

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Some researchers distinguish three levels of digital divide among residents (Dobrinskaya, Martynenko 2019; Varlamova 2022): (1) access to the Internet – the difference in access to the latest ICT (presence or absence of material base) and includes not only the possession of special devices (smartphones, computers, etc.), but also the availability of the Internet, as well as its qualitative characteristics (speed, cost, etc.); (2) use of the Internet – the difference in the skills necessary for the effective use of ICT (the presence of abilities not only to consume content, but also to produce it, to be an active participant in interaction); (3) benefits from the use of the Internet – difference in life chances and opportunities resulting from the use of ICT (this level is the most difficult to measure and is based on information about the level of digitalization of the certain spheres of a society's life). The results of a study conducted in Russia (Varlamova 2022) allow its author to state the existence of differences in access to and use of the Internet between generations, both in terms of the possession of digital devices and in terms of the purpose of using the Internet. At the same time, there is a positive trend among representatives of all generations in Internet use. The assessment of the digital divide of the third level allows the study's author to conclude that there are benefits for all generations in Russia from the use of the Internet (Varlamova 2022).

In Latvia, various aspects of the Internet market and digital divide among residents, enterprises and also municipalities are actively studied at the Faculty of Business, Management and Economics of the University of Latvia, mainly under the leadership of Professor Sloka. The results of the research show that there is a digital divide among municipalities in Latvia (Sloka et al. 2021). Thus, out of 119 municipalities in Latvia, 13 do not use social networks at all. Some municipalities use up to 4 different social networks, while others limit themselves to one or two. In particular, 37 municipalities use 4 different social networks (Sloka et al. 2021). These data indicate significant differences in the adoption and use of ICT among Latvian municipalities, which may exacerbate the digital divide among residents and enterprises at the third level, based on the level of digitalization of local administrative and public services (Dobrinskaya, Martynenko 2019; Varlamova 2022).

Furthermore, Latvian researchers study the problem of digital divide among households depending on such characteristics as place of residence (region, city or rural area), income level and education level (Lase, Sloka 2021). Using data of the Latvian statistics for 2019, Lase and Sloka identified differences between urban and rural Internet access, socio-economic differences between residents with different income and education, which affects their opportunities as the result of Internet access and digital skills. The researchers concluded that Latvian society needs to strengthen motivation for lifelong learning, invest in ICT and raise awareness of residents about the importance of digitalization (Lase, Sloka 2021).

Despite a rather active study of the Internet market and digital divide in Latvia, we have not been able to find any long-term dynamic analysis of the changes taking place in the Latvian Internet market in the context of digital divide among residents and enterprises. Consequently, no attempt has yet been made to confirm or reject the hypothesis that the growth of the Internet market in Latvia is very fast and reduces digital divide among residents and enterprises. Furthermore, there are no studies analyzing the general background and dynamics of the Latvian Internet market and digital divide among residents and enterprises.

Conceptual framework of the study

Since the online market of digital marketing is based on technology, the conceptual understanding and description of the behavior of its potential and actual participants can be based on the technology acceptance model (TAM) developed by Davis, which explains how users accept and use computerized information systems (Davis 1986, 1989). First, the perceived usefulness of a new technology is

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important – the degree to which an individual believes that using a particular computerized information system will improve his or her work (if a technology is perceived as useful, it is more likely to be accepted and used). Second, the perceived ease of use of the new technology is also important – the extent to which the individual believes that using the technology will not require excessive effort. If a technology is perceived as easy to use, the likelihood of its adoption by a potential user increases (Davis 1989).

The perception of usefulness and ease of use of a new technology is likely to be strongly influenced by the socio-economic status of individuals (Buhtz et al. 2014). It can then be expected that Latvians with a relatively low socio-economic status will find Internet market activities difficult and risky and will be less motivated by the utilitarian benefits of these activities, which will lead to less effective use of ICT compared to their fellow citizens with a relatively high socio-economic status.

The conceptual basis of divide in the Internet market is further explained using the theory of digital divide developed by van Dijk (2006, 2017), used in those studies that distinguish several levels of digital divide (Dobrinskaya, Martynenko 2019; Varlamova 2022) or digital inequality (Buhtz et al. 2014; Arbeláez-Rendón et al. 2023). Van Dijk himself identifies four types of access to ICT (van Dijk 2017):

(1) motivational access – interest, desire and need to use ICT; relates to potential users' beliefs and attitudes towards technology, including their interest in ICTs and perceptions of their usefulness;

(2) material access – the physical presence of a computer, smartphone and Internet connection; also includes the availability and cost of equipment and services, which may be a significant barrier for some groups of potential users;

(3) access skills – abilities and skills necessary for the effective use of ICT (ability to use software and hardware, ability to search, find and process information);

(4) access use – the actual use and application of ICT in everyday life, work and learning; How often and how effectively individuals use technology to achieve their goals.

Van Dijk emphasizes that all these types of access to ICT are interconnected and important for understanding the digital divide – a lack of any of them can become an obstacle to full inclusion in the digital society (van Dijk 2006, 2017). Thus, the main causes of digital divide among Latvian residents and enterprises, located at different levels, are the following: inequality in ICT skills and competencies, divide in access to infrastructure, socio-economic inequality (a first-order effect), divide in the efficiency of using opportunities, opening up in the Internet market (a second-order effect).

