



Brussels, **XXX**
[...] (2017) **XXX** draft

**COMMUNICATION FROM THE COMMISSION EUROPEAN PARLIAMENT, THE
COUNCIL, THE EUROPEAN CENTRAL BANK, THE EUROPEAN ECONOMIC
AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS**

'FinTech Action plan: For a more competitive and innovative European financial sector'

INTRODUCTION.....	2
1. ENABLE INNOVATIVE BUSINESS MODELS TO REACH EU SCALE	5
1.1. Enable innovative business models to scale-up across the EU through clear and converging licensing requirements	5
1.2. Enhance competition and cooperation between market players through common standards and interoperable solutions.....	8
1.3. Facilitate the scaling up of innovative business models across the EU through innovation facilitators	9
2. SUPPORT THE UPTAKE OF TECHNOLOGICAL INNOVATION IN THE FINANCIAL SECTOR	11
2.1. Review the fitness of our regulation for new technologies in the financial sector	11
2.2. Remove obstacles hindering the use of cloud services	12
2.3. Enabling FinTech applications with the EU Blockchain initiative	13
2.4. Building capability and knowledge among regulators and supervisors in an EU FinTech Lab	15
3. ENHANCE SECURITY AND INTEGRITY OF THE FINANCIAL SECTOR	16
3.1. Strengthen the cyber resilience of the EU Financial Sector	16
CONCLUSIONS	18

INTRODUCTION

FinTech – technology-enabled innovation in financial services – has developed significantly over recent years and is impacting the way financial services are produced and delivered. FinTech¹ sits at the crossroads of financial services and the Digital Single Market. The financial sector is the largest user of digital technologies and it represents a major driver in the digital transformation of the economy and society. There are important synergies between the Commission's Digital Single Market Strategy², the EU's Cybersecurity Strategy³, the eIDAS Regulation⁴ and financial services initiatives such as the Consumer Financial Services Action Plan⁵ and the CMU mid-term review⁶.

While innovation in finance is not new, investment in technology and the pace of innovation have increased notably over recent years. FinTech solutions using digital identification, mobile applications, cloud computing, big data analytics, artificial intelligence (AI), blockchain and Distributed ledger technologies (DLT) are being rolled out. New technologies are changing the financial industry and the way consumers and firms access services, creating opportunities for FinTech-based solutions to provide better access to finance and to address financial inclusion, placing customers in the driving seat, supporting operational efficiency and enhancing the competitiveness of the EU economy. Fintech can also contribute to deepening and broadening EU capital markets by integrating the potential of digitisation to change business models through data-driven solutions in asset management, investment intermediation and product distribution⁷.

Yet, FinTech may also present challenges. In particular, cyber risks undermine confidence and represent a threat to the stability of the financial system. Security breaches⁸ underscore that cyber-attacks are a growing concern. They should be tackled appropriately to prevent and mitigate negative consequences on the financial sector. Boosting financial sector cyber resilience is therefore of paramount importance to ensure that it is well protected, that financial services are delivered effectively and smoothly across the EU, and that market and consumer trust and confidence are preserved. Recognising the potential threat to the stability

¹ FinTech" describes technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services. See <http://www.fsb.org/what-we-do/policy-development/additional-policy-areas/monitoring-of-FinTech/>

² COM(2015) 192 final - A Digital Single Market Strategy for Europe

³ JOIN/2017/0450 final - Resilience, Deterrence and Defence: Building strong cybersecurity for the EU

⁴ Regulation (EU) No 910/2014 of The European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

⁵ COM/2017/0139 final - Consumer Financial Services Action Plan: Better Products, More Choice

⁶ COM(2017) 292 final – Communication on the Mid-Term Review of the Capital Markets Union Action Plan

⁷ Mid-Term Review of the Capital Markets Union, [available here](#)

⁸ In 2016, the financial sector was targeted by cyber-attacks 65% more often than any other sector. This resulted in more than 200 million records being breached, a 937% increase over 2015 when just under 20 million were breached. Source: IBM "Security trends in the financial services sector", April 2017

of the financial sector, the European Parliament has called on the Commission "to make cybersecurity the number one priority in the FinTech Action Plan"⁹.

