

CEE Fintech Atlas 2019

Exclusive insights into 19 fintech ecosystems
in Central and Eastern Europe

Special Focus: Open Banking



Dear readers,

Welcome to the second edition of our CEE Fintech Atlas. As in our first edition, our aim is to offer you a profound overview of fintech ecosystems in Central and Eastern Europe (CEE). What are the leading fintechs in the region? What did funding levels look like in 2019? In which CEE markets are ecosystems already flourishing and how does funding compare in these respective markets? In this year's edition, our special focus is Open Banking. This topic grew in importance right across the region in 2019, not least because of the second Payment Services Directive (PSD2), and it therefore deserves special consideration in our Atlas. Our findings are underpinned by a number of interviews with top-class interview partners such as fintech founders, representatives of national banks and experts from diverse fintech-related organisations from a range of countries in the region.

Raiffeisen Bank International (RBI) has always seen itself as a bridge builder between Western Europe and CEE. These bridges are not one-way streets. We bring Western European fintechs together with CEE banks and vice versa. We promote fintechs from CEE and connect them with investors from Western Europe. 2019 was a particularly successful year in this respect. Our fintech partnership program Elevator Lab entered its third round and has become the leading fintech partnership program in CEE. Our venture capital unit Elevator Ventures made its first direct investment and has a well-filled pipeline of potential investment targets. And, last but not least, we have successfully launched our Open API platform. Please find more information about Elevator Lab, Elevator Ventures and our Open API platform inside the Atlas.

We are proud of these successes, but we do not intend to rest on our laurels. We have also set ourselves ambitious goals for 2020 and want to make our contribution to further advancing fintech ecosystems in CEE. Our CEE Fintech Atlas is proof of this commitment.

I wish you interesting reading. If you have any questions or suggestions, the editorial team of the CEE Fintech Atlas is at your disposal.

Johann Strobl
Vienna, July 2020



Johann Strobl
CEO, Raiffeisen Bank International

Partners



Table of contents

Executive Summary	7
Albania	9
Austria	10
Baltic States	12
Belarus	16
Bosnia and Herzegovina	17
Bulgaria	18
Croatia	21
Czech Republic	22
Hungary	24
Interview: Building an ecosystem	28
Elevator Lab	30
Elevator Ventures	33
Kosovo	35
Poland	36
Romania	38
Russia	42
Serbia	45
Slovakia	46
Turkey	48
Ukraine	50
Digital catch-up	52
About Raiffeisen Bank International	55
Sources and definitions	56

All figures in this report displayed in Euro (€).
For transactions quoted in other currencies, conversion rates at the time of publication were used.

Please notice the RBI Disclaimer:
www.rbinternational.com/disclaimer

Executive Summary

In the CEE Fintech Atlas 2019, articles by and interviews with key players in the areas of banking and financial innovation from 19 Central and Eastern European (CEE) countries offer insights into the development of their respective fintech ecosystems. With its focus on Open Banking, this year's CEE Fintech Atlas also provides an understanding of the local implementation of this approach.

Open Innovation and PSD2

PSD2 and the concept of Open APIs initially shook the traditional banking system. When the directive was issued, the concept of allowing client data to "escape" the secure premises of the bank was hard to accept. At that time, fintechs were seen purely as disruptors and potential threats to the financial services industry. Their solutions were often perceived by customers as cheaper and easier to use than those offered by traditional banks. There was a feeling that this new kind of competition would become even more aggressive towards banks by leveraging the advantages derived from PSD2. However, regulators have demonstrated great progress in developing official guidelines on sharing sensitive data and establishing a standardised and secure way of doing so via APIs. Due to the security ensured by API standards, banks have shaken off their initial reluctance about sharing data.

Customer demand is driving the quick pace of change. Partnering with fast-developing, bold fintechs allows banks to leverage smarter and more flexible solutions that end customers can benefit from. Fintechs have changed their role from disruptors to facilitators and enablers of a revolutionary banking transformation. Furthermore, in CEE and even in countries not regulated by PSD2, the market offers many examples of corporations and traditional financial institutions seeking help and partnering with fintechs.

In addition to this, the topic of Open Banking changed the perspective of banks and paved the way for collaboration and the creation of financial ecosystems that nurture even more fertile ground for fintechs. Rather than competing with banks, fintechs offer their services based on a safe banking infrastructure and the transparent use of data via APIs. In all CEE countries, collaboration between banks and fintechs represents a promising climate for innovation and new

technological possibilities in a new financial ecosystem. The situation has positively changed in the following ways:

- Fintech associations have been founded and fintech incubation and mentoring programmes have been introduced by several banking institutions in Central and Eastern Europe
- Central and Eastern European countries, in which local markets are changing and pushing forward, have become hotspots for financial technologies and fintech communities

Facts & Figures

More than 65% of the population in the CEE market is expected to be using digital banking services by end of 2020 as a result of which digital markets will grow across the CEE region. Moreover, differences in digital penetration rates in comparison with the leading Western European digital banking markets have decreased significantly in recent years (from about 25 to 30 percentage points to about 15 to 20 percentage points).

In addition to this, funding figures show that 2019 recorded a new peak in the level of fintech investment in many CEE markets. Compared to 2018, the markets in Lithuania, Bulgaria, Hungary, Romania, Slovakia and Ukraine showed a strong growth in investment. Notable investments were made in companies including SME Finance in Lithuania (19.8 million euros), Software Group in Bulgaria (17.8 million euros), Twisto in the Czech Republic (14 million euros), Minit in Slovakia (6.9 million euros), XOLO in Estonia (6 million euros), Hesqapkurdu in Turkey (4.1 million euros) and MyCredit in Ukraine (2.7 million euros). There is also a trend towards increased investment in fintech by local and regional VC funds, as exemplified by Speedinvest from Austria, Startup Wiseguys from the Baltics, Eleven Ventures from Bulgaria, ENERN from the Czech Republic, Hiventures from Hungary, Speedup Group from Poland, Gapminder from Romania and Revo Capital from Turkey.

In conclusion, research shows that, thanks to massive efforts in the field of digitalisation, Central and Eastern European markets are attractive for fintechs as well as for partnerships between fintechs and banks established in the region.





Ludovic Laventure, CEO of MPAY

Albania

A fintech's critical view on the local Open Banking progress

Will Open Banking drive the evolution of the payment system in Albania and create a competitive environment or will it continue to find limited acceptance on the market?

As Albania smoothes the path towards innovation and more startups emerge, the country's banks are expanding their digital offering by adopting new virtual processes that will greatly benefit their customers. Ludovic Laventure from of MPAY, one of the finalists of the first edition of the RBI Elevator Lab, offers his perspective on Open Banking and explains why he regards it as an unorthodox reality for the Albanian market.

How do you see the efforts towards Open Banking in the local market?

Laventure: To speak the truth, rather than merely provide "any kind of answer", I would be inclined to say that we still haven't seen any real efforts towards introducing Open Banking to the local market. By definition, Open Banking requires banks to open their systems and offer other market stakeholders' access to customer data and accounts. To date, a select few banks have made some efforts in this regard. But even these initiatives can't really be viewed as Open Banking because they are based on bilateral agreements between banks and other parties.

To what extent does your business model rely on such efforts bringing swift returns?

Laventure: We have a different approach because we started operating at a time when the business philosophy of Open Banking didn't exist and, hence, banks weren't inclined to collaborate. We develop B2B2C services, solutions that we offer to banks and that allow them to reach their customers. To this end, we enter into individual commercial and technical agreements with partner banks and Open Banking isn't essential to what we do.

How do you see the path towards fully embracing this model in the local financial sector?

Laventure: The path will be very long. Frankly, I only see the local financial sector embracing Open Banking if and when it is forced to do so by the law and regulatory bodies.

How is cooperation with the banks?

Laventure: Difficult. Bricks-and-mortar banks only move slowly and reluctantly. We have encountered two main issues with local banks. Firstly, innovation is not on their agenda. They neither recognise nor believe in it. Secondly, they are inflexible about adapting their technical infrastructure to provide access to customer data. Most banks have vendors and other providers who charge large sums for updating systems and creating APIs. The market is small and it's not easy for banks to scale up such investment. So they usually choose to maintain the service status quo rather than adapt. This is unfortunate.

As one of the stakeholders involved in consultation on the new regulation from the Bank of Albania that transposes PSD2 into a local law and directives, how do you find the new developments?

Laventure: As a piece of legislation, PSD2 has created many challenges for Europe's banks. Implementation has proved difficult, even in markets that are more advanced commercially and technically. It is still incomplete. We expect the situation in Albania to develop in a similar way. The challenges for banks will be huge, in both technical and financial terms, and implementation will take a long time. Banks may need to upgrade their core banking systems before they can build APIs that will expose data as required by Open Banking. From a commercial perspective, banks will have to transform their mindsets before they are willing to reveal customer data to third parties.

This sounds tough. What does the Albanian banks' attitude look like?

Laventure: Open Banking remains a very unorthodox reality for this market. But banks will need to move because they have no choice. 'GAFA' and neo-banks are already knocking at the door, offering innovative and easy banking and payment solutions. It is this, rather than the transposition of PSD2, that will force banks to act. Of course it's very important to have a regulatory and legal structure that creates and maintains a level playing field. In any sector it is innovation and ideas, rather than regulations, which cause disruption. But regulations are necessary in order to maintain market equilibrium and enable all players to play. We believe that the transposition of PSD2 into Albanian law will be highly beneficial in this regard.

Country data

Population 2019 (M)	2.8
GDP total 2019 (€ Bn)	13.7
GDP per capita 2019 (€, at PPP)	12,700
GDP growth 2019 (% yoy)	2.2
GDP growth 2020 (% yoy)	-4
Official currency	ALL

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	12
Total bank assets (% of GDP)	88
Account ownership 2020 (% of population)	45
Debit card ownership 2020 (% of population)	32
Internet usage 2018/2019 (% of population)	71
Usage of internet to pay bills 2020 (% of population)	30
Sent/received digital payments 2020 (% of population)	45

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Skyscrapers in Vienna, Austria

Austria

Exploring the potential of Open Banking

Open Banking and PSD2 are game-changers all over Europe and Austria is no exception. While PSD2 forced banks to open up their systems to allow customers to access and manage their accounts using the software of third party providers (TPPs), it also, simultaneously, established the basis for a whole new set of products, services and customer journeys.

Open Banking is still in its infancy on the Austrian market. The majority of banks in Austria only provide the mandatory PSD2 APIs on their developer portals. However, Raiffeisen Banking Group Austria is one step ahead and already offers its first premium "customer identity" API, which provides selected identity data to partners.

The FMA, the Austrian regulator, plays a special role as an intermediary between banks and TPPs in the area of PSD2. The FMA is very active, organising regular alignment meetings and mediating between banks and TPPs regarding the requirements of PSD2 APIs. To date, no Austrian bank has been exempted by the Austrian regulator from setting up a fall-back. Hence, screen scraping using a certificate is still allowed.

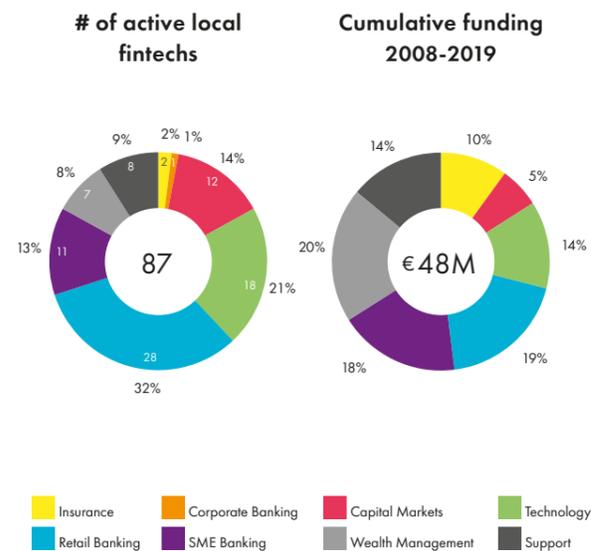
The Austrian Ministry of Finance set up a Fintech Advisory Board in 2018. The objective of the committee, on which representatives of Austrian banks are joined by insurers, fintechs, lawyers and universities, is to make Austria even

more attractive as a location to fintechs and blockchain and cryptocurrency companies. There are also plans to establish a "regulatory sandbox solution" under the supervision of the FMA in September 2020. This will enable fintechs to make business models ready for market within a protected framework and under the supervision of national regulators.

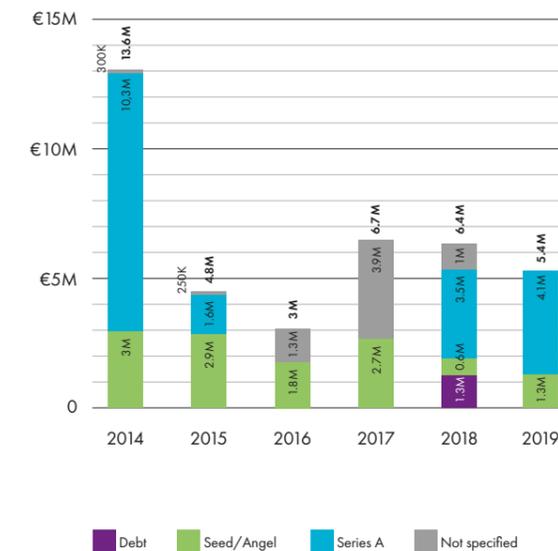
Banks must now decide: Between opening up and cooperating with fintechs, startups and any kind of TPP in order to take advantage of new business opportunities and keeping their systems closed and sticking to the regulatory mandatory minimum of PSD2 APIs. Currently, there are only limited signs of an opening.

The Raiffeisen Banking Group Austria is actively seeking to cooperate with fintechs and startups, which are not seen as a threat but as opportunities to offer new products and services that provide the most convenient and state-of-the-art experiences to its customers. The active support of co-working spaces such as weXelerate in Vienna or Tabakfabrik in Linz by the Regional Raiffeisen Banks (Landesbanken) offers a direct access to the fintech and startup scene.

