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# NEW TRENDS OF OMNICHANNEL OPERATION IN RETAIL TRADE IN THE VISEGRAD COUNTRIES

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In the Visegrad countries, online sales increased generally by double-digit growth in the last 5 years. The research examines how the changing processes affected by the pandemic and consequently the macroeconomic environments and the distributors were confined because of the restrictions and lockdown of borders. It is observed that many traders moved toward the direct-to-consumer (DTC) strategy, so one of the research questions is how consumers could use the Internet for satysfing their needs. The pandemic has accelerated the changes in the value chains, and distribution channels, so the paper analyses how companies transformed their commercial models to omnichannel form. One of the other research questions is to determine the strength of the relationship between e-commerce's gaining ground and the pandemic restriction in Visegrad countries. The role of innovation in the commercial branch, which have resulted in a more effective way, particularly disruptive technologies is stressed.

**Keywords:** omnichannel, e-commerce, retail, Visegrad Group, disruptive technologies

## Introduction

With globalization, supply chains became more differentiated in the last decade. Online distribution as a model seems to be more dominant and the market share of e-commerce is growing. In addition, modern payment methods enhance this trend (Gyenge, et al., 2021; Kitukutha, et al., 2021).

This process is accelerated by the Covid-19 pandemic as well. The restrictions, the closed borders, and the quarantine life encourage people to buy online conveniently from their homes. These effects modify the whole value chain and restructure the business models of retailers and wholesalers as well.

The market share of online trade has been increasing constantly in the last decade and further growth is expected in the next few years. Based on data estimated by Statista, e-commerce has grown on average yearly by 11.35 percent worldwide, but the biggest growth according to CAGR (Compound Annual Growth Rate) has Brazil (20.73%) in the world and Italy (16.57%) in Europe from 2022 to 2025 (Statista, 2022a).

The retail e-commerce sales are cca. 4.9 trillion USD and based on the estimation of Statista, we can expect further market growth. The global market share of this trading method will rise to approximatelly 24.5 percent to 2025. This trend was accelerated by the pandemic; but the growth ratio seems to decrease in the future, with about a yearly 4 percent growth. The most popular retailer in the world is Amazon.com, its market gap was 1.735 bn USD in 2021 followed by Alibaba with its 614.8 bn USD cap (Statista, 2022a).

There are two main strategies in the retail sector led by the new trends. Traditional retailers open online opportunities to widen their sales opportunities. Besides this, online retailers open brick-and-mortar shops to approach their consumers personally. These strategies contribute to the development of omnichannel sales methods. The adaptation capability became the most important role in retail management (Ivanov and Dolgui, 2021).

The Visegrad Group (hereinafter V4) represents Central Eastern Europe comprising Czechia, Hungary, Poland and Slovakia.

### General trends in the world

Besides the changes in technology, it is worthwhile to review those supply chain management and consumer behaviour-related trends in the sector that has an effect on retail sales and on the development of the omnichannel model.

It can also be added that the market concentration in the case of some products and some countries decreased owing to the impact of the common internal market and the strengthening of internal market competition. As for the Visegrad Group, this process was coupled by the decline of comparative advantages and the strong convergence of values (Vásáry et al., 2014).

Based on Verhoef (2015), we defined omnichannel management as the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels are optimized (Verhoef et al., 2015). Besides physical stores still remain an essential shopping venue as part of the consumer journey.

Moreover, European online exporters, according to these results, are approximately 2% more productive than non-online exporters (Duch-Brown and Martens, 2018).

### Millennials and the on-demand economy

When we draw a sketch about the direction of development in commerce it cannot be ignored that as for 2040, Generation X will be in the senior age group, and the frequently purchasing "Millennials" – born between 1982 and 2004 – are going to be adults, and the members of Generation Z will be the major consumers of the near future.

The need for personalized supply and the desire for the satisfaction of unique purchasing ideas will be more and more important, and it should be considered in planning sales promotions and creating product selection strategies. Besides addressing special needs there is a growing importance of comfort because the customer wants to order any good anytime and from anywhere, and the technological requirements of this are given by the Internet-based economy today (Nagy et al., 2012; Sundararajan, 2016).