The European regulatory and supervisory frameworks should allow firms operating in the EU single market to benefit from financial innovation and provide their customers with the most suitable and accessible products, while ensuring protection for investors, consumers and the resilience and integrity of the financial system. The benefits of technological innovation were already at the heart of the revisions to the Payment Services Directive¹⁰, to the Markets in Financial Instruments Directive and Regulation¹¹. Technological innovation has new types of financial assets such as cryptocurrencies. Such cryptocurrencies and the underlying blockchain technology hold promise for financial markets and infrastructures, but they also present risks. European legislators agreed in December 2017 to extend the scope of the Anti-Money Laundering Directive¹² to virtual currency exchanges and wallet providers when a technology-based innovation threatened to circumvent the existing system of controls. European authorities including the European Central Bank, the European Banking Authority and the European Securities Markets Authority issued warnings regarding the speculative market environment for virtual currencies and for other types of virtual financial assets. All warnings point to the fact that cryptocurrency investment is high risk and that investors may incur substantial loss due to their volatility.

The Commission proposed in its recent initiative to review the European Supervisory framework¹³ that the European Supervisory Authorities (ESAs) should systematically consider FinTech in all their activities. The General Data Protection Regulation (GDPR) is also of critical importance for a proper use of innovative data-driven financial services¹⁴ as is the proposal for a Regulation on a framework for the free flow of non-personal data in the EU¹⁵ which seeks to ensure that also non-personal data can move freely across the Single Market. Additionally, the cross border recognition of electronic means of identification provided by the eIDAS Regulation will facilitate meeting requirements related to know-your-customer, anti-money laundering and strong authentication of parties in a digital environment.

Also at the international level, FinTech is a priority area, for example for the G20. The Commission contributes to policy discussions at the Financial Stability Board and other international fora. An increasing number of jurisdictions have been developing new regulatory and supervisory frameworks to address specific forms of FinTech innovation. Outside Europe, regulators have mainly focussed on payment instruments and services and alternative forms of financing such as crowdfunding, peer-to-peer lending. To enhance interaction with FinTech developers, a number of supervisors (e.g. Australia, Canada, US, Hong-Kong, Singapore, Japan, ...) have set up FinTech hubs. Several authorities have also

⁹ "Report on FinTech: the influence of technology on the future of the financial sector", Committee on Economic and Monetary Affairs, Rapporteur: Cora van Nieuwenhuizen, 2016/2243(INI), 28 April 2017.

¹⁰ Directive 2015/2366/EU of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.

¹¹ Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and Regulation EU 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments.

¹² Directive (EU) 2015/849

¹³ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/european-system-financial-supervision_en#reviewoftheesfs

¹⁴ The GDPR creates a genuine Single Market for the free movement of personal data at a high level of personal data protection

¹⁵ Com(2017)495

developed experimentation frameworks for innovative firms, the so-called "regulatory sandboxes" (e.g. Australia, Hong-Kong, Singapore and Canada).

The Commission aims to respond to the calls by both the European Council¹⁶ and the European Parliament¹⁷ for a more future-oriented regulatory framework embracing digitalisation, with the aim of creating an environment where innovative FinTech products and solutions can be rapidly rolled out across the EU to benefit from the scale economies of the Single Market. This would entail lowering barriers that innovative models may face, supporting the uptake of new technologies and creating a vibrant borderless environment for FinTech while ensuring that potential risks are adequately monitored and mitigated.

Drawing on the conclusions from the public consultation in March-June 2017 and taking account of the initiatives already presented that reflect the growing digitalisation of the financial sector, the Commission considers that the case for broad legislative or regulatory action or reform at EU level at this stage is limited. A number of targeted initiatives for the EU to embrace digitalisation of the financial sector are, however, warranted.

¹⁶ EUCO 14/17, CO EUR 17, CONCL 5 see <http://www.consilium.europa.eu/media/21620/19-euco-final-conclusions-en.pdf>

The European Council "calls on the European Commission to put forward the necessary initiatives for strengthening the framework conditions with a view to enable the EU to explore new market through risk-based radical innovations and to reaffirm the leading role of its industry", 19 October 2017

¹⁷ The European Parliament has called on the Commission "to deploy a proportionate, cross-sectorial and holistic approach to its work on FinTech" - "Report on FinTech: the influence of technology on the future of the financial sector", Committee on Economic and Monetary Affairs, Rapporteur: Cora van Nieuwenhuizen, 2016/2243(INI), 28 April 2017.

1. ENABLE INNOVATIVE BUSINESS MODELS TO REACH EU SCALE

1.1. Enable innovative business models to scale-up across the EU through clear and converging licensing requirements

In the financial sector, firms are authorised and supervised based on their activities or services, regardless of whether they use traditional or innovative means to deliver those services. Depending on services offered, firms can be authorised and regulated under EU or national law, or not regulated at all if the activity is not subject to financial sector regulation or authorisation requirements.

