

# **CAPSTONE FIELD PROJECT**

## **“CEE Fintech Research: Fintech Ecosystem in Central Europe”**

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## **Abstract**

The main focus of this paper is to provide information about the fintech ecosystem of the Central Eastern European Region Countries such as Czech Republic and Slovakia. The players, fintechs, banks, investors and startups have been identified in terms of each country. Additionally, stakeholder analysis have been done and high level of legal and regulatory environments were identified. Current trend of collaboration between banks and Fintechs have been also analysed. Fintech Startups and success stories have been discussed.

Disclaimer: “I confirm that this essay is my own unaided work, except as specified within; all sources are fully acknowledged and referenced”

## **Acknowledgements**

I feel myself very lucky and am grateful that I was a student of Peter Szilagyi, professor of my department. As being my role model he was always supporting me with his valuable feedbacks and directing me to the right targets to achieve.

Special thanks to my mom and dad! You are always with me, being the base of my high motivation on my efforts. This helped a lot to make everything successful.

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# Czech Republic Country Profile

## Introduction

The Czech Republic is one of the Central European Countries, part of the European Union since 2004. They have developed a high-income economy among Eastern bloc countries. Production of motor vehicles, metallurgy, machinery and equipment, glass, armaments are the major industries of this country. They have a big cooperation with Germany in terms of export and import. In banking sector, biggest share comes from foreign capital and investors.<sup>1</sup>

In Czech ecosystem, according to my report, I have found mainly 65 banks, 3 incubators, 4 insurers, 2 service providers, 5 tech integrators, 4 venture capitalists as stakeholders

Startups in total 128 mostly provides services in Personal finance, Social Media, Software-Mobile Security, E-commerce, Payments, Crowdfunding, Money Transfer, Investment, Big Data, Banking.

## GDP

In year 2016 GDP is 192.93 billion USD with a 2.6 % GDP growth. Ranking in 20 th in Europe and 50 th in world. Nominal GDP per capita was 16 700 Euro with an increase of 3.8 % Unemployment rate was 4 %.

Credit rating of A+ according to Fitch. National currency is Czech Koruna.

Figure 1 <sup>2</sup>

Countries GDP : GDP annual comparison				
Date	GDP Mill.\$		GDP Growth (%)	
2016	192,925M.\$	<div></div>	2.6%	<div></div>
2015	185,156M.\$	<div></div>	5.3%	<div></div>
2014	207,818M.\$	<div></div>	2.7%	<div></div>

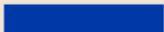


Figure 2

Czech Republic GDP 2017: Quaterly GDP evolution				
Date	Quat. GDP Mill.\$	Quat. GDP Annual Growth (%)	Annual Change	Quat. GDP Growth (%)
2017Q2	43,067M.\$	4.7%	<div></div>	2.5%
2017Q1	42,120M.\$	3.0%	<div></div>	1.5%

<sup>1</sup> <https://thebanks.eu/countries/Czech-Republic>

<sup>2</sup> <http://statisticstimes.com/economy/european-countries-by-gdp.php>

Figure 3











Czech Republic GDP Annual Per Capita Evolution			
Date	GDP per capita		Annual Change
2016	16,700€		3.8%
2015	16,000€		-11.1%
2014	14,900€		-0.7%

## Banking Sector

Czech Republic has 59 banks with a total of 222.52 bln EUR consolidated assets (in 2016)

Category	Number of Banks
Banks	17
Branches of foreign banks	24
Building societies	5
Central banks	1
Credit unions	3
Savings and loan associations	1
Savings associations	8

24 foreign banks branches are available from other 12 countries. Below you can find the origin countries of these biggest branches in Czech Republic.

Country of Origin	Number of Branches
 Austria	5
 Germany	4
 France	2
 Poland	2
 Netherlands	2
 United Kingdom	2
 Slovakia	2
 Denmark	1
 Hungary	1
 China	1

Banks are well capitalized including with a strong deposit bases and there are less foreign currency denominated loans. Since the country is not dependent on financing abroad, they have a strong liquidity position and profitability compared to the peers in the region. Low interest rates have decreased the profit margins in 2016 however some financial institutions has undertaken more risks. They are quite good on maintaining EU's capital requirements set as 8 % so that in case of adverse economic conditions, banks can easily absorb any negative outcome in the system. By mid 2016, non performing loans has been decreased from 5.6 to 5 compared to a year earlier.








#### Positive Factors:

- Banking sector is keeping its strongest capital positions in the region, (Capital adequacy ratio > 16 % since mid 2013 and this is above EU regulatory requirement.) Loan/deposit ratio is lower than regional standards.

Negative Factors: Low interest rates have been leading a strong increase in mortgage loans. CNB is taking actions in order to strengthen macroprudential regulations on this type of loans to prevent an overheating of the property market.

Shortly, banking sector is financially stable, well managed and liquid in Czech Republic. High capital adequacy ratio helps banks to act stable during volatile market funding conditions.

#### MAJOR BANKS IN CZECH REPUBLIC

Rank	Name
1	 Česká spořitelna, a. s.
2	 Československá obchodní banka, a. s.
3	 Komerční banka, a. s.
4	 UniCredit Bank
5	 Hypoteční Banka
6	 Raiffeisen Bank
7	 J&T Banka

#### Cooperation between Banks, Investors and Startups

Government has completed the Business Corporations Act, targeting the decrease on minimum capital requirements.

With respect to the European Commission, the connection between research institutions and private sector is weak so that it results in gaps while allocating the funds to the innovation activities. According to the Global Competitiveness Report of the World Economic forum, there are some factors affecting to do business in Czech Republic such as inefficient bureaucracy, corruption and policy instability.

On the other hand banking sector is healthy, stress tests showed that Czech banking sector is resistant to any unexpected liquidity shock. E-commerce sector is very strong, online shopping (273 Eur per capita- in 2014) is the highest spending in CEE. Banked population was 84 % in 2014.

After recession between 2012 and 2013 recession, the Czech economy has got better condition and real GDP increased (eg. 4.3 % in 2015) and government debt to GDP ratio has been decreased.

Based on the replies collected from 140 Czech startups there was an analysis of the Czech startup ecosystem. It has included an overview of startup founders, business models implemented, innovation and exports trends and challenges they face.