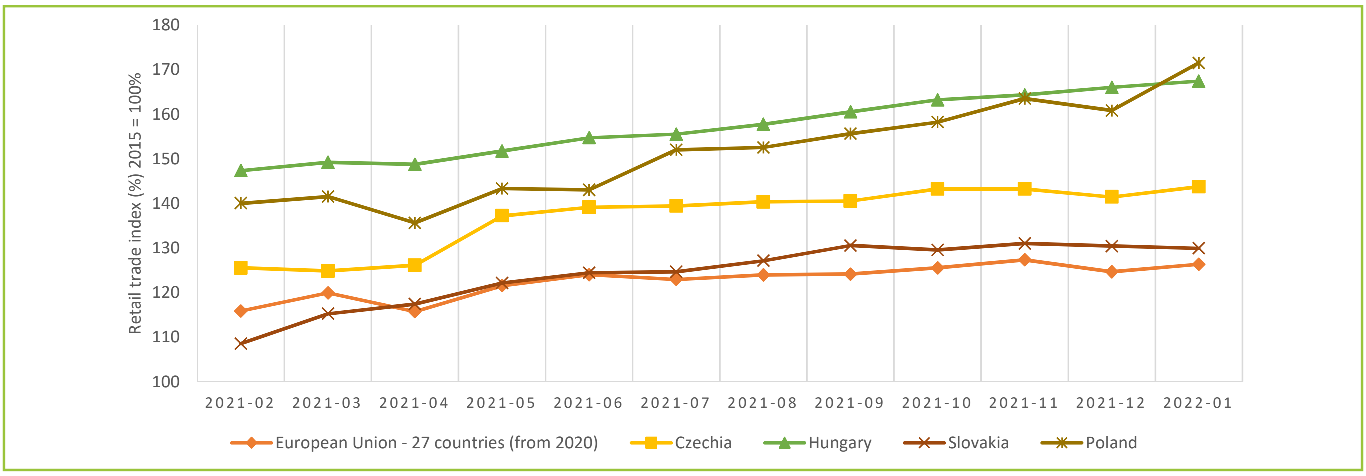


**Figure 1** The change in retail trade index in V4 countries and the EU between February 2021 and January 2022b
Source: EUROSTAT, 2022

Biometric data-processing based on scanning of the retina or fingerprint is not just for the identification of the customer but the tracking of inner movements by this technology serves for security and protection of property – leading to certain questions about the protection of privacy in some cases. Today, robotization and the utilization of AI gained roles in supporting many activities. For example, Amazon uses automated training planning and e-learning-based retraining in the training of workers.

Contactless processes and totally automatized purchases are basic expectations of consumers, particularly the new generations. Two aspects of consumer behaviour clash: convenience and data protection. The new technologies, like biometric identification, are more comfortable, but the consumer has to allow the usage of personal data to some extent (Morosan, 2018).

However, harnessing facial recognition payment applications as software-based contactless biometric algorithms results in remarkably qualitative enhancement in purchasing experience (Dijmărescu et al., 2022).

## The main characteristics and challenges in the Visegrad-Regions e-commerce

By this time, in later 2022 the issue of e-commerce and omnichannel trade has rich bibliography worldwide, including its trends and challenges in the V4 region, including the impacts of the Covid 19 pandemic from early 2020.

One of the pandemic's significant effects on retail trade is the advancement of online sales. However, the expansion of online trade started even before the pandemic. The establishment of an electronic marketplace and innovation space on the input side may bring about a major breakthrough in this situation improving purchase conditions which offer an opportunity to expand production through improving profitability (Erdeiné Késmárki-Gally et al., 2015).

Before we further analyze the omnichannel trends, we have to show that the commercial turnover was generally increasing continuously in the last period. Figure 1 shows the changes in retail turnover in the V4 countries and EU from February 2021 until January 2022, in %. The growth rate is highest in Hungary and Poland and in each V4 country is higher than the EU average.

It is conspicuous that the role of e-channels is increasing continuously. Because of the Covid-19 pandemic, this trend has intensified in the last two years. Figure 2 shows the tendency of spreading e-commerce through the increase in e-platform usage, in % of the whole retail (2022–2025 data are forecasts).