Authorisation requirements allow for effective upfront and ongoing supervision of service providers to ensure the stability, integrity, and fairness of markets. They also ensure that consumers and investors are protected. At the same time, uniform operating conditions enable EU financial services firms that are duly authorised and supervised by their home Member State to benefit from a European passport, with the possibility to provide their services in all other Member States, scaling up in the entire EU Single Market.

Respondents to the FinTech consultation considered that the majority of innovative business models can work under the existing EU rules, as the EU legislative framework provides room to apply proportionality in the authorisation process.

Yet, supervisors may take diverging approaches to identifying the applicable EU legislative framework as well as to applying proportionality when licensing innovative business models.¹⁸ The European Banking Authority (EBA) identified differences in authorisation and registration regimes¹⁹ as an area requiring further attention. The European Central Bank (ECB) also recently launched a consultation on a "Guide to assessments of FinTech credit institutions license applications"²⁰.

New services do not always fall entirely under the existing EU regulatory framework; this is the case of crowd- and peer-to-peer activities and, more recently, of business models based on crypto-currencies. A very large number of respondents to the FinTech Consultation highlighted that investment-based and lending or loan-based crowdfunding activities do not have a clear and proportionate EU regulatory framework in place, and they see this as hampering their development in the Single Market. The fact that eleven Member States already have adopted bespoke regimes for these activities hinders their cross-border development, making their scaling within the Single Market complex and costly. An EU framework would offer a European passport, and, at the same time, ensure the proper management of platforms and the protection of fund providers.

Further efforts are needed to identify existing diverging licensing requirements affecting FinTech firms. Follow-up actions could include: clarifying the applicable EU legislative framework for services; assessing the need for an EU framework to cover new innovative business models; and providing guidance to national supervisors to ensure more convergence between national regulatory regimes.

¹⁸ Such as online platforms acting as brokers/intermediaries, p2p insurance, virtual currencies and automated investment advice, Initial Coin Offering, etc.

¹⁹ <https://www.eba.europa.eu/-/eba-publishes-a-discussion-paper-on-its-approach-to-FinTech>

²⁰ <https://www.bankingsupervision.europa.eu/press/pr/date/2017/html/ssm.pr170921.en.html>

Supervisors have been assessing market developments in cryptocurrencies and the emergence of Initial Coin Offerings (ICOs), a new way of raising money using so-called ‘coins’ or ‘tokens’. While such token sales may offer new ways of capital formation for innovative firms, they can also present clear risks to investors. Speculative investments in cryptocurrencies and ICO-tokens expose investors to significant market risk, as well as cybersecurity risks relating to exchanges and service providers that allow investors to purchase cryptocurrencies and tokens, hold them or trade them. In November 2017, the European Supervisory Markets Authority (ESMA) issued two statements^{21 22} to inform investors of potential risks brought by certain ICOs and to recall firms involved in ICOs that these activities may fall under existing EU legislation, depending on their precise structure and characteristics.

The rapid increase in price and volatility of cryptocurrencies over the past months requires a better understanding of the risks and opportunities related to their use, as well as of the applicability of EU regulation. Cryptocurrencies and tokens may, however, also escape regulation and the transparency, governance and investor protection objectives this regulation pursues. At European level, the changes to the 4th Anti-Money Laundering Directive on which the EP and Council reached agreement in December 2017 will reduce anonymity and increase traceability of transactions by requiring cryptocurrency exchanges and custodial wallet providers in the EEA to carry out customer identification and due diligence requirements.

The aim should also be to take advantage of this technical innovation within fair and transparent framework in order to make Europe a leading actor in developing new ways to fund rapidly growing enterprises. An assessment of the regulatory framework may be necessary for this new and fast developing means of value transfer, capital raising and investment. While continuing to monitor cryptocurrency developments carefully, the Commission will exchange views with supervisors, regulators and the industry to assess any further course of action.

Box 1

- 1. Together with this Communication, the Commission presents a proposal for an EU legal framework for investment-based and lending or loan-based crowdfunding platforms to ensure that these services are subject to proportionate regulatory requirements that allow them to benefit from the scale of the EU market through passporting.**
- 2. The Commission invites the ESAs, by Q1 2019, to map the current authorising and licensing approaches and procedures taken by supervisory authorities when authorising innovative FinTech activities and how proportionality and flexibility are currently applied by national authorities. Where appropriate, the ESAs should issue Guidelines on the appropriate approaches and procedures or present recommendations to the Commission on the need to adapt EU financial services legislation.**
- 3. In particular, building on the work of the ESAs, the Commission will assess the applicability of current EU regulatory framework to cryptocurrencies and Initial Coin Offerings.**
- 4. The Commission will continue monitoring the developments of cryptocurrencies and will organise a roundtable in Q2 2018 to discuss the challenges and opportunities of cryptocurrencies, with a view of reporting on this later in 2018.**

1.2. Enhance competition and cooperation between market players through common standards and interoperable solutions

Production and delivery of financial services requires different operators in the value chain to co-operate, partner up, and interact. An EU-wide FinTech market will not reach its full potential without the development of open standards that make interoperability possible, simplify the exchange of data between market players and facilitate competition.

