

digitalpoland



 digitalchampions

CEE 2022



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# 1. Foreword



**Karim Taga**

Managing Partner and Global Practice Leader, Telecommunications, Information Technology, Media & Electronics (TIME), Arthur D. Little

The year 2022 has seen an unprecedented number of digital champions in Central and Eastern Europe (CEE). A maturing Private Equity sector and a recently booming Venture Capital industry have formed the backbone of digital champions in the region. Since 2016, VC investments in CEE have skyrocketed and outpaced most other VC ecosystems in the rest of Europe. The attractiveness of the region is due to a variety of incentives for investors: a large population base exceeding 165 million, stable and fast-growing economies that generally outperform mature markets, highly skilled talents fuelled by strong education systems in the hard sciences, and proximity to Western Europe. CEE's GDP currently stands at \$2.23 trillion, making the market comparable in size to the Nordic countries or Benelux.

In this year's ranking, the value of the 100 CEE digital champions exceeded \$75 billion, contributing almost 4% of the region's GDP. This impressive result is mainly due to the Digital Phoenixes - companies with a valuation of more than \$1 billion - which contributed 70% of the digital champions' total capitalisation. However, compared to last year, 2022 saw the number of Digital Phoenixes reduced by almost half, decreasing from 36 to 20 companies. This negatively impacted the total capitalisation of digital champions. The phenomenon can be explained by the repricing of global financial markets, company buyouts by distressed investors and the exit of several companies from the ranking, including those headquartered in Ukraine that left the CEE to relocate to the UK or US. Despite the war in Ukraine and the current economic crisis, the digital sector in CEE, supported by the PE and VC industries, is poised to continue its momentum to catch up with Western Europe. Similar to last year, the hottest sectors in the digital age are mainly e-commerce, entertainment, SaaS and Fintech. The last two categories are the most represented among the 37 new digital champions entering this year's ranking. The progress of these segments shows the disruptive potential that digital champions bring to digital transformation.

Global management consulting firm Arthur D. Little sees the digital economy as a key growth driver in CEE. Established for over 135 years, Arthur D. Little has contributed to some of the modern world's greatest breakthroughs and achievements through its expertise in strategy, technology and innovation. With entrepreneurship in its DNA, the firm supports and encourages digital businesses that challenge the status quo and constantly seek to innovate.



 **Piotr Mieczkowski**

Chief editor of the report  
Managing director, Digital Poland foundation

What a difference one year makes - the ARK Innovation ETF, for example, is down 70% and over 80% since its peak, the Nasdaq Emerging Cloud Index is down nearly 65%, and the Nasdaq itself is down 33%. During the same period, the total capitalization of the top 100 tech companies in the CEE region fell by 43%, with its success also contributing to the decline - several companies disappeared from the ranking as a result of acquisitions (such as Avast which was worth 8 bln USD) or moving their headquarters to the US (especially Ukrainian companies). If it weren't for these events, the capitalization of the companies would have fallen by 34%, same as the US Nasdaq 100 index. And all this is happening amid an extremely difficult environment, from rising interest rates, the rise of the dollar to record levels (HUF, PLN) and Russia's invasion of Ukraine. The region, as you can see, is resistant to adverse change and local entrepreneurs are battle-tested. And this is all happening at a time when the U.S. IPO market, is experiencing its longest drought in the last century - there hasn't been an IPO of a technology company with a capitalization of more than \$50 million in the United States for almost nine months.

In these turbulent times, the 2022 edition of our leading ranking brings a fresh look at the dynamism and resilience of the CEE region. In this year's edition, there are as many as 37 new companies. The largest number of new champions comes from SaaS (16), Fintech (10) and e-commerce (6), proving that even in such tough times CEE companies can create new value. And who is doing best? This year, the leaders Estonia or the Czech Republic definitely increased their position - both countries recorded a 60% increase in the number of champions. While Poland maintained its place in overall ranking, thanks to its large lead (42 vs. 16 to second-ranked Estonia, a drop of 6%), Serbia has increased its representation by as much as 100% albeit due to low base.

Writing about the CEE region, it is impossible not to write about the war that is taking place in Ukraine. Many Ukrainian companies are still operating in the country, but a number of them have decided to leave the country and relocate to Western Europe and the United States. However, even the war has not been able to throw Ukraine out of the ranking, which is somewhat of a rarity, as a country like Slovenia, as well as a number of other CEE countries (e.g. Albania, Moldova) still do not have a single champion in the ranking.

When investing in CEE, remember that the overwhelming number of countries in the region are in the European Union and in the NATO military alliance. Both of these factors mean that the region can not only be a safe haven for factories and service centers relocated from Asia, especially China, but also for technology companies thanks to great developers and extremely ambitious people. More countries are also adopting the euro, which means that of the leading economies only Poland, Hungary and the Czech Republic will have their own national currencies. All this makes it worth investing here and continues to bet on the region's convergence with Western Europe - something that has been happening for more than 20 years.



## 2. **About Digital Champions CEE**



## The Digital Champions CEE ranking at a glance

- **CEE only** | The broadest definition of the CEE region was used, including the Baltic States and non-EU countries like Albania, North Macedonia, Serbia but excluding Russia and Belarus, which build a closed ecosystem of companies. Highly developed countries such as Austria were also excluded.
- **Top 100 tech companies** | The ranking presents a list of the 100 most valuable technology companies listed on public markets but also in the hands of private investors.
- **Strict criteria** | Ranking of Digital Champions CEE based on strict criteria. It is not enough to hold only citizenship from the CEE region for owner's company to be included in the potential list. Other criteria have to be met.
- **Everyone is invited** | Done together with public and private funds, companies and institutions from over the world, but with a particular focus on the CEE region.
- **Multiple data sources** | Use of all reliable data sources - from financial reports and news to professional transaction databases and open call.
- **Company Valuations** | Listings of companies on public markets, valuations and market benchmarks based on EBITDA, revenue and specific market sector. Valuations are approved by the investment committee.
- **Virtual meetings** | Integration of the region at regular meetings during the year and sharing of practices by CEE champions.
- **Periodicity of publications** | Once per year

## What motivated us to create the ranking

- **Improved visibility of the CEE region** | Representation of the entire region with more than 15 languages. Many countries are small, which means that investors do not know exactly what is going on in the area of new technologies
- **Greater transparency and reliability of data for the CEE region** | Not all professional sources keep up with the number of transactions in the region. Sometimes only partial data is available. As a result of the ranking, more entities will start to care about data quality
- **Easier to invest in companies in the region** | Many global investors and funds fail to invest in the region because they only know the top 10 largest companies. A wider list allows funds to value companies. Our ambition is to reliably expand the list every year (Top 200, Top 300)
- **Inspiration for the region's entrepreneurs** | Presenting the champions, their stories, what they went through and how they achieved global success will inspire the next generation of entrepreneurs in the region
- **Better integration of the region and wider networking** | There are associations, funds or institutions in every country of the CEE region, but they are not very well integrated with each other. Many companies and funds are looking for contacts and meetings in the region. We want to facilitate this and contribute to the integration of the region
- **Importance of digitalisation and new technologies** | In the CEE region not every government administration considers digitalisation and new technologies as the key to a modern economy. Many countries adopt global or European regulations thinking that they only apply to global American or Asian companies. Our aim is to raise the profile of digitalisation on the agenda of those in power and to shape European regulations so that they help develop and scale CEE businesses
- **Internationalising the region** | Making it easier for everyone outside the region to find out more about the best companies in the region

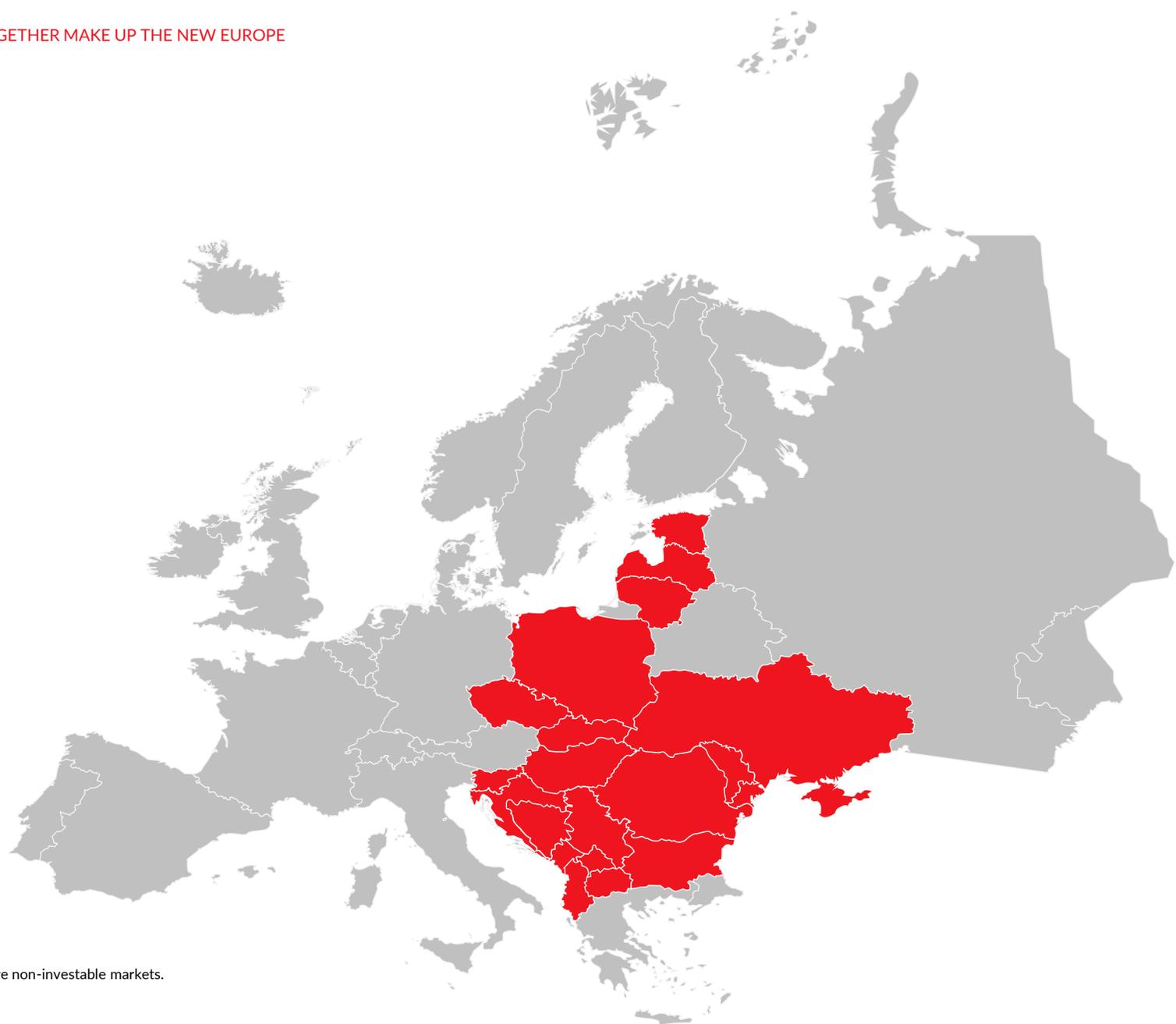


### New Europe!

- From Estonia to Croatia and Albania
- From Czechia to Ukraine

### Nineteen countries included

- Albania
- Bosnia and Herzegovina
- Bulgaria
- Czech Republic
- Croatia
- Estonia
- Hungary
- Latvia
- Lithuania
- Kosovo
- Moldova
- Montenegro
- North Macedonia
- Poland
- Romania
- Serbia
- Slovakia
- Slovenia
- Ukraine



Note: We excluded Russia and Belarus, which build a closed ecosystem and these are non-investable markets. Highly developed countries such as Austria were also excluded.



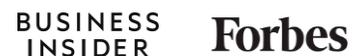
**All possible data sources were used to build a complete list of potential companies. A total of over 51 000+ companies were included.**

- **Direct call** | All regional associations of VC & PE funds (e.g. BCVA, CVCA, EstVCA, HVCA, LTVCA, LVCA, PSIK, ROPEA, SLOVCA, SPEA)
- **Direct call** | 181 PC/VC funds Investment funds that are active in the region or have an interest in the region were invited
- **Direct call** | All associations supporting startups
- **Open call** | Announced an open call through social media, newsletters and our network of partners

- **Own analysis** | Used data from leading transaction platforms



- **Own analysis** | Desk research, including analysis of reports and news stories
- **Open call in leading media**



- **Stock exchanges**



### What does it mean to be a digital champion? The company must meet several criteria

- Most revenues comes from CEE region or has a strong presence in CEE. Either majority of revenue comes from CEE (>50%) or company headquartered in CEE.
- Most revenues via digital channels or a successful deep / high tech
- Born digital or former traditional, but now digital company that sells products or services mainly through digital channels
- Enterprise Value above USD 100 mln at 30.09.2022

### Who have we excluded from the ranking?

- Companies established in the CEE region, but moved out of the CEE region (e.g. to US) or they are no longer active in CEE
- Companies whose only regional affiliation is mainly the country of birth of the company's founder (e.g. Estonian Zygo, Ukrainian people.ai, Polish Klarna)
- Companies that have made a successful digital transformation, but still run a normal non-scalable technology business
- Any companies that have their only IT, service or telecommunications centres here (e.g. outsourcing or shell companies)
- Telecommunications companies, data centers or other utilities from the ICT sector



### Three types of companies | Digital animal instincts

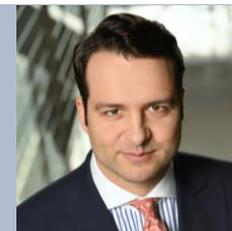
- **Digital Phoenixes** | Enterprise value above USD 1 billion
- **Digital Dragons** | Enterprise value above USD 250 mln and below USD 1 billion
- **Digital Wolves** | Enterprise value above USD 100 mln and below USD 250 mln

Note | We did not use the phrase unicorn as these are companies that are in the hands of private capital. Many of the largest companies are already listed on the stock exchange.

### Only six categories of companies | To simplify ranking

- Cybersecurity
- E-commerce & marketplace
- Fintech
- Media & entertainment
- Other
- SaaS

Note | We are aware of the consequences of our simplifications, especially in assigning a company to a broader category, but we felt that reducing the number of categories had more advantages. The biggest missing category is ICT companies, IT developers, data centers or towercos.



**Radzym Wójcik**

Advocate, Baker McKenzie

Baker McKenzie is celebrating this year the 30th anniversary of the opening of its Warsaw office. Our colleagues from Kyiv gave us a special gift for this occasion – a rooster figurine, which has become a symbol of Ukrainian resistance.