### Czech Startups 2016<sup>3</sup>

\*Almost 70 % of them are in developing status ( pre seed – seed stage), only 15 % them are in the scale up phase.

\*More than 80 startups offer new services or products and 30 of them looking for an improvement of a current service or product.

\*78 % of the Czech startups have used their own funds. Only 13 % are supported by business angels or startup network.

\*Startups are from basically in Software as a Service (28 %), web services (21 %) and mobile software services (17%), analytics & business intelligence (16%) and cloud services(12 %)

\*Most of the companies are micro-enterprises, total employees up to 10 people. However more than 65 % of them added at least 1 more employee in the last six months.

\*25% of startups almost not export, only 22 % receives more than 50 % of income from foreign countries.

\*Cooperation with universities and R&D centers are not common trend, only a few of them are aware of this and began cooperating with research centers. They usually look for new IT products and services rather than technological solution.

\*They consider as the critical internal challenge as human resources (53 % of responses)and finance/investments (43 % of the responses).

### Hottest Fintech startups & success stories – Czech Republic

**Worldcore<sup>4</sup>:** Company helps to issue a prepaid debit card within 24 hours right after submitting the required documents. It is the most promising Central European startup which is allowing to load funds from any bank account and make payments such as salaries, wages, etc. They are also providing a mobile application for the card holder. One big advantage is that the daily ATM withdrawal is 4 000 Euros and a monthly limit is 120 000 Euros. As a back end verification tool, they benefit from Thomson Reuters World Check for financial institutions. They provide also B2B payment services. Internal accounts are automatically created more than 10 currencies and any incoming payment is credited to the respective account.

**Twisto Payments:** Their target is to enable safer and quicker consumer payments and gain trust the e-commerce ecosystem. It is listed by Forbes as one of the best 20 startups.

Twisto has 3 core technologies:

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<sup>3</sup> <https://www.aspeninstitutece.org/project/czech-startup-report/>

<sup>4</sup> <https://letstalkpayments.com/top-17-eastern-and-central-european-fintech-companies-to-watch-out-for-in-2016/>



**Shopping Account:** It is a consumer finance manager which helps to automate clearing of purchases, returns, payments, installments and collections processes.

**Nikita:** It is a digital fingerprinting and multidimensional risk engine with credit approval up to 95 %. It handles any activity less than a second.

**Express Checkout:** It is an instant payment processing with a collection of all current payment methods.

**SoNet:** It is a respectful payment solution integrator since 1991 within European Economic Community region. Services: Merchant management Solution, Merchant helpdesk, on site field activities and value added services (loyalty programs, e-vouchers)

**Spire Payments:** It is one of the Europe's important payment solution provider.

They have Linux OS based POS devices helping contactless payments in Czech Republic and CEE region.

**Zonky:** It provides services in micro and P2P lending.

**Budgetbakers:** Personal Finance Management Fintech with 1.6 million app downloads. More than 1 million members are active users.

In the following periods, it seems that a strong support from government and regulators to be continued. Additionally, with the new PSD2 regulation, it will allow local Fintechs to have further discussions with regulators and policymakers.

### Investors – Czech Republic

Enern, Miton, Credo Ventures, Rockaway, 3TS, Evolution Equity and J&T Ventures

Due to high competition and dynamic economic environment, many entrepreneurs look for growth opportunities by investing different regions.

Compared to other countries in CE region, Czech Republic is doing good in terms of GDP per capita and competitiveness. As they are champion in FDI, the economy is in a trend of growing across different sectors including mergers and acquisitions.<sup>5</sup>

As being in the middle of Europe, Czech Republic has a competitive advantage in possible direct investments. Thanks to their education system, it brings highly skilled workforce and with a modern infrastructure, it means a capacity for innovation. And other conditions such as quality of life and social stability, cost competitiveness, financial stability, availability of suppliers put Czech Republic in an advantageous conditions for any investment.

Tax and legal systems are still new compared to developed economies so that transactions and their legal effects still obtained from general guidelines prepared via EU legislation.

Marketplace lending takes place in Czech Republic. It is a complement to traditional banks which includes institutional funding (loans from banks) in addition to the high level credit risk modeling (use of machine learning based artificial intelligence). Therefore, small and medium sized enterprises benefit from this

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<sup>5</sup> <https://home.kpmg.com/cz/en/home/insights/2017/05/investment-in-the-czech-republic-2017.html>

type of investors. When banks do not have willing to lend near prime or sub prime borrowers, marketplace lending will be the key source to finance SMEs.<sup>6</sup>

### Dominant Fintech areas and trends

#### **Dominant Fintech Topic:** <sup>7</sup>

payments

#### **Dominant Technologies**

Big Data, Mobile, Machine Learning, UX

#### **Innovation Areas**

Personal Finance Management, Payments, Infrastructure, Forex, Lending

#### **Top Fintech Companies**

Payments: Twisto, Spire, Worldcore, Kupnajtisto, Storyous, Forex,

Infrastructure: SDK Finance, Zingly

SME Financing/ P2P Platforms: Zalep.to, InvesticniAukce

Bitcoin: Easycoin

Financial institutions are trying to acquire new clients mostly Millennials therefore they have to provide extra services on applications including new technological solutions to their current product offerings

Emerging organizations must complete their digital transformation in order to provide modern, secure and user friendly solutions for authentication of individuals (biometric data with fingerprints and voice recognition)

Organizations develop distribution channels via smartphones and tablet applications.

New products are sometimes blocked by legislation and regulation which is a problem in all CE countries.

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<sup>6</sup> <https://blogs.cfainstitute.org/marketintegrity/2017/06/23/regulatory-and-market-priorities-in-different-countries-drive-fintech-focus/>

<sup>7</sup> <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/07/pulse-of-fintech-q2-2017.pdf>

## Summary

Despite being new in ecosystem, in 4 years they have benefited from powerful technical workforce as still labour costs are still more competitive than any other Western country.

As Czech market population is not big, the aim is to expand international markets. For many of the people, it is called the “incubator of innovation”. Regulations allow for development so that there is currently no any significant problem faced in core banking activities especially in wealth management.<sup>8</sup>

The Czech Republic is a developed EU member state, and as such it faces more or less the same standard trends as in Western European countries - increased focus on privacy versus big data analysis and monitoring, increased online services, introduction of new disruptive services, etc.