There are different ways to implement interoperability. Companies or technology providers may develop *ad hoc* interfaces to which other parties need to adapt. Another approach is to reach consensus on interoperability standards for the whole market, reducing the efforts required for service providers to exchange data with different platforms. Standard-setting processes should be based on the principles of openness, transparency and consensus, in line with the provisions of the General Data Protection Regulation, with access for new entrants granted on fair, reasonable and non-discriminatory terms.

Most respondents to the FinTech consultation stressed that it is a priority to develop standards, foster their adoption, and ensure interoperability between systems. The preferred approach would be led by industry and market participants, developing global as opposed to local or regional standards. There is particular demand for greater standardisation in blockchain/distributed ledger technologies, Application Programming Interfaces and Identity Management. The revised Payment Services Directive is an interesting test case: banks are required to open communication channels for FinTechs to provide their services based on access to payment accounts. The development of standardised Application Programming Interfaces would create a level playing field to enable new and improved services in a truly open banking environment.

Box 2

- 1. On the basis of European Committee for Standardisation's (CEN) mapping of the FinTech standardisation landscape (by Q3 2018), the Commission and the European Standards Organisations, together with the industry, will identify the best way to address identified gaps.**
- 2. The Commission will contribute to enhancing coordinated approaches on standards for FinTech by liaising and working with major standard setting bodies, fora and consortia, including in the blockchain area by Q4 2018.**
- 3. The Commission will assess the need to deploy cross border interoperability infrastructures for example through the Connecting Europe Facility programme, by Q4 2018.**
- 4. The Commission encourages and will support joint efforts by market players to develop, by mid-2019, standardised PSD2 and GDPR compliant Application Programming Interfaces as a basis for a European Open Banking eco-system covering payment and other accounts.**

1.3. Facilitate the scaling up of innovative business models across the EU through innovation facilitators

Innovative companies bring new products to the market or provide ways to provide well-known services in innovative forms or at more competitive prices. To be as effective as possible, innovators need to be able to extend their offering as quickly as possible to an as wide as possible base of users, leveraging economies of scale. In order to fully benefit from the Single Market, innovators need to be able to use a European passport which they can obtain by applying for authorisation under EU regulation. However this requires meeting regulatory requirements that may be initially difficult to fulfil, particularly for newly established businesses or businesses employing innovative technologies or business models that might differ from standard practices in use at the time when the regulation was initially devised.

In particular for new entrants, it can be a challenge to understand and fulfil regulatory and supervisory expectations. But also incumbents that aim to renovate their ways of doing business face similar challenges. Moreover, innovative approaches and technologies challenge supervisors when they decide on whether or not to authorise a firm or activity and how to fulfil their supervisory obligations effectively with a view to innovative ways of doing regulated businesses. Responses to the Commission's public consultation suggest there is a strong appetite among supervisors to develop better understanding about the latest FinTech trends and to strengthen contacts with firms and other technology providers.

In the EU, thirteen Member States have established so-called "FinTech facilitators", (innovation hubs²³ or regulatory sandboxes²⁴) to provide general guidance to firms during the authorisation process, enabling them to gain quicker access to market and better understand the rules and supervisory expectations. They may also provide guidance to established financial institutions on how to apply regulation and supervisory requirements to innovative ways of doing business. From the supervisors' perspective, such approaches provide them with an important source of information, helping them acquire a better understanding of innovative business models and market developments at an early stage, including of any potential risks.

Regulatory sandboxes take the idea of innovation hubs a step further by creating an environment where supervision is tailored to innovative firms or services. Supervisors are not able to derogate from the application of EU requirements²⁵ in the sandbox, but can make good use of the scope for proportionality and flexibility embedded in EU legislation when approaching technological innovation. The sandbox approach has been broadly supported by industry respondents to the public consultation. National authorities expressed mixed views:

²³ See EBA/DP/2017/02 - 'Innovation hub' means an institutional arrangement whereby regulated or unregulated entities (i.e. unauthorised firms) engage with the competent authority to discuss FinTech-related issues (share information and views, etc.) and seek clarification on the conformity of business models with the regulatory framework or on regulatory/licensing requirements (i.e. individual guidance to a firm on the interpretation of applicable rules).