Another paradigm for conceptual understanding and description of the behavior of potential and actual participants in the Internet market is offered by the resource approach based on the theory of social fields developed by Bourdieu (2005), actively used in research at Daugavpils University (Latvia) to study the volume and structure of the 'resource portfolio' and the total capital of various social strata (Meņšikovs 2009; Mensikovs et al. 2020; Komarova et al. 2022). The resource approach or the resource-asset-capital approach, developed by Tikhonova (2006) as a new theoretical paradigm in stratification studies, is based on the following methodological premise: the resources available to an individual / enterprise, as a result of their [resources] activation, can be converted into its assets, which, in turn, can bring socio-economic returns as a result of their [assets] capitalization, i.e. become the capital of an individual / enterprise. According to the methodology developed by Menshikov (2009) and further modified (Komarova et al. 2022), nine groups of resources – economic, cultural, professional, social, administrative, political, symbolic, physical and geographical – form the structure of a 'resource portfolio' characteristic of European society[1]. In Latvia, using the example of two social

[1] In other societies, the structure of the 'resource portfolio' may be different. For example, a recent study in two Southeast Asian countries, Indonesia and Thailand (Seda et al. 2020), shows that in these societies, religious resource-asset-capital plays a crucial role in social stratification because it is used as a starting point for access to other resources and their

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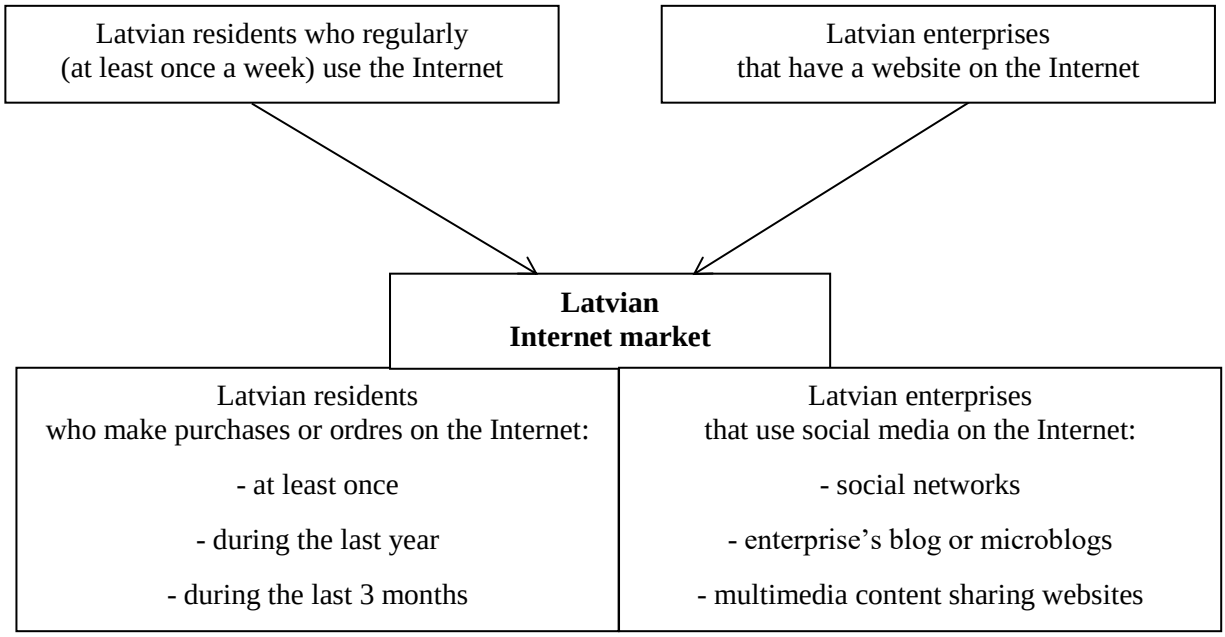
strata, workers and the 'middle class' (identified on the basis of three characteristics: income, education, self-identification), a statistically significant difference was discovered in the volume of the 'resource portfolio', and it was also found that workers are less successfully than representatives of the 'middle class' capitalize the resources at their disposal, i.e. less able to convert them into their capital (Komarova et al. 2022). Thus, social strata differ from each other not so much in the specificity of resources, but in the specificity of the capital obtained from them (Komarova et al. 2022).

Overall, the technology acceptance model, the theory of digital divide and the resource approach based on the theory of social fields offer essentially a common conceptual understanding that digital divide (like any other type of divide) includes two main aspects: divide of opportunity (input) and divide of achievement (output). Each of the above-mentioned theoretical and methodological approaches used in this study explains the mechanism of digital divide in different reference systems and terms, but they all recognize the fact that equality of access to ICT does not yet mean equality of results (I.e. the capabilities of a computer greatly depend on the abilities of the person who is sitting behind it). In application to the hypothesis of this study that the growth of the Internet market in Latvia reduces digital divide among residents and enterprises, this means the following: the hypothesis may be true in relation to the 'digital divide of input' and not entirely true in relation to 'digital divide of output'.

Figure 1

The structure of potential and actual participants in the Latvian Internet market



Source: developed on the basis of the classification adopted in Latvian statistics.

In the framework of this study, the growth of the Internet market is conceptually understood primarily in a quantitative aspect – as an increase in the share of Latvian residents and enterprises

activation-capitalization. But in modern Latvia, people's religious affiliation does not give them any advantages (Meņšikovs, Lavrinoviča 2011), i.e. is not a determining factor of social stratification, which is most likely tre for the entire European society.

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potentially and actually involved in the Internet market. Empirically, this is interpreted as the share of Latvian residents who regularly (at least once a week) use the Internet and make purchases or orders there, as well as the share of Latvian enterprises that have a website and use social media on the Internet. The following figure schematically shows, based on available statistical data (Central Statistical Bureau of the Republic of Latvia 2024a, 2024b, 2024c, 2024d), the structure of Latvian residents and enterprises potentially and actually involved in the Internet market.

Materials and methods

To study the dynamics of the share of Latvian residents and enterprises potentially and actually involved in the Internet market, i.e. the share of Latvian residents who regularly (at least once a week) use the Internet and make purchases or orders there, as well as the share of Latvian enterprises that have a website and use social media on the Internet, we use the method of assessing con(di)vergence (Barro, Sala-i-Martin 1991, 1992, 1997) of indicators of the involvement of various groups of residents and enterprises in the Latvian Internet market for the period of time from 2013 to 2022 (2023) using comparative analysis of data and calculation of the coefficient of variation (Marques, Soukiazis 1998).