Size



Funding trends



Top VC investors

Investor	# of investment
Speedinvest	7
Uniq Ventures	4
NewAlpha Asset Management	4
REVENTON	4
Tecnet Equity	3
aws Gründerfonds (aws Founders Fund)	3
DvH Ventures	3
Livag GmbH	3
European Super Angels Club	3
Reimann Investors	3

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Austria. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
bsurance GmbH	1/2019	4.1M
Morpher	1/2019	1.1M
Monkee	5/2019	200K

Country data

Population 2019 (M)	8.8
GDP total 2019 (€ Bn)	398
GDP per capita 2019 (€, at PPP)	47,842
GDP growth 2019 (% yoy)	1.6
GDP growth 2020 (% yoy)	-7.2
Official currency	EUR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	855
Total bank assets (% of GDP)	214
Account ownership 2020 (% of population)	98
Debit card ownership 2020 (% of population)	90
Internet usage 2018/2019 (% of population)	87
Usage of internet to pay bills 2020 (% of population)	65
Sent/received digital payments 2020 (% of population)	97

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Skyline of Tallinn, Estonia



Kaido Saar, Fintech Area Head of FinanceEstonia

Baltic States

Small countries with international solutions

The Fintech Area Head of FinanceEstonia, Kaido Saar, explains why startups from Baltic States meet international requirements right from the start.

What is on the current agenda of FinanceEstonia in the area of digitalisation and fintechs?

Saar: FinanceEstonia is a financial sector cluster organisation rather than a business entity. But we don't consider "digitalisation" itself to be a top topic in Estonia. In general, everything is already digital so there's little need to either digitalise as such or talk about the subject. Rather, there are more specific digital questions: What will consumers need in future and how should they be served, how do we build more user-friendly solutions and how do we do this seamlessly and ensure the security of data and processes? Efficient cyber security and anti-money laundering measures are definitely issues right now.

How would you describe the fintech ecosystem in Estonia/in the Baltic States?

Saar: Firstly and most importantly, Estonia and the other Baltic States are small countries. Hence, the technology created by our startups is meant to be international. As local markets are small it isn't worthwhile creating technology just for local people. The result of this is well-planned architecture that is suitable for international operations. In comparison, startups in countries with large markets often focus on their own consumers and create technology that later proves less suitable for cross-border expansion.

Estonia has developed extensive know-how since creating and accelerating Skype and also has the biggest number of unicorns. Today, this know-how can be found in our flagship TransferWise and countless smaller fintechs. Latvia and Lithuania have also developed in this field. The Lithuanian Government and Central Bank have worked hard attracting foreign fintechs and the country is now home to Revolut's hub. Estonia has a strong startup community that benefits from the know-how developed creating previous unicorns.

What were the main developments in 2019 regarding PSD2?

Saar: Banks built their APIs and eventually released new versions. But we don't see strong use of APIs as solutions for customers. Rather, criticism has been heard on the market that PSD2 is not good enough due to an unclear standard that limits real Open Banking and doesn't allow consumer-friendly solutions. One positive development, however, is that some banks have started to show account information from other banks.

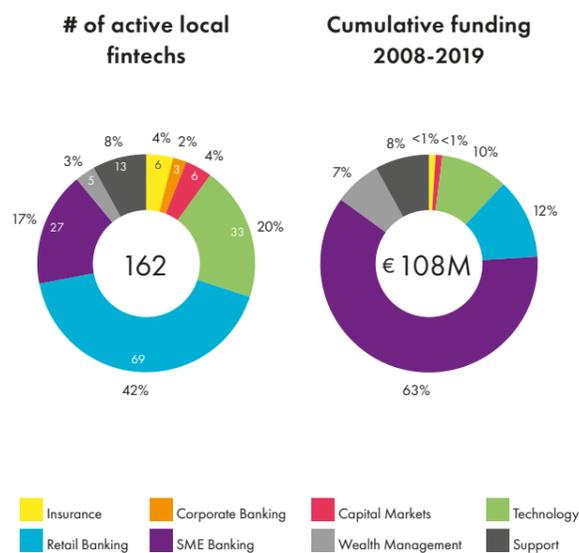
Which local fintech would you highlight as making the best use of PSD2?

Saar: It could even be that the banks are the biggest winners. A bank showing also the data from another bank might be very popular amongst its customers. Other winners are fintechs that provide authentication services.

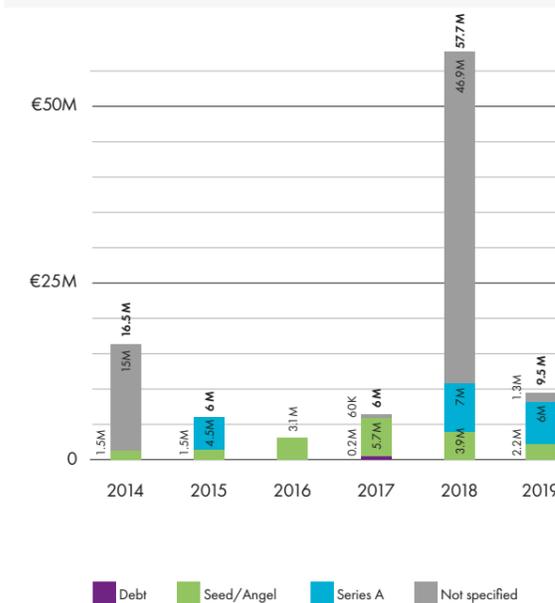
Estonia



Size



Funding trends



Top VC investors

Investor	# of investment
Startup Wise Guys	12
Karma Ventures	2
Speedinvest	2
Janis Rancans	2
Kuido Lepik	2
Startupbootcamp	1
Passion Capital	1
Link Tribe Capital	1
Data Ventures	1
Seedcamp	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Estonia. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower



Top funding rounds 2019

Company	Funding Date	Funding (€)
XOLO	7/2019	6M
Salv	12/2019	1.8M
EstateGuru	6/2019	1.3M
BITLEVEX	9/2019	245.4K
PaySic	5/2019	169.7K



Country data

Population 2019 (M)	1.3
GDP total 2019 (€ Bn)	27.6
GDP per capita 2019 (€, at PPP)	25,500
GDP growth 2019 (% yoy)	4.3
GDP growth 2020 (% yoy)	-7.5
Official currency	EUR

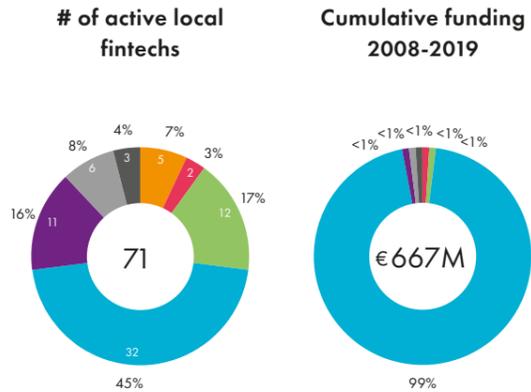
Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	25
Total bank assets (% of GDP)	110
Account ownership 2020 (% of population)	98
Debit card ownership 2020 (% of population)	92
Internet usage 2018/2019 (% of population)	89
Usage of internet to pay bills 2020 (% of population)	80
Sent/received digital payments 2020 (% of population)	98

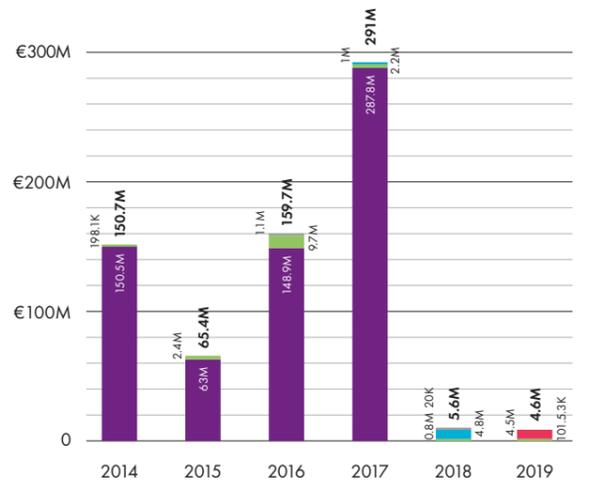
Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Size



Funding trends



Top VC investors

Investor	# of investment
Startup Wise Guys	6
Skillion Ventures	3
Imprimatur Capital Fund Management - ICFM	2
Change Ventures	2
Alfa Finance Group	1
Expansion Capital	1
EASME - EU Executive Agency for SMEs	1
Inventure	1
ZGI Capital	1
Pollen Street Secured Lending	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Latvia. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Country data

Population 2019 (M)	1.9
GDP total 2019 (€ Bn)	30.9
GDP per capita 2019 (€, at PPP)	21,500
GDP growth 2019 (% yoy)	2.2
GDP growth 2020 (% yoy)	-8.6
Official currency	EUR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

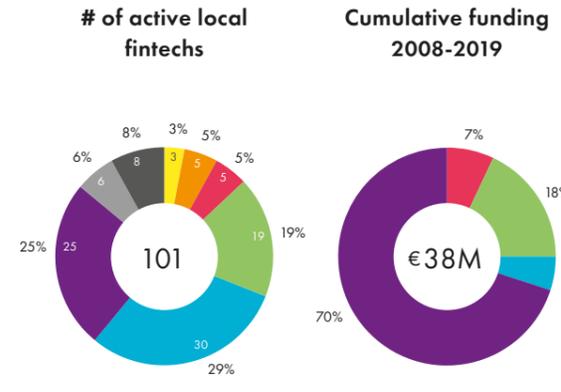
Top funding rounds 2019

Company	Funding Date	Funding (€)
Robocash Group	12/2019	4.5M
Marine Digital	3/2019	101.5K

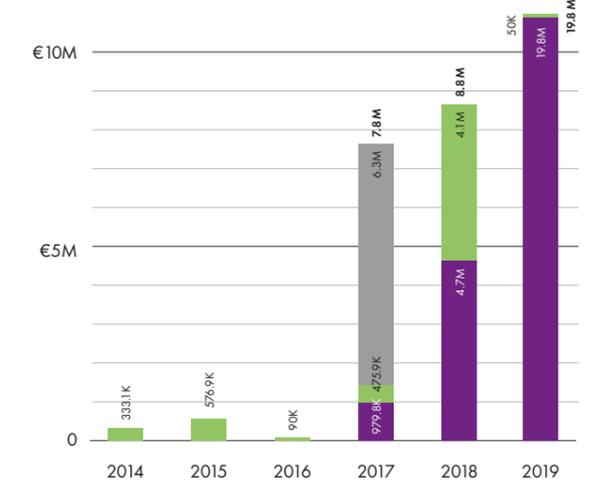
Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Size



Funding trends



Top VC investors

Investor	# of investment
Startup Wise Guys	2
StartUp HUB Poland	2
Baltic Sandbox	2
Entrée Capital	2
Crosspring	1
Seedrs	1
Blumberg Capital	1
Startupbootcamp	1
Sequoia Capital	1
Wellington Management Group	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Lithuania. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Country data

Population 2019 (M)	2.7
GDP total 2019 (€ Bn)	47.9
GDP per capita 2019 (€, at PPP)	25,000
GDP growth 2019 (% yoy)	3.9
GDP growth 2020 (% yoy)	-8.6
Official currency	EUR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Top funding rounds 2019

Company	Funding Date	Funding (€)
SME Finance	11/2019	19.8M
HODL Finance	4/2019	30K
Future Technologies	7/2019	20K
iDenfy	6/2019	14.1K
iDenfy	3/2019	11.8K

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Minsk-Arena in the city of Minsk, Belarus

Belarus

A bank's positive experiences with APIs

In 2018, Priorbank became one of the first banks to offer its customers access to APIs.

APIs started to gain popularity as tools for accessing banking products and services in 2015, when the European Parliament issued the second version of its Payment Service Directive. Belarusian banks were not obliged to follow this directive, but Priorbank decided to treat it as an additional opportunity for digital transformation. The bank first asked potential API consumers if they were interested in the topic and received more positive responses and recommendations than anticipated. As a result, Priorbank realised that a simple solution that only met functional requirements would not be enough. They would have to implement a secure, reliable and user-friendly platform.

Most work went into ensuring the necessary level of information security. Providing adequate end-to-end information security while customers are interfacing with an API is perhaps the most important aspect of this process.

One of the first examples of Belarusian pilot projects was Priorbank's practical experience with API. This came during its cooperation with the Swedish fintech Asteria, one of the winners of Raiffeisen Bank International's Fintech Partnership Program Elevator Lab. The bank and the startup worked together to implement a solution for customers in which Asteria's product was connected with the bank through an API. This offered customers predictive cash flow analytics based on their bank data. As expected, most difficulties were related to user authentication and authentication protocols — OAuth2 and OpenID Connect. Due to the complexity of these protocols, the bank continues to receive questions about them today.

Many banks in Belarus are sceptical towards using open APIs. However, Priorbank believes that APIs offer banks an easy, quick and seamless means of integrating into a dynamically developing digital ecosystem and expanding their business. "The situation of APIs in Belarus is not yet fully determined, but digital transformation is taking place in every field. There is a need to change if we are to be prepared for new realities and to stay in the game," experts from Priorbank stated.

Country data

Population 2019 (M)	9.4
GDP total 2019 (€ Bn)	55.9
GDP per capita 2019 (€, at PPP)	14,100
GDP growth 2019 (% yoy)	1.2
GDP growth 2020 (% yoy)	-4.5
Official currency	BYR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	33
Total bank assets (% of GDP)	59
Account ownership 2020 (% of population)	85
Debit card ownership 2020 (% of population)	75
Internet usage 2018/2019 (% of population)	79
Usage of internet to pay bills 2020 (% of population)	60
Sent/received digital payments 2020 (% of population)	85

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios

Bosnia and Herzegovina

Building a fintech from zero to IPO in three years

Ministry of Programming is a product development consultancy and startup studio in Bosnia and Herzegovina. The founder, Faris Začina, was involved in creating over 40 startups. He shares insights about one of Europe's most successful fintechs: Naga

Naga was established in 2015 with a simple idea of "making the trading experience simpler and more accessible to everyone". The company began as a Limited Liability zCompany in London when the founders decided to invest their own savings in creating a product prototype.

Benjamin Bilski, the founder of Naga, saw an opportunity to build a better product and user experience. This would be very different from the complicatedness of traditional financial market trading, which was limited to those who had attended the right courses and read the right books.

However, a startup is not only a challenge in terms of product and technology. We built a company from scratch, including a sustainable strategy and operational as well as financial structures designed to give a small and seemingly irrelevant product a chance to survive and grow in a highly competitive market.

Over time we built one of the most successful social trading platforms for Forex, Crypto and Stocks, etc. An IPO on the German Stock Exchange in 2017 was followed by a very successful ICO in the same year.

Naga has won numerous best fintech product awards in international startup competitions, which would have been impossible without a culture of moving fast and a constant focus on building the best trading product in the world. We know that the difference between success and failure is the ability to think long term, to hang in there and believe in the company vision, knowing that every small change that improves the customer experience and provides value will compound over time into an unstoppable product.