²⁴ See EBA/DP/2017/02 - Regulatory 'sandboxes' provide financial institutions and non-financial firms with a controlled space in which they can test innovative FinTech solutions with the support of an authority for a limited period of time, allowing them to validate and test their business model in a safe environment.

²⁵ Other than within the scope of explicit waivers or derogations provided for in that legislation.

some supervisors consider that such initiatives are not part of their mandate; supervisors that are open to sandboxes, by contrast, consider that others should take similar initiatives. This would result in interconnected sandboxes within a European framework, an outcome which would foster a consistent approach and roll out innovation across the EU Single Market.

Recently, both EBA and ESMA carried out surveys to map the existing innovation facilitators across the EU. They are now reflecting on future initiatives. The Commission would welcome further efforts in this respect, identifying best practices across the EU and setting up common principles and criteria for innovation hubs and regulatory sandboxes. Other valuable follow-up actions could include promoting the setting up of innovation hubs in all Member States and coordinating their functioning. This could lead to considering an "EU experimentation framework" for the adoption of and adaptation to new technologies.

Box 3

- 1. Building on recent work by the ESAs to map the innovation facilitators set up by national supervisory authorities, the Commission invites the ESAs to identify best practices by Q4 2018 and, where appropriate, to issue Guidelines in this respect.**
- 2. The Commission invites Competent Authorities at Member State and EU level to take initiatives to facilitate innovation following these best practices and invites the ESAs to facilitate supervisory cooperation of innovation hubs and regulatory sandboxes.**
- 3. Based on the work of the ESAs, the Commission will present a Blueprint with recommendations for regulatory sandboxes by Q4 2018.**

2. SUPPORT THE UPTAKE OF TECHNOLOGICAL INNOVATION IN THE FINANCIAL SECTOR

2.1. Review the fitness of our regulation for new technologies in the financial sector

Technology-neutrality is one of the guiding principles of the Commission's policies.

Nevertheless, EU rules that pre-date the emergence of innovative technologies may not be technology neutral in practice. Respondents to the consultation, for example, have pointed to requirements or preferences for paper-based disclosures, or the need for physical presence. The absence of clear and harmonised processes to identify consumers and businesses on-line, in full compliance with anti-money laundering and data protection rules, was also considered as a major obstacle for the uptake of FinTech solutions. In the same vein, respondents have expressed concerns that software investment is less attractive when under current prudential rules for banks: investments in software made by EU banks must be deducted from their regulatory capital, in contrast to the more favourable treatment enjoyed by e.g. US banks.

The European Commission has already given consideration to some of these issues. In the Consumer Financial Services Action Plan²⁶, the Commission announced plans to facilitate the cross-border acceptance of e-identification and remote Know-Your-Customer processes to enable banks to identify consumers digitally in compliance with anti-money laundering and data protection requirements and leveraging the electronic identification and authentication tools provided under eIDAS. In this regard, the Commission set up²⁷ a dedicated expert group on electronic identification and remote Know-Your-Customer processes. The uptake of disruptive technologies, such as distributed ledger technologies and artificial intelligence, may raise additional regulatory challenges. Responses to the public consultation raise concerns that the use of such technologies may be prevented or constrained by the existing rules,.. For example:

- blockchain-based applications which rely on distributed ledgers may raise jurisdictional issues regarding the law applicable and liability issues for events taking place on the ledger;
- the legal validity and enforceability of smart contracts produced and stored on the ledger may need clarification;
- there are considerable uncertainties surrounding the legal status and applicable rules with respect to Initial Coin Offerings, as set out also in point 1.1.

Further careful analysis is necessary to assess the extent to which the current financial services legal framework is technology neutral and able to accommodate new FinTech advances. Where it cannot, the rules should be adjusted accordingly.

²⁶ COM(2017)139 final

²⁷ Commission Decision C(2017)8405 of 14 December 2017

Box 4

The Commission will set up an Expert Group to review the fitness of the EU financial services regulatory framework by Q2 2019 for the use of disruptive technologies such as distributed ledger technologies and artificial intelligence.

2.2. Remove obstacles hindering the use of cloud services

Cloud computing can enhance the efficiency of the digital infrastructure which underpins financial services. Outsourcing data processing and storage capacity to cloud service providers reduces the cost of hosting, infrastructure and software for firms and can help streamline IT expenditure, while ensuring greater flexibility and adaptability.