In Czech Republic, investment of banks, insurance organizations in new technologies are increasing. According to Deloitte Fintech Report, there has an estimated size of EUR 2.2 billion, 190 million of this amount comes from Czech Republic. An efficient integration of technologies on new product implementation can raise the profitability of banks as they are called one of the most innovative in Central Europe. E-commerce sector amounted Eur 3 billion in 2015 has a growing trend with 20 % yearly.

Many major players in finance sector are banks and compared to fintech startups, they are regulated by strict laws. However, fintech startups have relatively more freedom in order to compete with financial giants while providing payment solutions to the customers. Therefore, major players seek for increased regulation of fintech startups. Government regulatory bodies so far have stayed on the side of Fintech startups. This may result in a mutually beneficial relationship between banks and fintech startups in the following periods.

Additionally, it is clear that in current market situations Fintech startups could not survive without existence of banks. For example, as the most of the consumers use banks to keep their savings, Fintech companies strongly depend on financial information about these users that only in banks system available. On the other hand, startups have competitive advantage in terms of cutting edge technology (eg. Some algorithms to find out the types of purchases in order to create a periodical budget). Data analytics is the first driver of financial innovation and startups are more actively providing cloud base data services. Therefore, it seems in the following periods this competitive cooperation will exist. Fintech companies will need to have access bank information systems, additionally banks will continue to depend on technological innovation.

Due to Brexit, regulations will be potentially changed, Consumer and tech friendly regulations such as MiFID II and PSD2 will be at new dimensions.<sup>9</sup>

Blockchain startups are across Europe, Insurance Tech similarly has a growth trend so that these can be a new experiment for the governments

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<sup>8</sup> <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/Innovation/deloitte-uk-connecting-global-fintech-hub-federation-innotribe-innovate-finance.pdf>

<sup>9</sup> [http://lending-times.com/wp-content/uploads/2017/08/CB-Insights\\_Europe-Fintech-Trends-2017.pdf](http://lending-times.com/wp-content/uploads/2017/08/CB-Insights_Europe-Fintech-Trends-2017.pdf)

# Slovakia Country Profile

## Introduction

Slovakia is another Central European Country and they are part of Economic Monetary Union since 2009 and since 2004 they are member of European Union. Slovakia has relatively high income, developed economy including good living standards since they have achieved to transform from centrally planned economy to a market driven economy. In Slovakia, universal banks are operating and banking sector is mainly controlled by them.

In Slovak ecosystem, according to my report, I have found mainly 32 banks, 2 venture capitalists as stakeholders

Startups in total 49 mostly provides services in Payments and Finance as a total of 20.

## GDP

In year 2016 GDP is 89.55 billion USD with a 3.3 % GDP growth. Ranking in 23th in Europe and 65 th in world. Nominal GDP per capita was 14 900 Euro with an increase of 2.3 % Unemployment rate was 9.7 %. Credit rating of A+ according to Fitch. National currency is Euro.

Slovakia GDP 2017: Quaterly GDP evolution					
Date	Quat. GDP Mill.\$		Quat. GDP Annual Growth (%)	Annual Change	Quat. GDP Growth (%)
2017Q2	23,079M.\$	<div></div>	3.1%	<div></div>	0.8%
2017Q1	22,081M.\$	<div></div>	3.1%	<div></div>	0.8%

Countries GDP : GDP annual comparison				
Date	GDP Mill.\$		GDP Growth (%)	
2016	89,552M.\$	<div></div>	3.3%	<div></div>
2015	87,312M.\$	<div></div>	3.8%	<div></div>
2014	100,919M.\$	<div></div>	2.6%	<div></div>

Slovakia GDP Annual Per Capita Evolution			
Date	GDP per capita		Annual Change
2016	14,900€	<div></div>	2.3%
2015	14,500€	<div></div>	-13.6%
2014	14,000€	<div></div>	2.4%









## Banking Sector

Slovakia has 28 banks with a total of 73.051 bln EUR consolidated assets (in 2016)

Figure 4<sup>10</sup>

Category	Number of Banks
Banks	9
Branches of foreign banks	15
Central banks	1
Housing savings banks	3

15 foreign banks branches are available from other 9 countries. Below you can find the origin countries of these biggest branches in Slovakia.

Country of Origin	Number of Branches
 Czech Republic	5
 France	2
 Austria	2
 Ireland	1
 Netherlands	1
 Hungary	1
 Belgium	1
 Poland	1
 Germany	1

The banking sector is covering the 70 % of the financial sector. With respect to National Bank of Slovakia (Central Bank), there were 28 commercial banks operating in Slovakia, 15 were subsidiaries of foreign banks. Czech Republic has the largest share followed by France and Austria.

### Positive Factors:








- Slovak banks have a strong capital-adequacy results and funding position than other regional neighbors, with domestic deposits supporting the highest part of loans. As a result, banks are less dependent on external funding.
- Use of euro helps to the banks and households being less exposed to any exchange rate risk compared to other regional peers.

Negative Factors: Lending households has been raising much quicker than that to corporates. Non performing loans in the households has increased at a fast pace so that there was a mismatch between

<sup>10</sup> <https://thebanks.eu/countries/Slovakia>

illiquid housing loans and liquid deposits. This resulted in a drop in property values or decrease of repayment capacity of households.

#### MAJOR BANKS IN SLOVAKIA

Rank	Name
1	 Slovenská sporiteľňa, a.s.
2	 Všeobecná úverová banka, a.s.
3	 Tatra banka, a.s.
4	 Československá obchodná banka, a.s.
5	 UniCredit Bank Czech Republic and Slovakia
6	 Postova banka
7	 Prima banka Slovensko, a.s.

#### Hottest Fintech startups & success stories - Slovakia

**TrustPay(merchant payments)**<sup>11</sup>-<https://www.trustpay.eu>: Trustpay is providing a service in terms of online payment gateway with dedicated quasi bank account for traders across European Union. They enable multi currency payments with recurring and quick deposit payments and including fraud prevention tools. Their tagline is *'your payment highway'*

**Viamo (peer-to-peer and merchant payments)**- <http://www.viamo.sk>: They have started activities in peer to peer payment platform but they took attention of a Slovak bank called VUB (Intesa Sao Paolo) Tatra Banka (Raiffeisen Group). Nowadays, viamo has been positioning itself more in trader payments by providing ecommerce and on premise payment solutions.