Faris Začina, Founder and CEO of Ministry of Programming d.o.o.

An Open Banking highlight in Bosnia and Herzegovina

2019 saw the launch of the OPA (Online Payment App) payment platform. The implementation of OPA has been the work of ESP BH doo, a new joint venture founded by Raiffeisen BANK dd Bosna i Hercegovina, BH Telecom and the two local companies Comtrade and QSS. OPA is a unique solution on the Bosnia and Herzegovina market. It offers individual private clients an innovative, digital, fast and convenient way to pay utility bills with one click or to send money to other OPA users. It also enables customers to pay for services and merchandise and make mobile prepaid payments. The platform also offers retailers and other businesses a complete payment ecosystem that allows them to receive and track payments and maintain a detailed overview and control over their finances.

Country data

Population 2019 (M)	3.5
GDP total 2019 (€ Bn)	17.9
GDP per capita 2019 (€, at PPP)	9,400
GDP growth 2019 (% yoy)	2.6
GDP growth 2020 (% yoy)	-5.2
Official currency	BAM

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	17
Total bank assets (% of GDP)	95
Account ownership 2020 (% of population)	68
Debit card ownership 2020 (% of population)	49
Internet usage 2018/2019 (% of population)	70
Usage of internet to pay bills 2020 (% of population)	40
Sent/received digital payments 2020 (% of population)	55

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Valeri Valtchev, Chairman of the Bulgarian Fintech Association | Photo credit: The Bulgarian Fintech Association



Daniel Tomov, Partner at Eleven Ventures | Photo credit: Eleven Ventures

Bulgaria

Capital as fintech hotspot in the CEE region

“One of the fastest growing fintech destinations in the CEE region”, “an evolving fintech hub” and “the most vibrant fintech destination in the SEE region”: One can often find such descriptions of Sofia, the capital of Bulgaria. And such words are not an overstatement because they are backed up by concrete data, numbers and trends that should convince even the most doubtful that Sofia is definitely one of the hottest spots on the CEE fintech map.

According to the Global Innovation Index 2018, Bulgaria is the world’s third most innovative upper-middle income country and a leader in the SEE region in terms of innovation efficiency and achievement. The country has been defined as an “innovation achiever” for 2015, 2017 and 2018.

Furthermore, in its latest ranking of the fintech locations of the future, the Intelligence Division of the Financial Times named the Bulgarian capital Sofia as the number one city globally in terms of affordability, followed by Vilnius, Lithuania, and Bucharest, Romania.

These cover all aspects of international fintech, with payments and billing (30%), capital markets solutions (15%) and personal finance (12%) being the most popular segments. The Annual Fintech Report 2019 points out that the number of employees in the fintech sector is also rising constantly, as a consequence of both the emergence of new players and the expansion of existing ones. During the five years between 2014 and 2018, the number of people working in the sector more than doubled to over 2,700.

Total operating revenue in the sector in 2018 exceeded 200 million euros, representing an annual increase of 33.5% and a doubling in just three years. Along with this rising revenue, the fintech sector is also contributing more to the national economy each year. Its share of the country’s GDP expanded from 0.4% in 2017 to 0.5% in 2018 and has doubled since 2014. In addition to this, the Bulgarian fintech sector was profitable every year between 2014 and 2018, with a total net profit in 2018 of more than 59 million euros, which is more than twice the figure for 2017.

The Bulgarian Fintech Association was founded in 2018 in light of the dynamic development of the sector. The non-profit organisation quickly became a platform for exchanging know-how and communicating the needs and challenges of the fintech ecosystem.

Eleven Ventures and LAUNCHub are the two most prominent Bulgarian seed-stage VC funds. They invest not only in the country but also across the region.

The Annual Fintech Summit, DigiTalk, Webit and Sofia Tech Park niche forums ensure that the country is also the regional leader in shared know-how in the areas of digital transformation and innovation implementation in the financial sector. In 2019, these events brought together more than 3,000 innovation decision-makers from all over the world.

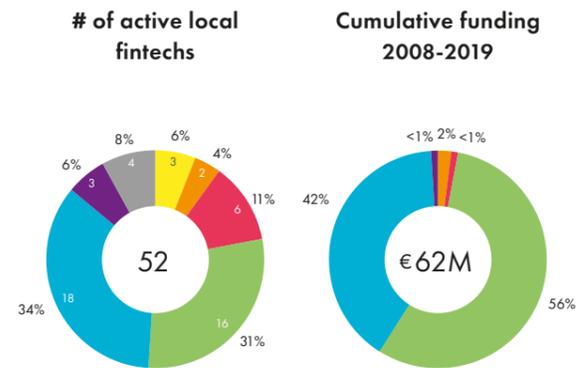
“The abundance of tech talent, the favourable conditions for running a company and the proximity of the market to global fintech trends have naturally led to the establishment of Bulgaria as a fintech hub. In addition to this, Bulgaria’s urban populations have proved curious about and eager to adopt new technologies, as a result of which the Bulgarian market is perfect for testing innovations.”

Valeri Valtchev, Chairman of the Bulgarian Fintech Association

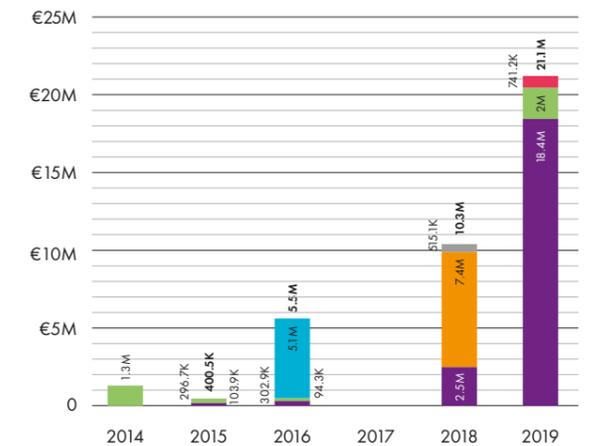
“We have brilliant software engineers, who can code and design a new fintech platform in days, even hours. However, the biggest challenge is to transform this technology into a sustainable business. Sofia has the right ingredients for the support of fintech startups. Here, it’s easy to approach and schedule a pitch meeting with top corporate executives and investors.”

Daniel Tomov, Partner at Eleven Ventures

Size



Funding trends



Top VC investors

Investor	# of investment
Eleven	7
PostScriptum Ventures	3
Black Peak Capital	3
Impetus Capital	3
Asterion Capital	2
Blockchain Capital	1
StartUp Next	1
BrightCap Ventures	1
Varengold Bank AG	1
TMT Investments	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Bulgaria. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
Software Group	4/2019	17.8M
Colibra	2/2019	2M
Klear	6/2019	741.2K
A4Everyone	12/2019	564.4K

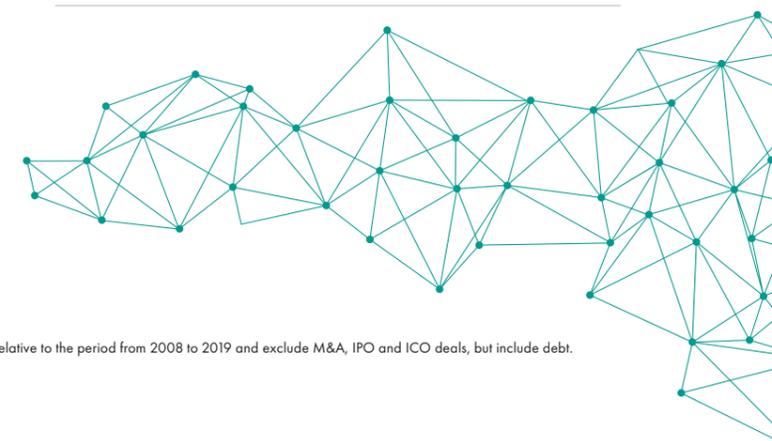
Country data

Population 2019 (M)	7
GDP total 2019 (€ Bn)	60.7
GDP per capita 2019 (€, at PPP)	14,300
GDP growth 2019 (% yoy)	3.4
GDP growth 2020 (% yoy)	-6
Official currency	BGN

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	58
Total bank assets (% of GDP)	96
Account ownership 2020 (% of population)	75
Debit card ownership 2020 (% of population)	72
Internet usage 2018/2019 (% of population)	65
Usage of internet to pay bills 2020 (% of population)	40
Sent/received digital payments 2020 (% of population)	73

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios





Skyline of Zagreb, Croatia

Croatia

A success story in which a fintech bridges a trust and information gap

The two pillars of Worig, the brothers Nino and Deni Ćosić, created the first Croatian fintech startup to address the pervasive issue of long-term rental apartments. In the following interview, Worig's founders talk about the emerging Croatian fintech scene and how they established their model for the cooperation between business and banks.

Please can you briefly describe your fintech core business and how your story began?

Ćosić: Worig provides tenants with a reliable and verifiable credit score that supports landlords in their decision-making process when renting an apartment. This score also enables tenants to access financial instruments for the purpose of covering their deposit or transferring downpayments to an escrow account.

We started as a real estate agency, trying to resolve the problem of young people, mostly students and newly qualified professionals, who are not considered eligible for renting an apartment. After some time, we realised that the problem was not the lack of a good real estate agency but a lack of trust and of reliable information about potential tenants. So we started working on Worig.

How would you describe the support of and knowledge about fintechs in the Croatian market?

Ćosić: The best description of this would probably be partial. We always look towards Austria and Germany to see what is available to users in those markets in terms of advanced financial services. The legal landscape in Croatia is still a few steps behind the EU and many startups have issues even launching similar services on the Croatian market. Banks and insurance companies are also highly regulated and this discourages any entrepreneurship, cooperation and startup initiatives.



Nino and Deni Ćosić | Photo credit: Siniša Kanižaj, ABC Accelerator

How did Croatia's Raiffeisenbank Austria d.d. support your work? And how do you see the collaboration between the fintech and banking sectors?

Ćosić: Participating in and winning Raiffeisenbank Austria's Elevator Lab Challenge, a local competition organised by Raiffeisen Bank International's fintech partnership program, provided us with much-needed visibility in the Croatian market. This came at a perfect moment and gave us the momentum to grow our media presence and interest amongst investors.

We believe that banks and fintech startups are perfect partners, rather than competitors, as we (as a startup) are often considered to be. Banks are institutions that people trust, that have been on the market for years and that are here to stay. The disruptive services developed by startups cover niche needs and services, which are complementary to those provided by banks. Cooperation between banks and startups can ensure that this synergy benefits all parties, especially our mutual clients. Open Banking is a good first step towards this synergy, but cooperative initiatives from banks will be the tipping point for many markets.

How do you see the future of fintech in Croatia?

Ćosić: The huge potential offered by Croatia's developers, top universities and entrepreneurial spirit means that the country is already halfway to a great future, but it is still waiting for the legal and investment landscape to develop. Financial industry initiatives, such as Raiffeisenbank Austria's excellent Elevator Lab Challenge, mean that some progress can be seen. However, it might take two to three years for fintechs to reach their full potential in Croatia.

Country data

Population 2019 (M)	4
GDP total 2019 (€ Bn)	53.9
GDP per capita 2019 (€, at PPP)	17,700
GDP growth 2019 (% yoy)	2.9
GDP growth 2020 (% yoy)	-8.5
Official currency	HRK

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	58
Total bank assets (% of GDP)	108
Account ownership 2020 (% of population)	88
Debit card ownership 2020 (% of population)	70
Internet usage 2018/2019 (% of population)	75
Usage of internet to pay bills 2020 (% of population)	58
Sent/received digital payments 2020 (% of population)	75

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Skyline of Prague, Czech Republic

Petr Gaba, Product Manager of Trask

Czech Republic

Showing how to do Open Banking safely

What are the key prerequisites for Open Banking success and what opportunities does PSD2 offer? An interview with Open Banking expert Petr Gaba, product manager for the Bank APIs Aggregation Platform (BAAPI) of Trask, a provider for API infrastructure.

How would you describe the relationship between the Czech banking environment and the opportunity known as PSD2?

Gaba: Czech banks approached PSD2 very responsibly. The big players all invested heavily in developing their own API channels, as a result of which none use screen scraping and therefore have to take the associated risk of sharing bank credentials. Data formats are extremely important and define the level of trust in any process; PSD2 ensures that sensitive data is handled securely.

The EU's General Data Protection Regulations (GDPR) now set a global example and the Czech Republic is leading the way with safe, GDPR-based Open Banking that is trusted by all sides. Last but not least, the country's strong tradition of early adoption is allowing it to unleash the maximum potential of PSD2.

Which key factors determine the success of Open Banking and what is the state of these in the Czech Republic?

Gaba: There are three prerequisites for the translation of Open Banking into economic growth. The first is the successful integration of PSD2. The second is that it must be adopted by enough players, not all of whom must be fintechs. Currently only five non-banking entities hold a Czech licence, but the Czech National Bank (CNB) process for awarding these licences is becoming more transparent. The third prerequisite is technological: the continuous development of APIs by banks is accompanied by a costly integration process. We help to overcome this barrier with

our BAAPI, a platform offering a single data interface for access to any bank in several CEE countries.

Some predicted that customers could also be a barrier to Open Banking. This has not been borne out by the Czech market, which is second in the EU in terms of API transactions. The Czech population constantly shows itself to be technologically educated and open to innovation. This can be seen in the quick adoption of contactless payments or the success of local fintechs such as Roger or Zonky.

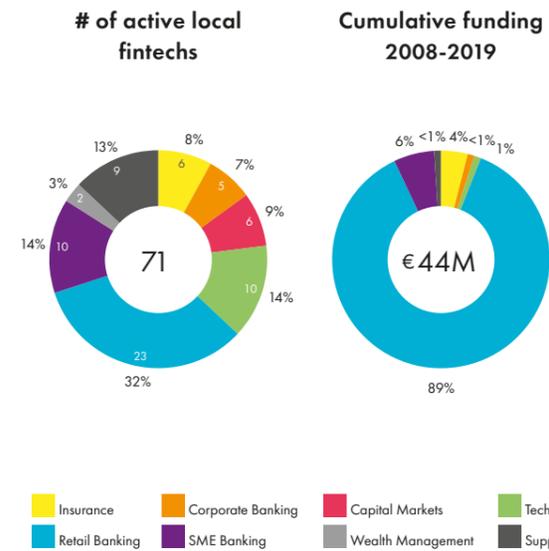
Which local fintechs would you highlight as making the best use of PSD2?