The concept of con(di)vergence is quite applicable to describe the convergence or divergence of the indicators of involvement of various groups of Latvian residents and enterprises in the Internet market over a certain period of time, since in economic and social contexts convergence refers to the process when the indicators of different groups or territories come closer together according to certain indicators (Barro, Sala-i-Martin 1991). To confirm the presence of convergence (decreasing the digital divide) or divergence (increasing the digital divide), we can use statistical data on the dynamics of indicators of the involvement of various groups of Latvian residents and enterprises in the Internet market to find out the degree of their [indicators] convergence or divergence.

In the scientific (mainly econometric) literature (Barro, Sala-i-Martin 1991, 1992, 1997), there are two main types of con(di)vergence: β(beta)-con(di)vergence and σ(sigma)-con(di)vergence. These are two different concepts mainly used by economists to study interterritorial convergence or divergence by various indicators (Lavrinenko et al. 2012; Boronenko et al. 2014; Lavrinenko 2015). Thus, the concept of β-convergence is used to describe the process in which relatively poor economies grow at a faster rate than relatively rich ones, which over time leads to a decrease in the gap in measured indicators among them (Lavrinenko 2015). It can be called convergence over time and can be applied to any indicators and groups, including indicators of the involvement of various groups of residents and enterprises in the Latvian Internet market over the studied period of time. It is expected that lagging groups of residents and enterprises increased their involvement in the Internet market at a faster pace.

In turn, the concept of σ-con(di)vergence describes a decrease or increase in the variability (scatter) of indicators among (in this study) various groups of residents and enterprises. It can be called con(di)vergence in space (not only physical, but also socio-economic), leading to a decrease or increase in divide between the groups being studied. The conclusion about the presence or absence of σ-con(di)vergence of indicators is made on the basis of a dynamic analysis of the coefficient of variation (Lsvrinenko 2015), which makes it possible to assess the variability (scatter) of an indicator within normalized boundaries (Krastiņš, Ciemiņa 2003). The coefficient of variation is calculated as the ratio of the standard deviation to the arithmetic mean of the sample (Marques, Soukiazis 1998); if its value is less than 10%, then the variability (scatter) of the indicator is considered weak, at 10–30% – medium, 30–60% – strong, 60–100% – very strong (Krastiņš, Ciemiņa 2003). The coefficient of variation can be used to analyze con(di)vergence, especially in the context of σ-con(di)vergence (Lsvrinenko 2015).

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The empirical basis of this study is the data from the Central Statistical Bureau of the Republic of Latvia for the last 10–11 years (from 2013 to 2022 (2023)) on the involvement of various groups of Latvian residents and enterprises in the Internet market (Figure 1) both for Latvia as a whole and depending on their socio-demographic and geographical characteristics: for residents – age (16–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65–74 years), education (ISCED 0–2 – no school education, education below primary, basic or primary education; ISCED 3 – general secondary education; ISCED 5–8 – higher education (the statistics does not contain data on the level of education ISCED 4)), economic activity (employed, unemployed, schoolchildren or students, other economically inactive) and region of residence (Riga (the capital of Latvia), around Riga (Pieriga region), Vidzeme region, Kurzeme region, Zemgale region, Latgale region); for enterprises – the number of employees (The statistics contain data only for enterprises with 10+ employees) (10–49 employees (small enterprises), 50–249 employees (medium-sized enterprises), 250+ employees (large enterprises)) and industry (according to NACE 2 classification).

In accordance with the conceptual framework of this study, a statistical analysis of the growth of the Latvian Internet market and digital divide among residents and enterprises includes studying the dynamics of the shares of potential and actual participants in the Internet market, i.e. the share of Latvian residents who regularly (at least once a week) use the Internet and make purchases or orders there, as well as the share of Latvian enterprises that have a website and use social media on the Internet.

Results and discussion

As the statistics show, the share of Latvian residents who regularly (at least once a week) use the Internet, i.e. potential participants in the Latvian Internet market, over the past 10 years has increased by 18.8 percentage points – from 71.2% of the population in 2013 to 90.0% in 2022 (hereinafter in the text – calculated according to the data of the Central Statistical Bureau of the Republic of Latvia). At the same time, the smallest increase (16.8–17.2 percentage points) was observed in Riga and around Riga (Pieriga region), which at the time of the reference year 2013 had the largest share of residents who regularly use the Internet (74.9% and 75.0%, respectively). In turn, the largest increase in potential participants in the online market of digital marketing was observed in the peripheral regions of Latvia, although it cannot be said that in Latgale region, where at the time of the reference year 2013 there was the smallest share of residents who regularly use the Internet (64.9%), the increase was the largest (which characterizes β-convergence, in which the indicators of more lagging groups grow faster).

As for σ-convergence, the variability (scatter) of the indicator of regularity of Internet use across the regions of Latvia was weak both in 2013 (5.4%) and in 2022 (3.2%), while decreasing over 10 years by 2.2 percentage points. This suggests that in access to ICT, unlike most other socio-economic indicators, there is virtually no regional divide in Latvia (furthermore, regional variability in access to ICT continues to decrease, with the largest decrease observed during the Covid-19 pandemic – from 4.2% in 2020 to 2.8% in 2021). This also supports the research hypothesis that geographic divide among residents in the Latvian Internet market will decrease, at least in terms of the access to this market.

In the framework of this study, we did not analyze the regularity of Internet use by Latvian residents depending on their age, education, economic activity, but went straight to the analysis of the actual involvement of Latvian residents in the Internet market depending on all these indicators.