**Datamolino (SME Services)**-[www.datamolino.com](http://www.datamolino.com): They have a 500 k EUR seed investment, their technology is targeting to rise the efficiency of manual invoice processing and reducing its costs. They are supporting accounting companies with small and medium sized businesses. Being a partner with cloud accounting solutions players such as Xero and Sage One, Datamolino is aiming to capture United Kingdom's small and medium enterprise market.

**Papaya (Point-of-Sale)**-<http://papayapos.sk>: Papaya is a cloud based POS solution application operating in Android devices and it supports small and medium sized businesses to improve their service effectiveness and sales. Their solution helps clients to handle sales activity in a fast manner, in the mean time, it enables controlling and planning the turnover, managing inventories and etc. The team is working on expanding the business international markets.

<sup>11</sup> <https://medium.com/@tomasvysny/take-five-notable-fintech-startups-from-slovakia-b7b8df499479>

**Gexpay (peer-to-peer and merchant payments)**-<https://www.gexpay.com>: Gexpay's value proposition is the „physical peer to peer” payment technology based on QR codes and their target is large meal voucher market in different European geographies.

### Fintech Investors

Braun Holding | Slovakia  
BridgeStart | Slovakia  
Credo Ventures | Czech Republic  
Fond Fit | Slovakia  
J&T Ventures | Czech Republic  
Limerock | Slovakia  
LRJ Capital | Slovakia  
Neulogy Ventures | Slovakia  
Pioneers Ventures | Austria  
Primus Capital | Hungary  
Speedinvest | Austria

Credo Ventures | Czech Republic

72 % of the investors<sup>12</sup> are venture capitalists, 17 % are business angels and 11 % are banks. According to KPMG ecosystem survey in 2016, the respondents have been invested additional 60 startups in last 12 months. 40% of the respondents had already funded more than 1 million Euro in Slovak startups.

Both startups and investors agree that building a high quality team, raising finance and accessing international markets are the key factors of achievement.

The general opinion is that via media even business failures should be highlighted by encouraging the leaders to share their experiences within the Slovak Startup Ecosystem. And more woman participation should be attracted .

Challenges:

- \*Skills and experiences need to be scaled
- \*Product development with customer feedback.
- \*Valuation should be done more realistically.
- \*Due diligence should be achieved by preparing technical, commercial, financial and legal documentation
- \*Network should be strengthened with the investors.

According to Neulogy Ventures Managing Partner, Ivan Stefunko, startups should more focus on security, automotive and tourism. Sales and marketing and strategic thinking skills should be developed.

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<sup>12</sup> <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/06/startup-ecosystem-survey-slovakia-2016.pdf>

## Opportunity for Slovak Startups

Direct funding, including startup loans

- Tax reliefs in terms of Entrepreneurs Relief (10% Capital Gains Tax) and Enterprise Investment Scheme (decrease of Income Tax and Capital Gains)
- Immigration policies focused on attracting entrepreneurs (e.g. Entrepreneur Visa Opportunity, easy to get permanent residency)

### Cooperation between Banks, Investors and Startups

The regulation of banks are not so restrictive compared to other European countries. Highest share of the population aged under 25 (27,9 % ) in CEE. Banked share of the total population is 77%.

EU funds are helping to develop country infrastructure. After the recovery of crisis, there was an investment growth trend with the help of business confidence.

Fiber optic networks in rural areas has been rolled out so that most of the population has a chance to benefit from broadband access. Slovakia has improved its position in 2016 jumped from 37 to 29 th place. (due to elimination of the need of notary to verify signatures and decrease in corporate tax rates.)

Government helps to provide cash grants and investment supports to the organizations which are running their business in technological areas. Based on the cloud computing adoption criteria, Slovakia has achieved one of the highest rates in Eastern Europe.

Corruption is still problem in the economy and high export level in economy keeps country sensitive to any economic shocks which may happen in Germany and Czech Republic (main trade partners) Based on Global Competitiveness Index, economy still needs to develop in order to be competitive. Regulatory responsibility for the financial sector is mostly in hands of National Bank of Slovakia.

With the implementation of P2P model, online lending became most successful solution in Slovakia.

First one is Zity melon, founded in 2012. Providing low value loans and mortgage down payments.

Company had a capital funding from external investors and aiming to expand to the foreign markets. They have already provided 2.5 million Euro loans to Slovakian market.

Second one is Bondora from Estonia, started in 2014 providing monthly loan amount approximately, EUR 20 000. P2P platforms do not require payment licence and have to keep consumer protection regulations. NBS supports banking sector in this way because they inform customers from risks of borrowing money from unsecured consumer financing platforms. There are approximately 250 non banking consumer lenders in Slovakia and they are not allowed to define interest rates more than banks with a maximum limit of 37.5 %. However, the trend for online lending is increasing since it is also the product of banks. Sberbank, Slovensko, CSOB, mBANK are leading this activity with full interest.



## Summary

Problems for banks and other financial companies are being sorted out with the help of more regulations however each passing day customer expectations are increasing and there are new participants from outside industry. Innovation and cooperation are the key elements to handle all needs of the above parties.

Do It Yourself approach in the pre-crisis times<sup>13</sup>

Above approach was followed by banks while creating new products in pre-crisis times. They focused on four channels: Branches, web, POS and ATM channels. Since the regulation was simple, there were barriers to potential new competitors and the customers were not so having willingness to benefit from new products and even comparing the products from various banks.

Nowadays all expectations and requirements have to be met as quick as possible.

During digital transformation of the industry, digital channels have been developed (mobile, tablets, etc.) and now being extensively used in order to delight the customers. “Gang of Five” (Amazon, Apple, Facebook Google and PayPal) have been created competition, Fintech companies and startups are keen on participating financial services as the barriers are lowered in EU.

Number of Innovation labs are increasing, “out of the box” thinking of students are very useful in startup projects. Some of the banks (Bank of America) are against this as it is perceived economically not feasible but others (like Well Fargo) are really supportive.

The Slovak market is very open for innovations (population 5.4 mil, GDP USD 100bn) and the population is closely following new technologies and products. As an example, more than 25% of all transactions with payment cards are contactless ones in Slovakia. The Slovak bank sector was ranked the fourth most stable in Europe by Euromoney. and is still growing fast in order to catch developed countries.

