

# **Regional analysis E-commerce industry**

## **Intensifying marketplace competition**

**Authors:**

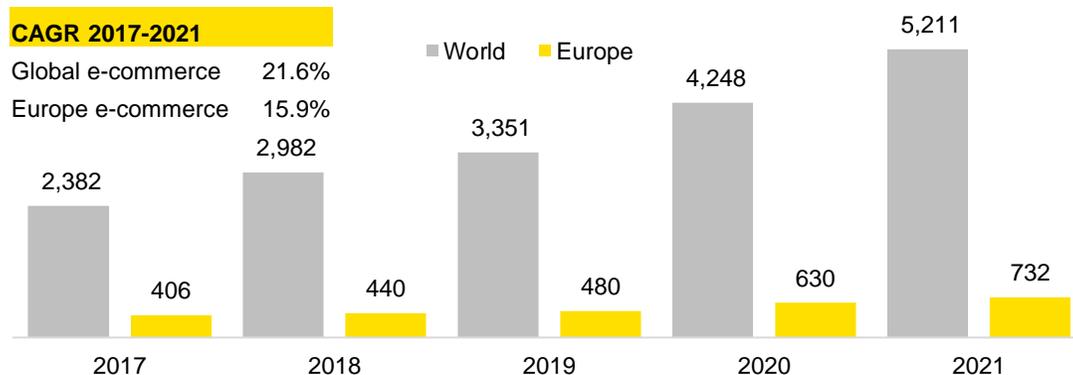
Jelena Zindovic, Senior Corporate Finance Analyst

Matteo Mosnja, Corporate Finance Analyst

Development of **e-commerce industry** commenced alongside the emergence of the internet usage. **Increasing technology adoption, wider usage of social networks and availability of smartphones contributed to the growth of the market.** Still, the **key factor driving the market is convenience offered by the online shopping.** Buying of goods and services without restriction of location and time is the most appreciated characteristic of e-commerce by today's busy customers. There is a vast array of business models used in e-commerce, the most notable being business-to-business (B2B) and business-to-consumer (B2C). **In our analysis, we are focusing on the B2C model, notably on online marketplaces niche category,** having in mind growing potential in the Adria region, their transforming impact on the retail sector and comprehensive set of business skills necessary for the industry success.

In 2021, the e-commerce industry accounted for nearly 19% of retail sales worldwide and 16% of retail sales in Europe. The worldwide market value grew by 21.6% p.a. (CAGR) between 2017 and 2021. The growing trend continued throughout 2022, shaping a 13% growth rate for Europe only. Within Europe, most goods are still sold in Western European countries, however Eastern European countries are catching up swiftly, thus, becoming the main drivers of the overall market expansion.