Gaba: Besides those mentioned above, companies such as Spendee and GoPay. Our fintech scene is pretty colourful so we have a very interesting list of success stories. As some are still focussed on local markets I believe that the biggest opportunity offered by PSD2 is the quick, simple and relatively cheap export of their ideas. Given that the directive is suited to players who export innovations after proving them on local markets I'm convinced that the greatest Czech PSD2 successes are yet to come.

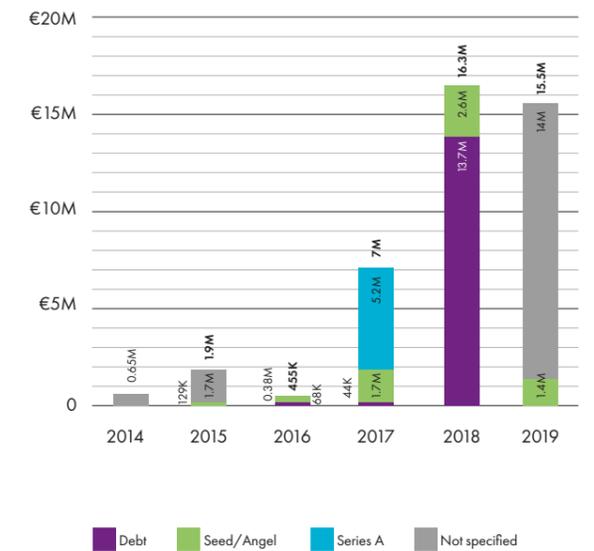
What will be the future role of the Czech Republic in Open Banking?

Gaba: That depends on various factors. One trend will be leveraging between licensing and passporting, which could lead to a certain type of competition between European regulators. And there are still many opportunities in the financial advisory, real estate and insurance sectors and corporate banking, whose development is essential because growth is driven by the variability of the use cases of local players. The Czech Republic can be a leader, but sectors that already use digital solutions must be encouraged to innovate even more. As "mobility" is such a national passion, Czech customers are ready.

Size



Funding trends



Top VC investors

Investor	# of investment
ENERN Investments	5
Slevomat	4
StartupYard	3
Startup Wise Guys	2
Uniq	2
Launchub Ventures	2
Rockaway Capital	2
ING	2
Milton	2
Google Launchpad Accelerator	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in the Czech Republic. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
Twisto	5/2019	14M
Trivi	1/2019	1.1M
Trisbee	11/2019	237.2K
Trisbee	5/2019	95.8K
Amio.io	5/2019	30K

Country data

Population 2019 (M)	10.6
GDP total 2019 (€ Bn)	220
GDP per capita 2019 (€, at PPP)	29,904
GDP growth 2019 (% yoy)	2.5
GDP growth 2020 (% yoy)	-7.6
Official currency	CZK

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	299
Total bank assets (% of GDP)	135
Account ownership 2020 (% of population)	85
Debit card ownership 2020 (% of population)	80
Internet usage 2018/2019 (% of population)	81
Usage of internet to pay bills 2020 (% of population)	70
Sent/received digital payments 2020 (% of population)	90

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



MNB, the Central Bank of Hungary



Anikó Szombati, Chief Digital Officer of the Central Bank of Hungary

Hungary

High expectations regarding a unified instant payment system

Hungary has a flourishing fintech scene with around 120 players, mostly early-stage B2B companies. In 2018, MNB, the central bank, launched its Innovation Hub to guide innovators in developing new products and its Regulatory Sandbox to support the market entry of fintech solutions. In 2019, two central authorities – a government organisation and the central bank – published their fintech strategies, while the Banking Association released a list of areas where further regulatory support could help enhancing digitalisation.

Three of the largest banks (OTP Bank, MKB Bank, K&H Bank) have launched fintech incubation and mentoring programmes while K&H Bank also organised a hackathon. The programme run by MKB Fintechlab also provides financing. The Elevator Lab by RBI has been actively screening the Hungarian fintech market and chose Family Finance as one of the winners of the 2019 Elevator Lab Challenges. Over 50 companies from Hungary and other countries of the CEE region have participated in these programmes since 2017. 90% of these are early-stage companies and 60% are non-Hungarian.

Financing opportunities for fintechs are expanding. In total, eight Hungarian venture capital firms and MKB Fintechlab have invested in 34 fintechs.

Four Hungarian startups were awarded Account Information Service Provider (AISP) licences in 2019. These will offer API aggregation, Personal Financial Management, loyalty programmes and billing services. The multi-banking services offered by K&H Bank mark the start of Open Banking in the country and this will grow as further Hungarian banks follow in 2020.

2019 saw a significant expansion of international fintechs in Hungary. To date, they have issued over 300,000 cards. By the end of the year these cards were being used by 5% of active adult bank customers.

The launch of an instant payment system on 2nd March 2020 was a groundbreaking moment for the country's payment system. The new system is unique because membership is mandatory for all Hungarian banks.

All in all, Hungary has seen a number of promising moves that will significantly boost the early-stage fintech ecosystem over the course of the next two to three years.

Fostering collaboration between banks and fintechs

An interview with Anikó Szombati - Chief Digital Officer at Magyar Nemzeti Bank (MNB), the central bank of Hungary - will provide a detailed view on the collaboration between banks and fintechs as well as the market situation in Hungary. Moreover, regulatory tools and programmes in Hungary will be discussed.

What is the current agenda of the MNB regarding the digitalisation process?

Szombati: Our goal is to increase the competitiveness of the financial services offered in Hungary, so that they will be accessible to a wide range of customers, in a personalised form and reasonably priced, while at the same time their digital form does not compromise their safety. To achieve this, we are promoting the rapid digital transformation of established banks, which will also support cost-effectiveness as well as the stability of the domestic financial system. The aim of encouraging innovative solutions and the widespread implementation of state-of-the-art, cutting edge technologies is to significantly reduce the operating costs of financial institutions, to manage risks more effectively, and to improve the quality of their services.

Regulatory support is also aimed at fostering partnerships between incumbent institutions and fintechs and developing the capability of the domestic financial system to attract technological talent. A strong and well-developed fintech sector could act as a catalyst for the development of the financial system that could become the engine of sustainable economic growth.

In addition to the proliferation of innovative services, the aim is to further increase consumers' financial awareness and strengthen their control over these services, as well as to encourage ethical behaviour by financial service providers.

How could the MNB support relationships between banks and fintechs?

Szombati: The MNB is committed to supporting the safe spread of fintech solutions: In order to provide effective ways of supporting innovative ideas in the financial system, the MNB has been operating its Innovation Hub, one of the first in the region, since March 2018. Here we have so far been resolving issues arising at the borders of the regulatory perimeter for more than 50 applicants, incumbents and fintechs alike. The MNB Regulatory Sandbox was also launched at the end of 2018. The first regulatory sandbox in the region provides many benefits for applicants, whom, due to regulatory reasons, we are expecting to reach for us in an incumbent-fintech partnership format. These participants can gain market-validated orientation on the potential demand for, return on and feasibility of their innovative ideas, which can ensure a faster and easier market entry for them.

And finally, in October 2019 we published our Fintech Strategy, which outlines a two year action plan consisting of 14 action points for us and 10 points for other stakeholders in Hungary on how to facilitate the digital transformation of incumbents and the proliferation of a dynamic and growing fintech ecosystem in Hungary so that all potential ways of cooperation among these two sectors can be exploited. Since then we have progressed in many fields, e.g. in setting up a Fintech Club, in partnerships with universities and by completing the most comprehensive ever digitalisation survey in Hungary.

How do you evaluate the current fintech ecosystem in Hungary? Is there any room for improvement?

Szombati: Despite the number of successful companies in Hungary, the fintech sector is still at the beginning of its growth trajectory. Domestic fintech solutions that are already on the market or being tested are related to a wide range of financial services, with mobile payment and payment solutions being the most common. The MNB estimates that approximately 120 fintechs are already active on the market in Hungary with one or more products and services, and numerous startups offering financial innovations are gaining regional recognition among foreign consumers and investors. According to market feedback, domestic startups implementing innovative solutions have many progressive ideas for the entire financial sector, but the domestic fintech sector is still in an early stage of development, as the domestic market structure or regulatory inflexibility often prevent the independent market entry and growth of these fintechs. In numerous cases we also see immature business models. These features may motivate innovative players to develop collaboration with incumbents.

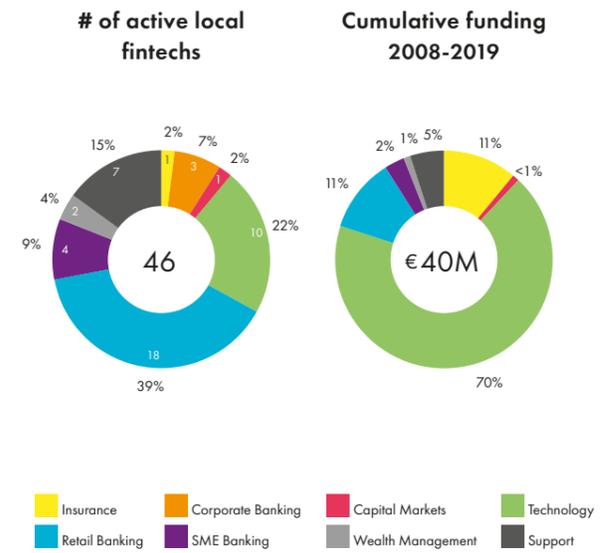
What are the main current developments from the regulatory side and on the market?

Szombati: With the entry into force of PSD2 both incumbents and third-party payment service providers have been provided with new opportunities for the distribution of additional innovative services. On top of that we expect that the launch of the instant payments system in March, which covered the whole banking system in Hungary as participation is obligatory by law, provides further opportunities for enhancing the volume of electronic payments in Hungary in many innovative forms. Hereby I would like to mention that payment transactions could be initiated not only by being aware of the bank account number of the counterparty but also of other secondary identifiers like their email address or phone number. Regarding market developments we see that online onboarding and account opening has already become available or will soon be launched in almost all banks. On this basis we expect that customers will be endowed with an increasing number of safe, simple and convenient financial products and services, while the possibility of comparison will also ensure competitive pricing.



Parliament building in Budapest, Hungary

Size



Funding trends



Top VC investors

Investor	# of investment
Hiventures	12
MKB Fintechlab	4
Fiedler Capital	4
OXO Labs Ltd.	4
Euroventures	3
Y Combinator	3
OpenOcean	2
Nestholma	2
PortfolioLion	2
Home Credit Group	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Hungary. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
bitrise	6/2019	18.1M
Rollet.hu	2/2019	1M
Seon	12/2019	990.8K
Family Finances	2/2019	557K
Everprove	7/2019	352.7K

Country data

Population 2019 (M)	9.7
GDP total 2019 (€ Bn)	139.1
GDP per capita 2019 (€, at PPP)	24,475
GDP growth 2019 (% yoy)	4.9
GDP growth 2020 (% yoy)	-3.5
Official currency	HUF

Source: IMF, ITU, World Bank, RBI/Raiiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	129
Total bank assets (% of GDP)	93
Account ownership 2020 (% of population)	78
Debit card ownership 2020 (% of population)	72
Internet usage 2018/2019 (% of population)	76
Usage of internet to pay bills 2020 (% of population)	53
Sent/received digital payments 2020 (% of population)	75

Source: national sources, ECB, ITU, World Bank, RBI/Raiiffeisen RESEARCH; estimates for 2020 penetration ratios



Catalina Arateanu, Product Owner of RBI's API Marketplace



Christian Wolf, Head of Strategic Partnerships & Ecosystems at RBI

Building an ecosystem

From regulations to partnerships via Open APIs

This double interview with RBI's Head of Strategic Partnerships & Ecosystems, Christian Wolf, and Product Owner of its API Marketplace, Catalina Arateanu, provides expert insights into the development of the payment service directive PSD2 from RBI's perspective – a leading banking group operating in 14 countries in CEE including Austria. Other topics include RBI's approach to PSD2, the benefits for customers and the importance of partnerships.

What were the main developments in 2019 regarding PSD2 in CEE?

Arateanu: If there was one thing that banks were sure about at the beginning of 2019, it was that PSD2 would come into force in mid-September. European banks were required to provide corresponding APIs for accounts, payments and the confirmation of funds. Operating in 14 markets across CEE including Austria, with the Czech Republic and Slovakia already having been ahead of the game since 2018 due to local regulatory requirements, RBI had to ensure the compliance of all its other network banks in the EU. While many banks across the continent had to request exemptions, RBI is proud to have met all deadlines for going live with APIs in the RBI Group. RBI is also proud to be one of the European banks that are fully complying with the Berlin Group's standards for PSD2 APIs.

What further steps do you expect in terms of PSD2?

Arateanu: Developments and improvements are still taking place with regard to PSD2. The European Banking Authority (EBA) is leading and facilitating the exchange of information in this area. We expect that clarifications and changes will continue to occur in the foreseeable future. The EBA is doing this through an API working group that consists of 30 members

including TPPs and API providers. The most recent material issued by the working group in January 2020 addressed 30 issues raised by its members. The subjects covered by this material included the testing and wide usage of APIs, contingency measures, API performance and the use of eIDAS certificates for PSD2 purposes.

Is PSD2 a game changer? Have we already seen its full impact on the CEE market?

Arateanu: I believe that we are still waiting to see the full impact of PSD2. The directive served as a door opener to collaboration. However, this is just the first phase of a wider change process.

The fact that bank customers can access their accounts in other apps and initiate payments through those apps is only one side of the coin. The other is that banks can also "consume" the regulatory APIs of other banks and provide their customers with an enhanced experience, a comprehensive overview of their finances and the ability to initiate payment from all their accounts, no matter which bank is servicing the account in question.

Who benefits most from PSD2?

Arateanu: PSD2 will lead to strong competition amongst banks to provide the best customer experience and it is clear that the customer will emerge as the winner of this competition. But what about the banks? Will they be the losers? We at RBI think that PSD2 offers great opportunities for innovative banks to increase their market shares.

Which approach to PSD2 did RBI choose?

Arateanu: Our initial response to PSD2 coming into force in each of our EU markets was the creation of seven local

developer portals featuring country-specific APIs. RBI is now moving towards consolidating its offerings across CEE by gradually reuniting all its markets on a centralised platform: RBI's API Marketplace (<https://api.rbiinternational.com>).

Does this development already offer any significant advantages to the customer?

Arateanu: No, the end customer has yet to feel the full impact of this new network. For example, there are still very few cases of banks or TPPs offering personalised products based on account information. Payment providers still rely heavily on card processors instead of direct payments enabled by payment APIs. And even when it comes to consuming data from other institutions, neither traditional banks nor neobanks are yet fully aggregating account information from other market players.