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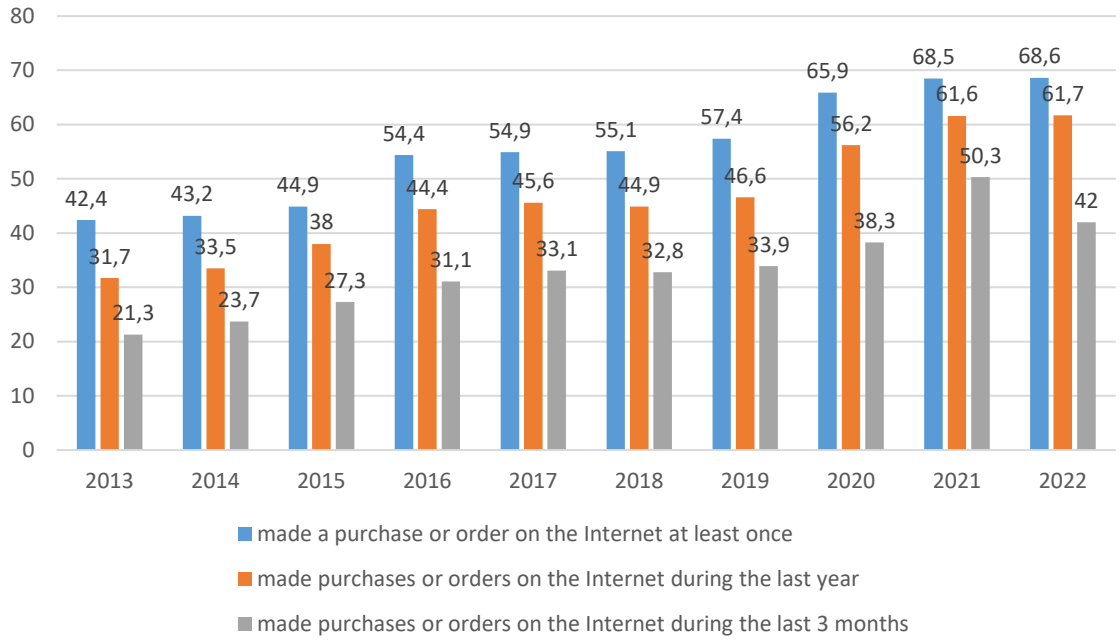
Figure 2

Share of Latvian residents making purchases or orders on the Internet, % of the total number of residents, 2013–2022



Source: compiled based on the data of the Central Statistical Bureau of the Republic of Latvia 2024b.

As the data in Figure 2 shows, the share of Latvian residents who make purchases or orders on the Internet, i.e. actual participants in the Latvian Internet market, over the past 10 years has increased by 20.7–30.0 percentage points. At the same time, the largest increase in digital buyers occurred in the group who made purchases or orders on the Internet during the last year, which indicates a very rapid pace of the growth of the Latvian Internet market. At the same time, the potential for the growth still remains very large, since in 2022, with 90% of Latvian residents regularly (at least once a week) using the Internet, more than 30% of Latvians have not yet made purchases or orders on the Internet.

The share of Latvian residents who make purchases or orders on the Internet is quickly converging geographically (regionally), both in terms of β-convergence and σ-convergence. Thus, in full accordance with the characteristic of β-convergence, in those regions of Latvia in which the least activity of digital buyers was observed at the time of 2013, this indicator increased generally faster than in 'advanced' regions, greatly reducing the digital divide among Latvian residents by geographic attribute: for example, the share of Latgale region's residents who made purchases or orders on the Internet during the last year increased from 16.3% in 2013 to 49.8% in 2022, i.e. by 33.5 percentage points, while in Riga this increase was the smallest among the regions of Latvia – by 27.1 percentage points (from 41.0% in 2013 to 68.1% in 2022). However, this is not the case for all indicators – for example, the share of residents who have made a purchase or order on the Internet at least once in Latgale region (which lags behind in this indicator) is not growing at the fastest pace, being inferior in terms of the growth rate of the share of digital buyers to almost all other Latvian regions. Thus, according to this indicator, β-convergence does not occur.

As for σ-convergence, there are pronounced processes of convergence of indicators on a geographic (regional) basis (i.e. in geographic space). Thus, regional variability in the activity of

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Latvian residents making purchases or orders on the Internet has decreased by 10.5–17.2 percentage points over the past 10 years, but Riga still remains the leader, and Latgale region still lags behind, but with a smaller gap.

The share of Latvian residents who make purchases or orders on the Internet is converging by age just as quickly as by region, at least in terms of σ-convergence. Thus, the age variability in the activity of Latvian residents making purchases or orders on the Internet has decreased by 15.1–17.6 percentage points over the past 10 years, but the age group of 25–34 years old still remains the leader, and the age group of 55+ is still behind, although with a smaller gap.

In turn, β-convergence by age does not occur because lagging age groups do not increase their activity in the Internet market faster than 'advanced' age groups. It is interesting that the highest rate of increase in shopping activity in the Internet market is observed in the age group of 16–24 years (although at the time of 2013 this group already occupied second place after the age group of 25–34 years). Indirectly, this may indicate that the youngest age group is not so much increasing their own shopping activity in the Internet market, but rather helping their grandparents to do this – the age group 55+, in which interest in the Internet market is also increasing, but there is a lack of knowledge and skills in handling it.

The share of Latvian residents who make purchases or orders on the Internet is converging faster by educational level than by age and region (in terms of σ-convergence). Thus, the educational variability of the shopping activity of Latvian residents making purchases or orders on the Internet has decreased by 18.9–25.2 percentage points over the past 10 years, but the group with higher education still remains the leader, and the group with the lowest level of education still lags behind, although with a smaller gap (especially in terms of those who have made a purchase or order on the Internet at least once).