## Global vs. Europe e-commerce retail sales (2017-2021, \$ billion)



Source: Statista, Bloomberg Adria analytics

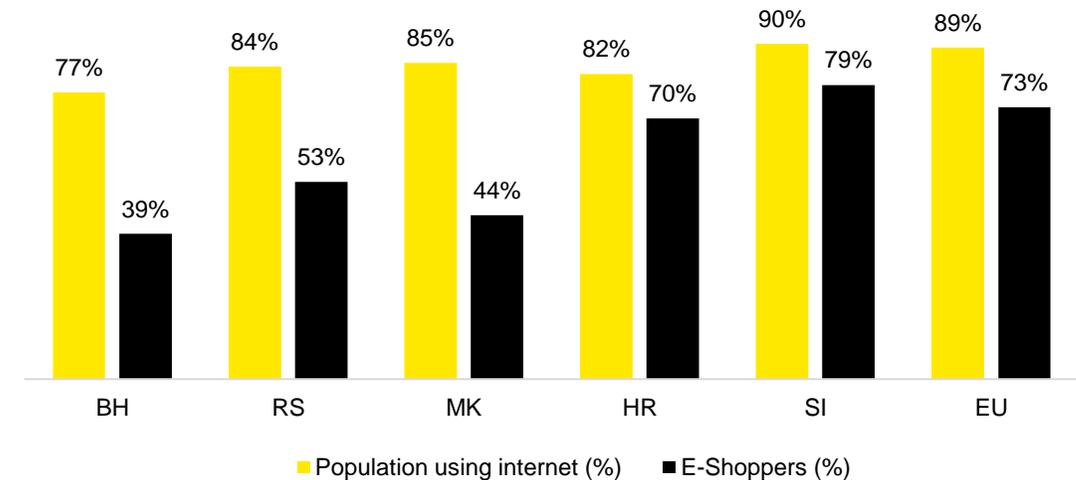
## Trends in industry

**E-commerce** value has grown rapidly over the past years, with the **industry's growth in mid-teens leading to changes in patterns of traditional retail and distribution business as well.** **E-commerce industry** itself is also evolving, having **derived into m-commerce** as the key trend over the recent years. The process accelerated during the pandemic, with a more convenient usage of smartphones to purchase of goods and services at any time and any place, pushing the online shopping towards m-commerce. Indeed, in 2021, **around 70% of total online sales,** according to estimates, has occurred **via cell phones.** **Artificial intelligence also comes with considerable transformation potential,** with companies using AI being able to customize their services and enhance purchase experience, leading to better customer satisfaction and stronger sales. **Usage of chatbots** as personal assistance is becoming **increasingly important to strengthen the relationship with the customer.** Another important element is **diminishing loyalty towards brands as a result of customer shopping switching to e-commerce.** Namely, with the access to broad range of products and possibility to compare prices, customers can easily switch to another brands, producing elevated challenges for the brand owners.

**E-commerce development within the Adria region is in somewhat different stages**, which comes from **different degree of digitalization, characteristics of the market and different economic development between the countries**. While still relatively different, a **common characteristic** is that the markets are in **quite early stages of development**, hence showing an expansion potential. On the one hand, the number of enterprises with e-commerce sales in most countries of the Adria region was above EU average in 2021. The highest share was in Croatia with 30%, followed by Serbia with 27%. North Macedonia is at the bottom, with only 6% of companies. However, **despite higher number of companies using online sales, the message is different when comparing the value of sales, with a lower share of e-commerce sales in total sales of Adria region than in the EU**. Serbia serves as the best example for the stated; almost 1/3 of companies has online sales, however, a shy 5% of revenues is generated through online channels. We see a similar situation in Croatia and B&H, while Slovenia has the best performance in this respect. Slovenia's ranking can be clarified by higher digitalization rate of population, combined with higher adoption of digital technologies.

When **comparing internet usage and the share of people shopping online**, we see that the **gap between the two categories** is much **wider in most Adria countries than in the EU**. In 2021, 90% of European population used internet and 74% of them purchased or ordered goods or services for private use online. In Adria region, the largest difference between the share of internet users and E-shoppers comes from Bosnia and Herzegovina, North Macedonia and Serbia. Croatia is slightly below the EU averages for both categories, while Slovenia is, again, top of the rank within the Adria region and slightly above the EU average.

Internet users vs. E-shoppers (2021)



Source: Eurostat, Statista, Bloomberg Adria analytics

**Frequency of online purchases** is also differently distributed among countries. In B&H, Serbia and N. Macedonia, a greater part of population is buying 1-2x over the 3-month period, while in Croatia and Slovenia purchases are more often, crossing the 3x over the same period. We see a strong correlation between internet usage, on-line payment security and share of on-line purchases. Going forward, the market development of the former two categories will in our view fuel the increase in the share of on-line purchases, in the countries displaying lagging shares of e-shoppers currently.

On **enterprise level**, numbers prove that having web sites and online sales is not sufficient to generate on-line turnover. With **higher integration of digital technologies** (AI, big data, cloud solutions, social networks), **reach towards the customers is also higher**, combined with better service and customized experience, which are key preconditions for traditional customers to replace in-store purchase with online. Advanced technologies, such as cloud solutions and AI are largely used by enterprises in Croatia and Slovenia, surpassing other countries from the Adria region. The same stands for social media, which is a critical tool for business promotion and attraction of

customers nowadays.