Innovation labs created at Slovak university

Slovak University of Technology and The University of Economics:

Capco Slovakia is a sponsor of the innovative lab called “FFFIT Lab” (at Faculty of Informatics and Information Technologies) and “Capco ZONE” (The Faculty of National Economy), they have been founded in 2015.

Such cooperation and willingness has gained attention of UK embassy in Slovakia in terms of UK Trade & Investment program. This program helps to improve UK and Slovak companies in financial services and Fintech areas in order to share know how.

In Slovakia, availability and technical talent is very high level. The biggest advantage in the ecosystem can be the availability of capital. Some startups not get funded in mature ecosystems such as London can have chance to be funded in CE.<sup>14</sup>

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<sup>13</sup> [http://www.amcham.sk/publications/connection-magazine/issues/2015-05/272405\\_fintech-innovation-in-financial-services-cooperation-is-the-way-forward](http://www.amcham.sk/publications/connection-magazine/issues/2015-05/272405_fintech-innovation-in-financial-services-cooperation-is-the-way-forward)

<sup>14</sup> <http://startupyard.com/whats-special-slovak-tech-ecosystem/>

There are only a few entrepreneurs having a global operating experience so that the potential should be still carefully considered. As Slovakia famous in software security (eg: ESET) and manufacturing, the innovative solutions can be provided with a global mindset.

The government so called biggest single investor in startups is really supportive with legislative updates and decrease of bureaucracy in new businesses. However, government may sometimes leave ecosystem alone and contribute indirectly such as improving education system and bringing international professionals to the country.

ESET, Sygic or Pixel Federation are the role models for the new investors. As being number 1 per capita car produces, with the growth of industry 4.0, innovations in manufacturing contribute a lot to the Slovakian investors profitability.

## Czech Republic Legal Profile

There is not any Fintech regulatory concept so that many directives apply to FinTech business models which are E-Money (digital money stored on a server remotely or on an electronic device) and the Payment Services. One of the forms of payment methods are the electronic wallet (user loads e-money to his pay card or chip card) Accordingly, Payment Services Directive (PSD/PSD 2) helps for the legal base for the creation of an EU wide single market for payments.

In this way, cross border payments became more easy, efficient, convenient and secure as National payments within a Member country. PSD2 targets to create a uniform legal framework in the EU single market for internet and mobile payments and to foster greater efficiency, standardization (e.g in regard to the account information provided by third-party payment service providers), and cost-reduction within the industry.<sup>15</sup> PSD has been in force since 2009 and all of the member countries obliged to implement revised version (PSD2) by 2018.

Licence is required in order to provide investment services and activities (as explained in the Markets in financial Instruments Directive 2004/39/ EC (MiFID)), FX trading on behalf of customers and banking activities in terms of lending money. Czech National Bank is the regulatory body for all financial and banking activities.

Collective investment schemes must, in particular, comply with the Act on Management Companies and Investment Funds, which implemented the Directive on Undertakings for Collective Investment in Transferable Securities (UCITS), and the Alternative Investment Fund Managers Directive (AIFMD). However, fintech companies providing marketplace lending or crowdfunding platforms usually do not fall within the scope of these regulations.<sup>16</sup>

Managers of alternative investment funds are regulated with AIFMD however FinTech companies are expected to be out of this scope.

A FinTEch company should establish its presence in the country and keep a licence granted by CNB.

<sup>15</sup> <https://www.fma-li.li/files/fma/fma-arbeitspapier-fintech-regulierung-en.pdf>

<sup>16</sup> <https://gettingthedealthrough.com/area/92/jurisdiction/56/fintech-czech-republic/>

Providing a peer to peer or marketplace lending likely as crowdfunding are not regulated activities and a basic trade licence should be enough.

Any FinTech company providing insurance services should be regulated by CNB in compliance with the Act on Insurance Intermediaries (implemented from EU directives into Czech Law)

Currently there is no fintech bridges between CNB and other foreign regulators.

If the services are provided exclusively outside of the country, they are high probably not fall within the Czech licencing regime.

- the services are advertised in the Czech Republic (including via the internet or local intermediaries);
- local customers may interactively communicate with the service provider via the provider's website;
- the service provider's website is available in Czech or is otherwise focused on Czech customers;
- the relevant contractual documentation is governed by Czech law or the language used in such documentation is Czech
- the service agreement may be concluded with a service provider from the Czech Republic (including online).<sup>17</sup>

The legal protection of software is copyright and it is regulated by Act No: 121/2000 SB. (the Copyright Act) Titles and brands of any software are protected under the Act No : 441/2003 Sb. (Trademark Act) however software implemented inventions or business models are yet not protected by Czech Patent Law.

Protection of personal data is regulated under the Act No 101/2000 Sb. ( the Data Protection Act) Currently, it is subject to changes in order to adapt the Act with respect to the provisions of EU Regulation ( 2016 / 679 – General Data Protection Regulation)

Regarding the use of cloud computing in the financial services industry, it is not yet including any regulation. However, ministries, institutions and corporations have their internal rules governing the cloud computing as well as the guidelines issued by CNB.

Fintech companies are obliged to follow AML procedures highlighted in Act No: 253/2008 Sb. in order to avoid Criminal Activities and Financing Terrorism. The AML guidelines are published by the Financial Analytical Office.

### Regulation of Cryptocurrency

Bitcoin is a new method of moving or storing money via internet without any delay or extra fees. In Czech Republic, there has been a passed law restricting bitcoin prepared by Finance Ministry. Previously they had no regulation on cryptocurrency. In this way, during virtual currency transfers, the customers are easily identified so that Bitcoin users are not anymore using the nicknames. This reduces the possibility of risk on tax fraud. Bitcoin has been exempt from VAT by the European Union<sup>18</sup>. The government also

<sup>17</sup> <https://gettingthedealthrough.com/area/92/jurisdiction/56/fintech-czech-republic/>

<sup>18</sup> <https://www.cryptocoinsnews.com/czech-republic-introduces-law-regulation-bitcoin/>

plan to change on VAT section and make the purchaser of goods and services liable for VAT. According to cryptocurrency specialists, this regulation does not limit the innovation.