In this respect, we are proud to say that we are now offering account aggregation services to our customers in Slovakia, which makes RBI one of the first financial institutions to offer innovative new services based on PSD2 data. The solution was jointly developed by teams from RBI and its subsidiary Tatra banka and is the first of its kind in our group.

In order to flourish as a traditional bank in the current environment a partnership-based ecosystem is an important success factor. How openly does RBI act here?

Wolf: Nearly 200 years ago, the founding father of Raiffeisen, Friedrich Wilhelm Raiffeisen, emphasised the power of cooperation when he conceived the cooperative principles on the basis of which participants supported each other in the community. RBI's charter reflects these principles, which facilitate the ideas of shared value creation and shared effort. Today we can say that RBI's roots and history are amongst the main building blocks of its future.

We believe that partnerships are crucial if one is to become and remain a successful player on the market. This is why we launched our leading fintech program, the Elevator Lab, which enables us to cooperate with selected fintechs. It provides an opportunity for fintechs to scale their business ideas across RBI's CEE markets, while RBI benefits from disruptive ideas and technologies that evolve, in a cooperative process, into

new innovative products and services. The program acts as a channel for both maintaining existing and building new partnerships and is positioned as a key pillar of RBI's strategy of creating the CEE region's largest digital banking ecosystem.

And how about partnerships and Open Banking?

Wolf: RBI also attracts potential partners via APIs. When we publish an API, we allow other companies and developers to create products and services on top of our offering. If this effect is multiplied this will naturally create and nurture an ecosystem.

When attracting partners, we believe that there are two crucial aspects that either hinder or speed up the creation of ecosystems. These are the quality of the first interaction with this potential new partner and, subsequently, seamless onboarding and integration.

How do you ensure a perfect first contact with potential partners?

Wolf: This first interaction – the bridge to our future potential partners – is ensured by RBI's API Marketplace, which my colleague has already mentioned. This is an online portal or "one-stop shop" that features all our publicly available APIs. Interested businesses can review our range of APIs and try these out in sandboxes that provide dummy data. If they identify a potential use case for future cooperation, the Marketplace invites them to get in touch with us about producing their solutions.

With a view to smooth partner integration, we are actively working on a flexible IT infrastructure that will permit the easy, fast and structured onboarding – and also offboarding – of partners, with a high degree of scalability and low operating costs.

After all, our existing network of banks across CEE markets is already a form of ecosystem that promotes collaboration and is a great international starting point for engagement with external partners worldwide.

In summary, which three words best describe Open Banking?

Wolf: Partnerships, connectivity, ecosystem.



RBI's Open API Day 2019



RBI's first Open API Day focused on new insights into PSD2 and the Open API economy. Watch this video and learn more about the conference.

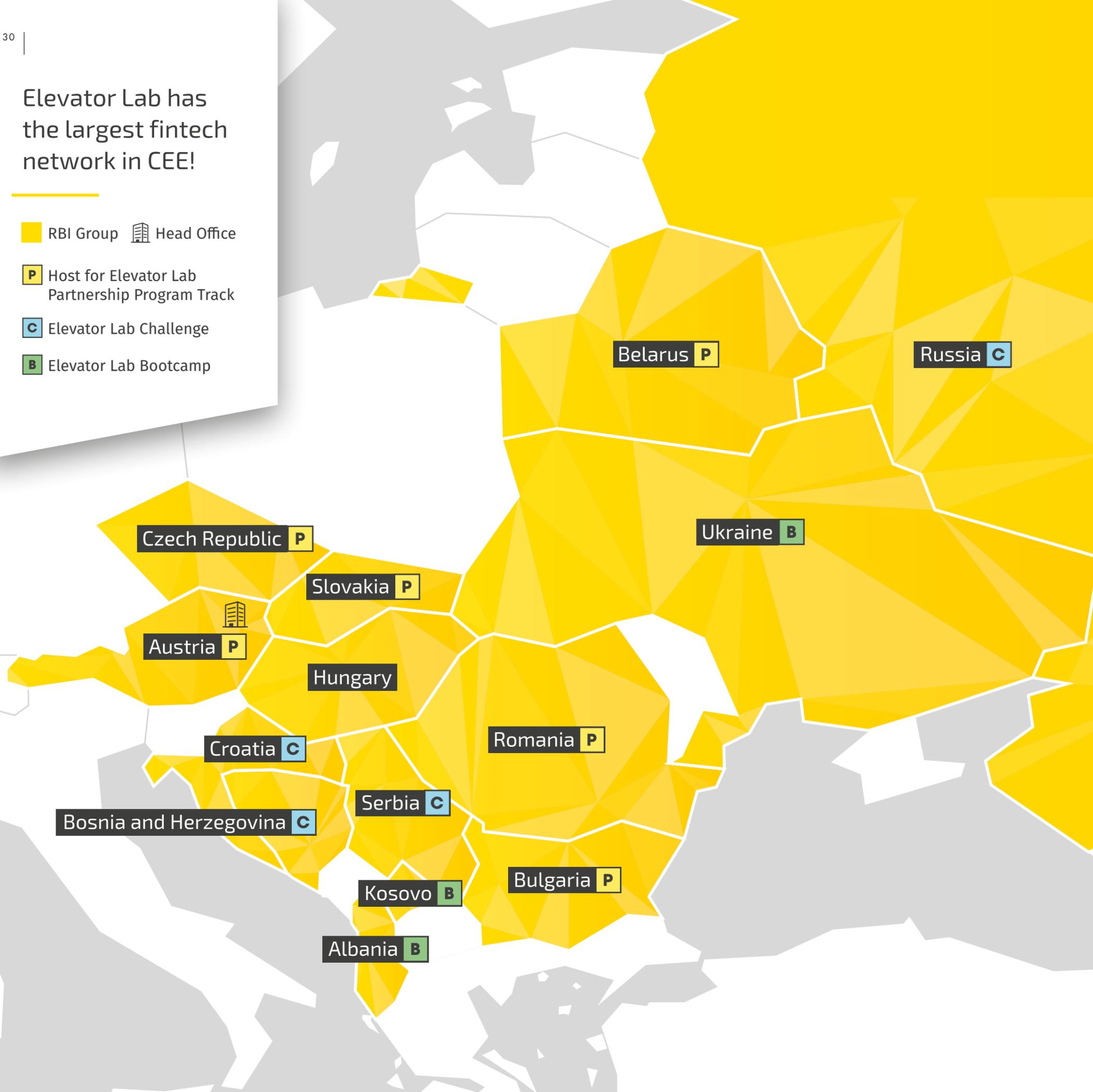
Elevator Lab has the largest fintech network in CEE!

 RBI Group  Head Office

 Host for Elevator Lab Partnership Program Track

 Elevator Lab Challenge

 Elevator Lab Bootcamp



ELEVATOR^{LAB}

Elevator Lab is a leading fintech partnership program powered by RBI to jointly develop scalable business cases and enables international growth. With our strong footprint in CEE (14 markets including Austria, 16.8 million customers) we are a strong partner for every fintech which wants to expand to this region.

Have a look at our fintech initiatives across the CEE Region in 2020/2021:

ELEVATOR^{LAB} Partnership Program

Selected fintechs from around the world get the opportunity to work together with international leading banking experts on a four-month proof of concept in order to improve their business solution. After the program, the fintechs will have the chance to be selected for a strategic partnership with RBI Group.

In batch 4, several Elevator Lab Tracks are taking place across the CEE region. Each Track has a different timeline and searches for fintechs in different areas. The Tracks will be hosted by different RBI subsidiary banks in CEE and in RBI's head office in Vienna.

- Analytics & Loyalty Solutions for Companies Track
- Value added Services for Large Corporates Track
- New Client Acquisition for Retail Segments Track
- Digital Payments Track
- Open Banking – Beyond Banking Track

ELEVATOR^{LAB} Challenge

Single country program for local later-stage fintechs to cooperate with RBI's local banks.

The winner will receive a cash prize and get the chance to meet and present their solutions to the local Raiffeisen Bank executives and board members.

ELEVATOR^{LAB} Bootcamp

The Bootcamps are designed to help local early-stage entrepreneurs to grow and to work further on their ideas.

The winners will participate in the two-week Digital Entrepreneurship Program by Talent Garden in Vienna.

For more information visit
elevator-lab.com



ELEVATOR VENTURES®

Elevator Ventures is the corporate venture capital entity of RBI. Its primary focus is on **direct early stage and growth investments in fintechs** and related enabling technologies in Central and Eastern Europe.

In the role of a leading growth partner for fintechs in CEE, Elevator Ventures leverages RBI Group's expertise, network and corporate strength in order to help promising scaleups expand across this dynamic region and beyond.

Basic investment criteria

				
Ticket size: € 1 to 5M	Ticket stake: <25% holdings	Target stage: late seed and Series A	Industry: fintech and related enabling technology	Geography: Companies with an ambition to grow in CEE

Our portfolio companies:






Our fund-of-fund investments:

Fintech Growth Fund Europe (FGFE), managed by:

		Speedinvest f is the fintech investment fund of Speedinvest, the leading seed VC in Europe.
---	---	---

For more information visit elevator-ventures.com



Kosovo

From disruptors to enablers, the perception of fintechs

Kosovo, one of Europe's smallest countries, has seen tremendous economic growth in the past few years. It has a very stable financial and banking system and, although Kosovo has yet to join the European Union, the Central Bank of Kosovo (CBK) has done much to ensure that legal and regulatory frameworks are aligned with European Union directives, including PSD2. To learn more on how Kosovo deals with such directives, an interview was conducted with the Director of the Licensing and Standardisation Department of the CBK, Albulena Xhelili.



Albulena Xhelili, Director of the Licensing and Standardisation Department of the Central Bank of Kosovo

How does the CBK view PSD2 in the context of Kosovo and what is its long-term strategy regarding the implementation of PSD2 for the banking/financial industry in the country?

Xhelili: In its role as a catalyst, regulator and supervisor of a stable and efficient financial system, the CBK is continually revising its legal and regulatory framework in order to align it with EU directives and the best international standards. During 2019, the CBK took an important step in the reform of its legal framework by drafting a new banking law that incorporates several EU directives such as the Bank Recovery and Resolution Directive (BRRD). The new draft law has not yet entered into force, but its ratification will significantly improve the legal and regulatory framework of banks in line with international best practice. The CBK is currently in the initial phase of drafting a new law on the payment system that will align this with the EU's PSD2, second Electronic Money Directive (EMD2) and Settlement Finality Directive. The objective of this is to support technological and business model neutrality and allow for the development of new types of payment services while ensuring that both new and existing services enjoy equivalent operating conditions.

How would PSD2 help startups/fintechs in Kosovo? Do you see this as an opportunity for increased competition and innovation in the banking/financial industry?

Xhelili: PSD2 is expected to simplify and increase transparency and competition and, hence, drive innovation in the banking/financial industry. We believe that it will facilitate innovative

business models, ensure adequate consumer protection mechanisms, ease further market entrance and ensure a level playing field for competition and innovation, while also addressing the risk of such innovation. These are the underlying reasons why we are revising our relatively new law on payment systems.

Are there any plans for regulating startups and fintechs that develop products and services for the banking/financial industry?

Xhelili: Whilst fintechs were initially seen as disruptors by the financial industry, we believe that they are now seen as potential facilitators or enablers. Hence, even financial regulators are considering the role of regulatory sandboxes or innovation hubs as means of overseeing both cooperation and coexistence. The CBK is closely following such developments in similar jurisdictions.

The current legal and regulatory framework in the Republic of Kosovo obliges the CBK to regulate all financial activities and no one can engage in providing financial or finance-related products without a proper license/authorisation from the CBK. The CBK analyses every new development in the banking/financial industry and considers the potential effects of these new business models and technologies, especially from a consumer protection and financial stability perspective.

Country data

Population 2019 (M)	1.8
GDP total 2019 (€ Bn)	7.1
GDP per capita 2019 (€, at PPP)	7,900
GDP growth 2019 (% yoy)	4.1
GDP growth 2020 (% yoy)	-3.5
Official currency	EUR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	4.5
Total bank assets (% of GDP)	63
Account ownership 2020 (% of population)	57
Debit card ownership 2020 (% of population)	42
Internet usage 2018/2019 (% of population)	90
Usage of internet to pay bills 2020 (% of population)	35
Sent/received digital payments 2020 (% of population)	50

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Skyline of Warsaw, Poland

Poland

Dynamic development due to innovative consumers

During three decades of political transformation, the Polish financial sector has made major progress that has earned the country a significant position on European and global markets.

The rapid development of the financial sector owes much to the high level of flexibility of Polish consumers. According to a report by ING, nearly 58% of Poles have no problem with the idea of switching banks (EU average = 45%). Furthermore, Poles love simple payment solutions. The Polish Central Bank reports that, when account cards are included, 80.4% of Poles use contactless payment. And according to Mastercard, Poland is in fifth place in Europe and sixth globally in terms of the use of wearable payment methods. Such rapid growth has encouraged both banks and fintechs to develop ever more innovative solutions. Here are three of the most interesting:

1. Online currency exchanges: the beginning of Poland's fintech revolution.

One of the first significant changes in Poland's financial sector was the establishment of non-banking currency exchanges. Today, such exchanges offer a number of innovative financial products, including factoring, deferred payment and multi-currency cards.

It is worth noting that the online currency exchange Rkantor.com was established in 2015 with the participation of Raiffeisen Bank Polska. Users, however, were not required to open an account with the bank.

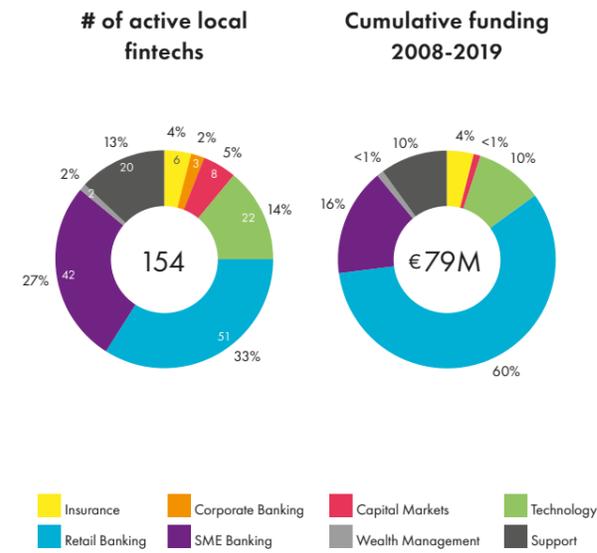
2. Opening a company via a mobile bank.