As the New Voice of Ukraine noted (full story [here](#)), there is a famous photo of a kitchen cabinet that survived devastating bombing and shelling in Borodyanka (...). "An attentive viewer may notice a ceramic figurine, in the shape of a rooster, perched on top of the cabinet, seemingly unharmed. Dusty, but not destroyed, symbolizing the resilience of Ukrainians and Ukraine."

It is impressive how resilient the Ukrainian tech sector remains, given the circumstances. I have heard stories from friendly venture capital investors in Ukraine about founders who joined the army and defended their country, but between one shift and the other continue their projects (and very often with impressive success).

Readers of the Report will hopefully notice that despite the many recent challenges, the entire region continues to perform solidly, with the promise of more attractive growth in the next years.

2022 brought a storm to Central and Eastern Europe – war, inflation and economic instability. Yet, tech and digital businesses continue to be a staple of the region's economic success.

As I have heard from older colleagues, the Warsaw office of Baker McKenzie initially served as a gate for foreign companies that wanted to enter the Polish market. Today, a steadily increasing number of our clients are Polish companies successfully scaling up to international markets, and a significant part of them are tech and digital companies.

It is worth noting that a foundation of the CEE miraculous success is not a particular story of Poland, or any other single country, but many successes rooted in a number of countries. Just look at all those strong global brands made in Baltics or Romania.

While the situation remains uncertain, I am sure that when the storm ends (and it always ends eventually), the best years are still to come for tech companies established in the CEE!

Bucharest, Romania



### 3. **Digital Champions CEE Ranking | TOP 100**

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
1	Digital Phoenixes	 <b>wise</b>	ESTONIA	Fintech	<b>Listed Company</b>   Wise is a money transfer service allowing private individuals and businesses to send money abroad without hidden charges.
2	Digital Phoenixes	 <b>UiPath™</b>	ROMANIA	SaaS	<b>Listed Company</b>   UiPath is a global software company that is developing a platform for robotic process automation (RPA).
3	Digital Phoenixes	 <b>allegro</b>	POLAND	E-commerce & Marketplace	<b>Listed Company</b>   Allegro is one of the largest e-commerce platforms in Poland and Europe.
4	Digital Phoenixes	 <b>Bolt</b>	ESTONIA	E-commerce & Marketplace	<b>Venture Capital</b>   Bolt is transportation platform providing ride-hailing, micro mobility and food delivery services.
5	Digital Phoenixes	 <b>infobip</b>	CROATIA	SaaS	<b>Private Equity</b>   InfoBip specialises in omnichannel engagement powering a range of messaging channels, tools, and solutions for advanced customer engagement.
6	Digital Phoenixes	 <b>InPost</b> out of the box	POLAND	Other	<b>Listed Company</b>   InPost is a leading Polish provider of logistics services who introduced the first network of self-service parcel lockers and streamlined the processes of parcel delivery and collection.
7	Digital Phoenixes	 <b>Vinted</b>	LITHUANIA	E-commerce & Marketplace	<b>Venture Capital</b>   Vinted is an online marketplace for second-hand clothes.
8	Digital Phoenixes	 <b>RIMAC</b> AUTOMOBILI	CROATIA	Other	<b>Venture Capital</b>   Rimac manufactures electric cars and provides full technology solutions to global automotive manufacturers
9	Digital Phoenixes	 <b>CD PROJEKT®</b>	POLAND	Media & entertainment	<b>Listed Company</b>   CD Projekt specialises in the development of cutting-edge interactive entertainment (e.g. Cyberpunk, The Witcher) and worldwide digital distribution of video games (GOG).
10	Digital Phoenixes	 <b>productboard</b>	CZECH REPUBLIC	SaaS	<b>Venture Capital</b>   Productboard is a product management system that helps organizations get the right products to market faster.

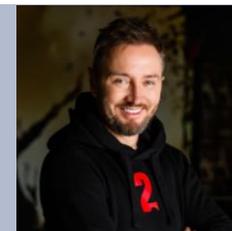


**Jan Rosner**

Business Development Director, CD Projekt Red

2022 has been a difficult year for the gaming industry – for the first time in over a decade, we’re expecting to see a global decline (~4,3% YoY according to Newzoo’s latest update). Despite that, CEE remains one of the strongest hubs for game development worldwide: in Poland only, all major players listed in this year’s Digital Champions CEE ranking delivered results above expectations with a joint market cap of €6,85 billion. Polish industry in 2022 is also expected to reach €664 million in revenue despite ongoing crisis and Russia’s invasion on Ukraine which itself had significant commercial impact due to sales embargos. More and more game development & publishing studios are being founded every day in CEE and we’re expecting the industry to thrive further in 2023 and beyond.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
11	Digital Phoenixes	 <b>NORD SECURITY</b>	LITHUANIA	SaaS	Venture Capital   Nord Security operates as an internet privacy and security provider for individuals and businesses
12	Digital Phoenixes	 <b>rohlik group</b>	CZECH REPUBLIC	E-commerce & Marketplace	Venture Capital   Rohlik is an on-demand grocery delivery startup that offers a 90-minute same-day delivery service
13	Digital Phoenixes	 <b>playtech</b> SOURCE OF SUCCESS	ESTONIA	Media & entertainment	Listed Company   Playtech operates as an online gaming B2B software provider.
14	Digital Phoenixes	 <b>Docplanner Group</b>	POLAND	E-commerce & Marketplace	Venture Capital   DocPlanner matches physicians with patients and vice versa, offering online chat and consultations with physicians and a free mobile app for patients with a visit calendar.
15	Digital Phoenixes	 <b>TECHLAND</b>	POLAND	Media & entertainment	Privately Owned   Techland is worldwide AAA game developer and publisher. Company created e.g. Dying Light, Call of Juarez and Dead Island.
16	Digital Phoenixes	 <b>eset</b>	SLOVAKIA	Cybersecurity	Privately Owned   ESET's future-ready Internet Security protects your digital life every step of the way. Works on Windows, macOS and Android devices
17	Digital Phoenixes	 <b>EMAG</b>	ROMANIA	E-commerce & Marketplace	Strategic Player   eMag is an e-commerce platform offering wide range of products.
18	Digital Phoenixes	 <b>airSlate</b>	UKRAINE	SaaS	Venture Capital   AirSlate provides no-code business process automation, e-signature, and document management solutions.
19	Digital Phoenixes	 <b>veriff</b>	ESTONIA	Cybersecurity	Venture Capital   Veriff is an online identity verification company that protects businesses and their customers from online identity fraud.
20	Digital Phoenixes	 <b>Payhawk</b>	BULGARIA	Fintech	Venture Capital   Payhawk is a financial system that combines credit cards, payments, expenses, and cash into one integrated experience.



**Paweł Marchewka**

CEO, Techland

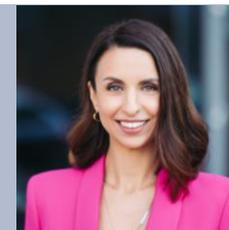
Year 2022 is by far one of the most important in the history of Techland. We have released Dying Light 2, our most advanced open-world AAA game, after 7 years of development. The game has been a global success.

Last couple of quarters brought significant decline in valuation of many global tech companies that have been previously growing at impressive rates constantly for years, with COVID-19 pandemic often being an acceleration booster. Having that in mind, game development sector can still be viewed almost 'recession proof' as low single digit declines forecasted for the whole of 2022, can be deemed as success. This will only strengthen the game development sector as the most valued element of entertainment sector.

The whole Techland Team is proud to be a recognized player in the global digital space. We have the right energy and knowledge to discover and build talents within the CEE region, as well as attract best professionals from outside that are willing to aim high and together with us keep creating one of the biggest open world games that have outstanding narrative gameplay and co-op.



#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
21	Digital Dragons	eobuwie.pl	POLAND	E-commerce & Marketplace	<b>Strategic Player</b>   Eobuwie is a polish company involved in the online sale of footwear, handbags and accessories in a multi-brand formula.
22	Digital Dragons	BCG BALTIK CLASSIFIEDS GROUP	LITHUANIA	E-commerce & Marketplace	<b>Listed Company</b>   Baltic Classifieds Group is the leading online classifieds group in the Baltics, which owns and operates twelve leading vertical and generalist online classifieds portals in Estonia, Latvia and Lithuania.
23	Digital Dragons	EW EUROWAG	CZECH REPUBLIC	Fintech	<b>Listed Company</b>   Eurowag is a reliable fleet management system which is trusted by over 95,000 drivers along with a fuel card that gives you access to over 15,000 fuel stations in Europe.
24	Digital Dragons	blik	POLAND	Fintech	<b>Strategic Player</b>   Blik is a payment system in Poland that allows users to make instant payments and withdraw cash using only the user's standard mobile banking app. The system allows to make online and in-store purchases and to transfer money in real time between bank accounts and ATMs, including cash withdrawal from ATMs, without the need of a payment card.
25	Digital Dragons	SiteGround	BULGARIA	Other	<b>Privately Owned</b>   SiteGround is a web hosting provider that offers web hosting services for Joomla, WordPress, Drupal, Magento, and more. Company host about 2,000,000 domains worldwide. It provides shared hosting, cloud hosting, enterprise solutions, email hosting, and domain registration.
26	Digital Dragons	Bitdefender	ROMANIA	Cybersecurity	<b>Private Equity</b>   Bitdefender provides cybersecurity solutions with leading security efficacy, performance and ease of use to small and medium businesses, mid-market enterprises and consumers.
27	Digital Dragons	LiveChat	POLAND	SaaS	<b>Listed Company</b>   LiveChat empowers companies with tools and know-how to build customer service experience that highlights the brand.
28	Digital Dragons	WP	POLAND	Media & entertainment	<b>Listed Company</b>   Wirtualna Polska is one of the largest Polish Internet portals and e-commerce companies.
29	Digital Dragons	SEZNAM.CZ	CZECH REPUBLIC	Media & entertainment	<b>Privately Owned</b>   Seznam.cz is an internet portal offering search engine, e-mail, the latest news, weather, and useful links.
30	Digital Dragons	ataccama	CZECH REPUBLIC	SaaS	<b>Venture Capital</b>   Ataccama is a software company that specializes in solutions for data quality, master data management, and data governance.



**Inga Langaite**

CEO, Unicorns Lithuania

Year 2022 woke up all of us from the dream of peaceful life and ever growing evaluations of tech companies. Investors are turning away from growing at any cost strategy and searching for sustainable profitability. Even though the CEE region never was spoiled with easily available capital, change is fully reflected in this report in a significant drop of the number of Digital Phoenixes and capitalization by c.a. 50%.

Nevertheless Lithuania as a country of only 2.8 mln citizens is represented by 5 companies and I believe that we could see even more if not one specific of its ecosystem. Several largest startups like KiloHealth, Oxylabs, BoredPanda and others are bootstrapped and profitable therefore more difficult to evaluate. Despite the challenge to attract investments Lithuanian ecosystem is still demonstrating growing numbers in 2022 - total number of taxes paid to Lithuanian budget increased by 45% compared to 2021.



#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
31	Digital Dragons	 <b>alza.cz</b>	CZECH REPUBLIC	E-commerce & Marketplace	<b>Privately Owned</b>   Alza.cz is one of the largest online consumer electronics retailers in Central Europe with a strong stance in the toys, hobby, media and entertainment, perfume, watches and beauty segments.
32	Digital Dragons	 <b>booksy</b>	POLAND	E-commerce & Marketplace	<b>Venture Capital</b>   Booksy is a beauty marketplace for finding, scheduling and managing appointments.
33	Digital Dragons	 <b>PRINTFUL</b>	LATVIA	E-commerce & Marketplace	<b>Venture Capital</b>   Printful is an on-demand printing and fulfillment company that helps people turn their ideas into brands and products. Whether you wish to create your own online brand or gift someone a personalized t-shirt, we can help you get it done
34	Digital Dragons	 <b>pipedrive</b>	ESTONIA	SaaS	<b>Private Equity</b>   Pipedrive is the leading CRM for sales and marketing teams.
35	Digital Dragons	 <b>SEON</b>	HUNGARY	Fintech	<b>Venture Capital</b>   SEON is an online fraud prevention platform that detects and stops fraud in real-time through transactional data analysis
36	Digital Dragons	 <b>pracuj.pl</b>	POLAND	E-commerce & Marketplace	<b>Listed Company</b>   Pracuj.pl is a leading Polish recruitment service.
37	Digital Dragons	 <b>NOTINO</b> TODAY IS YOURS	CZECH REPUBLIC	E-commerce & Marketplace	<b>Privately Owned</b>   Notino is one of the largest online retailers of perfumes and cosmetics in Europe.
38	Digital Dragons	 <b>4 FINANCE</b>	LATVIA	Fintech	<b>Privately Owned</b>   4finance is an online and mobile consumer lending group, providing convenient and responsible access to credit across 16 countries.
39	Digital Dragons	 <b>monese</b>	ESTONIA	Fintech	<b>Venture Capital</b>   Monese is a digital banking alternative that provides mobile-only, multi-currency accounts.
40	Digital Dragons	 <b>Packeta</b>	CZECH REPUBLIC	Other	<b>Privately Owned</b>   Packeta Group is engaged in logistics and delivery.



**Adam Prindis**

Senior Principal, Cinven

2022 has been a turbulent year in many ways and tested the foundations of many businesses in the CEE region, including the digital champions. Founders, management teams and investors have had to quickly pivot and adapt their strategies and business models to fit the new market conditions, that have included increasing financing costs, changes in consumer behavior and cost inflation.

While the changes may be painful in the short-term, especially if they require adapting the cost base, in the medium- to longer-term it should lead to more lasting and robust business models. This also creates an opportunity for the well-capitalized companies to take advantage of this period of uncertainty by attracting top talent, launching new and innovative products and services, as well as expanding internationally – we have seen a number of businesses on the Digital Champions list doing exactly that.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
41	Digital Dragons	 PlayWay.com	POLAND	Media & entertainment	Listed Company   Playway is producer and publisher of video and mobile games.
42	Digital Dragons		UKRAINE	SaaS	Private Equity   Creatio provides a low-code platform for process management and CRM.
43	Digital Dragons		CZECH REPUBLIC	E-commerce & Marketplace	Private Equity   Heureka Group is CEE's largest price comparison and online shopping advisor, present in 9 Central and Eastern European countries, more than 23 million monthly visitors and a network of more than 55,000 online stores.
44	Digital Dragons		POLAND	Media & entertainment	Listed Company   Huuuge Games is a gaming company on a mission to build the world's largest real-time casual gaming platform connecting millions of players so that they can have fun, socialize & play awesome games.
45	Digital Dragons		CZECH REPUBLIC	SaaS	Privately Owned   JetBrains specialises in the creation of intelligent, productivity-enhancing tools for software developers and teams.
46	Digital Dragons		CZECH REPUBLIC	E-commerce & Marketplace	Privately Owned   DoDo is a same day last-mile delivery marketplace.
47	Digital Dragons		POLAND	Fintech	Private Equity   INELO provides digital TSL solutions in scope of global vehicle positioning and driving time analysis and settlement software to SMEs and leaders on the transport market.
48	Digital Dragons		CZECH REPUBLIC	Media & entertainment	Private Equity   Kiwi is an online travel tech company offering a fare aggregator, metasearch engine and booking for airline tickets and ground transportation.
49	Digital Dragons		HUNGARY	Fintech	Private Equity   Netrisk is a Hungarian online insurance broker operating in the one-stop-shop model, with the potential for dynamic development.
50	Digital Dragons		LITHUANIA	Fintech	Venture Capital   Kevin. provides an account-to-account payment infrastructure to replace card transactions.