### Regulation of Crowdfunding

Czech law does not openly regulate crowdfunding. However, it brings some rules and limits on collecting funds from people in order to prevent money laundering. In addition to the general rules establishing consumer protection conditions, including the negotiation of contracts through the internet, regulated by the Civil Code and the Consumer Protection Act, the following Czech laws may be applicable:

- (i) the Act on Banks, which prohibits the acceptance of deposits from the public without a banking licence;
- (ii) the Act on Payment Systems, determining rules for the provision of payment services, including transfers of funds;
- (iii) the Act on Capital Markets, regulating the mediation of investments in shares and bonds and public offerings;
- (iv) the Act on Public Collections, regulating the collection of voluntary cash contributions from contributors for a predetermined public benefit; and hypothetically also
- (v) the Lottery Act, where winning or losing is decided by chance.<sup>19</sup>

Additionally, EU has been implemented harmonised crowdfunding legislation with the help of European Banking Authority and European Securities and Markets Authority.

In order to be able to operate in the crowdfunding platform, the firm should be an investment firm legislated under the Act No. 256/2004 Coll. – the Capital Markets Act.

Banks in Czech Republic still need to take some important actions in crowdfunding industry and still it seems that they have not decided if it is a real opportunity or threat. As an example, one of the branches of Raiffeissen Bank gave a try to execute reward based platform named “Odstartováno” but it was unsuccessful.

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<sup>19</sup> <https://news.crowdvalley.com/news/fintech-spotlight-czech-republic>

## Slovakia Legal Profile

In Slovakia, FinTech area is not regulated by any specific Act or different type of legal binding law. There are drafts of the EU legislation which is on soft law basis. For example, some business environment analysis of the Slovakian Ministry of Economy or Ministry of Finance or other Slovakian institutions having a task for the business development can have an impact on the regulation arrangement.

As they are part of the EU, they should follow and implement the laws passed by EU. ((PSD 2) – Directive (EU) 2015 / 2366 on EU-wide payment services )

The aims of the directive;

- It helps to give legal basis for integrated internal market for electronic payments in EU area. (easy, efficient and secure)
- It helps to provide alternative options with better prices for consumers and allows new entrants to join competition.
- It allows a legal platform for Single Euro Payments Area. (SEPA)

Key Points;

- The directive looks for improving the current rules and consider emerging and innovative payment services in terms of internet and mobile payments
  - Strict Security Requirements: protection of consumer financial data, secure authentication and decrease of the fraud risks
  - Transparency for the payments
  - Rights and obligations of users and providers of payment services

Allowing EU market and benefit from new services and service providers

- 1) Account information services:** allowing users to get a general idea of their financial situation at any time and helps better personal finance management.
- 2) Payment Initiation services:** helps users to make their payments with easy credit transfers for any online purchasing activity and assuring that once the money transfer completed, good will be delivered without any delay

Consumer Rights:

- Reduced liability for non authorised payments
- Unconditional refund rights for euro transactions
- Removal of surcharges in case of using consumer credit or debit card

This law has been regulated since 12 January 2016 and all EU members need to integrate it into national law by 13 January 2018.

### Main Document

Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, pp. 35-127)

## Related Acts

Directive [2007/64/EC](#) of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC (OJ L 319, 5.12.2007, pp. 1-36)

Successive amendments to Directive 2007/64/EC have been incorporated in the basic text. This [consolidated version](#) is of documentary value only.

Regulation (EU) [2015/751](#) of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions (OJ L 123, 19.5.2015, pp. 1-15)<sup>20</sup>

According to current Slovak Payment Act No. 492/2009 Coll.<sup>21</sup>, it regulates the area of financial activities such as the field of payment services. Depending on their core operational activities, the FinTech companies can be considered as a payment institution as well. Sometimes, their business activities may be considered as an exemption and the regulation will not apply. As an example, according to Martin Šimkovič (senior lawyer - Havel, Holásek & Partners s.r.o.), the authorized representatives who are entitled to negotiate or make a sale/buy in name of payer/payee (peer-to-peer lending platform) exempted from this act.

The Slovak government is very supportive to this economic field and new start-up technological facilities. Moreover, under the Slovakian Commercial Code, the new form of trading company can be called as "Simplified Joint Stock Company" is the best suitable form for the new start-up projects.

Lastly, Slovak Business Agency is the responsible unit for providing support to the small and medium sized enterprises (SMEs) and business development plans for the FinTech companies. They are regulated under Small Business Act for Europe<sup>22</sup>:

**I** Create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded.

**II** Ensure that honest entrepreneurs who have faced bankruptcy quickly get a second chance.

**III** Design rules according to the "Think Small First" principle.

**IV** Make public administrations responsive to SMEs' needs.

**V** Adapt public policy tools to SME needs: facilitate SMEs' participation in public procurement and better use State Aid possibilities for SMEs.

**VI** Facilitate SMEs' access to finance and develop a legal and business environment supportive to timely payments in commercial transactions.

**VII** Help SMEs to benefit more from the opportunities offered by the Single Market

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<sup>20</sup> [http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2404020302\\_1&from=EN&isLegisum=true](http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2404020302_1&from=EN&isLegisum=true)

<sup>21</sup> [https://www.nbs.sk/\\_img/Documents/\\_Legislative/BasicActs/A492-2009.pdf](https://www.nbs.sk/_img/Documents/_Legislative/BasicActs/A492-2009.pdf)

<sup>22</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0394:FIN:EN:PDF>

**VIII** Promote the upgrading of skills in SMEs and all forms of innovation.

**IX** Enable SMEs to turn environmental challenges into opportunities.

**X** Encourage and support SMEs to benefit from the growth of markets.

#### Other Related Regulations<sup>23</sup>:

Consumer Credit Act

[Act No 129/2010 Coll. on consumer credits and other credits and loans for consumers](#)

#### **Consumer Protection Act**

[Act No 266/2005 Coll. on consumer protection in financial services at a distance](#)

#### **Protection of Classified Information and Cryptographic Services**

[Act No. 215/2004 Coll. on Protection of Classified Information and on Amendment and Supplementing of certain Acts as amended](#)

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<sup>23</sup> <https://www.nbs.sk/en/financial-market-supervision1/legislation/slovakia-legal-acts-and-other-documents>

## References

<http://danovky.cz/en/eu-finance-ministers-discuss-new-digital-economy-rules>

<http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016IE5526&qid=1508270049010&from=EN>

[http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2404020302\\_1&from=EN&isLegisum=true](http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2404020302_1&from=EN&isLegisum=true)