Since January 2018, selected banks have enabled customers to establish a company directly using electronic banking. The registration procedure is carried out electronically and there is no need to visit a physical office. A single online application process allows a company to be registered with the Central Register and Information on Economic Activity, tax and social security offices and Central Statistical Office.

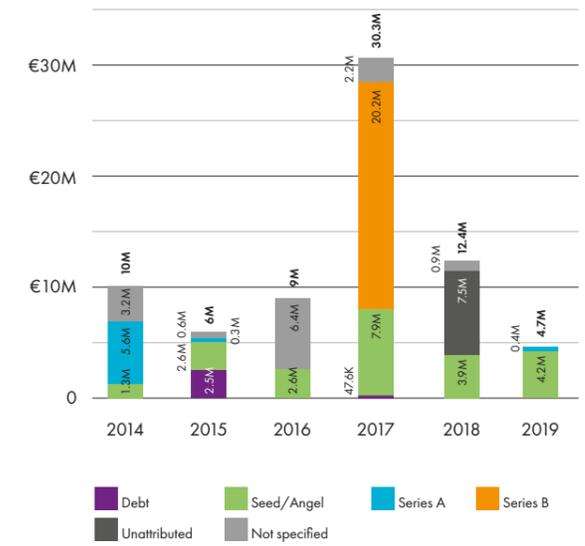
3. BLIK: Poland's tailor-made PSD3 payment standard

BLIK is a Polish mobile payment system launched on the initiative of several banks in 2013. In practice, BLIK is a six-digit code displayed by an app that can be used to pay in a shop, make an ATM withdrawal, transfer money by giving only the recipient's phone number, pay for e-commerce services or deposit cash. BLIK also offers virtual cheques. By creating a virtual cheque and setting a password, BLIK also permits money to be transferred to someone whose bank account or telephone numbers are unknown. Upon receiving the cheque number and password they can withdraw the given sum from an ATM or use it to pay in a shop.

Size



Funding trends



Top VC investors

Investor	# of investment
SpeedUp Venture Capital Group	6
TechStars	4
3TS Capital Partners	4
Flint Capital	3
Data Ventures	3
Barclays	2
Luma Ventures	2
Innovation Nest	2
MCI Capital	2
Black Pearls VC	2

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Poland. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
Ramp	7/2019	1M
Straal	12/2019	1M
Cashy	10/2019	917.4K
Nethone	4/2019	893.2K
uPaid	1/2019	446.6K

Country data

Population 2019 (M)	37.9
GDP total 2019 (€ Bn)	525.3
GDP per capita 2019 (€, at PPP)	22,500
GDP growth 2019 (% yoy)	4.1
GDP growth 2020 (% yoy)	-4.5
Official currency	PLN

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	469
Total bank assets (% of GDP)	88
Account ownership 2020 (% of population)	90
Debit card ownership 2020 (% of population)	82
Internet usage 2018/2019 (% of population)	78
Usage of internet to pay bills 2020 (% of population)	64
Sent/received digital payments 2020 (% of population)	90

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Cosmin Cosa, Co-founder & CEO of Finqware



Raluca Micu, Head of the Payments Oversight Division of the National Bank of Romania



Tudor Stanciu, Romanian Fintech Association



Vlad Stănilescu, Chief Digital Officer of Raiffeisen Bank Romania

Romania

The Open Banking trio: fintechs, regulators and banks

Open Banking is attracting new players into the financial market and will create endless options for customers. The Romanian fintech market is growing and now has a stronger voice thanks to the establishment of the Romanian Fintech Association in January 2020. Other companies are expected to join the game. Three main players, who have been here since the beginning, are defining the ground rules and making decisions that will influence the newcomers. This article explains how the Open Banking trio – fintechs, banks and the national regulator – sees the challenges and opportunities created for each of them by the Open Banking environment.

In this 360-degree dialogue, Cosmin Cosa of Finqware and Tudor Stanciu of the Romanian Fintech Association represent the fintechs; Raluca Micu, Head of the Payments Oversight Division of the National Bank of Romania (NBR), represents the national regulator and Vlad Stănilescu, Chief Digital Officer of Raiffeisen Bank Romania, offers the perspective of one of the top five banks in the local market.

What opportunities are being created for fintechs by Open Banking?

Stanciu: Fintechs are best positioned to open new markets and find ways in which individuals can put their money to good use. Specifically, I expect to see tools such as alternative asset investments and products that generate a better ROI than traditional financial products.

Cosma: Seeking to disrupt the market is a high-cost and inefficient strategy as well as an old-fashioned approach to the strategic positioning of fintechs.

In the Open Banking era, fintechs should look at the financial services market in order to spot the gaps in which the exchange of data via APIs could create opportunities for providing new services and generating value. Instead of competing with the banks, fintechs should develop the complementary innovations and technological capabilities that will contribute to the creation of a new data-driven financial ecosystem.

Micu: Fintechs can become new players in the payments market or collaborate with banks in developing and offering new products or services. Fintechs are more agile and, with their state-of-the-art technologies, have the resources to better understand customer needs and develop appropriate solutions.

On the other hand, fintechs must also understand the need to be not only customer-friendly but also secure and develop legal structures that enable them to evolve and add market share quickly.

Stănilescu: Fintechs are already seen as innovators and disruptors in the financial services landscape. The newly created Open Banking context will clearly offer them opportunities to continue enhancing this image as innovators. Access to customer data is a crucial advantage and should be a catalyst as fintechs establish stronger partnerships with the banks that already benefit from a large customer base.

What is the role of the national regulator in the Open Banking context?

Stanciu: Although entrepreneurs may have learned otherwise in the past, they are now highly unlikely to be able to develop technology-driven financial services without interfacing with the regulator during this product building process. This means that the national

regulator must be open to talking to entrepreneurs about their new business models and technologies. The information gained from such meetings will help regulators to implement or adapt existing regulations in order to reflect this ever-changing landscape.

Cosma: Innovators who want to make the world of finance a better place require a context in which they can test their visions. The NBR's Fintech Innovation Hub and Regulatory Sandbox initiatives are designed to answer this need. The active role of the national regulator is to create a friendly environment for innovation.

Micu: The role of the national regulator is to ensure the security and efficiency of payment instruments and solutions in order to avoid systemic risk and maintain public confidence in the financial system. Of course, regulators are also interested in promoting and supporting new players, but this is secondary to the main objective of guaranteeing security and efficiency.

Stănilescu: Open Banking brings new players to the financial landscape. The most important role of the regulator will be to help define a set of rules that are both flexible enough to foster continuous innovation and rigorous enough to ensure stability and, subsequently, to ensure that everyone respects them. It is essential to strike the right balance between TPP-led innovation and the secure and safe environment provided by the banks.

What new features will banks add to their products and services in the Open Banking context?

Stanciu: I hope to see commercial banks testing more products the way most startups do: on limited numbers of customers and by implementing technology in new ways. One area in which banks should be well-positioned to benefit from the trust that customers place in their brand is the provision of better investment tools for the average potential individual investor. As it becomes clear how much

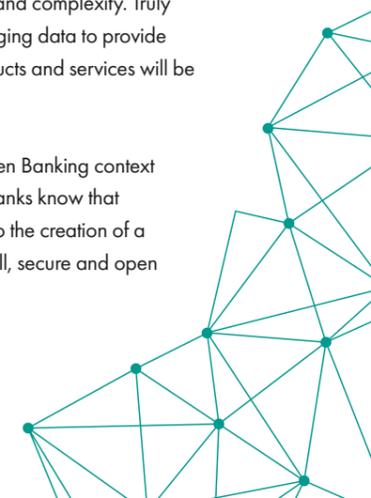
value can be leveraged from transaction data, I also envisage some banks becoming hubs for operations involving the flow of money. I hope that banks will understand that employing additional pairs of eyes (specialist startups) to examine certain datasets can create solutions for both existing and unknown needs.

Cosma: Banks will leverage Open Banking data in two main ways: first, to provide a better user experience for customers who can use all their accounts in one app; second, to build better risk scorecards and provide improved loan offers, due to the fact that they now have access (where consent has been given) to a broader overview of customer data and behaviour.

Micu: The strategies of banks will change to meet the needs of their customers. They will become more efficient (in terms of both cost and time) and offer customer-friendly and innovative solutions. They will also develop customer profiling with the aim of offering them what they need, when they need it.

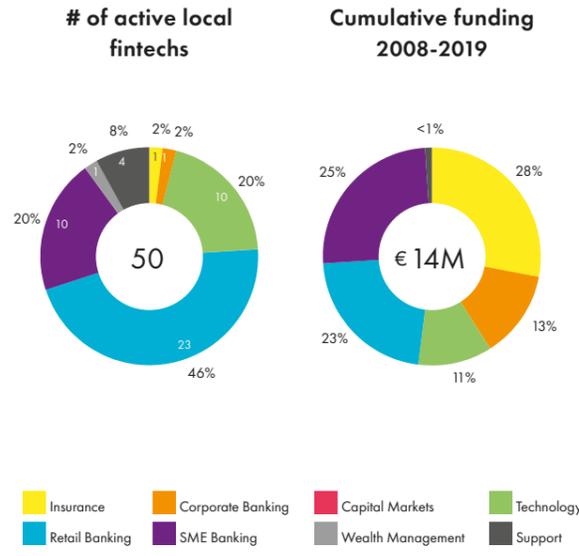
Stănilescu: Competition will drive the creation of a frictionless experience for customers that allows them to access all their accounts in one app. The focus will switch from a complex range of features, services and products to a setup in which a customer's specific needs are met with minimal effort and complexity. Truly understanding customer needs and leveraging data to provide customised, contextual and coherent products and services will be drivers of future growth.

Even if their roles and objectives in the Open Banking context sometimes vary, fintechs, regulators and banks know that collaboration and dialogue are essential to the creation of a customer-friendly and, most important of all, secure and open financial ecosystem.

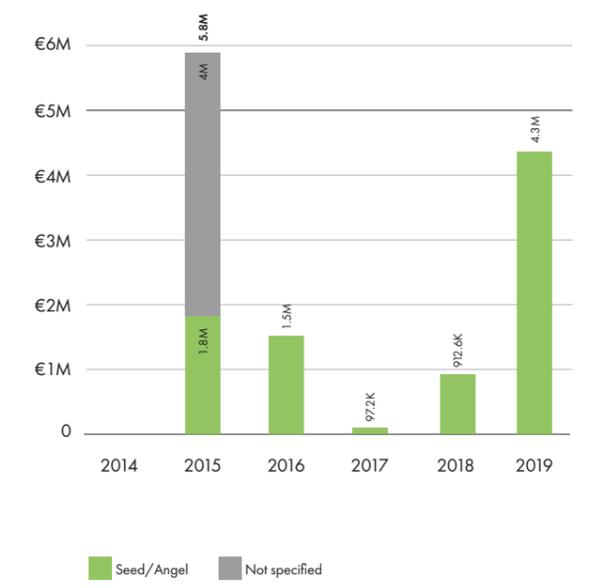




Size



Funding trends



Top VC investors

Investor	# of investment
Gpminder VC	7
Early Game Ventures	3
Gecad Ventures	3
ROCA Partners	2
3TS Capital Partners	1
Sparking Capital	1
Catalyst Romania	1
DMG Information	1
Xenofon Vodorougλου	1
MKB Fintechlab	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Top funding rounds 2019

Company	Funding Date	Funding (€)
Beez	12/2019	1.2M
Bunnysell	9/2019	741.8K
SymphoPay	3/2019	650K
Swazm	5/2019	500.5K
Instant Factoring	11/2019	498.7K

Sources: Tables include fintechs headquartered in Romania. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Country data

Population 2019 (M)	19.5
GDP total 2019 (€ Bn)	222.1
GDP per capita 2019 (€, at PPP)	21,226
GDP growth 2019 (% yoy)	4.1
GDP growth 2020 (% yoy)	-7
Official currency	RON

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	111
Total bank assets (% of GDP)	50
Account ownership 2020 (% of population)	66
Debit card ownership 2020 (% of population)	57
Internet usage 2018/2019 (% of population)	71
Usage of internet to pay bills 2020 (% of population)	40
Sent/received digital payments 2020 (% of population)	55

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Waterfront towers in Belgrade, Serbia

Serbia

A fast growing ecosystem in the activation phase

Serbia is an EU candidate country with a well-developed and mature financial services infrastructure. The local fintech scene is growing and a number of prominent startups including Tradecore, Leanpay and Tenderly are leading the way.

According to Startup Genome, which explored the Serbian startup scene for the first time in 2019, Belgrade & Novi Sad have the second-fastest-growing ecosystem worldwide in terms of startups in the activation phase – a challenging ecosystem phase with only few startups and limited experience. Serbia adopted blockchain technology quickly, as a result of which more than 20 local blockchain startups and 30 international companies are developing blockchain solutions in the country. Tech startups pay little corporate income tax due to the accelerated R&D deduction (2x) and IP Box (3%) tax regimes. Serbia's ICT exports have been growing at an annual rate of over 20%, with the government providing notable support in areas ranging from education to infrastructure.

Germany's Finleap acquired the mobile banking startup Penta, which was founded by two entrepreneurs from Serbia and now also operates in the Italian market. And South Central Ventures' investment in Leanpay, a consumer financing fintech startup that helps people to pay for consumer goods over time, was one of

the most notable investments of 2019. Leanpay allows vendors to offer instant and easy instalment plans to their customers across all sales channels.

The "Fintech 4 Business Forum" in June 2019 opened doors to new business collaboration opportunities and legal solutions. The event's two keynote speakers were Ana Brnabic, the Prime Minister, and Karen Westergard from the United States Agency for International Development (USAID). Issues under discussion included emerging financial technologies and the legal challenges faced by banks and startups.

Global fintechs have also recognised Serbia's potential. Ten of the IDC fintech rankings top 100 carry out product development work in the country and it is home to the R&D centres of a number of large, internationally recognised players, including FIS, NCR and BlackRock.

Even though the adoption of financial technology still has a long way to go in Serbia, the increasingly active startup community, the technological adaptability of banks and the strong support shown by the government have created fertile ground for fintech growth and investment.

Country data

Population 2019 (M)	6.9
GDP total 2019 (€ Bn)	45.9
GDP per capita 2019 (€, at PPP)	11,300
GDP growth 2019 (% yoy)	4.2
GDP growth 2020 (% yoy)	-4
Official currency	RSD

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	36
Total bank assets (% of GDP)	79
Account ownership 2020 (% of population)	74
Debit card ownership 2020 (% of population)	63
Internet usage 2018/2019 (% of population)	73
Usage of internet to pay bills 2020 (% of population)	45
Sent/received digital payments 2020 (% of population)	70

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Skyline of Bratislava, Slovakia

Slovakia

Forerunner in PSD2 implementation

Players in a small market at the heart of the CEE region have the potential to grow across Europe.