In turn, β-convergence by educational level, as well as by age, does not occur, since groups with a low level of education (ISCED 0–2 and ISCED 3) are increasing their activity in the Internet market faster than the group with a higher education only in terms of testing shopping activity on the Internet (based on the share of those who have made a purchase or order on the Internet at least once or made purchases or orders on the Internet during the last year). In turn, the shopping activity in the Internet market in terms of making purchases or orders on the Internet during the last 3 months has been growing faster in the group with a higher education, which was already a leader in this aspect. Thus, it can be argued that Latvian residents with a low level of education are more actively trying to enter the Internet market, but most likely face greater challenges there than users with a higher education.

The share of Latvian residents who make purchases or orders on the Internet is also quickly converging by economic activity in terms of σ-convergence, but β-convergence does not occur, i.e. the shopping activity in the Internet market is growing faster in those groups that were already leading in this aspect (in particular, among employees and student youth), while the unemployed and other economically inactive groups of Latvian residents are increasing their shopping activity in the Internet market at a slower pace. At the same time, the variability of indicators of the shopping activity in the Internet market among groups with different economic activity over the past 10 years still decreased by 12.8–13.8 percentage points (i.e. σ-convergence occurred), although to a lesser extent than by age, education and geographic (regional) basis.

Thus, at the time of 2013, the highest coefficient of variation (55.0–63.7%) in the shopping activity of Latvian residents in the Internet market was observed by age, education (47.1–54.3%) and economic activity (45.6–54.1%); the coefficient of variation (19.5–32.9%) was quite low by geographic (regional) basis. Over 10 years, the variability of the indicator of the shopping activity of Latvian residents in the Internet market has decreased significantly, but at the time of 2022, the highest coefficient of variation (37.4–48.6%) was still by age, then (unlike 2013) followed by economic

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activity (32.8–40.3%), then by education (22.2–35.4%); the coefficient of variation by geographic (regional) basis decreased to 9.0–17.1%.

Such a significant decrease of digital divide among Latvian residents in terms of their access to the Internet market and actual involvement in this market over the period from 2013 to 2022 was mainly due to the σ-convergence of indicators of the shopping activity of Latvian residents in the Internet market for almost all analyzed characteristics. In turn, β-convergence was observed only in some cases, which still did not prevent the decrease of digital divide among Latvian residents (which [digital divide], however, still exists). Overall, statistics indicate that the growth of the Internet market in Latvia is very fast and reduces digital divide among residents.

Next, we move on to analyzing the involvement of Latvian enterprises in the Internet market, starting with an analysis of the share of enterprises that have a website on the Internet. According to the conceptual framework of this study, it is precisely such enterprises that are potential participants in the Internet market, since, as already indicated in the Introduction of this article, a huge number of websites of Latvian enterprises in reality remain practically without the attention of the target audience, and only the owners themselves know about their existence.

As the data presented in Table 1 shows, the share of Latvian enterprises with a website on the Internet is constantly growing. A particularly large increase, more than 5 percentage points per year, occurred during the Covid-19 pandemic. There is β-convergence between SMEs and large enterprises, whereby SMEs are increasing their potential presence in the Internet market faster than large enterprises.

As for σ-convergence among Latvian enterprises by the number of employees, there is also a process of convergence of the indicator of a website presence on the Internet – from 22.8% of variability in 2013 to 17.4% in 2022 (i.e. -5.4 percentage points over 11 years) (Table 1).

Table 1

Share of Latvian enterprises with a website on the Internet, % of all enterprises and by the number of employees,* 2013–2023**

Groups of enterprises	2013	2014	2015	2016	2017	2018	2019	2020	2021	2023	Difference 2023/2013, % points
All enterprises	55.7	55.9	59.0	63.5	62.9	63.0	64.8	62.6	67.8	67.3	+11.6
Incl. by the number of employees:											
10–49 employees (small enterprises)	51.6	50.8	53.3	58.8	58.3	58.5	59.7	58.4	63.5	63.4	+11.8
50–249 employees (medium-sized enterprises)	74.5	78.4	83.8	84.2	82.5	82.8	86.4	81.0	87.3	86.0	+11.5
250+ employees (large enterprises)	92.1	94.8	94.6	96.3	96.2	95.0	95.0	94.1	95.5	98.1	+6.0
Coefficient of variation, %	22.8	24.3	22.6	19.6	19.8	19.3	18.7	18.9	16.5	17.4	-5.4

* The statistics contain data only for enterprises with 10+ employees.

** The statistics do not contain data for 2022.

Source: compiled based on the data of the Central Statistical Bureau of the Republic of Latvia 2024c.