**Magda Posluszny**

Senior Investment Associate, Lakestar

Given the great amount of talent, CEE has always been important region to our fund. Fintech, among other sectors is one of the key thesis areas where we spend a lot of our time in. In 2022, we saw a clear growth trend of great fintech companies coming out of the CEE region at all stages – from seed to growth, which is clearly reflected in this years' ranking – nearly a third of all new companies added this year to the ranking are fintechs. Within the region, Poland has always stood out as an ecosystem with strong fintech talent – as we see both this and last year, it has ranked as #1 country for digital champions in the fintech sector. I'm confident we are going to see many more fintech successes coming out of the region and we are excited to spend more time supporting the ecosystem on the ground.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
51	Digital Dragons	11 bit studios	POLAND	Media & entertainment	Listed Company   11 bit studios is a game developer and publisher.
52	Digital Dragons	PEOPLE CAN FLY	POLAND	Media & entertainment	Listed Company   People Can Fly Group is a global video game development company operating in Poland, the UK and North America. PCF is the creator of the Painkiller, Bulletstorm, Gears of War: Judgment, Outriders.
53	Digital Dragons	Ramp	POLAND	Fintech	Venture Capital   Ramp's non-custodial, full-stack payment infrastructure accelerates adoption of crypto and builds trust for its partners.
54	Digital Dragons	NEO BY E100	POLAND	Fintech	Privately Owned   Neo by E100 is a white-label payment platform offers transaction services of an autonomous vehicle for charging, tolls, parking slots.
55	Digital Dragons	lokalise	LATVIA	SaaS	Venture Capital   Lokalise improves the quality and speed of translations with built-in CAT tools, like autocomplete, inline machine translation, segmentation, and translation memory.
56	Digital Dragons	Displate	POLAND	E-commerce & Marketplace	Private Equity   Displate is a global marketplace and a manufacture specializing in creating Magnet-Mounted Metal Posters.
57	Digital Dragons	eSky	POLAND	E-commerce & Marketplace	Private Equity   eSky is an online travel agent offers airline tickets, accommodation and additional services to travelers worldwide based on a proprietary product search engine.
58	Digital Dragons	IAI	POLAND	SaaS	Private Equity   IAI offers shopping platform for mid & large size merchants (IDoSell).
59	Digital Dragons	READY PLAYER ME	ESTONIA	Media & entertainment	Venture Capital   Ready Player Me is a cross-game avatar platform for the builders, creators and residents of the metaverse
60	Digital Dragons	tenderly	SERBIA	Fintech	Venture Capital   Tenderly is an all-in-one development platform. Company enables web3 developers to build, test, monitor, and operate smart contracts from their inception to mass adoption.



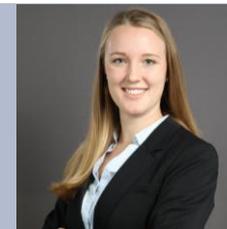
Marek Rodak

Principal, MidEuropa

This year has been marked with solid value deterioration in tech and e-commerce space both globally and in CEE, following record-breaking valuations in 2021. Unsurprisingly, according to Digital Champions CEE 2022 ranking, the total capitalization of the top 100 technology companies in CEE has normalized, which means over 40% reduction compared to a very impressive year 2021 when total valuation had surpassed US\$130bn. Currently, focus on sound fundamentals, cost-efficient and profitable growth, as opposed to growth at all costs, has become more evident and a sought after feature by all stakeholders.

B2C digital & e-commerce companies had to deal with softening consumer sentiment, but market leaders with unique and differentiated customer proposition, global reach and strong unit economics like Displate, our portfolio company, remained resilient and used this time to accelerate its innovations and reinforcements. Increasing focus on operational efficiency, cost optimization and automation drives demand in B2B Software & SaaS ecosystem. SaaS companies, esp. those providing mission critical solutions to its clients like Shoper, IAI or Symfonia, have been doing well in 2022. What they offer to its investors is a stable, recurring, and predictable cash revenue base, which is of great value in current uncertain times. That is why we have visibly more SaaS companies in this year's Ranking compared to 2021.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
61	Digital Wolves	 bitrise	HUNGARY	SaaS	<b>Venture Capital</b>   Bitrise is a mobile DevOps platform built to address mobile's challenges, empowering mobile teams to deliver their best work. Fully Hosted DevOps and CI/CD for Mobile.
62	Digital Wolves	<b>STARSHIP</b>	ESTONIA	Other	<b>Private Equity</b>   Starship Technologies is a robotics company building fleets of self-driving delivery robots designed to deliver goods.
63	Digital Wolves	 Gtmhub	BULGARIA	SaaS	<b>Venture Capital</b>   Gtmhub is a cloud-based strategy execution platform.
64	Digital Wolves	 Packhelp	POLAND	E-commerce & Marketplace	<b>Venture Capital</b>   Packhelp provides custom and sustainable packaging.
65	Digital Wolves	<b>skeleton+</b>	ESTONIA	Other	<b>Venture Capital</b>   Skeleton Technologies' energy storage solutions based on patented Curved Graphene represent the biggest technological advancement in the industry in the last 20 years.
66	Digital Wolves	<b>shoper</b>	POLAND	SaaS	<b>Listed Company</b>   Shoper is a ready-to-use software for an online shop, provided to e-commerce merchants.
67	Digital Wolves	 BRAINLY	POLAND	Media & entertainment	<b>Venture Capital</b>   Brainly is an educational Q&A social network for student peer support.
68	Digital Wolves	<b>RTBHOUSE</b> =	POLAND	Media & entertainment	<b>Private Equity</b>   RTB House provides state-of-the-art marketing technologies for top brands and agencies worldwide.
69	Digital Wolves	 Printify	LATVIA	E-commerce & Marketplace	<b>Venture Capital</b>   Printify is a marketplace connecting online merchants to major print on demand and dropshipping manufacturers.
70	Digital Wolves	 X-KOM	POLAND	E-commerce & Marketplace	<b>Privately Owned</b>   X-kom.pl is a Polish company, a chain of computer shops offering consumer electronics.



**Luisa Frank**

Investment Manager, Burda Principal Investments

We at Burda Principal Investments see great investment opportunities in the CEE region, as we look for exceptional entrepreneurs building companies with the potential of global category leadership. As of today, we are proud backers of two of them, namely Vinted and Nord Security. This makes us investors in both tech unicorns in Lithuania. Thriving to partner with more Digital Pheonixes or supporting those trying to get there, we regularly connect with the local ecosystems across CEE countries to add a global VC investor perspective and support during the growth phase of companies run by those most curious and ambitious minds in the region. A diverse set of represented sectors and business models have proven CEE to be a broad playing field for visionary founders and investors alike.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
71	Digital Wolves	 BITLEVER	ESTONIA	Fintech	<b>Venture Capital</b>   BitLever is the next-generation groundbreaking cryptocurrency exchange that is going to offer its users the widest product range on cryptocurrency exchange market.
72	Digital Wolves	 ProService Finteco	POLAND	Fintech	<b>Private Equity</b>   ProService Finteco is a market leader in providing technology services and solutions to mutual and pension funds, insurance companies and banks.
73	Digital Wolves	 ROZETKA	UKRAINE	E-commerce & Marketplace	<b>Private Equity</b>   Rozetka is an e-commerce retailer that sells goods and services.
74	Digital Wolves	 MEWS	CZECH REPUBLIC	SaaS	<b>Venture Capital</b>   Mews offers property management system designed to simplify and automate all operations for modern hoteliers and their guests.
75	Digital Wolves	 MANTA	CZECH REPUBLIC	SaaS	<b>Venture Capital</b>   MANTA provides an automated data lineage platform.
76	Digital Wolves	 citybee	LITHUANIA	E-commerce & Marketplace	<b>Privately Owned</b>   CityBee is a one of the leading car, bike and electronic scooter sharing service.
77	Digital Wolves	 greenway	POLAND	Other	<b>Private Equity</b>   GreenWay is a leading electric vehicle charging service provider in CEE.
78	Digital Wolves	 TATUM	CZECH REPUBLIC	Fintech	<b>Venture Capital</b>   Tatum offers the flexible platform for developers to turn their blockchain ideas into reality fast.
79	Digital Wolves	 eurora	ESTONIA	SaaS	<b>Venture Capital</b>   Eurora Solutions allows you to automate tax, compliance and customs services for eCommerce and Logistics.
80	Digital Wolves	 TRANS.EU GROUP SA	POLAND	Other	<b>Privately Owned</b>   TRANS.EU is a modern logistics platform that offers freight exchange services for road transport.



**Marta Szczerba**

Principal, KKR Growth

In 2022 technology markets experienced significant slow-down driven by macroeconomic events such as Russia-Ukraine war, rising energy prices and increasing inflation. However, the resilience of the CEE region has been remarkable, as evidenced by the number of new entrants into this year's Digital Champions list. Given the geopolitical uncertainty of the region, many CEE founders now start global-first, targeting much larger addressable markets, diversifying their revenues from the get-go and increasingly gaining blue-chip investors on their cap tables even at the earliest stages. We are excited to see these companies scale up and ultimately join the likes of UiPath or Wise on the public markets.

#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
81	Digital Wolves	 <b>alsendo</b>	POLAND	Other	<b>Private Equity</b>   <b>Alsendo</b> is offering comprehensive shipping services for small and medium businesses in CEE
82	Digital Wolves	 <b>pCloud</b>	BULGARIA	Other	<b>Privately Owned</b>   <b>pCloud</b> is a provides cloud storage solutions for personal and business consumers.
83	Digital Wolves	<b>VERCOM</b>	POLAND	Cybersecurity	<b>Listed Company</b>   <b>Vercom</b> creates global cloud-based communication platforms (CPaaS) that enable companies to build and develop lasting relationships with their audiences across multiple communication channels.
84	Digital Wolves	 <b>pricefx</b>	CZECH REPUBLIC	SaaS	<b>Venture Capital</b>   <b>Pricefx</b> is a B2B and B2C pricing software.
85	Digital Wolves	<b>katana</b>	ESTONIA	SaaS	<b>Venture Capital</b>   <b>Katana</b> offers a manufacturing and inventory software for scaling businesses. Katana software will allow small to medium-sized manufacturers to manage D2C and B2B sales using a single software solution.
86	Digital Wolves	 <b>symfonia</b>	POLAND	SaaS	<b>Private Equity</b>   <b>Symfonia</b> is an develops enterprise-wide management (ERP) software to support SME companies.
87	Digital Wolves	 <b>ten square games</b>	POLAND	Media & entertainment	<b>Listed Company</b>   <b>Ten Square Games</b> is a mobile and browser games developer specializing in 3D simulation hobby games production.
88	Digital Wolves	<b>SYNERISE</b>	POLAND	SaaS	<b>Venture Capital</b>   <b>Synerise</b> offers all-in-one tools, an ever-evolving data platform, enhanced with AI to accelerate the growth of the client's business and designed to generate exceptional ROI.
89	Digital Wolves	<b>aion bank</b>	POLAND	Fintech	<b>Private Equity</b>   <b>Aion Bank</b> is a full-service digital bank which allows to invest in ETFs, earn on high interest savings accounts with no hidden fees.
90	Digital Wolves	 <b>AIMOTIVE</b>	HUNGARY	Other	<b>Venture Capital</b>   <b>Almotive</b> is one of the largest independent teams in the world working on automated driving technologies.



### Krzysztof Krawczyk

Warsaw Office Head, CVC Capital Partners. Board member at several portfolio companies of CVC.

In our current reality shaped by the war in Ukraine, supply shocks and a major turbulence in the global economy, the digital transformation and sustainable development are becoming more and more relevant. When talking about digital transformation and ESGs, we have in mind real initiatives constituting actual change, not some "rubber stamping" or green washing exercises. These turbulent times verify whether the actions taken truly translate into increased stability and operational security.

One good example is the digital transformation of the companies in the CVC Fund. These perfectly demonstrate how taking a cutting-edge and innovative approach to companies that are open for constant change can allow us to respond to unexpected and unusual situations.

Nowadays, the private equity funds are an ideal partner to support ongoing shifts in the market. With our international know-how and financial resources, we help making change possible.



#	TYPE	COMPANY	COUNTRY	CATEGORY	OWNER   THE COMPANY AT A GLANCE
91	Digital Wolves	 Infermedica	POLAND	SaaS	Venture Capital   Infermedica is a digital health company specialized in AI-powered solutions for preliminary diagnosis and patient triage
92	Digital Wolves	 NFTPort	ESTONIA	Fintech	Venture Capital   NFTPort is a one-stop, simple and developer-friendly NFT infrastructure and APIs which help developers bring their NFT applications to market in hours instead of months.
93	Digital Wolves	 R22	POLAND	SaaS	Listed Company   R22 is one of the leaders of the Polish hosting and domain name market.
94	Digital Wolves	 PayPo	POLAND	Fintech	Privately Owned   PayPo is a leading buy now pay later solution.
95	Digital Wolves	 oponeo	POLAND	E-commerce & Marketplace	Listed Company   Oponeo.pl is a nationwide leader in the sale of tires and wheels via the Internet.
96	Digital Wolves	 SUPERBET	ROMANIA	Media & entertainment	Private Equity   Superbet is an online gaming company in Romania.
97	Digital Wolves	 SevenBridges	SERBIA	SaaS	Venture Capital   Seven Bridges is the leading biomedical data science company.
98	Digital Wolves	 BLUE MEDIA	POLAND	Fintech	Private Equity   Blue Media provides solutions for processing electronic transactions and client identification: from automatic toll payments to photo identity verification.
99	Digital Wolves	 morele	POLAND	E-commerce & Marketplace	Private Equity   Morele.net is an online shop, operating in the consumer electronics segment.
100	Digital Wolves	 frisco.pl supermarket online	POLAND	E-commerce & Marketplace	Strategic Player   Frisco is a Online supermarket that enables individuals to get fresh food and ingredients home-delivered during a one hour delivery window.