By observing characteristics of mature e-commerce markets, **in Adria region** we see a **lack of domestic e-commerce companies that provide financing products** (buy now, pay later) **or have own distribution network** (usually organized through third-party services). Cross border purchasing is another key obstacle for countries outside of EU. As members of EU, Slovenia and Croatia have access to more competitive and larger market with free flow of goods and services without customs, which is another reason standing behind higher market development.

## Integration of digital technologies used by enterprises

	HR	SI	MK	RS	BH	EU	Definition
<b>E-commerce sales</b>	15%	18%	n/a	5%	8%	20%	% of all enterprises doing wholesale and retail sale which use e-commerce
<b>E-commerce retail sales</b>	9%	16%	n/a	5%	6%	16%	% of all enterprises doing retail trade (ex motor vehicles and motorcycles) which use e-commerce
<b>Enterprises selling online*</b>	30%	20%	6%	27%	20%	19%	% of all enterprises selling online
<b>SMEs selling online</b>	29%	19%	n/a	27%	20%	18%	% of total SMEs
<b>AI*</b>	9%	12%	n/a	1%	2%	8%	% of all enterprises using AI
<b>Cloud solutions**</b>	35%	38%	10%	22%	7%	34%	% of all enterprises using cloud solutions
<b>Social media**</b>	24%	30%	13%	16%	14%	29%	% of all enterprises using social media
<b>Above basic digital skills***</b>	31%	20%	8%	12%	5%	26%	% of all people using digital solutions

\*enterprises with >10 employees and e-comm. sales at least 1% turnover; \*\*\*% of population  
Source: Eurostat

# Peer comparison

Despite the mild average sales reduction of 1% in 2021, Adria region companies have still delivered encouraging sales growth of 16.7% compared to the pre-pandemic 2019. Those numbers show that pandemic has influenced consumer habits and increased online penetration for good.

**Profitability** levels displayed are poor, with the 1.5% EBIT margin achieved by eKupi HR being the highest in the region and the region's average of -16.2%. Indebtedness levels measured through net debt/EBITDA ratio are low as well, with an average of -0.7x, indicating excess of cash over financial liabilities. **Low indebtedness is not surprising given negative profitability levels and inability to raise bank financing** or cover high interest rates accompanying high-risk business environments due to low profitability.

**Companies in the region rely on the so-called 1P (first-party) e-commerce model** in which they act as a retailer purchasing goods from merchants and selling it on their website, unlike leading e-commerce companies in CEE (Allegro) and USA (Amazon) whose business models primarily rely on 3P (third-party) in which they act primarily as a marketplace linking consumers and merchants.

**We expect the shift from 1P to 3P business model to gradually materialize** in our region as well. The main challenge of starting outright with the 3P business model is in gathering both consumers and merchants simultaneously at one marketplace - a challenge that can be related to the famous chicken-egg causality dilemma. By starting with a 1P model (e.g. Amazon bookstore), e-commerce companies first try to attain customers and build a marketplace brand, which is then followed by gradual introduction of merchants to the marketplace and shift towards 3P as the majority revenue generator. 1P retail business is used afterwards mainly to remedy important missing selection and uncompetitive price points among the offers available from the 3P business (e.g. Amazon basics products). Allegro from Poland, the largest e-commerce company in CEE, generates a shy 7% of e-commerce sales through 1P. Despite not being located within the Adria region, Allegro will be in the focus of our report due to their M&A activity in the recent years, which turned them into the owner of Mimovrste from Slovenia and Internet Mall from Croatia, via acquisition of Czech based Mall group, finalized during 2022.