Outsourcing of data storage and processing to a cloud service provider requires that regulated firms comply with all their legal requirements (e.g. in terms of proper risks management and appropriate oversight by supervisors). Stakeholders responding to the Commission's consultation raised concerns that the use of cloud computing services is currently constrained by uncertainties with respect to supervisors' expectations, in particular due to the absence of harmonisation between national rules and different interpretations of outsourcing rules.²⁸

The EBA recently published a Recommendation on outsourcing to cloud services.²⁹ ESMA, in its role of direct supervisor for credit rating agencies and trade repositories, is exploring these issues and in 2018 intends to clarify with which requirements these firms have to comply while outsourcing to cloud services. Nevertheless, the issue deserves attention beyond the scope of these existing initiatives and additional certainty could be achieved, if supervisory expectations were expressed in the form of formal Guidelines of the ESAs.

The European Commission's proposal for a Regulation establishing a framework for the free flow of non-personal data in the EU which aims to remove unjustified data localisation restrictions, thereby tackling one of the main problems identified. The proposal also addresses additional cloud-related issues, such as preventing vendor lock-in by cloud service providers. To facilitate the implementation of the proposed Regulation specifically in relation to the use of cloud services, the European Commission will in 2018 gather relevant stakeholders, consisting of cloud users, cloud providers and regulatory authorities.

²⁸ Respondents to the FinTech consultation proposed that standardised contractual agreements between Cloud and financial service providers could better reflect their sectoral regulatory constraints (such as audit obligations, or requirements for onsite inspections). Data localisation restrictions by public authorities constituted another important obstacle identified by respondents, while in the context of a highly concentrated market for cloud services, financial institutions and supervisors also raised the risk of high dependency on a handful of non-EU providers, and the need to prevent European financial institutions from becoming locked-in with suppliers.

²⁹EBA/REC/2017/03, *Recommendations on outsourcing to cloud service providers*, December 2017, [available here](#)

Box 5

- 1. The Commission invites the ESAs to explore the costs and benefits of Guidelines on outsourcing to cloud service providers by Q1 2019.**
- 2. The Commission invites cloud stakeholders to develop self-regulatory codes of conduct to address easier porting of data between cloud service providers.**
- 3. In this context, the Commission invites cloud stakeholders to set up a sectorial Financial Working Group to develop standard contractual clauses for cloud outsourcing by financial institutions, for instance audit requirements, reporting requirements or the determination of materiality of activities to be outsourced.**

2.3. Enabling FinTech applications with the EU Blockchain initiative

Blockchain or blockchain-inspired technologies such as distributed ledger technologies, will likely lead to a major breakthrough that will transform the way information or assets are exchanged, validated, shared and accessed through digital networks. They are likely to continue to develop in the coming years and become a key component of the digital economy and society.

It is important to avoid confusion between blockchain-inspired technologies and cryptocurrencies, which represent just one type of application of blockchain. Blockchain can underpin a wide range of applications in various sectors, which may be not limited to cryptocurrency or even FinTech at all.

The financial sector has been leading the exploration of blockchain potential with many proofs of concept and pilot projects in a wide range of areas such as payments, securities, but also trade finance or reporting (e.g. RegTech). Even though blockchain-technologies are still at an early stage, a number of challenges need to be addressed.

The EU Blockchain Observatory and Forum³⁰, which was launched in January 2018, aims to monitor trends and developments, pooling expertise to address sectoral and cross sectoral issues, and exploring joint solutions and cross-border use cases in the next two years.

The European Parliament also supported the launch of the European Financial Transparency Gateway (EFTG), a pilot project using distributed ledger technology to facilitate access to information about all listed companies on EU securities regulated markets in the context of the Transparency Directive³¹. This initiative is aimed at enhancing transparency about EU regulated markets, fostering both market integration and market liquidity, in line with the objectives of the Capital Markets Union.

Considering the cross cutting nature of blockchain, which goes beyond financial services potentially encompassing all sectors of the economy and society, the European Commission

³⁰<https://ec.europa.eu/digital-single-market/en/news/pre-information-notice-eu-blockchain-observatory-forum>

³¹ Directive 2013/50/EU

has already taken steps towards setting up an EU Blockchain Initiative with the launch of the EU Blockchain Observatory and Forum. The initiative will propose actions, funding measures and a framework to enable scalability, develop governance and standards, and to support interoperability. It is a cross-sectoral initiative which is expected to enable early adoption of this technology in the financial sector and increase Europe's competitiveness and technological leadership, in collaboration with other actions in this Action Plan (notably, the fitness check of EU financial legislation). It will rely also on pilot actions supported through the Horizon 2020 programme, which will be expanded during 2018-2020.