**Maciej Ćwikiewicz**

CEO, PFR Ventures

Polish representatives in the CEE Digital Champions 2022 ranking show the entire spectrum of the Polish venture capital ecosystem. Leading positions are full of companies that enable the development of the local market. Their executives invest themselves, as business angels or LPs involved with Polish funds. Meanwhile employees who gain experience in those companies often use it to create their own ventures.

The pace of growth of innovative companies is considerably faster than just a decade ago. Ramp, founded in 2018, and Infermedica, founded in 2012, join the list along veterans like Allegro (1998) and CD Projekt (2002). It's possible thanks to international investment funds that enable their growth. To increase their interest in local companies, we offer additional capital for investments in Poland.

Digital Champions have also emerged because of private equity investments. We are also active in this area, funding new teams and facilitating introduction of new asset classes. Our efforts have already led to establishing a steady market of local and international debt funds.





 **Michał Skuza**

Vice-President, Trigon Investment Banking

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While macro crises are in principle value-destructive, we believe that fundamentally strong businesses operating in attractive sectors have and will continue to benefit from challenging times.

Despite recent macro fluctuations resulting from the Covid pandemic and further war in Ukraine, asset-light sectors such as GameDev and SaaS remain attractive for investors. Game development, in particular, being a comparably cheap form of entertainment, has historically been stable in disrupted times, as, for instance, shown by continued, yet slower growth during 2007-09. Although the market currently faces a slight decrease following a strong boost stemming from Covid lockdowns, continued M&A activity in the sector suggests a rebound in the long run. SaaS businesses have also been able to rescale their operations over the last years, while successfully retaining new customers – as examples such as LiveChat Software and Shoper show on the Polish market.

While other sectors such as FinTech have struggled on public markets and in private fundraisings globally, we also remain positive on the space, with many of the CEE markets further converging to digital payment solutions and embedded finance. Digital infrastructure also remains of high interest to international and domestic investors and capital deployment in fiber networks, data centers and tower infrastructure is continuing on a large scale.

All of the above leaves us with an optimistic view on the coming years and the prevailing fundamental attractiveness of the CEE region.



	POLAND	CZECH REPUBLIC	ESTONIA	LITHUANIA	ROMANIA	BULGARIA	HUNGARY	UKRAINE	CROATIA	LATVIA	SLOVAKIA	SERBIA
DIGITAL PHOENIXES \$1B+	    	 	   	 	 				 			
DIGITAL DRAGONS >\$250M-1B	              	        	  	 			 			  		
DIGITAL WOLVES >\$100M-250M	                   	   	     			 	 					



 **Filip Berkowski**

Investment Partner, MCI Capital

The digital market in CEE has been recently affected by global pandemic and the following unfavorable macro-political situation in the region. The deterioration of both macroeconomic (increase in interest rates, inflation and decreased consumer spending) and political (war in Ukraine) conditions, affected the valuations of technology businesses, which on average were cut by half compared to the last year. Especially VC-backed companies on the early stage of development (and with negative cash flows) find it more difficult to arrange new financing rounds and maintain aggressive growth projections, and therefore they recorded most significant decreases in valuation, in many cases above 70%. Larger and better established businesses, especially those operating in B2B sector (as opposed to B2C) proved to be much more resilient to changing macro environment.

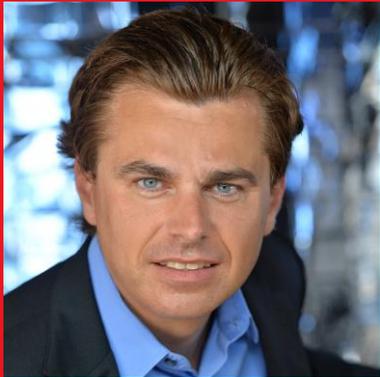
Although this year we do not see large, spectacular M&A transactions in the region (such as acquisition of Avast by Norton, or Mall.cz by Allegro which happened last year), digital businesses with strong market position, proven business model and cash generation are still being actively approached by the investors.

CEE remains very attractive in terms of supply of IT talent. Changes caused by pandemic, such as broad adoption of communication tools and acceptance of remote work, led to fast development of service companies in the region offering e.g. software development, managed services and outsourcing. Both CEE-based entities and local branches of international players are now increasingly competing for pool of software developers.

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## DIGITAL PHOENIXES (\$1B+)

POLAND	CZECH REPUBLIC	ESTONIA
LITHUANIA	ROMANIA	BULGARIA
UKRAINE	CROATIA	SLOVAKIA

**Michael Metzger**

Media &amp; Tech Investment Banker, Partner at Drake Star Partners

The "Digital Champions CEE TOP100" does a great job capturing the development and growth of the digital economy in the Central and Eastern European region. The top 100 list was updated with 37 new companies this year, with most being in the SaaS and FinTech sector. 10 new companies are based in the Czech Republic, followed by 8 companies in Estonia and Poland. The gaming sector has always played an important role in the CEE region; 7 of the 9 gaming studios and publishers in the region are based in Poland, among them: CD Project, Techland, Ten Square Games, People Can Fly and Huuuge. A highlight in the sector was the new addition of cross-game avatar platform company Ready Player Me to the CEE Top100 and the \$56M financing round provided by Andreessen Horowitz. The global gaming industry has experienced a massive amount of M&A and financing activity with a deal value of \$123B among almost 1,000 announced and closed deals in the first 9 months of 2022. We expect to see a healthy amount of gaming investments and M&A deals in the CCE region for the year to come.

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## DIGITAL DRAGONS (>\$250M-1B)

POLAND	CZECH REPUBLIC	ESTONIA	LITHUANIA	ROMANIA
BULGARIA	HUNGARY	UKRAINE	LATVIA	SERBIA

**📄 Konrad Biniewicz**

Investment Director - Industrial Information Technology, Orlen VC

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This edition of Digital Champions CEE is worth exceptional consideration as it depicts two, among others, interesting aspects.

To start with, global companies' valuations have been severely impacted by the ongoing financial downturn. What is natural, e-commerce and fintech companies, that dominate the ranking's composition took much of the hit, which resulted in almost halving the total capitalization of the list. Those valuations shifts made plenty of room for new names. This year we see as many as 37 newcomers, which may please the readers as those diversify the ranking and prove that once won, the leading positions are not written in the stone.

Secondly and most importantly, at least in our view, is the growing share of start-ups in deeptech, hardware and industrial space. Those segments, heavily underrepresented comparing to Western Europe or the US, now see more and more opportunities for growth and scaling in the CEE. Appearance of brands like Skelenton Technologies (Estonia), GreenWay (Poland) or Starship Technologies (Estonia) brings more hope and wider investment universe for VC and PE funds seeking opportunities in those industries. Of course valuation aspects remain challenging, but the first observation above may contribute to bringing some of the hype down to earth again. This may prove necessary to extend start-ups' runways in the upcoming challenging months.

However it evolves, we are facing very interesting, yet uncertain times ahead of us.

## DIGITAL WOLVES (>\$100M-250M)

POLAND	CZECH REPUBLIC	ESTONIA	LITHUANIA	ROMANIA
BULGARIA	HUNGARY	UKRAINE	LATVIA	SERBIA



 **Bogdan Iordache**

General Partner, Underline Ventures



In 2011, Skype was bought by Microsoft and started a network effect that would transform the tiny Estonia into one of the biggest tech powerhouses in Europe, with 7 unicorns minted so far (Skype, Wise, Monese, Bolt, Pipedrive, Starship, Veriff).

The "Skype effect" is a perfect example of how money and knowledge move in networks - the employees of the most successful tech companies will continue to spread their money and knowledge in their immediate networks, and support the development of the next generation of founders. The "Skype effect" does not apply only to Estonia. In 2015 in Bulgaria, Telerik, a Bulgarian-born devtools company, was acquired by Progress for what was back then a whopping \$245m. 7 years after, some of the most highly valued startups in Bulgaria are all part of the "Telerik Mafia". Payhawk, GTMHub and OfficeRND were all started by ex-Telerik employees who experienced first-hand building a global-first company.

But let's not take things for granted - not every large tech company will generate a "Skype effect", because not all employees of all tech companies we'll have the means and the mindset to contribute to the next generation of companies. Many times employees who have not benefited from a significant ESOP (employee stock ownership plan) will not have the means to invest - they have to keep being employees and will not be able to trade risk over a steady income. Also, employees who work in less empowering, more hierarchical cultures, or in a less high-growth environment, will not feel confident enough to go out on their own and start companies.

Whenever you go through such a report, the question that comes into one's mind is often "Where is this going?", "Which ecosystem is progressing, and at what speed?". Following Estonia's example, we know we are far away from the ceiling. If a country with a population of 1.3 million people has managed to create more than 100bln in value, I'm sure there's a lot of space. In Romania too. But growth will not be distributed evenly.

In order to assess the future developments of different ecosystems, look through the list and think about which of the existing successful companies provide the right framework, both in incentives and culture, to contribute indirectly to the development of the next wave of startups - those ecosystems will be the leaders of tomorrow.

Kiev, Ukraine



## 4. **Most interesting findings of the report**



### Total company capitalisation by company type

Company type	Total capitalisation In billions of USD	2022/2021 change (%)
Digital Phoenixes	51,93	- 55,96
Digital Dragons	17,71	+ 70,14
Digital Wolves	6,33	+ 24,66

### Number of companies by type

Company type	Number of companies	2022/2021 change (%)
Digital Phoenixes	20	- 48,72
Digital Dragons	40	+ 60,00
Digital Wolves	40	+ 11,11

#### Side note

- Digital Phoenixes | USD 1+ billion
- Digital Dragons | Above USD 250 mln but less than USD 1 billion
- Digital Wolves | Below USD 250 mln but more than USD 100 mln

- The total capitalisation of the 100 largest companies is USD 75.97 billion. The total capitalisation is down 43% on the previous year. The main reason for this is the decrease in phoenix capitalisation - by as much as USD 65 billion.
- Previously, the capitalisation of phoenixes was close to 90 per cent of the total and now it is 68 per cent. At the same time, the capitalisation of dragons (up 70%) and wolves (25%) has increased significantly.
- As much as one-quarter of the decrease in capitalisation is due to buyouts by strategic players (e.g. Avast bought by Norton with a valuation of nearly USD 8 billion). The remainder of the decline is mainly due to repricing on global financial markets, including CEE
- Capitalisation also fell due to the exit of several companies, particularly those from Ukraine, from the CEE region. Several significant companies have relocated completely (some moved to US ok UK).
- There was a significant (48%) decrease in the number of companies with an enterprise value of more than USD 1 billion. The main reason for this is the decrease in the value of companies and the increase in the value of the dollar to currencies in the region (e.g. PLN, HUF). Part of the decline is due to company buyouts by distressed investors.
- As a result of the fall in valuations, the number of dragons has increased significantly (60%). As a consequence, Wolves and Dragons are now each at 40% in the ranking and Phoenixes make up 20% of the ranking (down 48%).

**Leonid Varpahovsky**

Managing Director, Head of CEE, Credit Suisse Bank (Europe), S.A



Global technology valuations have come down very significantly in 2022. In CEE this has been further exacerbated by the proximity of the war in Ukraine and a very high inflation. It is worth noting that public companies' valuations have been hit the hardest while early 2022 or 2021 funding rounds valuations for private companies do not fully reflect the current market reality. I would therefore caution against treating exact places for each of the companies in this ranking too literally. I would rather use this list as proof of extraordinary breadth and depth of digital economy in CEE.

As we have seen with previous market downturns, transition to new technology tends to accelerate in difficult economic environment. So, it is not surprising that many companies in this ranking are continuing to grow at very healthy rates. Many of the companies in the ranking have managed to secure funding during the upcycle and are in great position to weather the storm. I am therefore very confident that the tech sector in the region will not only survive current turbulences but will continue getting bigger and stronger.



### Total company capitalisation by category

Company category	Total capitalisation In billions of USD	2022/2021 change (%)
E-commerce & marketplace	22,33	- 40,55
SaaS	19,98	- 47,04
Fintech	14,41	- 14,58
Media & entertainment	8,62	- 51,41
Other	7,36	- 36,33
Cybersecurity	3,27	- 72,64

### Number of companies by category

Company category	Number of companies	2022/2021 change (%)
E-commerce & marketplace	25	- 13,79
SaaS	25	+ 31,58
Fintech	20	+ 17,65
Media & entertainment	15	- 28,57
Other	11	+ 22,22
Cybersecurity	4	- 20,00

#### Side note

- We have not included telecoms or utilities companies in the digital infrastructure. We focused on businesses that are more scalable. However, we might consider whether to add these types of companies in a future edition of the ranking

- The most valuable category in the ranking is e-commerce, which is a few percent ahead of SaaS. Together, these two categories account for 55.69% of the total capitalisation of the top 100 companies, which is almost the same as last year.
- Fintech increased the most from nearly 12 per cent to 19 per cent in the ranking, while cybersecurity dropped from 9 per cent to 4 per cent, partly as a result of acquisitions (Avast acquired by Norton). As a consequence, the capitalisation of the cybersecurity category in the ranking also fell the most - by as much as 72% against 2021. The Fintech category saw the smallest declines (only 14.58%), partly due to the appearance of 3 new companies in this category in the ranking.
- In terms of size, the e-commerce and marketplace category continues to be the most numerous, but on a par with SaaS.
- The SaaS (up 31%) and Other (+22%) category companies grew the most over the year. The latter category increased partly through the reclassification of several companies from E-commerce to Other (transport and parcel services).
- The number of companies in the M&E category fell the most (nearly 30%). This is partly a result of the drop in value below \$100m and the acquisition of game developers by strategic partners (exits).



 **Łukasz Cyran**

Director, Innova Capital



Amid macro uncertainty, there is ongoing investors' shift from a weighting favoring growth toward a greater focus on profitability. We can see polarization of the market with the very best companies still attracting strong interest and commanding premium valuations, while start-ups following "growth at all cost" strategy now struggling to raise more capital, being forced to rethink their business model and return to drawing board. Now, more than ever measures such as "Rule of 40" (saying that for a software company to be high performing, the sum of its growth rate and EBITDA margin should be equal or greater than 40%) are coming to spotlight. Besides go-to-market efficiency which has always played a critical role (LTV/CAC, CAC Payback, SaaS Magic Number), now other operational aspects such as product development (i.e. ~80% of developed software features are rarely or never used), infrastructure or IT costs are getting under scrutiny. CEE-based digital champions like INELO (transaction value >EUR 300m), Ataccama (~EUR 150m growth investment round) or Nord Security (~EUR 100m growth investment round) prove sound fundamentals of their business models and attract investors, even in challenging times.