Fedorko and Král' (2021) added that not only online shopping, but also the problems associated with it are growing every year. Regarding the these issues, the highest incidence of problems was recorded in 2015 in Hungary (40%), in 2017 in Poland (18%) and in 2019 in the Czech Republic (28%). The most common problem in all V4 countries was the longer delivery time of goods or services than that stated by the seller on the store's website (Fedorko and Král', 2021).

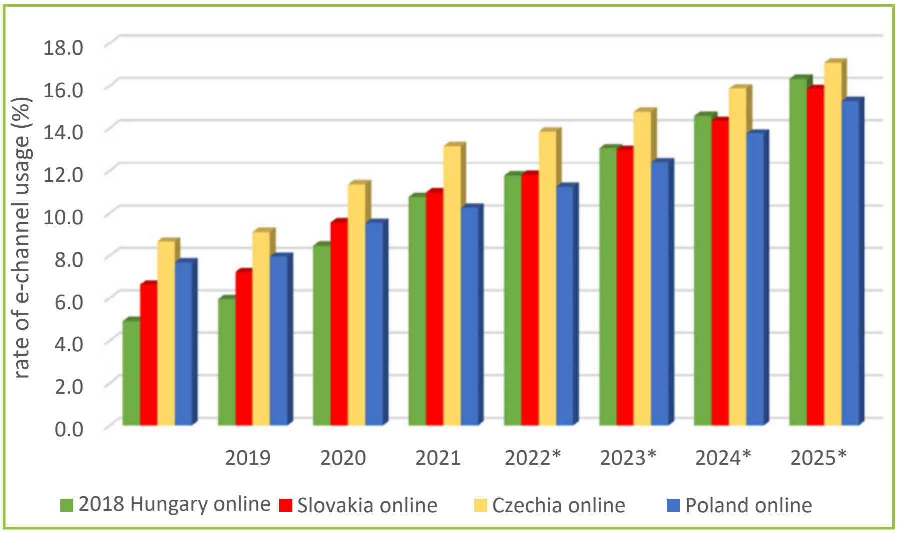


**Figure 2** Usage of e-channels in retail in the last years and forecasts
Source: Statista, 2022b

## Material and methods

The study was based on primary and secondary research, and the conclusions and recommendations are based on the synthesized results of these, closely related examinations and the evaluation of the results thus obtained. The secondary research comprised bibliographic and database research from national and international sources and statistical databases. As primary research, the authors made several interviews and professional conversations with experts from different areas of the research topic.

The first event was organized by the Hungarian Economic Association (HEA) as a part of the 59th Itinerant Conference of Economists on 3rd September 2021 and was moderated by G. Neszmélyi with the participation of the managing director of Medito Wholesale Company of Toys, managing director of Gardeno Horticultural Ltd. and a professor of the Hungarian University of Agriculture and Life Sciences, Kaposvár Campus (Neszmélyi, 2022).

The 2nd discussion was organized by HEA and the Budapest Business School on 21 April 2022, with the participation of three leaders from the e-commerce branch: managing director of kifli.hu, CEO deputy of kozertplusz.hu and e-commerce leader of SPAR.

The 3rd discussion took place on 23rd September 2022 at the 60th Itinerant Congress of HEA, where the representatives of e-commerce companies discussed the platform economy and expected trends regarding AI, digital technologies and consumer needs. T. Kozak from the Budapest Business University disscussed with the general manager of Wolt, the founder of Kende Retail, the managing director from Gardeno and the e-commerce leader of SPAR.

After panel conversations, we summarized the information and compared them with the findings of secondary sources. We analyzed the trends of the last few years in the traditional and e-commerce branch and tried to forecast the expected trends and results regarding the growth of e-commerce. We created a regression model to analyze the relationship between GDP and e-commerce changes in the V4 region. We measured the correlation with the Pearson linear correlation coefficient. We compared the linear and exponential regression in the four countries and choose the best-fitting model, which we applied for forecasting. Finally, we drew inferences and presented suggestions related to trends and solutions in the examined area.