The Commission has also developed links with the International Standards Organisation Technical Committee 307 on blockchain and distributed ledger technologies. European Standardization Organizations³² have been invited to take on a leadership role to identify EU specificities with regard to blockchain.

Box 6

- 1. The Commission will consult publicly on further digitisation of regulated information about companies listed on EU regulated markets in Q1 2018, including the possible implementation of a European Financial Transparency Gateway based on distributed ledger technology.**
- 2. The Commission has taken steps towards the launching of a comprehensive strategy on distributed ledger technology and blockchain addressing all sectors of the economy, and which would enable FinTech applications in the EU.**
- 3. The Commission has at the beginning of 2018 launched an EU Blockchain Observatory and Forum and a study on feasibility, governance and use of an EU public Blockchain infrastructure to support the development of modern cross-border services, including FinTech. The Commission will use this basis to evaluate further Blockchain use cases beyond FinTech, in health, public administration, other regulatory reporting, and general applications in the context of Next Generation Internet.**
- 4. With the support of the EU Blockchain Observatory and Forum and the European Standardisation Organisations, the Commission will appraise legal, governance and scalability issues and support interoperability and standardisation efforts, starting in Q1 2018.**

³² CEN, CENELEC and ETSI

2.4. Building capability and knowledge among regulators and supervisors in an EU FinTech Lab

Major hurdles preventing the uptake of new technology by the financial industry include the lack of certainty and guidance regarding their use, as well as fragmentation and lack of common approaches between national regulators and supervisors.

While some technology providers already make efforts to inform regulators and supervisors about the nature of their technologies and how they are applied in the financial sector, many authorities are reluctant to receive training or engage in discussions when hosted by selected vendors.

The Commission will establish an EU FinTech Lab, with the aim of raising the level of regulatory and supervisory capacity and knowledge about new technologies, through demonstrations and expert discussion in a non-commercial, neutral financial technology Laboratory. The Lab will bring together multiple vendors, in particular from the EU, with regulators and supervisors to enable discussion of regulatory and supervisory concerns..

Technologies to be addressed could include: authentication and identification technologies, specific use cases of distributed ledger technology, cloud technology, machine learning and artificial intelligence, Application Programming Interfaces and open banking standards and RegTech.

Box 7

The Commission will host an EU FinTech Lab where ESAs and national authorities will be invited to engage with technology solution providers in a neutral, non-commercial space during targeted sessions starting in Q2 2018.

3. ENHANCE SECURITY AND INTEGRITY OF THE FINANCIAL SECTOR

3.1. Strengthen the cyber resilience of the EU Financial Sector

Cybersecurity has been at the centre of the EU policy action over the recent years. Nonetheless, recent high-profile cyber-attacks on certain market players have concentrated the attention on the continued need to ensure the integrity of the systems. The cross-border nature of cyber-threats requires a high degree of alignment in national regulatory and supervisory requirements and expectations. A safe and resilient financial sector is critical to the EU economy as a whole: as the financial sector becomes increasingly digitally dependent, the potential for vulnerabilities to be exploited by cyber criminals also grows. FinTech innovation can both accentuate and mitigate these risks. While the financial sector is ahead of all other sectors in terms of its preparedness, it is also the sector most under attack. Operational and cyber risks pose a mounting threat to the stability of the financial system and undermine the confidence that is vital for our financial markets.

Repeated cyber incidents triggered by the exploitation of basic flaws in systems and organisations' security underscore the critical importance of ensuring basic cyber hygiene³³ practices within any organisation. While strengthening cyber hygiene measures and requirements is therefore a critical element to ensure the integrity of the system, the degree to which firms are subject to and strengthen their basic cyber hygiene standards varies across the EU, depending largely on industry and national practices. At EU level, current financial services legislation, in particular covering financial market infrastructures and payments, already contain specific requirements aimed at ensuring the integrity of IT resources and systems and their governance. In other areas, requirements are more general, for example in the context of business continuity or requirements on managing operational risk. The transposition by Member States of the NIS Directive³⁴ provisions on security requirements in other financial services is on-going. Gaps may however remain in EU financial sector legislation that should be filled in order to improve the resilience of the sector. Before proceeding to such action supervisory practices³⁵ should be studied carefully. This way, best practices in applying general requirements can be identified and it can be evaluated if supervisory convergence for example through Guidelines would constitute an appropriate and sufficient means to ensure an adequate level of resilience across financial sectors.