Slovakia has moved forward somewhat faster than other European countries in implementing PSD2. The official deadline for all EU Account Servicing Payment Service Providers (ASPSP, financial institutions that offer payment accounts with online access) to comply with the Regulatory Technical Standard of PSD2 was 14th September 2019. Although PSD2 has been live in Slovakia longer than in most EU countries, Slovak banks have yet to implement strong use cases. To date, the only tangible working integration has been between CSOB and Tatra banka, who have collaborated to display multiple accounts from different banks within a single app. The proximity of the Czech market is also apparent, with several Czech banks already connected to Slovak PSD2 APIs.

Slovak companies whose business can clearly benefit from Open Banking (account info and payment initiation) have recently started partnering with fintechs that offer connections to ASPSPs via screen scraping and/or PSD2 APIs.

The National Bank of Slovakia (NBS) has created an Innovation Hub, a platform on which fintechs (Slovak and international) can have direct conversations with the regulator about different use cases. Most specifically, it enables them to identify where regulation/licensing is required. Since the programme was

launched in spring 2019 about 30 project teams have held discussions with the regulator.

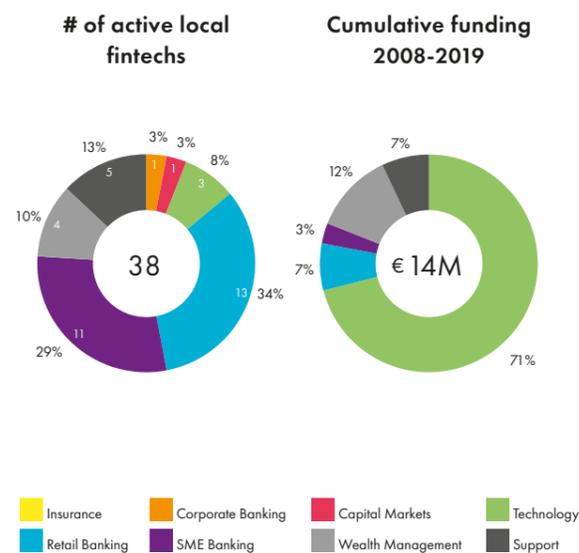
The business models that the NBS actively discusses on the Innovation Hub include:

- Alternative payment methods
- Crowdfunding
- Robo-advice
- Cryptoassets and Initial Coin Offerings (ICOs)
- Insurtech
- Algorithmic trading

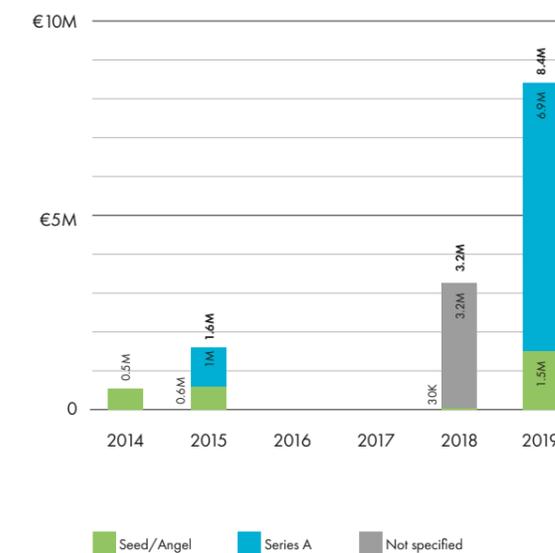
The Slovak Fintech Association, a platform dedicated to effective communication between fintechs, regulators, users and the general public was founded in August 2018. The objective of the association is to support the creation and development of fintechs and align the activities of Slovakia and its neighbours.

According to Stack Overflow's Annual Developer Survey, Slovakia is a genuine leader in the CEE region with 3.7 software developers per 100 members of the working population compared with a CEE average of around 1.3. The four most common areas of activity amongst the 36 fintechs based in the country are payments (six startups), SME services/accounting (five startups) and enterprise processes and big data/analytics (each with four startups).

Size



Funding trends



Top VC investors

Investor	# of investment
OTB Ventures	2
Wayra	2
Earlybird Venture Capital	2
Salesforce	1
J&T VENTURES	1
Target Global	1
Neulogy Ventures	1
Launcher	1
Innovations and Technologies Fund	1
MKB Fintechlab	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Slovakia. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
Minit	10/2019	6.9M
Finax	3/2019	1.5M

Country data

Population 2019 (M)	5.4
GDP total 2019 (€ Bn)	94.2
GDP per capita 2019 (€, at PPP)	24,900
GDP growth 2019 (% yoy)	2.3
GDP growth 2020 (% yoy)	-6
Official currency	EUR

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	85
Total bank assets (% of GDP)	90
Account ownership 2020 (% of population)	86
Debit card ownership 2020 (% of population)	78
Internet usage 2018/2019 (% of population)	81
Usage of internet to pay bills 2020 (% of population)	66
Sent/received digital payments 2020 (% of population)	90

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



Hagia Sophia in Istanbul, Turkey

Turkey

Accelerated investments with growing interest from foreign investors

The fintech sector in Turkey has been growing for a decade thanks to the digital transformation of certain sectors, coupled with rising interest from local and international investors.

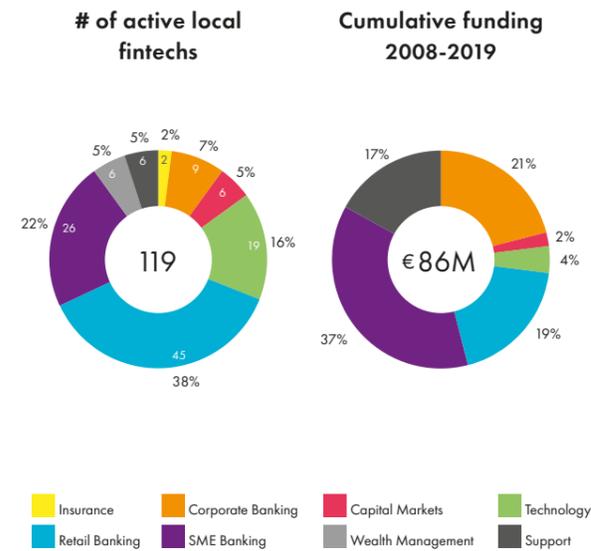
The Turkish fintech ecosystem saw an increase in initiatives and investments, especially after 2017, that led to a rapid acceleration in activity in the first nine months of 2019. Last year as a whole, the fintech market saw three private equity exits and fintechs represented 13% of total startup investment in the country.

After a decade in which systems providers grew in scale, the past two years have seen the emergence of new fintech fields, particularly cryptocurrency platforms (40+ investments in 2019). Payment systems companies, led by well-established local players, are also gaining momentum, reporting annual growth of around 20%, which is mainly attributed to the digital transformation of the aviation, tourism and food & beverages industries. Banking sector players are also benefitting from this growing ecosystem and have invested in the integration of fintech ventures into their banking operations. Turkey's fintech regulatory structure has also been improved due to the legislative amendment (No. 6493, effective from January

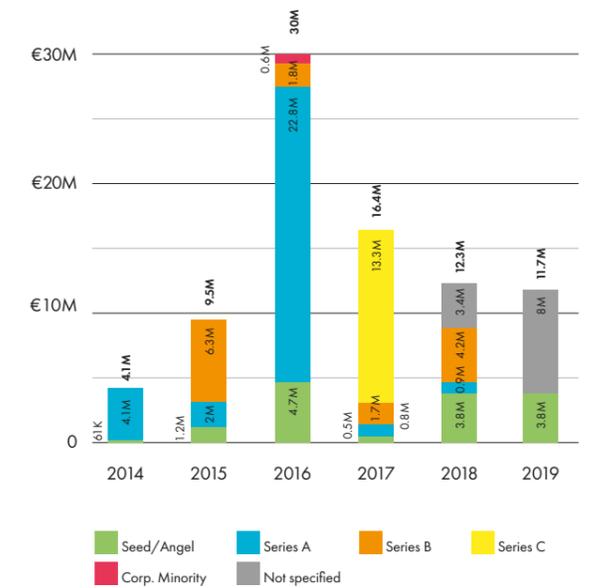
2020) that mandated the Central Bank of the Republic of Turkey (CBRT) as the sole regulator, replacing the dual structure involving the CBRT and the Banking Regulation and Supervision Agency (BRSA). Thanks to this new regulatory structure, the digital transformation of the Turkish fintech sector is expected to intensify as the banking and electronic payment systems continue to integrate and offer further opportunities for new fintech initiatives.

The landmark transaction of 2019 was PayU's acquisition of lyzico, the leading payment systems provider. Having grown its transaction volume between 2016 and 2018 at a monthly rate of 11.2% to a total of 500 million Turkish lira, lyzico was purchased on the basis of the highest valuation in Turkey's fintech sector (an enterprise value of 146 million euros). Elsewhere, Sovos, a global tax software provider, acquired Foriba, a leading player in e-invoicing and VAT reporting, for an undisclosed amount while Paraşüt, a cloud-based provider of e-invoicing services, which had recently obtained funding of over 7.5 million euros, was acquired by Mikro and Zirve, two Turkish software companies backed by Turkven and venture capital firms. The main driver of such transactions is the buyers' desire to build scale and consolidate their position.

Size



Funding trends



Top VC investors

Investor	# of investment
Revo Capital	9
Aslanoba Capital	4
500 Startups	3
212	3
StartersHub	3
Hackquarters	3
Finberg	3
Diffusion Capital Partners	2
DAAL	2
Earlybird Venture Capital	2

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Turkey. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
Hesapkurdu	2/2019	4.1M
Unified Payment Services	12/2019	3.6M
Paym.es	6/2019	893.2K
Figopara	8/2019	668.8K
Endeksa.com	7/2019	388.6K

Country data

Population 2019 (M)	80.1	Total bank assets 2019 (€ Bn)	732
GDP total 2019 (€ Bn)	715	Total bank assets (% of GDP)	102
GDP per capita 2019 (€, at PPP)	20,100	Account ownership 2020 (% of population)	73
GDP growth 2019 (% yoy)	0.9	Debit card ownership 2020 (% of population)	64
GDP growth 2020 (% yoy)	-5	Internet usage 2018/2019 (% of population)	71
Official currency	TRY	Usage of internet to pay bills 2020 (% of population)	60
		Sent/received digital payments 2020 (% of population)	75

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios



National Bank in Kiev, Ukraine.



Sergii Shatskyi, Strategy and Development Department of the National Bank of Ukraine

Ukraine

A highly competitive payment market

Why has Open Banking still not become established in the Ukraine and what is the outlook for its introduction amongst financial market players?

This question will be answered in the interview with Sergii Shatskyi, Project and Programme Manager in the Strategy and Development Department of the National Bank of Ukraine (NBU).

What are your predictions regarding Ukraine's readiness for the implementation of Open Banking?

Shatskyi: Certain market participants, particularly banks, propose to join the discussion about API standardisation. This interest is evidence of market readiness.

The NBU is currently working on implementing the provisions of the European PSD2, which involves the opening of APIs, in Ukraine. We expect this to be possible in 2022. This year we are creating a working group that will include the country's banking sector leaders and flagship IT and payment companies. Its task will be to examine the Open Banking implementation plan and address the requirements of the new standard.

Is there demand for Open Banking standards from banks and fintechs?

Shatskyi: Yes. I have already mentioned the interest of large Ukrainian banks and companies that service the payment market. I should also add that some financial market participants already offer Open Banking-based solutions.

What impeded the implementation of Open Banking standards in Ukraine at the same time as in EU countries?

Shatskyi: As Ukraine is not an EU member this process is different here. Of course we should be integrated into the EU's legislative framework in line with international agreements. But at the same time, we must also take into account the specific features of the domestic market.

I should also point out that the Ukrainian payment market is highly competitive and developed. Given that classical banking in Ukraine is rather innovative and accessible to end consumers, the issues that the EU is seeking to solve are not so urgent here.

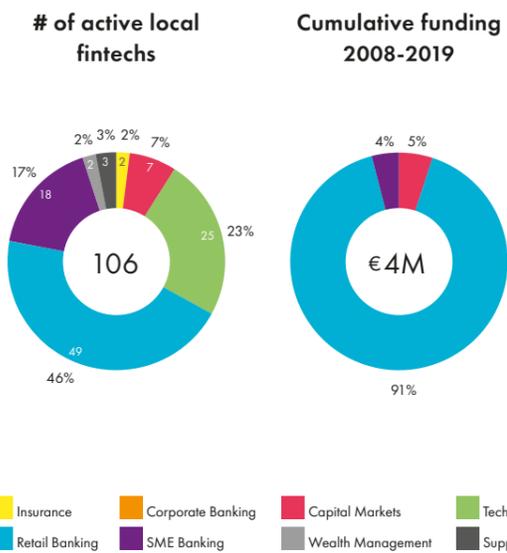
However, Ukraine still needs additional drivers of financial inclusion and further price reductions and simplifications in the use of payment instruments. This is why the country must also take further steps in this direction.

Which of the advantages of Open Banking will be most valuable to Ukraine?

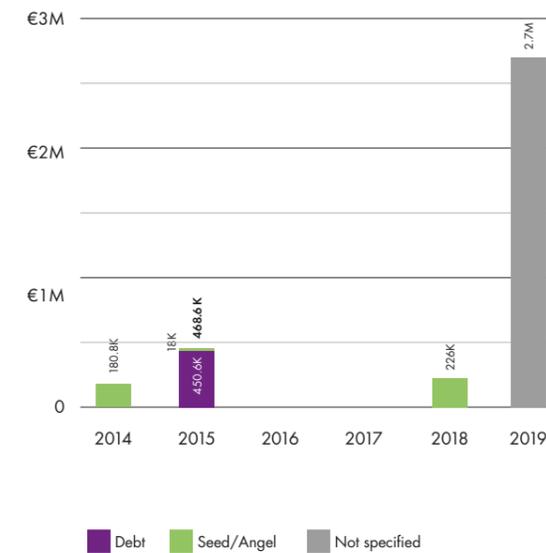
Shatskyi: I would mention the following:

1. The opportunity to access accounts from mobile devices, combined with solutions for consolidating the information in these accounts, which are kept in different financial institutions, in a single application.
2. An alternative to P2P (peer-to-peer) card transfers in the form of A2A (account-to-account) transfers, which can be much cheaper.
3. The development of new services and capabilities for the end users of financial services, which will improve the user experience.