Technology sector has been undoubtedly one of the key beneficiaries of the pandemic, with strong push for digitalization, resulting in unprecedented surge in valuation levels of software / IT businesses, further fueled by record-high liquidity seen in the institutional private and the public markets. Now, the bull market is over with significant re-rating of tech stocks (Nasdaq Emerging Cloud Index is now ~65% down vs. Q3'21 peak), creating opportunities for strategic buyers and private equity funds. Amid weakness of public markets, increasing interest in take-private transactions could be observed (i.e. Anaplan, Zendesk, Avalara, Citrix). As public listing as a source of capital / liquidity for tech Founders is no longer an easy route (US market is recording the longest tech IPO draught in this century – it's been almost 9 months without a tech IPO of over USD 50 million), teaming up with a financial sponsor could be a viable option. Especially for ambitious founders willing to explore inorganic growth, joining forces with an experienced PE, who could support and finance execution of buy&build strategy, could be a win-win solution.



### Total capitalisation and number of companies by year of establishment

Year of establishment	Total cap. In billions of USD	2022/2021 change (%)	Percentage of total (%)	Number of companies
2017-2022	4,20	+ 52,73	5,53	14
2012-2016	17,38	+ 32,37	22,88	32
2007-2011	17,87	- 31,64	23,52	20
2002-2006	20,73	- 59,34	27,29	17
1997-2001	10,84	- 56,02	14,27	11
1992-1996	2,07	- 50,12	2,72	4
1987-1991	2,88	- 75,17	3,79	2

- Still the most valuable cohort is the group that emerged after the internet bubble (2002-2006). Their combined capitalisation is close to 30% of the total capitalisation of the top 100, but down from 40%. It should be added that the total capitalisation of companies of this period fell by nearly 60% (the second largest fall in the ranking).
- The youngest group of companies achieved the largest percentage increase in the ranking (nearly 50%) and accounts for 5.53% of the total cap. Consequently, the share of the oldest companies in the ranking has fallen significantly (75%), also as a result of the market sell-off.
- The youngest company with a capitalisation of more than USD 1 billion is Veriff from Estonia. The company was founded in 2015, which shows that unicorns take time to grow.
- The ranking has the highest number of companies established between 2012 and 2016, followed by those established between 2007 and 2011. The ranking has the least number of companies from 1987 to 2001, which shows that digital and new technologies are the domain of younger companies that were established after the bursting of the internet bubble.



 **Edgar Kolesnik**

Partner at Abris Capital Partners and Vice President at Polish Private Equity and Venture Capital Association (PSIK)



What we have seen already for some time across Central and Eastern Europe is a mix of favorable regional and global trends which have created several opportunities in tech space for financial investors, leading to multiple recent success stories both in Private Equity (PE) and Venture Capital (VC). These key trends include a 'shift to online' at a fast pace by CEE consumers and businesses, closing the gap to Western Europe and propelling growth of ecommerce with its enablement ecosystem. Rapidly growing employment in the ICT sector – at both local and international companies – is supporting growth and scaling. Digitalization has also played a crucial role with businesses experiencing an earlier stage of digital maturity in some areas, creating an opportunity to leapfrog Western Europe without the need to replace legacy solutions. All these trends add up to a sustained period of healthy growth for the PE and VC players focused on technology in Central and Eastern Europe.

In addition, there are many value-drivers that go well beyond European economic or domestic industry-specific growth. For example, most of the successful companies pursued during these challenging period: M&A/consolidation, technical innovation, professionalization, and export-oriented business models. Some international financial investors may see the story of CEE to just be about low labor costs. However, these investments are increasingly advanced, with several multinational tech companies choosing this part of the world as a location for their R&D centers and hubs (e.g. Google, Microsoft). Poland posted a CAGR of about 8% in the number of R&D personnel from 2010 to 2020, and a 14% CAGR in the number of R&D entities.

But of course, all CEE countries have their own unique characteristics. For example, it is worth to note the Baltics where funding as a percentage of GDP exceeds that of Western Europe. Given the founders in this region have small domestic markets many of them are well prepared early on to scale their businesses both in Europe and globally. Hence, this region is well represented in this list (over 20 players).

### Location of digital champions by total capitalisation

#	Country	Total capitalisation In billions of USD	Percentage of total	2022/2021 change (%)
1	Poland	22,64	29,81	- 47,15
2	Estonia	16,72	22,01	- 15,76
3	Romania	8,99	11,84	- 70,82
4	Czech Republic	8,57	11,28	- 46,73
5	Croatia	5,54	7,29	+ 157,55
6	Lithuania	5,24	6,90	- 22,91
7	Bulgaria	2,07	2,73	+ 28,07
8	Ukraine	1,84	2,43	- 35,28
9	Latvia	1,42	1,87	- 32,45
10	Slovakia	1,39	1,83	- 36,90
11	Hungary	1,19	1,57	- 76,05
12	Serbia	0,34	0,45	+239,09

- Despite a 47% drop in total capitalisation since late 2021, Polish champions continue to have the highest capitalisation of total ranking (29,8%, but down from 32% in 2021). Due to the huge revaluation of UiPath, Romania dropped from 2nd to 3rd place (champions' capitalisation down by as much as 70%). Estonia jumped to 2nd place in the ranking, thanks to a larger drop in valuations in Romania and to an increase in the number of champions in the country.
- The Baltic countries (Lithuania, Latvia, Estonia) increased their share of the ranking to 30,78% from 21,55% last year thanks to Estonia champions. The V4 region (Czech Republic, Hungary, Poland, Slovakia) accounts for 45% (down from 50%) of the market capitalization of the entire ranking.
- Still, four countries (Poland, Estonia, Romania, Czech Republic) together account for the majority of the ranking capitalisation (74.94%, but down from 82%). The share of Bulgaria, Ukraine, Hungary, Latvia, Slovakia and Serbia represents around 11% of the capitalisation of the overall ranking.

### Location of digital champions by total number of companies

#	Country	Number of companies	2022/2021 change (%)
1	Poland	42	- 6,67
2	Czech Republic	16	+ 60
3	Estonia	13	+ 62,5
4	Lithuania	5	- 16,67
5	Bulgaria	4	- 20
6	Hungary	4	- 20
7	Latvia	4	+ 33,33
8	Romania	4	- 33,33
9	Ukraine	3	- 25
10	Croatia	2	- 33,33
11	Serbia	2	+ 100
12	Slovakia	1	- 66,67

- The largest increases in total capitalization in the ranking were in Serbia (240%) due to its small start-up base and in Croatia (157,55%).
- As many as 7 countries (Albania, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro, North Macedonia, Slovenia) do not have any company that would appear in the ranking.
- Still most champions are located in Poland (42%, drop from 45%). Second place goes to the Czech Republic (16%) which also recorded the third highest nominal growth in terms of presence in the ranking (+60%). Just behind the Czech Republic, Estonia ranked high, also with a large increase in new champions (+62,5%). New this year is the absence of a champion from Slovenia.
- As a result of the revaluations but also as a result of the war, company valuations and size of the ecosystem have declined in Ukraine. Some companies have relocated to the US and disappeared from the ranking. However, this is not as big a drop as one might expect which shows that the tech sector in Ukraine has been very resilient to turbulence until the end of September 2022.



 **PhD Grzegorz W. Cimochoowski**

Partner, Head of Business Advisory, KPMG in Poland

In one year, Czechia gained 10 new companies which can be called Digital Champions. The ranking of 100 largest CEE tech companies shows where to grow the potential for successful, innovative companies. Poland still leads the ranking with 42 places on the list. Only 20 out of all ranked entities in CEE are valued more than USD 1 billion which is down by 48% (39 in 2021 edition). Such Digital Phoenixes are mainly e-commerce or SaaS companies, which accelerated growth during the pandemic and geopolitical uncertainty. Many of them are companies offering tools that helped people manage their daily activities in a safe and remote digital environment, as well as digital transformation solutions for business. Even though the pandemic is gradually easing, we can see that it was only a spark, and most of new digital trends will remain. Digital Phoenixes knew how to adapt and rise in the new reality. Nimble companies have an advantage over global corporations – they are flexible and faster in making decisions on what they can offer to the outside and even more importantly how they adapt internally.



 **Tomasz Czechowicz**

Managing Partner and Chief Investment Officer, MCI Capital

For technology companies, there are usually 3 paths for owners to finance or sell shares: selling to a strategic player, going public or partnering with a private equity fund. As recently as a year ago, all of these options were viable scenarios, but the past year has brought a deterioration in global market conditions.

We now see that due to significant declines in the valuations of public companies, it is rare for anyone to choose to raise financing through the stock market. At the same time, for similar reasons, a sale to a strategic player is not currently the preferred scenario, particularly since in this type of transaction the investor usually requires the sale of 100% of the shares. Therefore, we believe that raising capital in the form of investment by private equity funds with the current market is the most interesting option. First, it offers higher valuations than the stock market or a strategic investor. Second, it serves as a substantive partner for further business development.



### Intensity of digital champions per country by total company capitalisation

#	Country	Intensity per 100k country population
1	Estonia	1258
2	Lithuania	188
3	Croatia	142
4	Czech Republic	80
5	Latvia	75
6	Poland	60
7	Romania	47
8	Bulgaria	30
9	Slovakia	26
10	Hungary	12
11	Serbia	5
12	Ukraine	4

- In terms of total capitalization, the country with the highest intensity of champions is Estonia. It is worth noting that in terms of population size, the country is almost at the bottom of the list (1,33 mln people). The country clearly outperforms other countries, as the intensity of champions in Lithuania, the second-ranked country, is as much as 85% lower.
- The Baltics are still the leading countries this year, but Latvia was overtaken by Croatia and the Czech Republic, which moved up the ranks this year.
- The country that dropped the most in the 2022 ranking is Romania (by as much as 85% due to i.a. UiPath). In terms of capitalization, Hungary is also performing strongly this year.

### Intensity of digital champions per country by total number of companies

#	Country	Intensity per 100k country population
1	Estonia	978
2	Latvia	212
3	Lithuania	179
4	Czech republic	149
5	Poland	111
6	Bulgaria	58
7	Croatia	51
8	Hungary	41
9	Serbia	29
10	Romania	21
11	Slovakia	18
12	Ukraine	7

- The Baltic States together occupy the first three places. The second leading region is the V4 - however, we can see a significant deterioration of the result in 2022 and a further place for Hungary and Slovakia.
- Romania and Slovakia recorded nearly 65% declines in the intensity of the number of champions this year. The largest increases were recorded by Serbia (108.73%), Estonia (62.73%) and the Czech Republic (60.74%).
- Ukraine is still the worst of the twelve countries, as it ranks 1st in terms of population and last in terms of both intensities.

### The country's population and its share in the CEE region

#	Country	Population In millions	% of total
1	Ukraine	43,81	26,48
2	Poland	37,78	22,83
3	Romania	19,12	11,55
4	Czech Republic	10,7	6,47
5	Hungary	9,71	5,87
6	Bulgaria	6,9	4,17
7	Serbia	6,84	4,14
8	Slovakia	5,45	3,29
9	Croatia	3,9	2,36
10	Bosnia & Herzegovina	3,26	1,97
11	Albania	2,81	1,7
12	Lithuania	2,8	1,69
13	Moldova	2,57	1,56
14	Slovenia	2,11	1,27
15	North Macedonia	2,07	1,25
16	Latvia	1,88	1,14
17	Kosovo	1,81	1,09
18	Estonia	1,33	0,8
19	Montenegro	0,62	0,37



 **Tomas Artner**

Director - Digital Consumer, Raymond James Corporate Finance



In eCommerce, after the two buoyant Covid years (2020, 2021) which saw strong online penetration growth, the year 2022 was characterized by growth stabilization and the formation of a new sustainable growth basis for the upcoming periods. During the initial two Covid years, many eCommerce businesses had invested significant resources in infrastructure build-up to serve the growing online demand. As demand softened for a number of categories and CACs started rising significantly on the performance marketing side through Q3 2022, many businesses had to rationalize on the fixed cost side to manage profitability and growth.

In 2022, demand was softer on the back of the war in Ukraine, inflation worries and a higher level of expenditures for certain categories over the two Covid years, especially in categories with higher AOVs and single purchase characteristics. We saw continued growth performance in categories with high repeat purchase rates and a focus on “consumables” and/or “wear & tear” products, i.e., OTC health, beauty and personal care, nutrition and supplements, food and enthusiast categories.

2022 saw the rise of the online travel and leisure industry yet again, with growth and profitability vastly outperforming most eCommerce categories. After the two Covid years, travel has become an even more important consumer category than ever before. While room rates and fuel prices had increased, consumers kept up the booking pace, prioritizing travel and leisure over other categories. Notable companies in this sector in CEE include eSky, kiwi.com, Szallas group, wakacje.pl, boataround.com, ITH and Pelikan.

We at Raymond James have transacted +30 digital consumer deals in 2022 across the world. In CEE we have completed two notable transactions - the sale of FAVI Online from Pale Fire Capital to EMMA Capital. Favi is the leading European, Czech Republic-headquartered furniture and home décor product search engine, listing 3.5m unique products from 2,500 retailers across nine countries, generating a GMV of more than EUR200m for its partners. The sale of Szallas Group from Portfolion to Wirtualna Polska. Szallas Group was built as a merger of leading online domestic travel portals in Hungary, Czech Republic, Romania, Poland and Croatia and has become an online travel powerhouse in the CEE region with 80,000 accommodation partners and 20m visitors per year, generating a +EUR 200m GMV in 2022.

It is worthwhile to note that on both competitive processes, we have witnessed strong interest from western-based strategic and financial buyers. In general, we are witnessing a growing interest from western-based investor in the CEE region.