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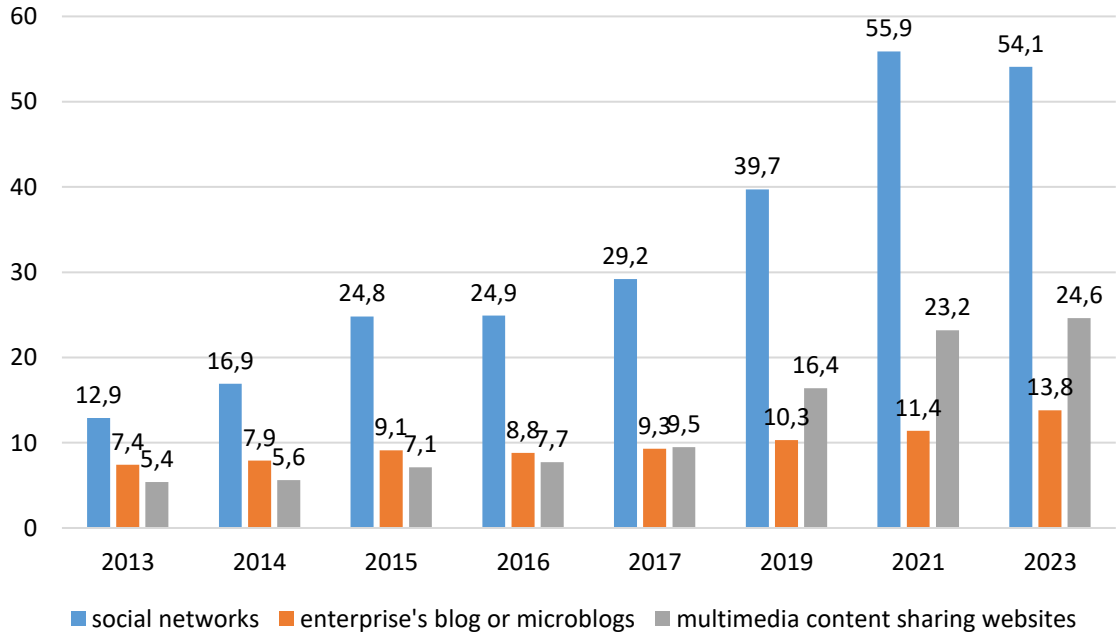
In relation to the presence of a website on the Internet, there is no β-convergence of Latvian enterprises by industry, i.e. in industries with almost the same share of enterprises having a website on the Internet at the time of 2013 (for example, in manufacturing (57.6%) and electricity, gas supply, heating and air conditioning, water supply, wastewater, recycling and reclamation of waste (57.0%)), the growth rates over the past 11 years could be completely different (in this case – 14.9% and 25.0%, respectively). In some sectors of the economy, which at the time of 2013 had relatively high indicators, there was even decrease over 11 years: hotels and accommodation (-1.1%), information and communication services (-4.1%), activities of administrative institutions and enterprises of services (-3.9%).

As for σ-convergence among Latvian enterprises by industry, there is a process of convergence in the indicators of the presence of a website on the Internet between groups of enterprises – from 28.7% of variability in 2013 to 19.7% in 2023 (i.e. -9.0 percentage points over 11 years). Thus, the digital divide among Latvian enterprises by the number of employees and industry (at least in terms of potential access to the Internet market) is decreasing, and this decrease was especially pronounced during the Covid-19 pandemic: by 2.4 percentage points over one year of the pandemic by the number of employees and by 2.2 percentage points by industry.

Next, we move on to analyzing the use of social media on the Internet by Latvian enterprises, i.e. to the analysis of the actual involvement of enterprises in the Internet market. According to the classification adopted in Latvian statistics, social media on the Internet includes social networks, enterprise's blog or microblogs and multimedia content sharing websites.

Figure 3

Share of Latvian enterprises using social media on the Internet, % of all enterprises,* 2013–2023**



* The statistics contain data only for enterprises with 10+ employees.
** The statistics do not contain data for 2018, 2020, 2022.
Source: compiled based on the data of the Central Statistical Bureau of the Republic of Latvia 2024d.

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As Figure 3 shows, among Latvian enterprises using social media on the Internet, the largest increase (41.2 percentage points) over the past 11 years has been observed in the use of social networks (which is quite consistent with the strategy "if a business is not present on a social network, it is not on the market"), and the smallest (6.4 percentage points) is in the use of enterprise's blog or microblogs.

The share of small, medium-sized and large enterprises in Latvia using social media on the Internet (i.e. actual participants in the Internet market) is constantly growing, and this growth sometimes exceeds 50 percentage points over 11 years, as in the case of the use of social media by medium-sized and large enterprises (although they used social networks more often than small enterprises also in 2013). Overall, in terms of the use of social media (all analyzed types) on the Internet, the growth rate of large enterprises is faster than that of medium-sized and especially small enterprises, although initially large enterprises were in the lead in relation to medium-sized ones, and medium-sized enterprises – in relation to small ones (i.e. no β-convergence occurs here).

As for σ-convergence among Latvian enterprises by the number of employees, there is also a rather rapid process of convergence, i.e. decrease of the variability of indicators of the use of social media on the Internet: over 11 years – by 22.7 percentage points for social media, up 5.1 percentage points for enterprise's blog or microblogs and 16.5 percentage points for multimedia content sharing websites. Despite this rather rapid process of convergence in terms of the use of social media on the Internet, large Latvian enterprises in this aspect are still far ahead of medium-sized and especially small enterprises – by tens of percentage points.

The variability of indicators of the use of social networks by Latvian enterprises across industries in 2013 was very strong (80.3%), and over 11 years it decreased by 54.8 percentage points, falling to 25.5%, i.e. there has been a rapid σ-convergence in the use of social networks among Latvian enterprises by industry (this is the largest decrease of digital divide within the scope of this study).

As for β-convergence among Latvian enterprises by industry, we can say that lagging industries are growing faster (in full accordance with the β-convergence conception) – for example, wholesale and retail trade, car and motorcycle repairs with 12.7% of the use of social networks in 2013 and an increase of 51.0 percentage points over 11 years.

The variability of indicators of the use of enterprise's blog or microblogs by Latvian enterprises across industries in 2013 was almost as strong as in the case of social networks (78.3% and 80.3%, respectively), but over 11 years this variability has decreased significantly less than in the case of social networks – by 16.2 percentage points, dropping to 62.1%, i.e. σ-convergence in the use of enterprise's blog or microblogs among Latvian enterprises is not as significant as in the case of social networks. As the result of this the variability across industries in the use of enterprise's blog or microblogs, although decreased, still remains very strong (the leader with a big gap here is the information and communication services).

As for β-convergence among Latvian enterprises by industry, it does not occur with regard to the use of enteprise's blog or microblogs, i.e. industries lagging behind in this regard do not grow faster, and sometimes (for example, in the case of wholesale, retail trade and repair of cars and motorcycles) even demonstrate a decrease. At the same time, the largest increase (14.6% percentage points) in the use of enterprise's blog or microblogs was observed in the information and communication services, which was already the leader in 2013.