Size



Funding trends



Top VC investors

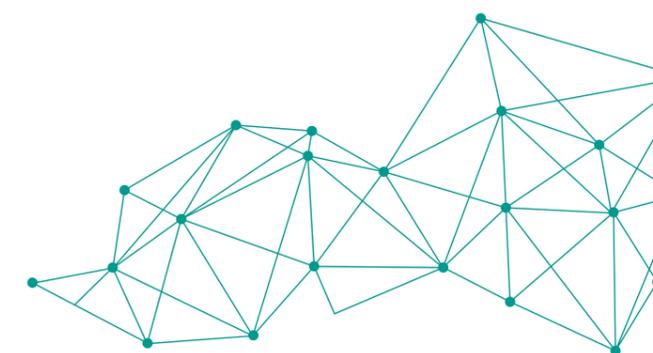
Investor	# of investment
TAS Group	1
Semyon Dukach	1
Arif Akhmedzade	1
CoinFund	1
Startup Wise Guys	1
Farid Safarov	1
Seven Arrows Venture Capital	1
Horizon Capital	1
Investor Growth Capital	1

Selected Top VC investors ranked by number of investment in local fintechs from 2008 to 2019. Lowest category ranked by date of investments.

Sources: Tables include fintechs headquartered in Ukraine. Funding rounds and amounts are relative to the period from 2008 to 2019 and exclude M&A, IPO and ICO deals, but include debt. Source: BCG FinTech Control Tower

Top funding rounds 2019

Company	Funding Date	Funding (€)
MyCredit	8/2019	2.7M



Country data

Population 2019 (M)	42
GDP total 2019 (€ Bn)	137.4
GDP per capita 2019 (€, at PPP)	6,800
GDP growth 2019 (% yoy)	3.2
GDP growth 2020 (% yoy)	-6.3
Official currency	UAH

Source: IMF, ITU, World Bank, RBI/Raiffeisen RESEARCH, data for 2019 and estimates for GDP growth 2020

Total bank assets 2019 (€ Bn)	55
Total bank assets (% of GDP)	40
Account ownership 2020 (% of population)	67
Debit card ownership 2020 (% of population)	53
Internet usage 2018/2019 (% of population)	63
Usage of internet to pay bills 2020 (% of population)	40
Sent/received digital payments 2020 (% of population)	70

Source: national sources, ECB, ITU, World Bank, RBI/Raiffeisen RESEARCH; estimates for 2020 penetration ratios

Digital catch-up At full speed in CEE

In this issue of the CEE Fintech Atlas we from Raiffeisen RESEARCH have tried to estimate the speed with which the banking sector across CEE is catching up in the area of digital penetration. We have done so by looking at previous catch-up rates (in such areas as internet usage or digital banking penetration). Then we added expected catch-up rates in the area of digital banking services (e.g. digital payments, use of the internet for purchasing and payment) to the available penetration rates (from 2017/2018). Based on these assumptions, we expect about 66% of the population in the CEE core markets (Austria, Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Kosovo, Poland, Romania, Russia, Serbia, Slovakia and Ukraine) to use digital banking services in 2020. This is about 16 percentage points more than the nearly 50% suggested by the 2017/2018 data. By comparison, the level of penetration of traditional banking services is expected to have increased by only 2 to 4 percentage points over the same period (2017/2018 to 2020).

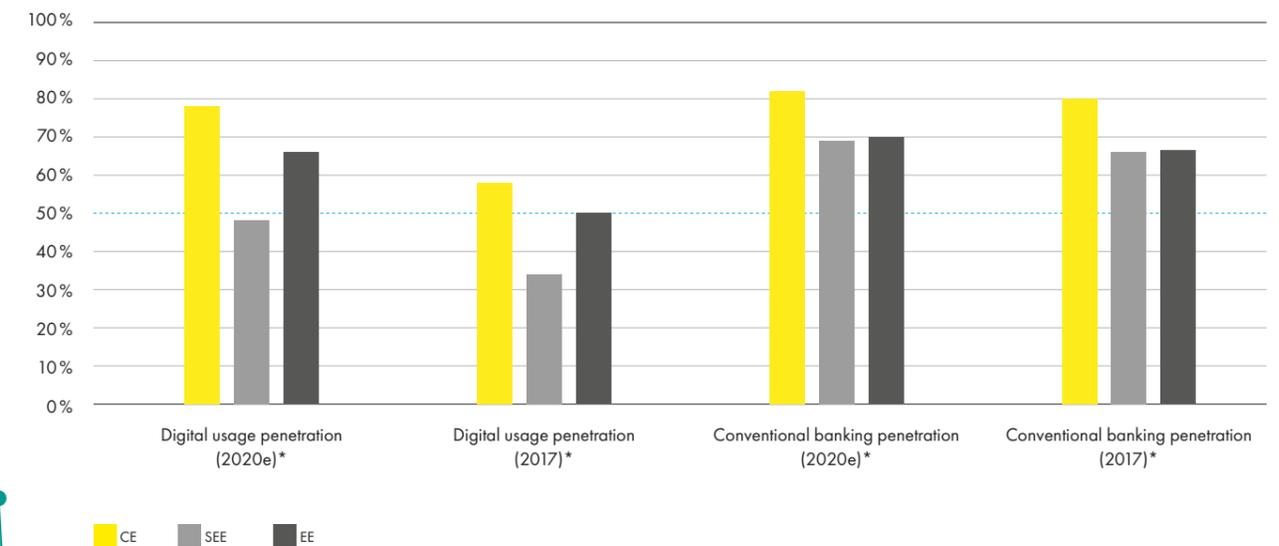
The so-called catch-up rate in the penetration of digital banking services (compared to the most mature markets) is thus about 5 percentage points per year. Such convergence rates are to be expected, especially in the early or middle phases of a catching-up process (such as the previous spread of conventional banking services or of internet penetration and usage across the region). With regard to the CEE sub-regions, we continue to see Central European (CE) markets in the forefront, with a digital penetration rate

of just below 80%. And we estimate that the current average digital penetration rates in the Eastern European (EE) and the Southeastern Europe (SEE) markets are almost 70% and 50%, respectively. We continue to regard the CE markets of Poland, the Czech Republic, Slovakia and Slovenia, together with Russia and Belarus, as the leading digital banking markets (in terms of the active use of digital banking services by the general population). In these countries, digital penetration rates are above the regional average. Hungary and Croatia are close behind. Moving forward, however, the rate of growth in the penetration of digital banking services in the above-mentioned countries should slow down. In most SEE markets and the Ukraine it is conceivable that penetration rates will remain similar to those of recent years. Overall, however, levels of digital sophistication in the individual CEE markets will continue to differ widely, even if the less developed markets are catching up strongly.

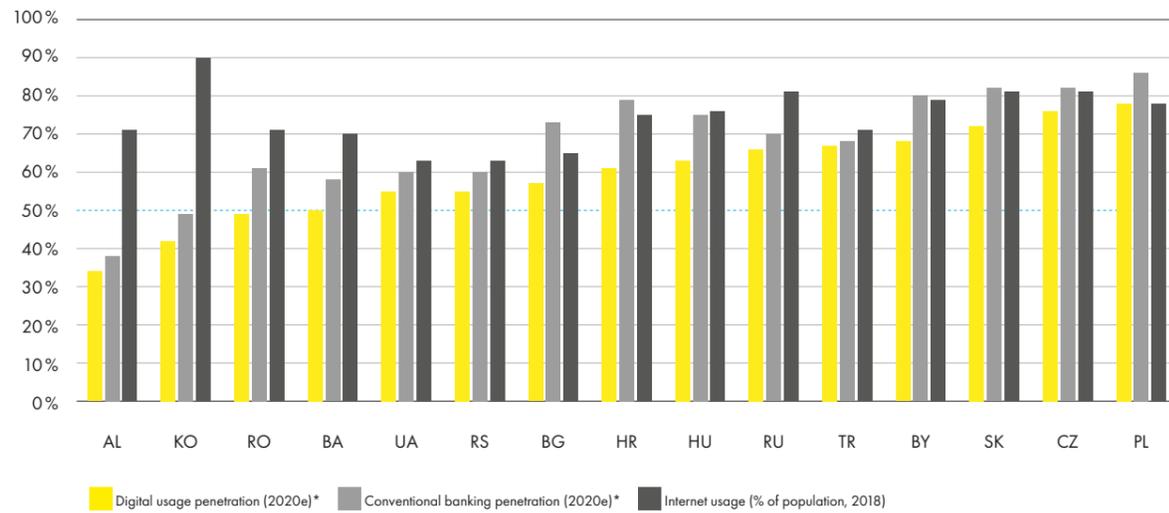
Given the assumptions outlined above, the difference in digital penetration compared to Western Europe and/or leading Western European digital banking markets should also have narrowed significantly in recent years (from about 25 to 30 to about 15 to 20 percentage points in 2020). Furthermore, the total number of people actively using digital banking services in the CEE core markets may rise to close to 200 million in 2020 (based on our estimate of a digitally active population of about 150 million in 2017/2018). If the Baltic States and Turkey are added, this figure should rise to about 265 million people.

In recent years, the region has seen massive digitalisation efforts by both leading Western banks and local players (as well as through partnerships with dynamic providers). Moreover, challenger banks active in Western Europe are also increasingly active in the CEE markets. On top of this, 2020 should see a sharp rise in demand for digital banking services that will boost digital markets across the region (keyword corona crisis). Both traditional lenders and fintechs should be able to benefit from this. In the long term, this should be seen as positive, even if business opportunities in the area of digital banking are likely to suffer in the short term from the deepest economic slump in the region since the global financial crisis. At all events, 2020 will test the robustness of the business models and digital services of fintechs and leading digital banks across the region.

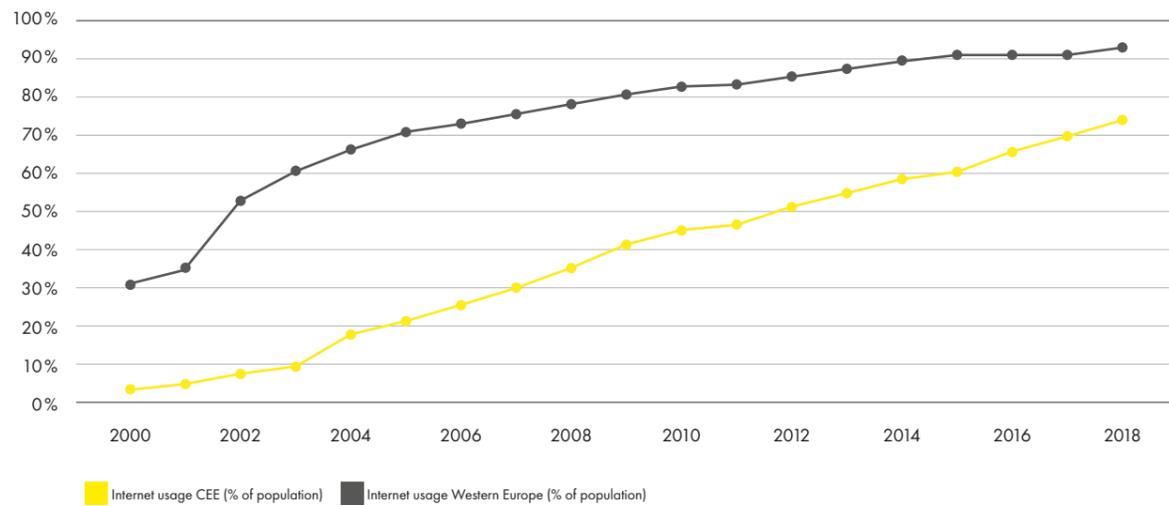
In principle, we continue to regard the CEE markets as attractive for fintechs and for partnerships between fintechs and the (Western European) banks that are established in the region. The market shares of 50 to 90% still enjoyed by these Western European banks in CE/SEE facilitate the scaling of solutions (also across borders), while some leading Western CEE banks are also active in the more sophisticated EE markets and, especially, in Russia. The potential customer base for these Western CEE banks includes, in particular, the 35 to 40% of bank customers who are particularly digitally active (i.e. clearly preferring the digital channel with their bank). And in the current crisis period, not only non-lending products but also the traditional and/or state-subsidised credit products offered by established banks should also become more relevant.



* Digital penetration: used the internet to pay bills, to shop online; sent/received digital payments (% of population 15+); conventional penetration: account, debit card ownership (% of population 15+); source: World Bank, RBI/Raiffeisen RESEARCH



* Digital penetration: used the internet to pay bills, to shop online; sent/received digital payments (% of population 15+); conventional penetration: account, debit card ownership (% of population 15+); source: World Bank, RBI/Raiffeisen RESEARCH



Source: World Bank, ITU, RBI/Raiffeisen RESEARCH

About Raiffeisen Bank International

RBI regards Austria, where it is a leading corporate and investment bank, as well as Central and Eastern Europe (CEE) as its home market. 13 markets of the region are covered by subsidiary banks. Additionally, the RBI Group comprises numerous other financial service providers, for instance in leasing, asset management or M&A.

Around 47,000 employees service 16.8 million customers through approx. 2,000 business outlets, the by far largest part thereof in CEE. RBI's shares are listed on the Vienna Stock Exchange. The Austrian Regional Raiffeisen Banks own around 58.8 per cent of the shares, the remainder is in free float. Within the Austrian Raiffeisen Banking Group, RBI is the central institute of the Regional Raiffeisen Banks and other affiliated credit institutions.

The RBI Group's consistent quality approach is reflected by numerous awards, in particular from leading international financial publications. Amongst other awards, RBI was selected as best bank in Central and Eastern Europe by EMEA Finance (2019 and 2020), Euromoney (2019), Global Finance (2019 and 2020) and The Banker (2019).

You can find the digital version of the CEE Fintech Atlas 2019 at: www.fintechatlas.com

For more information, please contact: startups@rbinternational.com



Legal notice

Owner, editor, publisher:

Raiffeisen Bank International AG
 Registered Office: Am Stadtpark 9, 1030 Vienna, Austria | Postal address: 1010 Vienna POB 50, Austria
www.rbinternational.com

Purpose of publication:

- Description of the fintech ecosystem in CEE (19 countries)
- Presentation of Elevator Lab, the Partnership Program of RBI
- Presentation of Elevator Ventures, the Corporate Venture Capital Entity of RBI

For further information please visit:

RBI imprint:

www.rbinternational.com/imprint

RBI disclaimer:

www.rbinternational.com/disclaimer



Raiffeisen Bank International AG

Registered Office:
Am Stadtpark 9
1030 Vienna, Austria

Postal address:
1010 Vienna, Austria
POB 50

startups@rbinternational.com

www.fintechatlas.com