### Country position in terms of nominal number and intensity of Digital Phoenixes

#	Country	Number of Digital Phoenixes	Phoenix Intensity per 100k population	Country position in terms of intensity of champions per 100k population
1	Poland	5	34,04	5
2	Estonia	4	1086,66	1
3	Croatia	2	142,02	3
4	Czech Republic	2	30,36	6
5	Lithuania	2	142,80	2
6	Romania	2	42,93	4
7	Bulgaria	1	14,49	8
8	Slovakia	1	25,48	7
9	Ukraine	1	2,85	9

- Due to a 48% drop in the number of companies with capitalization above 1 bln USD, there were significant changes in this year's ranking. Only nine countries of the 19 surveyed have companies with capitalizations greater than \$1 billion. The previous ranking included countries such as Latvia, Hungary and Slovenia.
- The country with the highest number of most valuable companies is Poland. It is followed by Estonia and several countries with the same number of phoenixes - Croatia, the Czech Republic, Lithuania and Romania.
- In terms of digital phoenix intensity, Estonia and Lithuania lead the way. Just behind them are Croatia, Romania and Poland

### Share of top 3 companies in total market capitalisation per country

#	Country	Top 3 companies Percentage of total capitalisation in the country	Top 3 companies
1	Poland	44	Allegro, Inpost, CD Projekt
2	Estonia	80	Wise, Bolt, PlayTech
3	Romania	98,97	UiPath, eMAG, Bitdefender
4	Czech Republic	46,44	Productboard, Rohlik, Eurowag
5	Croatia	100	Infobip, Rimac
6	Lithuania	91,37	Vinted, Nord Security, Baltic Classifieds Group
	Only top 6 countries	69,70%	

- Only Poland and Czech Republic have balanced ecosystem of digital champions, as the share of the top 3 companies is below 50%.
- In most countries, including the Baltics, the top 3 Digital Phoenixes account for almost the entire capitalisation of the country in the ranking. The highest share of top 3 companies is found in Croatia and Romania.
- For the region as a whole, the average for the top 3 companies in the country's total capitalization is 69,7%, down almost 5% from 2021 (74.27%).



 **Gabriel Mohr**

Principal, Arthur D. Little



### Metaverse – a gamechanger impossible to ignore

Although still in its infancy, the Metaverse has quickly evolved from a buzzword to a development impossible to ignore across industries, with early estimates for the market ranging from €770M to as much as €13T by 2030. With many different takes on it, the Metaverse is generally described as a virtual world where users can interact, envisioned to be interoperable with ubiquitous access and application. On the demand side, users are demonstrating a clear interest for Metaverse initiatives, especially among Gen Z – according to PRWeb, by January 2022, 75% of Gen Z shoppers had already purchased digital products within video games.

Big players from numerous industries are already engaging in it, signaling the benefits of early adoption and not missing out on yet another paradigm shift, i.e., the prevalence of a decentralized Web 3.0 version of the Internet. Media giants such as TIME or the New York Times are exploring Metaverse storytelling formats, while big telcos are developing Metaverse capabilities: Verizon is partnering with Meta, and Turkcell, Turkey's leading telecom, has announced a Metaverse virtual store. From the industry perspective, the opportunities are huge – for example, in terms of infrastructure, Ericsson is forecasting the market opportunity from 5G wireless access to be €5 billion in 2022, €22 billion in 2025 and as much as €54 billion by 2030.

A megatrend and a major new market, the Metaverse will inevitably change business across industries, and companies should adapt to the changing landscapes if they want to leverage the existing opportunities, rather than lag behind the trends shaping the economy of tomorrow.



### E-Commerce & Marketplace | Digital Champions per country

#	Country	Number of companies
1	Poland	12
2	Czech Republic	5
3	Lithuania	3
4	Latvia	2
5	Estonia	1
6	Romania	1
7	Ukraine	1

### SaaS | Digital Champions per country

#	Country	Number of companies
1	Poland	7
2	Czech Republic	6
3	Estonia	3
4	Ukraine	2
5	Bulgaria	1
6	Croatia	1
7	Hungary	1
8	Latvia	1
9	Lithuania	1
10	Romania	1
11	Serbia	1

### Fintech | Digital Champions per country

#	Country	Number of companies
1	Poland	8
2	Estonia	4
3	Czech Republic	2
4	Hungary	2
5	Bulgaria	1
6	Latvia	1
7	Lithuania	1
8	Serbia	1

### Media & Entertainment | Digital Champions per country

#	Country	Number of companies
1	Poland	10
2	Czech Republic	2
3	Estonia	2
5	Romania	1

### Other | Digital Champions per country

#	Country	Number of companies
1	Poland	4
2	Bulgaria	2
3	Estonia	2
4	Croatia	1
5	Czech Republic	1
6	Hungary	1

### Cybersecurity | Digital Champions per country

#	Country	Number of companies
1	Estonia	1
2	Poland	1
3	Romania	1
4	Slovakia	1



 **Gabriel Mohr**

Principal, Arthur D. Little



### Cloud gaming as a rapidly growing market, simultaneously pushing technologies such as AR and VR

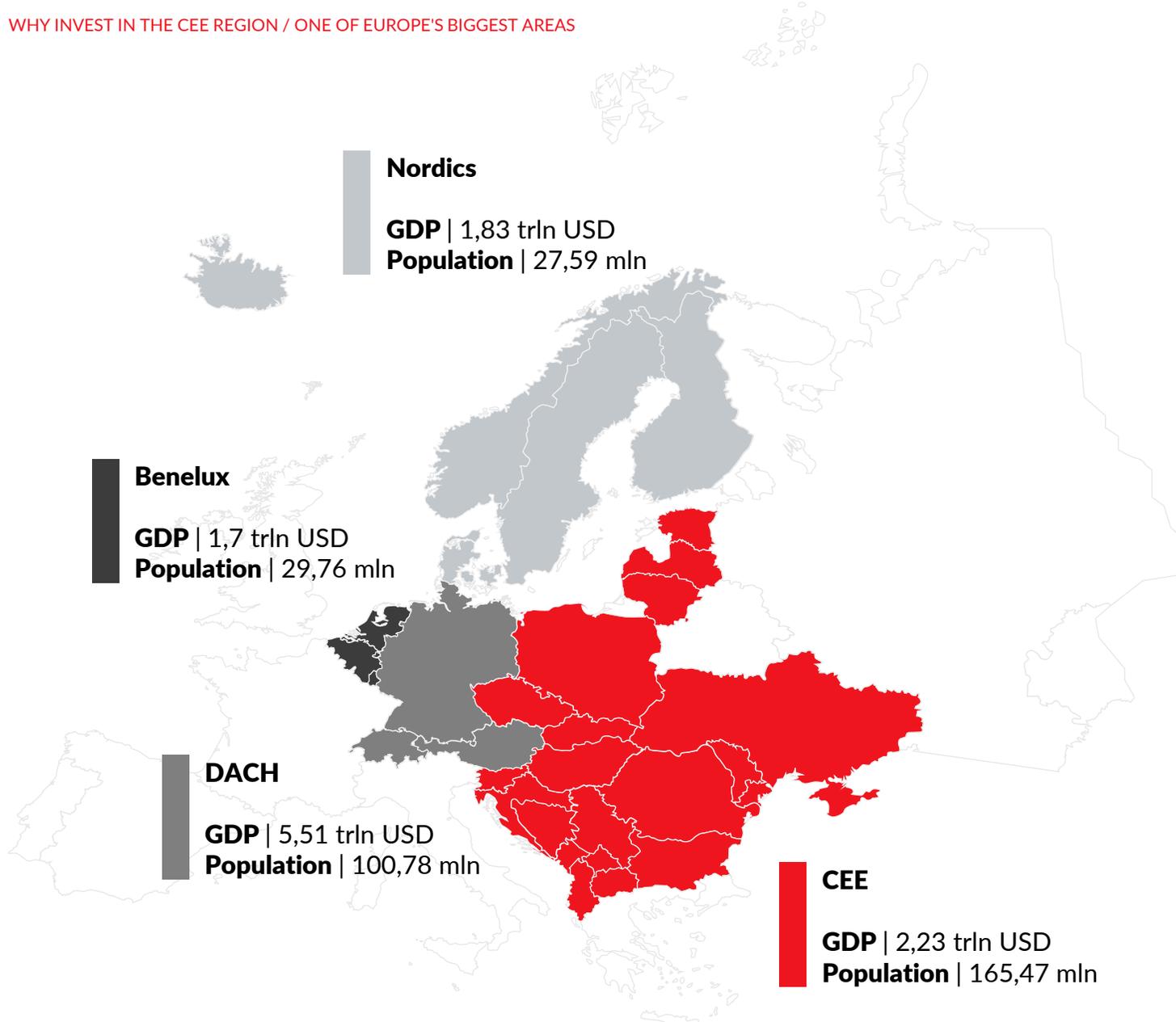
Similar to what we have observed with audio and video switching to streaming, cloud gaming has emerged as a solution for video games, removing numerous barriers and making video games widely accessible to bigger audiences. With cloud gaming, games are streamed directly to users' devices from a remote server, bypassing high system requirements or expensive high-end devices. According to Newzoo , the global cloud gaming market could reach €6,7 billion in 2024, compared to €1,5 billion in 2021. With high CAGR forecasts for the period ahead, this represents significant opportunities for players looking to either directly venture into the industry, or benefit from synergies with their existing products and services.

Aside from changing the world of video games, cloud gaming is simultaneously pushing adjacent tech developments, most notably Virtual Reality (VR) and Augmented Reality (AR). Set to grow at a 35% CAGR over the period of 2020-2024 , VR and AR are hampered by high system requirements and high costs, with a solution for both posed by cloud gaming. For example, as documented by Steam, less than 15% of gamers have the necessary GPU power for playing VR games at a satisfying level, while high costs are stated as the most important reason players are not engaging with VR games . With prices ranging from as little as \$10 a month, cloud gaming is set to be the key factor in the widespread adoption of VR. The same is true for AR, whose focus on mobile devices is even more suitable for these developments, especially having in mind the progress of 5G network connectivity.

For companies operating in the VR, AR, or cloud gaming industries, but also for investors looking to leverage the growth and spreading of cloud gaming, these developments offer useful insights into the possibilities posed by synergies between these fields.



## 5. Why invest in the CEE region?



- The countries of Central and Eastern Europe, understood as the 19 countries of the former USSR, form one of the largest blocs in Europe, in terms of GDP and population. In most countries, significant reforms were made after the fall of the Berlin Wall and the liberation of the region from communist domination. Most of the CEE countries are members of NATO and the European Union or have stated their ambitions and intentions to join the EU. Some countries, such as Slovakia and Croatia, have also adopted the common currency, the Euro, further integrating into the Eurozone.
- It is noteworthy that the region had a higher combined GDP in 2021 than either the Nordic countries or the Benelux countries. The advantage is even greater in terms of population - the region is as much as couple times bigger than the Nordic or Benelux countries.
- The main continental European region that outperforms CEE is the DACH countries. Their combined GDP is more than doubled, but their population is 40% smaller.
- It is worth noting that these countries have historically been characterised by 'brain drain'. 2019-2020 is the first period, according to Eurostat and the World Bank, when the region has experienced positive, albeit low positive migration.
- In terms of GDP, the 5 countries of the CEE region account for as much as 68% of GDP. These countries are Poland (USD 674bn), Romania (USD 284bn), the Czech Republic (USD 282bn), Hungary (USD 182bn) and Slovakia (USD 114bn).

Source: World Bank

**PhD Marek Niedużak**

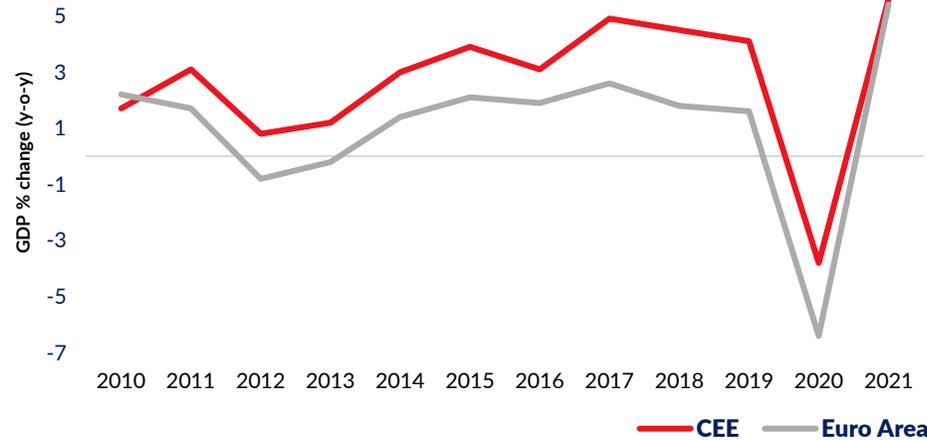
Vice President of the Management Board, Pekao Investment Banking

The CEE region has a population of more than 165 million and a combined GDP of \$2.23 trillion. In spite of negative external factors like the Russian invasion of Ukraine, or rising energy costs driving inflation, the region's continued macroeconomic growth retains strong fundamentals. At least so far early-stage investments do not seem to be negatively affected by the above mentioned developments. This is vital, since VC funds have already achieved some impressive successes in the CEE and remain on the path to catch up to their Western peers. I hope that the whole industry, not just VC but also PE, will continue to capitalize on the unique advantages of our region and to outperform more mature markets. Furthermore, as vice president of Pekao Investment Banking management board, I am also very proud to see that the digital champions list includes Allegro, InPost and CCC's Eobuwie, which we have assisted in their activities on the capital market.



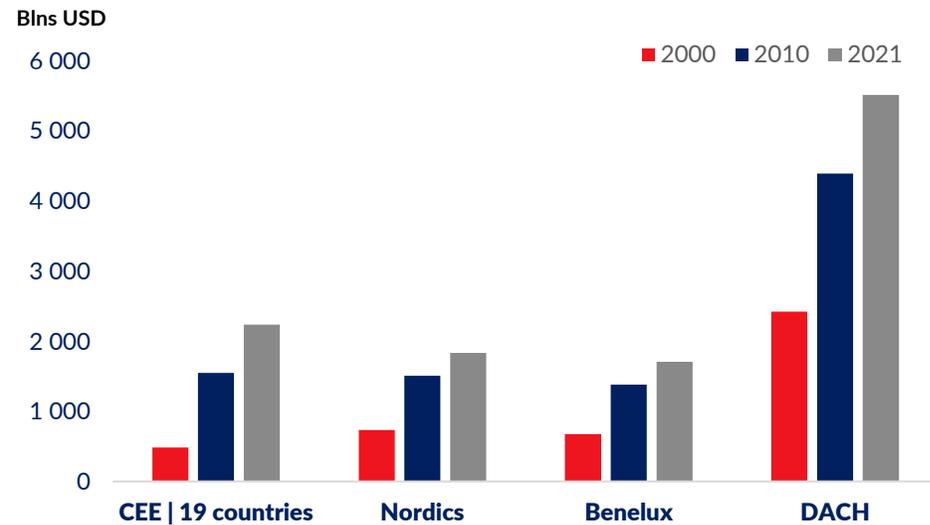


### Fastest-growing region of Europe



- If one looks at the CEE region more narrowly, as defined by the OECD or IMF (11 countries), one can see how dynamically the region has grown over the past decades. Compared to other regions in Europe, CEE is the fastest growing market, with annual GDP growth in CEE exceeding that of the EU15 by at least 1%.
- The drivers of growth have been the inflow of foreign capital, the reform package and the liberalisation of economies, the inflow of EU funds, know-how or the opening up to globalisation. As a result of this last factor, factories began to be set up on a massive scale in the CEE region, hence the region became a little Asia or China of Europe. It is here that many cars, household appliances, chemicals and many other products are made and sent to Europe and the rest of the world.