## Results and discussion

### Results of Panel Discussion 1

The first panel discussion was organized by the HEA as a part of the 59th Itinerant Conference of Economists on 3rd September 2021 at which all three authors attended and a panel discussion was moderated by G. Neszmélyi with the participation of the managing director of Medito Wholesale Company of Toys, managing director of Gardeno Horticultural Ltd. and a professor of the Hungarian University of Agriculture and Life Sciences, Kaposvár Campus (Neszmélyi, 2022). The participants analysed the effect of the SARS-CoV-19 pandemic on the commercial sector and tried to predict the expected trends.

From 2019 to 2020 online sales recorded double-digit growth in the world. The sudden changing processes affected the services, there were shop shortages, the delivery periods became longer, and the consumer reevaluated the risks and payment methods. Some restrictions made shopping in physical shops more difficult. The consumers postponed the purchase of products where it was possible. The distributors were confined because of the restrictions and lockdown of borders, their role declined in the supply chain.

It was observed that many traders moved toward the DTC strategy, they skipped the distributor in the supply chain and try to find the consumers via the Internet directly. One of the most important characteristics of traders is flexibility, how they can adapt to the suddenly changing environment and challenges. New technologies can help by serving new needs. If a vendor could develop an omnichannel sales system quickly, the company could raise its market share significantly. There was a two-directional trend recognizable: online shops try to establish physical shops and conversely physical networks try to start online platforms.

Particularly in foods, the place of purchase has started to rearrange, because trust is an important factor in food decisions and the consumers need a personal relationship with the producer or trader.

In essence, rapid changes happened in supply chains caused by the pandemic, which forced the participants of supply chains to adapt to the new challenges. They could acquire a larger market share and survive the difficult period with a flexible strategy.

### Results of Panel Discussion 2

The 2nd discussion was organized by HEA and the Budapest Business School on 21 April 2022, with the participation of three leaders from the e-commerce branch: managing director of kifli.hu, CEO deputy of kozertplusz.hu and e-commerce leader of SPAR. The participants focused on the FMCG sector and discussed the future of online trade in this area.

We could see in the last two years, that the pandemic has accelerated the changes in the value chains, e-commerce are more significant, and traditional companies transformed their commercial models to omnichannel form. An interesting trend was rising: online businesses started to open traditional shops because they perceived the need for personal meetings. The role of omnichannel solutions is increasing since it is more effective way to reach the consumer than the one-way methods.

The innovation processes are accelerated, and the management faces a turbulent environment and fast-changing needs. Rapid innovation also increases prices, as long as the competition allows it.

Personalization plays an important role in service providing, this process needs more and more data, but GDPR and related regulations restrict the opportunities. It is a daily challenge for companies to serve individual consumer needs on a high level and respond to regulations. In the world of the internet, data security is more and more difficult and expensive task for management.

### Results of Panel Discussion 3

The 3rd discussion took place on 23rd September 2022 at the 60th Itinerant Congress of HEA, where the representatives of e-commerce companies discussed the role of the platform economy and expected trends regarding AI, digital technologies and consumer needs. T. Kozak from the Budapest Business University disscussed with the general manager of Wolt, the founder of Kende Retail, the managing director from Gardeno and the e-commerce leader of SPAR.

The unexploited sources can drive the next innovation in the commercial branch, which we have to use in a more effective way, particularly disruptive technologies. The internet offers unlimited information, but the time to analyze it is limited, therefore trust becomes more important in business relations.

The role of employees in the labour market is changing as well: the classical employee status is reducing, and more and more people want to work flexibly. Robotization abolishes workplaces but creates new, more creative jobs. AI is a modern way of statistics, whose processing the employee has to define, and so it can not totally substitute personal contribution. The AI works in a predefined frame system, the configuration is a task of a person. In addition, consumers need personal services in particular areas. There are a lot of departments, where personal contribution is crucial, for instance, research and development, as long as the manufacturing and storage can be totally automated. A good example is that 80% of the population worked in agriculture before the industrial revolution, and now it is only some percent, nevertheless, agriculture can work effectively nowadays as well.