The variability of indicators of the use of multimedia content sharing websites by Latvian enterprises across industries in 2013 was even greater (coefficient of variation – 83.6%) than in the case of social networks and enterprise's blog or microblogs, and over 11 years this variability has decreased by almost a half, i.e. by 41.4 percentage points, falling to 42.2%. Thus, σ-convergence in

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the use of multimedia content sharing websites among Latvian enterprises was almost as significant as in the case of social networks, resulting in a significant decrease in the variability across industries.

As for β-convergence among Latvian enterprises by industry, it does not occur in relation to the use of multimedia content sharing websites (as is in the case with enterprise's blog or microblogs), i.e. industries lagging behind (at the time of 2013) in this regard can demonstrate both a rapid growth rate (for example, retail trade, except for trade in cars and motorcycles, with an increase of 23.4 percentage points), and quite moderate (for example, transportation and storage with an increase of 14.2 percentage points), and the leader in the use of multimedia content sharing websites in 2013, the information and communication services industry, demonstrates a relatively large increase of 23.8 percentage points.

Thus, at the time of 2013, the greatest digital divide among Latvian enterprises was observed not so much in terms of access to the Internet market (in terms of a website presence on the Internet, the coefficient of variation was 22.8% by the number of employees (Table 1) and 28.7% by industry), but in terms of actual involvement in this market (for example, in terms of the use of social networks, the coefficient of variation was 47.5% by the number of employees and 80.3% by industry). Over 11 years the digital divide among Latvian enterprises has decreased significantly, and by 2022 there is no longer such a significant difference between divide among enterprises in terms of access to the Internet market and in terms of actual involvement in this market. Thus, in terms of the presence of a website on the Internet, the coefficient of variation in 2022 decreased to 17.4% by the number of employees, i.e. by 5.4% percentage points (Table. 1), and up to 19.7% by industry, i.e. by 9.0 percentage points. In turn, in terms of the use of social networks, the coefficient of variation in 2022 decreased to 24.8% by the number of employees, i.e. by 22.7 percentage points, and up to 25.5% by industry, i.e. by 54.8% percentage points.

Such a significant decrease of digital divide among Latvian enterprises in terms of their access to the Internet market and actual involvement in this market over the period from 2013 to 2023 was mainly due to σ-convergence of indicators of the presence of a website and use of social media on the Internet. In turn, β-convergence was observed only in some cases, which still did not prevent the decrease of digital divide among Latvian enterprises (which, however, still remains quite strong).

The research hypothesis that the growth of the Internet market in Latvia is very fast and reduces digital divide among residents and enterprises can be considered as proven. However, as the statistics we analyzed show, the digital divide among Latvian residents and enterprises still exists on a large scale, and we can begin to explain its possible causes with the case study presented in the following table.

Table 2

Case study: the comparison of two enterprises operating in the Latvian Internet market for the delivery of food and essential goods

Comparable indicators*	Online store *BARBORA*	Online store *Vietējais top!*
Delivery territory	Products are delivered only in Riga region and around it (Pieriga region)	Products are delivered even in rural areas in the regions
Competitors in the delivery territory	Yes	No
Delivery time	The day and time of delivery is selected by the client during	There is no option on the website to select the day and time of delivery, but

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	making order from the options offered on the website	the delivery information states that it occurs on the same day if payment is received before 13.00-15.00
Website design	The website is beautifully designed	The website is beautifully designed
Website informability	Good – products are grouped (which makes them easier to find), there are all the necessary sections of information	Good – products are grouped (which makes them easier to find), there are all the necessary sections of information
Website usability	The website is quite easy to use: product sections open quickly (but the transition between them is not very convenient), the table for selecting delivery times appears twice, the orders were always completed successfully	The website is very inconvenient to use: product sections take a long time to open, there are often unnecessary switches from one group of products to another, the finished cart may 'freeze' during payment (in this case, I had to create a new profile and place the order again)
Additional opportunities	There is a section for recipes for dishes, products for which can be ordered immediately in a basket right there on the website, sections for new products and 'World of Wine', basket templates can be created for typical repeated purchases, etc.	No
Bonuses	Coupons and discounts are offered using a special code	Coupons and discounts are offered using a special code
Support in case of problems	Three communication channels are offered: telephone, e-mail and Internet chat; respond and help through all channels (if they can't answer the phone right away, they always call back)	Two communication channels are offered: telephone and e-mail; you can't get through by phone (out of reach), they don't respond to e-mails, when you call a specific physical store where the order should arrive, they answer that they understand and sympathize with everything, but they can't help in any way while the order is 'hanging' in standby mode, and "the owner is on vacation"
Shopping experience	Multiple successful experience, but only when visiting Riga and Pieriga region, because this service is not available in the peripheral regions	Completely unsuccessful experience (the order was not completed): loss of time to place the order (at first it 'froze' during payment, and it took a long time to order again, since groups of goods take a long time to open), at the time of writing the article, the completed and paid order was 'hung' in standby mode for almost week and has already lost the relevance for the buyer
Business owners	Patrika Ltd.	MADARA 89 Ltd.

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Legal address of the enterprise	Maskavas street 257, Riga, LV-1019, Latvia	Baznicas laukums 2, Smiltene, Smiltene County, LV-4729, Latvia

* Formulated partly on the basis of Davidavičienė et al. 2021.
Source: compiled based on both own experience and information on the enterprises' websites.

The results of the case study of two enterprises operating in the Latvian Internet market for the delivery of food and essential goods, presented in Table 2, can be explained within the conceptual framework of this study, based on the technology acceptance model, the theory of digital divide and the resource approach.