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=EN>

<http://fintechzone.hu/erste-api-bank-on-top-of-fintech-waves/>

<http://group.growvc.com/news/-fintech-spotlight-czech-republic>

<http://impactcee.com/impact16-fintechinsurtech-2/>

[http://lending-times.com/wp-content/uploads/2017/08/CB-Insights\\_Europe-Fintech-Trends-2017.pdf](http://lending-times.com/wp-content/uploads/2017/08/CB-Insights_Europe-Fintech-Trends-2017.pdf)

<http://mpowersoft.com/>

<http://startupyard.com/whats-special-slovak-tech-ecosystem/>

[http://thegfhf.org/wp-content/uploads/2017/04/J11481-Global-Fintech-WEB.pdf?utm\\_source=gfhf\\_pdf&utm\\_medium=home&utm\\_campaign=Interim\\_Hub\\_Review\\_2017\\_pdf](http://thegfhf.org/wp-content/uploads/2017/04/J11481-Global-Fintech-WEB.pdf?utm_source=gfhf_pdf&utm_medium=home&utm_campaign=Interim_Hub_Review_2017_pdf)

[http://www.amcham.sk/publications/connection-magazine/issues/2015-05/272405\\_fintech-innovation-in-financial-services-cooperation-is-the-way-forward](http://www.amcham.sk/publications/connection-magazine/issues/2015-05/272405_fintech-innovation-in-financial-services-cooperation-is-the-way-forward)

<http://www.bizcommunity.com/192/751.html>

<http://www.capitalmanagementservicesgroup.com/incubatorhedgefunds.html>

<http://www.ceedtech.eu/blog/an-inside-look-at-the-slovakian-startup-ecosystem>

<http://www.czechinvest.org/en/incubators>

<http://www.digitalfinanceinstitute.org/wp-content/uploads/2016/09/Fintech-Report-2016-1.pdf>

<http://www.eiu.com/industry/article/2025207586/czech-republic-banking-sector-risk/2017-03-01>

<http://www.eiu.com/industry/article/853540469/slovakia-banking-sector-risk/2015-09-14>

<http://www.eu-startups.com/category/czech-startups/>

<http://www.eu-startups.com/tag/fintech/>

<http://www.fintech.finance/01-news/czech-republic-banking-customers-to-receive-personal-financial-management/>

<http://www.fintech.finance/homebox/top-10-fintech-accelerators-in-europe/>

[http://www.jake-james.com/incorporation-and-sale-of-companies?gclid=EAlaIqobChMI3\\_qutfSX1QIVgb3tCh0NkQ0oEAMYASAAEgJiE\\_D\\_BwE](http://www.jake-james.com/incorporation-and-sale-of-companies?gclid=EAlaIqobChMI3_qutfSX1QIVgb3tCh0NkQ0oEAMYASAAEgJiE_D_BwE)

<http://www.mckinseypanorama.com/products-services/panorama-fintech.aspx>

<https://angel.co/accelerators/apply>



<https://assets.kpmg.com/content/dam/kpmg/pdf/2016/06/startup-ecosystem-survey-slovakia-2016.pdf>

<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/07/pulse-of-fintech-q2-2017.pdf>

<https://blogs.cfainstitute.org/marketintegrity/2017/06/23/regulatory-and-market-priorities-in-different-countries-drive-fintech-focus/>

<https://countryeconomy.com/gdp/czech-republic>

<https://countryeconomy.com/gdp/slovakia>

[https://ec.europa.eu/info/events/conference-fintech-eu-2017-mar-23\\_en](https://ec.europa.eu/info/events/conference-fintech-eu-2017-mar-23_en)

<https://fintechstartups.co/startups/country/59-czech-republic>

<https://gettingthedealthrough.com/area/92/jurisdiction/56/fintech-czech-republic/>

<https://home.kpmg.com/cz/en/home/insights/2017/01/kpmg-finance-forum-fintech.html>

<https://home.kpmg.com/cz/en/home/insights/2017/02/the-pulse-of-fintech-global-analysis-of-venture-funding-in-the-fintech-sector.html>

<https://home.kpmg.com/cz/en/home/insights/2017/04/the-pulse-of-fintech-q1-2017.html>

<https://home.kpmg.com/cz/en/home/insights/2017/05/investment-in-the-czech-republic-2017.html>

<https://iclg.com/practice-areas/fintech/fintech-2017/czech-republic>

<https://iclg.com/practice-areas/fintech/fintech-2017/slovakia>

<https://itunes.apple.com/us/app/panorama-fintech-insights/id1137625146?mt=8>

<https://letstalkpayments.com/top-17-eastern-and-central-european-fintech-companies-to-watch-out-for-in-2016/>

<https://medium.com/@tomasvysny/take-five-notable-fintech-startups-from-slovakia-b7b8df499479>

<https://news.crowdvalley.com/news/fintech-spotlight-czech-republic>

<https://thebanks.eu/countries/Czech-Republic>

<https://thebanks.eu/countries/Slovakia>

<https://thefinanser.com/2017/08/shape-future-european-fintech-regulations.html/>

<https://tradingeconomics.com/european-union/gdp-per-capita>

<https://www.capgemini.com/news/half-of-banking-customers-globally-now-using-fintech-firms-finds-world-fintech-report-2017>

[https://www.cnb.cz/miranda2/export/sites/www.cnb.cz/en/public/media\\_service/conferences/speeches/download/tuma\\_200212\\_vien.pdf](https://www.cnb.cz/miranda2/export/sites/www.cnb.cz/en/public/media_service/conferences/speeches/download/tuma_200212_vien.pdf)

<https://www.creamfinance.com/what-the-fintech/>

<https://www.cutter.com/article/fintech-startups-vs-banks-2016-competition-or-cooperation-491081>

<https://www.cz.capgemini.com/fintech-innovation>

<https://www.czechcompanyincorporation.com/company-act-in-the-czech-republic>

<https://www.czechcompanyincorporation.com/establish-a-czech-fintech-company>

<https://www.finleap.com/blog/the-5-hidden-fintech-hubs-prague>

<https://www.fintech-hub.eu/fintechs/worldcore?language=en>.