The crisis caused by the coronavirus has rearranged the world of the labour market, it has also had a major impact on cross-border commuting, as restrictive measures have been introduced due to the coronavirus, which has suspended the geographically free movement through the borders, risking the daily commuting while in the second wave of the coronavirus, border controls were more stringent (Karácsony et al., 2021; Bite et al., 2020).

A negative side of spreading disruptive technologies is that the fraudster can reach and deceive the consumer easier. The service provider has to prepare their systems to avoid these undesirable processes.

## Regression analysis

The GDP growth was correlated with e-commerce revenue in the last five years. In the Figure 3, the GDP changes can be seen on the left axis and the e-commerce value on the right axis. Both indicators moved together in the last period. The growth of e-commerce was more intensive in Hungary and less in Poland.


**Figure 3** The relation of the GDP and e-commerce growth in the V4 countries from 2017 until 2022
Sources: EUROSTAT, 2022a; Statista, 2022b

We analyzed the relationship between GDP and e-commerce revenue changes. Firstly, we – as expected – saw a very strong correlation between both indicators, in every V4 country, the Pearson correlation coefficient is around 0.8 ($\sigma \leq 0.05$). It means that e-commerce revenue depends on GDP growth strongly. Secondly, we created a regression model, where the dependent variable was the E-commerce revenue and the independent variable was the GDP of the particular V4 country. Based on the experiential data and the data visualization, we expected a linear or light exponential connection between GDP and e-commerce revenue, hence we tested both types of regression. Table 1 shows the results.

The correlation is in Poland the strongest. It is interesting that the relation between GDP and e-commerce revenue is exponential in Czechia, and linear in the other three V4 countries. That means the revenue of e-commerce grows in Czechia at an increasing rate.

We calculated also the growth of e-commerce revenue in the next two years firstly, based on the raw trend function, and secondly, based on the regression connection considering the expected GDP changes. We used the data of the European Commission, according to which the GDP growth in the EU27 area reach up to 7.6% in 2022 and in 2023 will significantly lower, by 1.5% (European Commission, 2022).

Based on the above-mentioned data, Table 2 shows our forecast for e-commerce revenue

**Table 1** Correlation and regression between GDP and e-commerce revenue in the V4 countries, between 2017 and 2021

| Country | $\beta_{1lin}$ | $\beta_{1exp}$ | *r* – Pearson linear correlation coefficient | Residuals linear regression | Residuals exponential regression | Better fitting regression |
|---|---|---|---|---|---|---|
| Czechia | 0.0609 | 1.000012 | 0.8075 | 96.0779 | 40.0265 | exponential |
| Hungary | 0.0914 | 1.000037 | 0.7993 | 3.1272 | 692.1784 | linear |
| Poland | 0.0566 | 1.000004 | 0.8862 | 196.8013 | 1,156.6558 | linear |
| Slovakia | 0.0967 | 1.000050 | 0.8164 | 51.9639 | 318.0230 | linear |

Source: The author's calculation based on data of EUROSTAT, 2022b; Statista, 2022b

**Table 2** E-commerce revenue forecast for 2022 and 2023 in the V4 countries is based on two different methods

| Year | Czechia | | Hungary | | Poland | | Slovakia | |
|---|---|---|---|---|---|---|---|---|
| | raw trend | regression (GDP based) | raw trend | regression (GDP based) | raw trend | regression (GDP based) | raw trend | regression (GDP based) |
| 2022 | 7,165.1 | 7,711.5 | 4,687.3 | 4,848.3 | 16,629.0 | 17,449.6 | 2,974.1 | 3,188.1 |
| 2023 | 7,923.6 | 8,081.6 | 5,416.4 | 5,075,8 | 18,206.6 | 17,974.7 | 3,324.6 | 3,339.8 |

Source: The author's calculation is based on data of EUROSTAT, 2022b; Statista, 2022b