Company name	Sales EUR in millions			Sales growth %			EBITDA margin %			EBIT margin %			ROE %			ROIC %			Net debt/EBITDA			CCC in days		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
eKupi (HR)	39.4	49.6	52.1	12.2	25.8	5.1	1.3	2.0	2.2	1.0	1.5	1.5	(45.6)	82.9	46.2	18.0	36.3	30.2	0.2	0.5	0.2	(7.3)	(5.0)	(1.7)
Internet Mall (HR)	18.9	22.8	26.0	71.9	21.0	14.0	1.4	1.3	1.3	1.2	1.2	1.2	(11.8)	73.2	46.0	(11.6)	72.2	44.3	(2.0)	(1.1)	(0.8)	(48.7)	(8.2)	(5.5)
eKupi (BH)	3.0	4.5	5.3	16.0	51.0	17.5	(2.6)	(2.6)	(6.3)	(2.7)	(2.7)	(6.4)	(526.4)	142.2	73.4	(450.8)	146.5	73.7	3.3	1.3	(0.7)	(49.5)	(34.6)	(14.2)
Mimovrste (SI)	93.9	141.7	136.0	26.8	50.8	(4.0)	(3.4)	(0.7)	(3.0)	(4.8)	(2.2)	(4.6)	(2687.4)	(89.4)	(102.8)	(204.1)	(34.8)	(60.6)	(0.4)	(2.7)	0.3	(6.4)	1.4	9.0
Gambit Trade (SI)	19.4	20.7	11.8	2.7	6.8	(43.0)	0.2	1.7	1.6	0.1	0.9	0.7	0.9	5.2	1.9	0.1	4.6	1.9	(49.2)	(2.3)	(2.6)	22.8	12.2	7.7
Shopster (RS)	n.a.	0.7	4.8	n.a.	n.a.	619.4	n.a.	(293.2)	(91.0)	n.a.	(313.9)	(100.0)	n.a.	(168.1)	(78.7)	(209.1)	(301.0)	(133.2)	n.a.	(1.7)	(2.6)	n.a.	(243.9)	(35.2)
eKupi (RS)	1.3	2.0	3.5	(4.5)	60.1	70.9	(7.8)	(7.4)	(5.9)	(7.9)	(7.5)	(6.1)	(526.4)	142.2	73.4	(450.8)	146.5	73.7	0.6	1.4	1.4	(22.2)	(54.8)	(62.1)
<b>Median</b>	<b>19.1</b>	<b>20.7</b>	<b>11.8</b>	<b>n.a.</b>	<b>8.2</b>	<b>(43.0)</b>	<b>(1.2)</b>	<b>(0.7)</b>	<b>(3.0)</b>	<b>(1.3)</b>	<b>(2.2)</b>	<b>(4.6)</b>	<b>(286.0)</b>	<b>73.2</b>	<b>46.0</b>	<b>(107.9)</b>	<b>36.3</b>	<b>30.2</b>	<b>(0.1)</b>	<b>(1.1)</b>	<b>(0.7)</b>	<b>(14.8)</b>	<b>(8.2)</b>	<b>(5.5)</b>
<b>Average</b>	<b>29.3</b>	<b>34.6</b>	<b>34.2</b>	<b>n.a.</b>	<b>18.0</b>	<b>(1.0)</b>	<b>(1.8)</b>	<b>(42.7)</b>	<b>(14.5)</b>	<b>(2.2)</b>	<b>(46.1)</b>	<b>(16.2)</b>	<b>(632.8)</b>	<b>26.9</b>	<b>8.5</b>	<b>(183.2)</b>	<b>10.0</b>	<b>4.3</b>	<b>(7.9)</b>	<b>(0.7)</b>	<b>(0.7)</b>	<b>(18.6)</b>	<b>(47.6)</b>	<b>(14.6)</b>

Source: Company financial statements, Bloomberg Adria analytics

# Peer comparison

Given the ownership by Allegro, we anticipate a swifter rollout of 3P model by Mimovrste and Internet Mall in the future, proven by their websites offerings to on-board partners/merchants and statement in Allegro's annual report confirming our prediction - *"Currently, the Mall Group is dominated by the proprietary sales model (1P). Following completion of the acquisition, the Group plans to migrate all or most of the countries in which the Mall Group operates ("New Countries") to its predominantly marketplace business model (3P), which has already proven itself in Poland as capable of producing strong growth and margins, and in which the Group has extensive experience and competence. As a result, the Group has estimated that the 3P model can reach over two-thirds of GMV\* from the current ten percent level in the Acquired Entities and be responsible to a large extent for the growth of Mall Group revenues and profits in the future"*