### Catching up and leapfrogging other regions in Europe in the last 20 years



- Back in the 1990s, but also in the 2000s, CEE had a low GDP. As a result of reforms, the development of new technologies, the location of R&D activities in the region by global corporations such as Google, Samsung, Microsoft, but also thanks to the huge human capital, the region has developed enormously. The advantage of the region is not only lower costs, but also a large number of people with so-called STEM competencies (Science, Technology, Engineering, Mathematics). It is STEM that is driving the region's growth, as, for example, according to fDI Markets, Poland was ranked 10th in the global ranking of new greenfield foreign direct investment in 2020 and 3rd in Europe. Four other markets in the region also made the top 15.

Source: World Bank



 **Chris Church**

Principal, Kreos Capital



We have seen the CEE region mature substantially over the last 5 years since our first investment. A growing number of local funds are being complemented by increased interest from VC funds in Western Europe and the US. I expect the current success stories to only accelerate this trend over the next 5 years.

The existing strength of developer talent is slowly being complemented with deeper access to senior management and salespeople, along with a greater pool of serial entrepreneurs. The ability to hire world class sales and marketing teams is still not at the same level as London, Paris or Berlin but is trending in the right direction.

There has been a tendency for many local entrepreneurs to focus on building a domestic champion with more limited upside, very few international VCs will be interested in a company without global ambitions. If the technology is not globally competitive, the potential upside is unlikely to justify a venture investment unless the domestic market is very large. This size is only available in a very small subset of sectors.

What has also moved forward substantially is the ability to raise seed and series A capital in the region. Poland in particular has a deep base of funds competing for these early stage deals. There are issues with a few funds structuring deals in a way that stops the company being investible for future round investors, but we do not see this often in the better performing companies. For later stage capital companies need to look abroad, but many foreign investors are active in the region and the CEE discount has almost disappeared compared to the same company based in Western Europe.

Given the current more challenging market there is a risk that foreign funds pull back from the region and retrench to their core markets, but very few CEE companies have burn rates high enough that local investment cannot bridge through this time period.

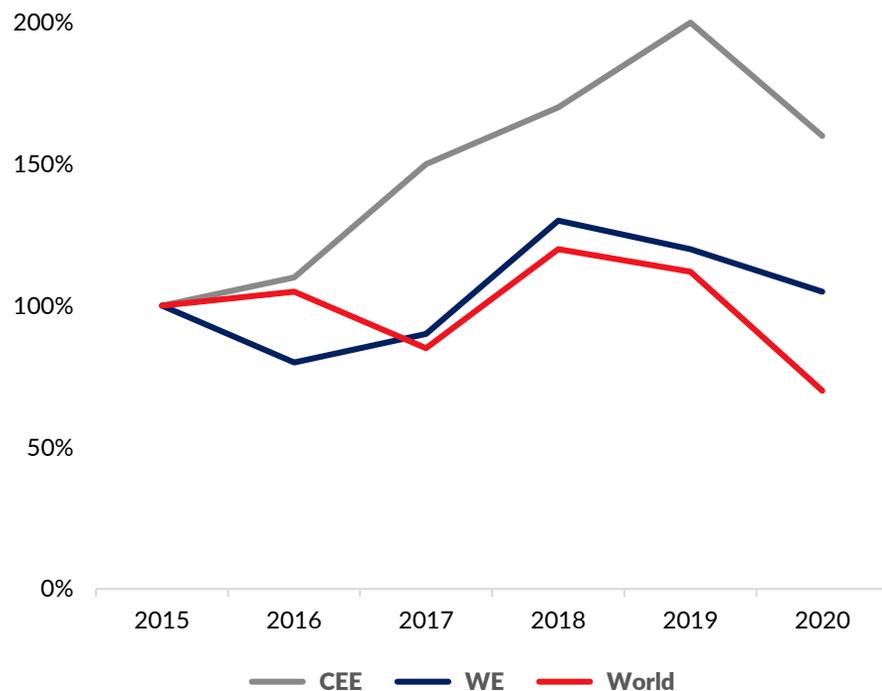
Local success stories are key to driving foreign investment, generating more regional interest in forming start-ups and expanding the base of local funds. Estonia is the best example of this in the region where past successes have spawned a new generation of start-ups, new local VC funds and pushed foreign investors to focus on what is coming next from the country. But we have also seen growing interest in the Romanian market on the back of the success of UiPath, employees in Romania are some of the most engaged in valuing their ESOP (employee stock ownership plan) allocation and US interest in the market is particularly strong.

At Kreos we remain excited about the prospects for the region and are still actively investing, 2022 has been a record year with total commitments in excess of €140m to CEE based companies. The pipeline of deals remains strong for 2023 with a growing number of exciting series B and later prospects.



**In the last 5 years, greenfield foreign direct investment in the CEE region has grown faster than in Western countries**

Value of announced greenfield FDI projects (normalized)



**5 CEE countries among 15 from Europe attracting most greenfield FDI projects**

Value of greenfield FDI projects in 2020

Rank	Country	Value (BLN EUR)
1	United Kingdom	30,5
2	Germany	21,1
3	<b>Poland</b>	<b>20,5</b>
4	France	12,5
5	Spain	11,2
6	Ireland	8,5
7	Italy	5,8
8	Netherlands	5,4
9	Belgium	4,0
10	Portugal	3,5
11	<b>Romania</b>	<b>3,3</b>
12	<b>Hungary</b>	<b>3,1</b>
13	Switzerland	2,5
14	<b>Slovakia</b>	<b>1,9</b>
15	<b>Czech Republic</b>	<b>1,8</b>

- Over the past five years, greenfield foreign direct investment in CEE has grown faster than in Western countries. Due to the pandemic, these investments slowed down during the pandemic period. CEE's advantage, however, was still 60% of that of the world as a whole.
- More than half of all STEM FDI projects recorded in 2020 were concentrated in the top 10 destination countries. The top 10 destination countries for STEM FDI have consistently attracted investment projects in industries characterised by high knowledge intensity and economic value added, such as life sciences and ICT. Poland attracted 101 investments with a 2.8% share of all STEM FDI greenfield investments.

Source: World Bank, The fDi report 2021, Global greenfield investment trends, GUS (Statistics Poland), ABSL, Eurostat, KPMG, Invest in Digital Poland report



 **Łukasz Cyran**

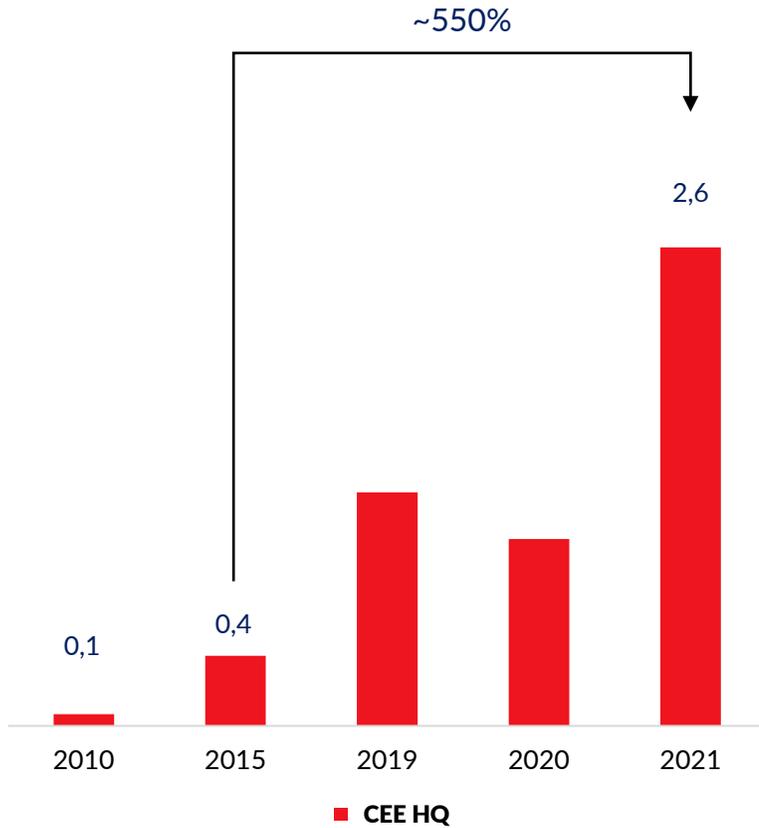
Director, Innova Capital

CEE has strong fundamentals to create a flourishing tech ecosystem. Access to highly-skilled talents is one of the key pillars – according to Bain, CEE accounts for 19% of European Union’s developer talent pool and boasts a higher percentage of graduates with engineering majors than Western Europe (14.8% vs. 14.5% as of 2019). Local developers enjoy strong reputation and many international IT services firms select CEE as a delivery location mostly because of high quality and breadth of talent pool and not only to benefit from cost arbitrage opportunity. Also, CEE Venture Capital market is enjoying unprecedented growth (VC investments in CEE reached EUR 4.1bn in 2021 have increased more than 9-fold over the last six years) fueling local tech ecosystem, with significant growth runway ahead (ratio of VC investments to GDP in Poland amounts to 0.1%, vs. 0.6% average for Western European countries). Increasing number of proven and successful tech Founders starting new ventures or turning investors should help as well. One ingredient, which could be further improved is boldness and ambition to build global organization as opposed to focusing on local markets only. It’s clearly visible in huge success of tech Founders from Baltic countries (Skype, Wise, Bolt, Vinted, Nord Security, Pipedrive), who from the very beginning design businesses to succeed globally as their domestic market is too small to build sufficient scale.



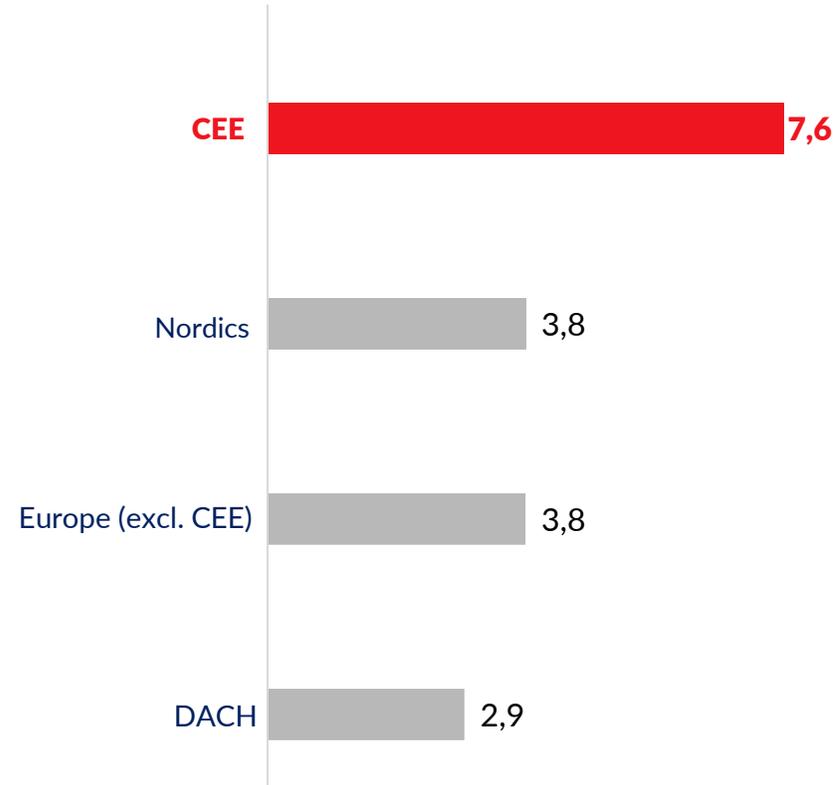


Total VC investment in CEE (€B, 2010-21)



Source: Dealroom

Growth in VC activity 2017 - 2022 Q3



- Looking through the lens of companies that are still headquartered in the region over the past 11 years, VC investment in CEE has increased significantly. Investments in companies that are headquartered in CEE have grown 550% over the past 6 years making the region one of the fastest growing in Europe.
- One can also look at the region more broadly - at the companies that emigrated from Central and Eastern Europe and those that are still based here. Looked at this way, the value of investments has increased more than 7 times in the last almost 5 years making the region grow much faster than, for example, DACH or the rest of Europe.

Note: CEE included companies that are still headquartered in CEE and those that have migrated from the region to other countries (e.g. the U.S.)  
Source: Dealroom, Q3 2022



 **Oliver Musial**

Vice President of the Management Board, Permira



This year's ranking - where 37 of the 100 digital champions are new - highlights the region's dynamism. The region has outgrown Western European peers and it's clear the foundations for sustained expansion remain strong: high levels of secondary education, some of the world's best coding talent (4 of the top 6 countries ranking by coding credentials are from the region) and continued improvements in regulatory frameworks.

Private capital will continue fueling this growth: VC investments grew 9x between 2015-2021, compared with 6x for Western Europe. As the ecosystem matures, investments will move to later stages: only 30% of deals were post-seed (up from 20% last year), which compares to 50% in Western Europe. The mentality is also shifting, with Founders increasingly open to, and familiar with, working with investors to support their next phase of growth.

It's not just a story of convergence: CEE Founders and companies are unique. Entrepreneurship is engrained in the culture as seen in student priorities: in Poland, 36% of students are interested in starting a company 5 years post-graduation vs. only 18% in Germany. CEE Founders are often product focused and more technical, as well as more likely to bootstrap their companies vs. Western peers (44% in CEE vs. 20% in WE in 2021). Finally, CEE companies lead Western peers on gender diversity. In a ranking of European companies by gender diversity (women as a percentage of management), CEE countries take the top 5 positions.

Entrepreneurs are poised to keep driving accelerated growth and the region's prospects are brighter than most people think.