Access to threat intelligence and information sharing are also fundamental to the enhancement of cybersecurity. Improving cooperation and coordination on exchange of threat intelligence across the EU financial sector will contribute to preventing and mitigating cyber threats. Some respondents to the FinTech Consultation expressed concern that cyber threat information sharing may be constrained by legislation in general and may in particular not be compatible with the General Data Protection Regulation³⁶. This Regulation recognises,

³³ ENISA, *Review of the Cyber Hygiene practices*, December 2016, p.14, [available here](#).

Cyber hygiene is a fundamental principle relating to information security [...], is the equivalent of establishing simple routine measures to minimise the risks from cyber threats. The underlying assumption is that good cyber hygiene practices can drive increased immunity across businesses reducing the risk that one vulnerable organisation will be used to either mount attacks or compromise a supply chain.

³⁴ Directive (EU) 2016/1148

³⁵ Financial Stability Board, *Stocktake of publicly released cybersecurity regulations, guidance and supervisory practices*, October 2017, pp. 65-70, [available here](#) (tbc).

³⁶ Regulation (EU) 2016/679

however, the legitimacy of personal data processing and exchanges in the interest of cybersecurity.

Supervisors are increasingly assessing the effectiveness of cyber defences and security through penetration and resilience testing. Rigorous testing is already seen as an industry best practice, and gradually the tests are moving towards an approach mandated by national competent authorities. As financial institutions and financial market infrastructures operate on a cross-border basis, the multiplication of testing frameworks is perceived as unnecessarily increasing the costs and potentially risks. Stakeholders stressed the need for more regulatory and supervisory co-ordination at European level, together with stronger co-operation among jurisdictions and mutual reliance on test results between authorities, while protecting their sensitive nature. In this context, the Commission considers the efforts that the ECB, the ESAs and national supervisors are making for example to develop an EU-wide *Threat Intelligence Based Ethical Red Teaming (TIBER-EU)* testing framework as promising. While these efforts are currently limited to parts of the financial sector, the merits of assessing the cyber resilience of significant financial market players across the entire EU financial sector have the potential to efficiently and effectively identify vulnerabilities of the stability and integrity of the entire EU financial system.

Strong cyber resilience needs a collective and wide-ranging approach as well as effective training and awareness raising activities. In this regard, the Commission has recently adopted its *Digital Education Action Plan* through which the Commission aims at improving digital skills throughout Europe, including in the cybersecurity context³⁷.

Box 8

- 1. Based on the outcome of a public-private workshop (to be held in Q2 2018), to explore and assess barriers limiting information sharing on cyber threats among financial market participants, the Commission will seek to identify potential solutions to address these barriers.**
- 2. The Commission invites the ESAs to map, by Q1 2019, the existing supervisory practices across financial sectors around ICT security and governance requirements, and where appropriate: a) to consider issuing Guidelines aiming at supervisory convergence and enforcement of ICT risk management and mitigation requirements in the EU financial sector and, b) provide if necessary the Commission with a Technical Advice on the need for legislative improvements.**
- 3. The Commission invites the ESAs to evaluate, by Q4 2018, the costs and benefits of developing a coherent cyber threat testing framework for significant market participants and infrastructures within the whole EU financial sector.**

³⁷ Action 7 in the DEAP is aimed at tackling the challenges of digital transformation by launching: (i) an EU-wide awareness campaign targeting educators, parents and learners to foster online safety, cyber hygiene and media literacy; and (ii) a cyber-security teaching initiative building on the Digital Competence Framework for Citizens, to empower people to use technology confidently and responsibly.

CONCLUSIONS

The rapid advance of FinTech is driving structural changes in the financial sector. In such a fast-moving environment, while overly prescriptive and precipitous regulation carries the risk of undesired outcomes, there are equally risks that refraining from intervention may place EU financial services providers at a disadvantage in an increasingly global market, or, for example with respect to cyber security, that key risks remain unaddressed.

This Action Plan combines both supportive measures to ease the uptake of FinTech solutions, and proactive measures designed foster and stimulate new solutions, or address risks that emerge. The Commission has set out its plans for further work on enabling, accommodating and, where possible, encouraging innovation in the financial sector, while ensuring at all times the preservation of financial stability. It is one important pillar of a broader strategic approach towards regulation in the post crisis environment. The goals are twofold: to harness rapid advances in technology to the benefit of the EU economy, industry and citizens and to foster a more competitive and innovative European financial sector.