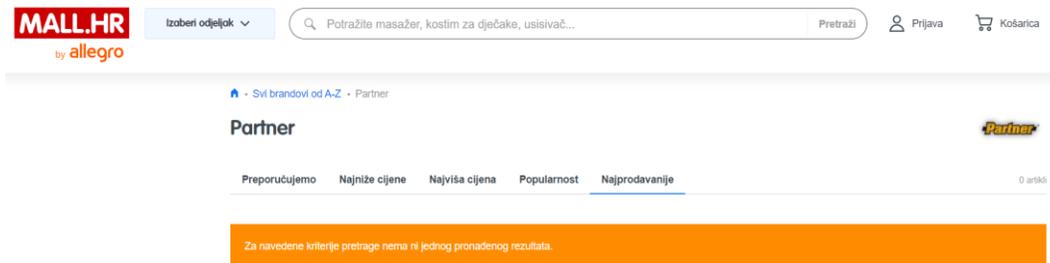
\* (gross merchandise value)

## Adria companies onboarding merchants – respective website snapshots

Why join the mimovrste(=) partner program?  
**TAKE YOUR ONLINE BUSINESS A STEP FURTHER.**



Source: Mimovrste.com



Source: Mall.hr

According to Mimovrste's web platform, they have already attained over 400 marketplace partners, while Mall does not disclose any data regarding partners on-boarding, indicating they are still in the kick-off stage. The expected shift will not come overnight, however, we have confidence that Allegro ownership will produce instantaneous synergy effects. As an example, in their financial statements, Mall states that merchandise is purchased directly from a sister company Mimovrste d.o.o., signalling to us that there is a central procurement role in place for two companies generating the leading amount of sales. Such model utilizes the scale effects in order to negotiate better terms with suppliers, which will likely manifest in higher gross margin going forward.

Surprisingly, Mimovrste with the largest sales amount in the Adria region by far, has not been able to generate positive bottom-line result. Its sister company, Internet Mall, is delivering profits despite having a much lower scale. The explanation probably lies in the way intra-group relations are structured. For example, Internet Mall achieves a higher gross margin by approx. 5pp and procures all its merchandise from Mimovrste. Are they doing business against the arm's length principle or is it merely a difference in product mix sold and pricing? Hard to tell. Also, employee expenses account for approx. 5% of sales in case of Mimovrste (avg no of employees 225), while in case of Mall that percentage is much lower, standing at approx. 1% (25 employees as of year-end). On top of that, Mimovrste has disclosed EUR 7.2m Management fee expense payable towards parent company, which we have not seen in Mall's annual report, regardless of the amount.

By embarking on 3P journey, e-commerce companies create a flywheel effect. More merchants on the platform lead to wider product offerings and increased price competitiveness, which in turn attracts more customers and increases GMV (gross merchandise value). As more customers browse and buy products, consequently more merchants are attracted to list their products. That flywheel creates a network effect, or in layman's terms, survival of the fittest, which is - alongside logistics infrastructure - a key competitive advantage for e-commerce companies. The importance of logistics infrastructure in creating a "shield" from the competition cannot be overstated enough. In order to prevent merchants in selling D2C and, thus eliminating the middleman, next day delivery experience

# Peer comparison

will play a key role in business protection. With increasing 3P penetration in Mimovrste and Mall, we predict further increase in profitability through significant expansion in offer selection and transaction frequency. However, we are not aware whether the acquisition by Allegro will alter the initiated omnichannel model with the opening of first physical store by Mall in Zagreb, in 2021, and the existing 3 physical stores from Mimovrste. Our best guess - that will largely be dependent on the success of the pilot stores.