- NATO Allies are launching a ground-breaking initiative to sharpen the Alliance’s technological edge. On Thursday (7 April 2022), Allied foreign ministers approved the Charter of the Defence Innovation Accelerator for the North Atlantic – or DIANA. “Working with the private sector and academia, Allies will ensure that we can harness the best of new technology for transatlantic security,” said NATO Secretary General Jens Stoltenberg.
- DIANA will bring defence personnel together with the Alliance’s best and brightest start-ups, scientific researchers, and technology companies to solve critical defence and security challenges. Innovators participating in DIANA’s programs will receive access to its network of dozens of accelerator sites and test centres across more than 20 Allies. NATO leaders agreed that DIANA would have a regional office in Europe and in North America. DIANA’s European regional office was selected from a joint Estonian-United Kingdom bid, and Canada is actively looking at hosting the North American regional office.
- DIANA will concentrate on deep technologies – those emerging and disruptive technologies that NATO has identified as priorities including: artificial intelligence, big-data processing, quantum-enabled technologies, autonomy, biotechnology, novel materials and space.
- Allies have also agreed to a framework for a multinational NATO Innovation Fund. This is the world’s first multi-sovereign venture capital fund. It will invest 1 billion euros in early-stage start-ups and other deep tech funds aligned with its strategic objectives.

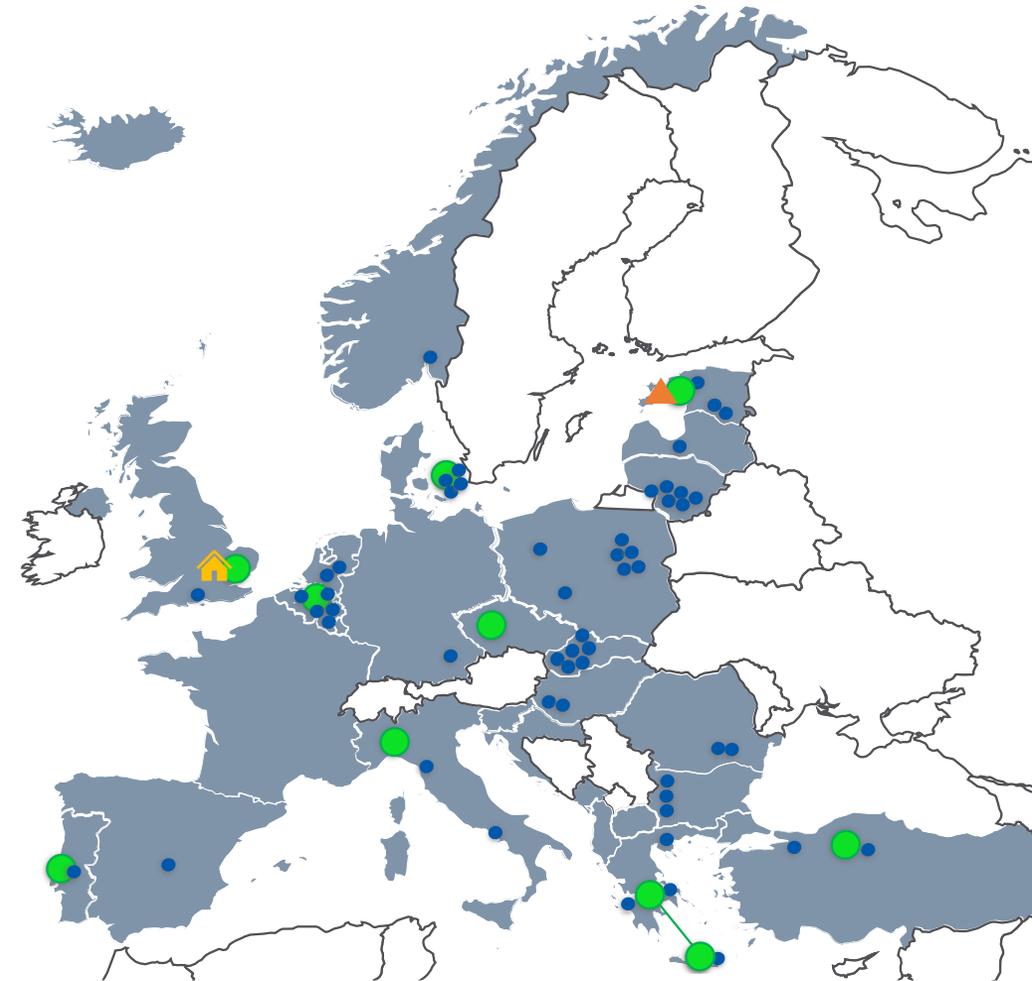


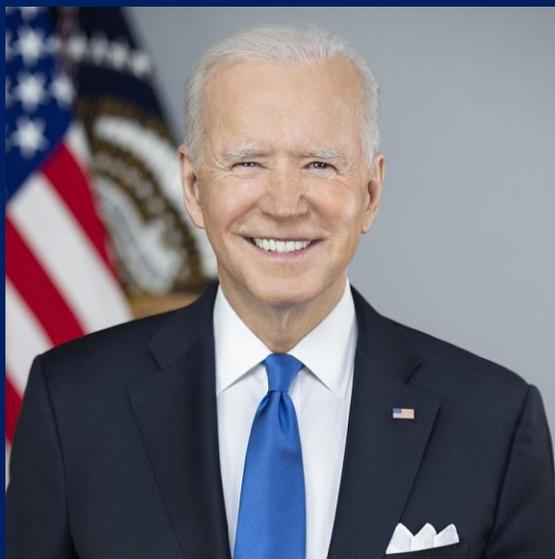
Key

- 🏠 Regional Offices (2)
- 📍 Test Centres (63)
- 📍 Regional Hub (1)
- 🟢 Accelerators (9)

**The United States** intends to facilitate access to U.S. Test Centres and Accelerator Sites from across the U.S. innovation sector, across all seven EDT areas.

**France** intends to facilitate access to French entities, such as Test Centres and Accelerators Sites, drawn from across the very extensive and diverse French innovation sector.





„We want to send an unmistakable message that the United States together with our allies will defend every inch of NATO territory and abide by the commitments we made to NATO”

Joe Biden, President of the United States

„Sweden and Finland joining NATO will increase deterrence in the region because of the assets they will provide the alliance. And [because of] the ability to plan for Northern Europe’s security in a comprehensive manner”

- Anna Wieslander, Atlantic Council’s Northern Europe director





„Our critical infrastructure, energy supplies, financial information, logistics, healthcare, and so much more are dependent on the integrity and security of our networks and safety of our data. We, along with our allies, must ensure that these assets are protected against all attacks, physical and Digital.”

Mark Brzezinski, Ambassador of the United States to Poland

Budapest, Hungary



## 6. Acknowledgements



HONORARY PATRONAGE



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## 7. **About the editor and report experts**



 **Piotr Mieczkowski**

Chief editor of the report  
Managing director, Digital Poland foundation

Piotr has 18 years of experience in TMT - implementing or leading projects in the new technologies and media sector. Currently he is heading the work of the Digital Poland foundation which promotes digitalisation as an element of Poland's competitive advantage. Author or co-author of many reports and digital policies concerning new technologies, including artificial intelligence, IoT, 5G and cloud. Co-creator of the strategic AI programme "Infrostrateg", which supports the implementation of AI in Poland with the amount of PLN 840 million. Leader of the AI Global Reach and IoT subgroup at the Polish Prime Minister's Office.

Piotr has practical experience in digital transformation, due diligence and M&A, strategic consulting or ICT solution design. He advised policy-makers in the CEE region, helped execute transactions such as the sale of telecommunications towers, built business strategies such as for the big data. He has up-to-date knowledge on issues such as artificial intelligence, big data, cloud computing, IoT, 5G or smart cities. Piotr previously worked for a global consulting company (EY), media company, mobile and fixed-line operator (Polsat Plus Group, Orange) and for a global energy company (Shell).

He is a graduate of the Faculty of Electronics and Information Technology at the Warsaw University of Technology and the Faculty of Management at the Warsaw University. He holds several specialist certificates.

Piotr's activities focus on local and international cooperation and building communities.

e-mail: [piotr.mieczkowski at digitalpoland.org](mailto:piotr.mieczkowski@digitalpoland.org)



**Tomasz Artner**

Raymond James  
Corporate Finance



**Filip Berkowski**

MCI Capital



**Konrad Biniewicz**

Orlen VC



**Chris Church**

Kreos Capital



**Grzegorz W. Cimochoowski, PhD**

KPMG in Poland



**Łukasz Cyran**

Innova Capital



**Tomasz Czechowicz**

MCI Capital



**Maciej Ćwikiewicz**

PFR Ventures



**Luisa Frank**

Burda Principal  
Investments



**Bogdan Iordache**

Underline Ventures



**Edgar Kolesnik**

Abris Capital Partners,  
Polish Private Equity  
and Venture Capital  
Association (PSIK)



**Krzysztof Krawczyk**

CVC



**Inga Langaite**

Unicorns Lithuania



**Paweł Marchewka**

Techland



**Michael Metzger**

Drake Star Partners



**Gabriel Mohr**

Arthur D. Little



**Oliver Musial**

Permira



**Marek Niedużak, PhD**

Pekao Investment  
Banking



**Magda Posluszny**

Lakestar



**Adam Prindis**

Cinven



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Trigon Investment  
Banking



**Marta Szczerba**

KKR Growth



**Karim Taga**

Arthur D. Little



**Leonid Varpahovsky**

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**Radzym Wójcik**

Baker McKenzie



## 8. **About Digital Poland Foundation**



## digitalpoland

### Digital Poland Foundation

As a non-profit organisation, the Foundation takes action to make Poland one of the world's major centres of digital innovation. Through its activities it transforms digital challenges facing Poland into opportunities for the domestic economy. Without the active participation of society the technological and digital development of our country will not succeed, therefore the founders of the foundation focus primarily on education, organising a number of educational events such as the Digital Festival and promoting new technologies in everyday life and business. In the eyes of foreign investors, the foundation presents Poland as an excellent place for conducting research and development activities and developing innovations of international scope. The foundation also conducts extensive activity in the field of research and analysis of public affairs, publishing a dozen or so free reports a year. In all its activities the foundation focuses on cooperation, creating a network of contacts and close relations, because only thanks to cooperation we are able to make Poland one of the world's leading digital innovation hubs. The Digital Poland Foundation invites to cooperation all those interested in implementing educational and innovative projects that will change the Polish economy. Among the founders and strategic partners are such companies as Baker McKenzie, Ghelamco Poland, KPMG, MCI Capital, Microsoft, Polpharma, Ringier Axel Springer, Schneider Electric, Symfonia, T-Mobile Polska, TVN Warner Bros Discovery, UPC Polska or Visa. The partners of the Digital Poland Foundation are Prowly, Stroer, Techland.

**Want to learn more?** | info at [digitalpoland.org](https://digitalpoland.org) | Visit [digitalpoland.org/en](https://digitalpoland.org/en)

## We are the Digital Poland Foundation



A cross-industry, nationwide initiative with focus on results



We share and lead digital initiatives, work together, create network of contacts and promote digitalisation in the leading media outlets



We help turn the digital challenges into opportunities for the Polish economy and society by creating best digital policies



We promote Poland as a leading digital innovation hub

## We've a proven track record. Example of our initiatives



Digital Festival



Digital Shapers



Digital Policies



FinTech hub



AI Hub



Smart Cities & buildings



eHealth



Digital Connectivity



Study Tours



Digital Marketing Hub



Digital CEO



Startup Ecosystem



Digital Fitness



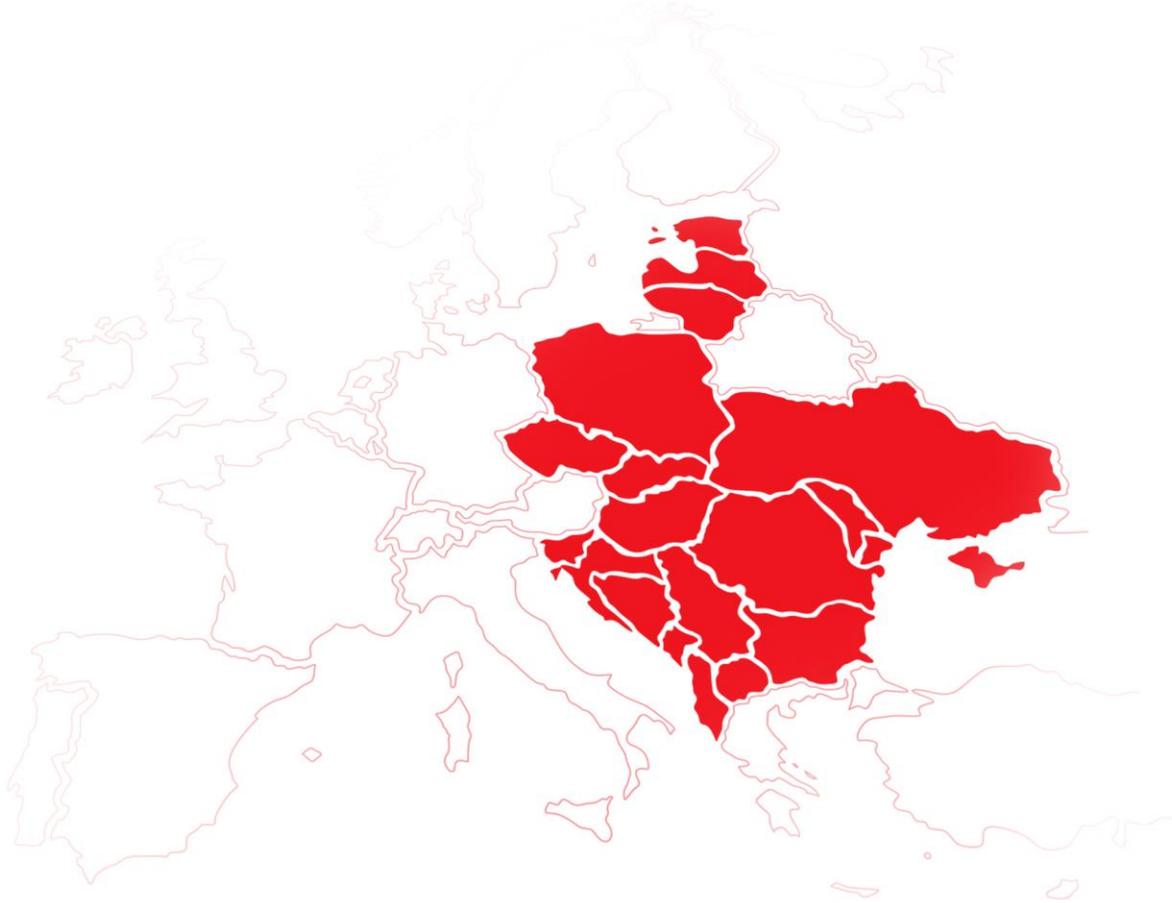
Digital Summit



Poland as a R&D Hub



Digital education



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**digitalpoland**

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29th floor of Warsaw Unit, Rondo Daszyńskiego 1, Warsaw, Poland  
info@digitalpoland.org

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