Using the technology acceptance model, which works with the user's subjectively perceived usefulness and ease of use of computerized information systems (Davis 1986, 1989), it is possible to explain the user's shopping experience in the Internet market as follows: the service of ordering and delivering food and essential goods is subjectively perceived by the user as useful and easy to use. But the reasons for a successful shopping experience in the first case and a completely unsuccessful one in the second case cannot be explained using this model. The methodological assumption that differences in the socio-economic status of users determine their divide in the use of ICT does not work here either (Buhtz et al. 2014), since both successful and completely unsuccessful shopping experiences belong to the same user.

The theory of digital divide and its four types of access to ICT (motivational access, material access, access skills and access use) (van Dijk 2006, 2017) can explain the results of the case study by shortcomings in the fourth type of access that have become an obstacle to successful experience in the Internet market in the case of the online store *Vietējais top!* (Table 2). In particular, in this case, one can state shortcomings in the access use, i.e. in the effectiveness of the actual use and application of ICT for the implementation of an order on the Internet. In the context of digital divide on a geographical (regional) basis, addressed by this study, it is noteworthy that a successful shopping experience was stated in cooperation with a metropolitan digital seller, and an unsuccessful one – with a regional one. This may well illustrate the fact that the capital region of Latvia is, unlike the rest of its territory, at a higher (and, most importantly, qualitatively different, in terms of driving forces of development, business culture, etc.) stage of economic development. This fact has been deeply studied in the works of researchers from Daugavpils University (Boronenko 2014; Seļivanova-Fjodorova 2020), but is usually not considered both in economic research and in economic policy.

Most likely, the results of this study can be explained in the conceptual paradigm of the resource approach based on the theory of social fields (Bourdieu 2005) or the resource-asset-capital approach (Tikhonova 2006), which assumes that resources (including technological ones, i.e. motivational and material access to the online market and even skills in handling it) available to the resident / enterprise can be turned into his / her / its assets, which, in turn, can become the capital of the resident / enterprise. Thus, technological (like any other) resources do not always become assets, much less capital (which is what happened in the second case, presented in Table 2). In an economy based on social capital (and this is precisely the economy of the peripheral regions of Latvia – as opposed to the capital region), a key role is given to social connections that promote cooperation between individuals and groups, and in such an economy the conversion of social and administrative capital into economic capital is most pronounced (Meņšikovs 2009). Considering the very low (about 2%) level of participation of Latgale residents in public organizations and political parties, revealed by researchers at Daugavpils University (Meņšikovs 2009), the peripheral regions of Latvia are characterized by a rather 'closed] type of social capital (according to Olson), in which interests of closed groups may conflict with general public interest and lead to social and economic inefficiency (Olson 1965).

In a practical sense, this means that for participants in the Internet market promoting a product or service, it is not enough to have a website of your enterprise on the Internet – you must also be able to

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use this website to completely fulfill the client's order (for example, help him / her to figure out if the completed and paid order for food delivery 'hangs' in standby mode for almost a week). As for the target audience, it is not enough to have access to the website and the ability to use it – you also need to use existing social connections or try to establish new ones (if there is no administrative capital), calling physical participants in the supply chain and finding out when the owner will be back from vacation to deal with an order stuck on the website. In such conditions, models and theories developed for an economy at the innovation stage of development (in Latvia, only Riga is close to this stage (Seļivanova-Fjodorova 2020)) practically do not work.

The results of this study are consistent with the results of other studies that digital marketing is a strong equalizer for residents and enterprises when used effectively to reach target audiences, attract customers and measure results (Zwilling 2014).

Conclusions

Based on the results of this study, the following main conclusions can be drawn about the growth of the Internet market in Latvia and digital divide among residents and enterprises:

(1) the growth of the Internet market in Latvia is very fast, and the impetus for this development was the Covid-19 pandemic, during which the actual use of ICT in everyday life, work and education was forced to increase; however, the potential for growth still remains very large, since with 90% of Latvian residents regularly (at least once a week) using the Internet, more than 30% of Latvians have never made a purchase or order on the Internet;

(2) there is a significant decrease of digital divide among Latvian residents in terms of access to the Internet market and actual involvement in this market from 2013 to 2022 (there is a rapid convergence of indicators of the shopping activity for almost all analyzed characteristics – age, education, economic activity, as well as region of residence);

(3) despite a significant decrease of digital divide, it still exists on a large scale among Latvian residents and enterprises (still by a large gap, by tens of percentage points, large enterprises and enterprises of the information and communication services are leading among enterprises, and among residents – economically active Riga residents 25–34 years old with higher education).

Thus, ICT is a strong 'equalizer' for residents and enterprises, when it is used effectively and not just by providing equal physical access to the Internet market. Otherwise, the digital gap between residents and enterprises that are more successful (for various reasons) in capitalizing their technological and other resources in the Jnternet market, and those that are not, could become even larger than it was in the classic market. Today, the growth of the Internet market in Latvia reduces digital divide among various socio-demographic and geographical groups of residents and enterprises in relation to the 'digital divide of input' (access to the Internet market), but in relation to the 'digital divide of output' (return on this access) the equalizing opportunities of the Internet market in Latvia (especially in its regions) are limited by the specifics of the functioning of the economy, which is based on social capital.

The main limitation of this study is the non-exhaustive set of analyzed statistical indicators, which gives an idea of the general background and dynamics of the Latvian Internet market in the context of digital divide among residents and enterprises, but does not cover many more detailed aspects related to the use of various digital tools. As for the directions for further research on the growth of the Latvian Internet market, the starting point can be our case analysis (a comparison of two enterprises operating in the Latvian Internet market for the delivery of food and essential goods), starting from which we

can comprehensively study the technological, organizational, economic, social aspects of the Internet market and the restrictions that prevent ICT from more effectively reducing digital divide in Latvia.

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