## **What is distinctive between 1P and 3P business models through the lens of financial performance?**

Regarding the unit economics differences between 1P and 3P business model, one could assume that 1P is asset-heavy, while the 3P is asset-light. However, that's far from the truth. A negative average cash conversion cycle of 14.6 days suggests that inventory does not require investments from the company's standpoint, instead it is being financed interest-free by suppliers. In other words, it is generally paid once it has been sold and cash has been collected. Therefore, there is no contrast in terms of inventory investments. In terms of fixed assets, again there are not many dissimilarities. Marketplaces need to build their own logistics infrastructure containing fulfillment centers, sortation centers, automated parcel machines (i.e., postomats), and eventually delivery centers and delivery vehicles, independently of the business model and strategy they pick. Alternatively, third-party providers cover those services with e-commerce companies acting as intermediary between third-party providers and merchants. However, in the long-term, following the scale, using third parties for all these services is not sustainable given the inability to influence and improve the whole process.

Average gross margin delivered by Adria region companies with their own 1P business models is 13.5%. The take rate on GMV in 3P business models is around 10% - Allegro has an average take rate of 10.2%, Kaspi.kz an average of 8.5%. Mimovrste has a take rate ranging from 8% up to max 20%, coupled by EUR 0.40 per processed order. It seems like the gross margin from 1P model is higher than the take rate from 3P model. Nonetheless, through significant

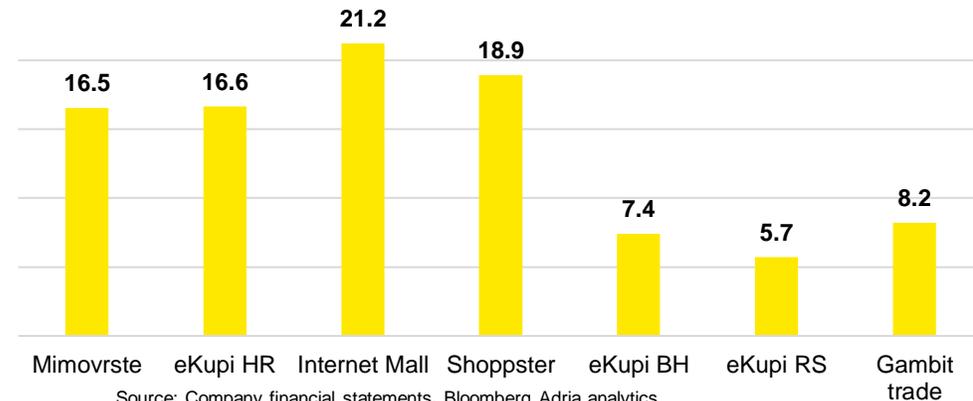
## **Adria companies onboarding merchants – respective website snapshots**



Source: Mimovrste.com

increase in offer selection and transaction frequency, coupled with additional other revenue streams such as monthly subscription, advertising, payment services, etc - 3P focused companies are able to massively increase their revenue and leverage that over fixed (to some extent) infrastructure costs in order to deliver higher bottom-line profitability. That higher profitability becomes crucial in supporting infrastructure investments such as the ones mentioned in the previous paragraph, and thus creating competitive advantage.

## **Gross margin - FY21 (in %)**



## Peer comparison

Alternatively - eKupi, a leading marketplace in Croatia and B&H, with subsidiaries in certain other countries of the region as well (Serbia, North Macedonia, Montenegro) - does not show an inclination towards 3P rollout, to the best of our knowledge. That strategy may end up being fatal in the long-term given the expected fast-forward transition towards 3P by Mall and may endanger the current No.1 market position by eKupi among domestic B2C e-commerce sites, in terms of sales and number of site visits. On the other hand, they've come a long way (compared to other domestic players) in respect of postomats rollout. It is the only e-commerce provider of in-house postomats, covering 9 locations across Croatia. Postomats are an extremely important arm of last-mile delivery. Reduced number of door-to-door deliveries results in ameliorated delivery economics, on top of enhanced delivery experience.