<https://www.fintechlawblog.com/tag/europe/>

<https://www.fma-li.li/files/fma/fma-arbeitspapier-fintech-regulierung-en.pdf>

<https://www.forbes.com/forbes/welcome/?toURL=https://www.forbes.com/sites/rogeraitken/2016/12/06/adel-fintech-incubator-unveils-crowdfund-using-nxts-blockchain/&refURL=https://www.google.hu/&referrer=https://www.google.hu/>

<https://www.forbes.com/sites/julianmitchell/2017/02/20/meet-the-fintech-ceo-making-money-easily-available-anywhere-in-the-world/#7c0f081cf724>

<https://www.ft.com/content/3803914a-6eba-11e6-a0c9-1365ce54b926?mhq5j=e5>

<https://www.futureofeuropeanfintech.com/assets/Manifesto-for-the-impact-of-PSD2-on-the-future-of-European-Fintech.pdf>

<https://www.hu.capgemini.com/>

<https://www.rockawaycapital.com/en/2017/04/andrea-lauren-reinforces-rockaways-management/>

<https://www.siliconrepublic.com/start-ups/12-prague-tech-start-ups-you-need-to-czech-out-video>

<https://www.slideshare.net/PetraDzurovcinova2/slovak-startups-report-2016-part-of-v4-startup-survey-1-71950526>

<https://www.statista.com/outlook/295/132/fintech/czech-republic>

<https://www.statista.com/outlook/295/132/fintech/czech-republic#>

<https://www.statista.com/outlook/295/151/fintech/slovakia>

<https://www.thepaypers.com/cryptocurrencies-bitcoin-virtual-currencies/czech-fintech-incubator-launches-ico-on-nxt-s-blockchain/767228-39>

<https://www2.deloitte.com/be/en/pages/financial-services/articles/fsi-reg-newsflash-eba-discussion-paper-fintech.html>

<https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/central-europe/ce-fintech-in-cee-region-2016.pdf>

<https://www2.deloitte.com/cz/en/pages/financial-services/articles/beyond-fintech-pragmatic-assessment-disruptive-potential-financial-services.html>

<https://www2.deloitte.com/cz/en/pages/press/articles/cze-tz-fintech-cesky-bankovni-trh-patri-mezi-nejinovativnejsi-ve-stredni-evrope.html>

<https://www2.deloitte.com/rs/en/pages/about-deloitte/articles/fintech-cee-region.html>

<https://www2.deloitte.com/uk/en/pages/innovation/solutions/fintech.html>

## Appendix

### Glossary of terms<sup>24</sup>

**Artificial intelligence**. Machine with learning capability. ‘Roboadvisor’ is a machine capable of providing financial advice, functioning in the same way as the human brain.

**Bancassurance**. Selling insurance products via the office networks of banks. This kind of strategic partnership brings networks together and creates business synergies.

**Big data**. Storage and processing of many pieces of data which are transmitted at high speed. ‘Analytics’ refers to the conversion of data into information by means of mathematical and statistical methods for decision-making in the financial sector.

**Bigtech**. Technology giants such as Google, Apple, Facebook and Amazon (GAFA) which are starting to extend their considerable reach into the banking business.

**Bitcoin**. Virtual currency in an experimental phase which is increasingly accepted in the market.

**Blockchain**. A technology platform which supports the bitcoin. It has a very efficient database, which can be used in finances or in multiple applications.

**Cloud**. Models for provision of services based on the internet.

**Connectivity**. As a result of technological advances we can now be connected anytime, anywhere. This allows employees to work more flexibly, as they can work from home or from another location (teleworking, smart working) as well as part time. Young people are already used to this way of working, and the value of having a range of options can be put to good use.

**Crowdfunding**. Financing is provided via internet platforms which connect entrepreneurs with investors. There are platforms which oblige entrepreneurs to offer a share of their business in exchange for investment (equity crowdfunding).

**Crowdlending**. Financing via the internet for entrepreneurs who receive a loan from a group of people, which has to be repaid on the basis of a set interest rate.

**Customer experience**. Developing an in-depth knowledge of each customer individually, personalising their experience in all areas of interaction with the bank. Social networks and *web* platforms are essential elements.

**Cybersecurity**. Covers the risks of cyber-attacks and data theft, and also increases and guarantees customer confidence.

**Digitalisation**. This concerns technology as a whole (internet, mobile technologies, big data, blockchains, artificial intelligence, cloud computing, robotics, cybersecurity) when applied to new relationship models with customers and to managing the transactions of banks and insurance companies. Technology is a means of achieving digitalisation rather than an end in itself.

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<sup>24</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016IE5526&qid=1508270049010&from=EN>

**Disruption.** Digital transformation is not possible without a new organisational and cultural model. Innovation is key to competitiveness in this comprehensive banking process. Change begins with people.

**Exponential banking.** Uses exponential technologies (which have emerged as a result of the digital revolution) to increase the range and quality of financial services as well as to bring down costs.

**Fin Tech/Insur Tech.** Innovative start-ups, which offer novel banking or insurance solutions at low cost.

**Hybrid lending .** It's a combination of lending by bank and private banking customers. This allows the banks to retain more business without significantly increasing their balance sheet while simultaneously satisfying its clients and fellow investors.

**Knowmad .** New professionals who feel that what they bring to the table is their knowledge, and who therefore prioritise the freedom to manage their work and time.

**Millennials.** The first generation of digital natives, those born between 1980 and 2000, who will make up 75 % of the workforce in 2025. Typically, they do not visit bank branches.

**Multi-channelling .** Efficient combination of the usability of digital and face-to-face banking channels. The customer is the focus of the business.

**Neobanks .** They do not require a financial licence to operate: what they do is develop software on the basis of the infrastructure of an existing bank.

**Payment methods .** An e-commerce trend, POS-terminal payment is the most extensive mobile form of payment worldwide. This ecosystem also includes the PayPal option and the technological operators Samsung Pay, Apple Pay, etc. Person-to-person (P2P) payment services are a genuine alternative for those living in countries where the banking system is less developed. Nowadays, mobile banking 'apps' are a fact of life.

**Regtech.** Innovative technologies that are used to facilitate regulatory compliance, reducing the costs and resources needed for such tasks. Digital regulation and surveillance are a challenge for the financial sector (a level playing field must be ensured).

**STEM .** The study of science, technology, engineering and mathematics. The professions that are currently on the rise are those related to these subject areas, and digital skills are vital in all sectors. Training is therefore a priority.