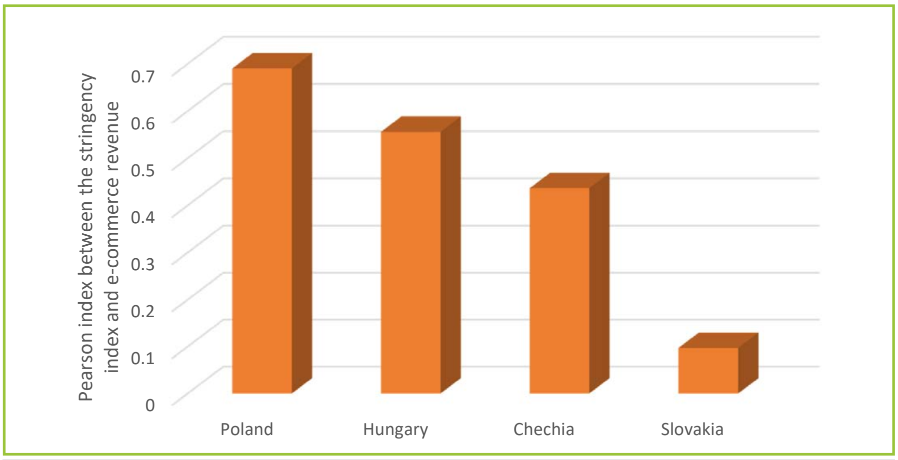


**Figure 4** The relationship between the stringency index and e-commerce revenue
Source: The author's calculation is based on data of EUROSTAT, 2022b; Statista, 2022b

in the V4 countries in the following years (in million €).

As can be seen, we expect growth in the e-commerce market, but this can be lower in 2023 because of the worsening economic prospects.

We analyzed what kind of relationship exists between the pandemic restriction and e-commerce revenue growth. We compared five years (2017–2022) data, where 2022 is a forecast, and based on the Pearson index we described the intensity of the relationship. The results are shown in the Figure 4.

We expected a tighter relationship between pandemic restriction and e-commerce revenue, but as it can be seen, the results are very variable. We found less connection in Slovakia and the strongest in Poland, where the proportion of e-commerce is the biggest. Summarised, the restrictions affected the e-commerce revenue stronger where the rate of e-commerce in the total commercial revenue is larger.

## Conclusions

The paper argued that there are many promising trends that retailers should keep on their radar. Among them hardware and software technological developments were discussed which transform the business models and improve the effectiveness of retailers due to the development of new algorithms, greater availability of data to inform about sales, operations, better infrastructure and cloud-based services.

The research identified trends which expected to shape the retail market in future. The essence of these trends is shaped by the next key changes:

- online space becomes more and more important within the omnichannel model,
- consumer lifestyle agendas drive needs through a focus on personalization, health, sustainability, and on-demand economy,
- more intensive customer experience.

The growth in e-commerce revenue exists in every V4 country, and we forecasted a further enlargement but in the next two years with less intensity based on the expectation of reduced GDP growth.

Necessarily, the pandemic restriction has affected commercial revenues in particular V4 countries in different ways. The larger the proportion of e-commerce was in the total commercial revenue, the stronger the relationship was between restriction and revenue growth.

The presented e-commerce figures showed the two digits changes and shares in retail turnover in the V4 countries, so the role of e-channels is increasing continuously and the Covid-19 pandemic intensified this trend. The highest growth rate was observed in Hungary and Poland and in each V4 country was higher than the EU average. We examined how the GDP growth was correlated with e-commerce revenue and it was confirmed, that both indicators moved together in the last period. The growth of e-commerce was more intensive in Hungary and less in Poland. As for the analyzed relationship between pandemic restriction and e-commerce revenues, it can be seen that the results would be very variable. From this viewpoint, the least connection was in Slovakia and the strongest in Poland, but even the latter figure did not exceed the value of Pearson index 0.7. Considering these trends retailers are shifted to further increase their efficiency through the omnichannel model and find new ways to increase sales efficiency.

It was confirmed that digitization affects customers' buying decisions. The internet-based technologies drive everything from e-commerce recommendations for example to customer service but also communicating with home delivery service partners or comparing the market prices of a product. Almost any new technology needs to be managed carefully, but if retailer companies establish the new sale technology and integrate it into their business strategy, success is almost guaranteed. Our study intended to examine some exciting prospects from the point of view of the retailer and this paper focused on how the macro-level environment affected the shift of retail baseness models in Visegrad countries.

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