Aside Mimovrste and eKupi, none of the companies from the region has managed to gain large-scale volumes. However, most of them have recorded double-digit sales growth, even beyond the Covid-19. Shoppster from Serbia has managed to reach EUR 5m of sales in its second year of operations. Shoopster offers loyalty programs, financing services and has commenced merchants onboarding in order to expand product assortment on their marketplace. They even launched their own TV channel, delivering content of merchandise promotion. Distribution is organized through third parties and despite postomats being included in the distribution package, relatively long delivery period of 3-5 days could represent the main constraint for future development.

Given the industry potential, we are also witnessing emergence of new e-commerce platforms. Delta Group (highly experienced in distribution and retail business), during 2021, launched a new e-commerce platform Ananas, with intention of becoming a regional leader. Marketplace was launched with a product assortment of 100k SKUs, offering door-to-door delivery and proprietary postomats network, coupled with the network of special partners (cafes, shops, exchange offices) offering their locations as pick-up points. Also, same as Mall and Mimovrste, Ananas is onboarding merchants, currently free of charge for

services of warehousing, packaging and handling of goods. In 2022, Ananas acquired the largest online marketplaces in N. Macedonia, Grouper and Paopao, which additionally confirms their strategy to expand on the regional markets. Additionally, the Group has announced plans to invest EUR 100m in the following 5 years.

We see the **future dynamics of the e-commerce industry in the Adria region** being strongly linked to **e-shoppers' spending habits**. In case of female population, apparel has the largest share, while male population prefers electronics when buying online. With both product categories being **highly discretionary and correlated with economic cycles, we anticipate a mild downturn in sold volumes of e-commerce companies in 2023**. Aside from that, cash buffers cultivated during COVID-19 are gradually being drained, and a decline of real disposable income given the above average inflation are also factors advocating for shrinking volumes in 2023.

On the other hand, **3P rollout by certain companies in the region, coupled with synergy effects in some**, will inevitably lead to **product assortment expansion, more merchants, more customers and thus, more transactions**. We believe that trend may offset the decline of volumes from 1P model, resulting in stable sales amount in 2023.

Looking forward, **transition from e-commerce to m-commerce is going to play a huge role** for current players and their market share battle. Younger generations - which are the ones driving the online shopping growth - prefer to use smartphones, therefore companies will need to adapt to consumer preferences. On top of that, an installed app allows sellers to more easily reach and target their customers, which lowers their customer acquisition costs. Again, Mimovrste and Internet Mall are standing out as the only companies in the region possessing an app.

**Companies will need to figure out ways to improve the customer experience, but also lower the logistics cost in order to increase profitability**. The profitability levels displayed so far are not encouraging and will need to be improved in order to support the necessary investments going-forward. That will certainly come with scale as certain logistics costs are fixed in nature, however, e-commerce companies should also consider investing in fintech, i.e., payment gateways, since payment providers take anywhere from 0.5% up to few percent on every transaction. Given the extremely low profitability displayed so far, 1% can often make a difference between a profit-making or a loss-making company.

Investments in logistics will not only provide them competitive advantage against other e-commerce players, but also against companies embarking on a D2C path, and by way of that making e-commerce companies irrelevant, unless the investments in infrastructure open the path to more smooth delivery experience, thus impelling merchants to sell on e-commerce platforms.

Having said that, we expect major investment cycles to materialize in the mid to long term. Adria companies are still heavily dependent on third-party services in respect of fulfilment centres, delivery, payments, etc. Given the growing share of e-commerce, acting late on that matter may result in significant loss of market share. The shift from 1P to 3P business model will also require major investments in web platform integration. Mall and Mimovrste will be supported by its parent company, while other companies may need support of private equity investors in order to keep pace and not burden themselves with debt.

Bloomberg  
Adria

# Bloomberg Adria



## **Bloomberg Adria Team Analytics**

**Andrej Knez, Chief Markets Analyst**  
andrej.knez@bloombergadria.com

**Ivan Odrdic, Lead Financial Markets Analyst**  
ivan.odrcic@bloombergadria.com

**Marina Petrov, Senior Financial Markets Analyst**  
marina.petrov@bloombergadria.com

**Jelena Zindovic, Senior Corporate Finance Analyst**  
jelena.zindovic@bloombergadria.com

**Matteo Mosnja, Corporate Finance Analyst**  
matteo.mosnja@bloombergadria.com

**Ilija Nestic, Corporate Finance Analyst**  
ilija.nestic@bloombergadria.com

#### Disclosures Appendix

This report is oriented for professionals and analysts that live in the country or abroad who are interested in investing and following local and regional markets. The information and opinions in this report/investment research were prepared by Bloomberg Adria and/or one or more of its subsidiaries/affiliates (collectively, 'Bloomberg Adria') for information purposes only. This report is not investment advice or an offer or solicitation for the purchase or sale of any security/financial instrument or to participate in any trading strategy. Neither Bloomberg Adria nor any of its employees accept any liability for any direct or consequential loss arising from any use of this publication or its contents. Any investments referred to herein may involve significant risk, are not necessarily available in all jurisdictions, may be illiquid and may not be suitable for all investors. The value of, or income from, any investments referred to herein may fluctuate in price and value. Past performance is not indicative of future results. Besides, the risks associated with an investment in the financial, money market or investment instrument or security under discussion are not explained in their entirety. Estimates of future performance are based on assumptions that may not be realized. Investors should make their own investment decisions without relying on this publication. Only investors with sufficient knowledge and experience in financial matters to evaluate the merits and risks should consider an investment in any issuer or market discussed herein and other persons should not take any action on the basis of this publication.

This report is based on information available to the public. While reasonable care has been taken to ensure that the information contained herein is not untrue or misleading at the time of publication, Bloomberg Adria makes no representation or guarantee with regards to the accuracy, completeness or suitability of the data. Bloomberg Adria does not undertake to advise you of changes in its opinion or information. Moreover, we reserve the right not to update this information or to discontinue it altogether without notice.

From time to time our analysts receive assistance from the issuer including, but not limited to, discussions with management of the subject company(ies). However, it should be presumed that the author(s) have communicated with the subject company to ensure factual accuracy of the (company) research report prior to publication, without mentioning recommendation and summary.

Any opinions and estimates contained herein reflect the current judgment of the author(s) and do not necessarily reflect the opinion of Bloomberg Adria or any of its subsidiaries and affiliates. This report is disseminated and available primarily electronically to professional clients and eligible counterparties, who are expected to make their own investment decision without undue reliance on this publication, and may not be sold, redistributed, reproduced or published in whole or in part for any purpose without the prior express consent of Bloomberg Adria.

Please always cite source when quoting. The content is copyrighted and cannot be quoted in a commercial setting/media outlet without prior written consent.

Additional information is available on request. Bloomberg Adria and others associated with it may be involved or seek to be involved in many businesses that may relate to companies, issuers or instruments mentioned in this report. These businesses include market making, providing liquidity and specialized trading and other proprietary trading, fund management, investment services and investment banking.

Bloomberg Adria and others associated with it including any of its employees may have positions in securities of companies or financial instruments discussed in this research, and may trade them in ways different from those discussed in this report.

This report may include research based on technical analysis. Technical analysis is generally based on the study of trading volumes and price movements in an attempt to identify and project price trends. Technical analysis does not consider the fundamentals of the underlying issuer or instrument and may offer an investment opinion that conflict with other research generated by Bloomberg Adria. Investors may consider technical research as one input in formulating an investment opinion. Additional inputs should include, but are not limited to, a review of the fundamentals of the underlying issuer/security/instrument.

The author(s) is/are named in the front page of this report. The research analyst(s) or analysts who prepared this report (see the first page) hereby certifies that: (1) the views expressed in this report accurately reflect their personal views about the subject securities or issuers and/or other subject matter as appropriate; and, (2) no part of his or her compensation was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this report. On a general basis, the efficacy of recommendations and clients' feedback are factors in the performance appraisals of analysts.