University of Luxembourg

Multilingual. Personalised. Connected.

3x3 FinTech lecture series: FinTech in light of Big Data and the GDPR

Prof. Dr. Mark D. Cole – Faculty of Law, Economics and Finance, uni.lu /
Director for Academic Affairs, Institute of European Media Law (EMR)

RUL | RESEARCH UNIT IN LAW

EMR

Institut für Europäisches Medienrecht
Institute of European Media Law
Institut du droit européen des médias

uni.lu
UNIVERSITÉ DU LUXEMBOURG

Overview

Preliminaries

I. The **GDPR***

II. Big Data & the **GDPR**

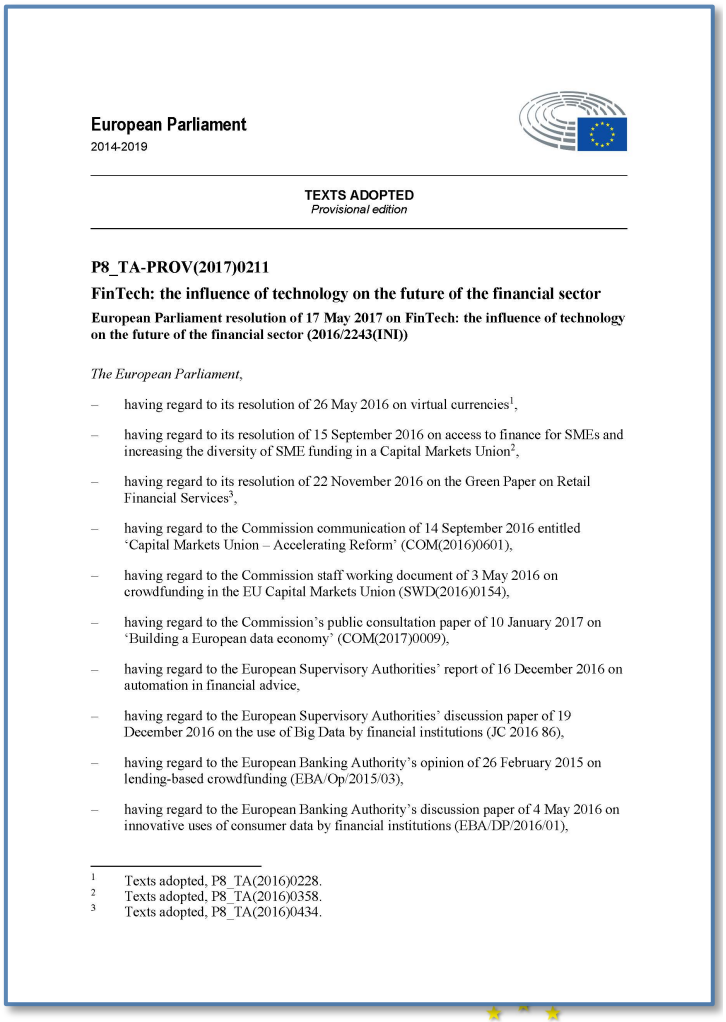
III. Fintech & Big Data & the **GDPR**

IV. Conclusions

* EU General Data Protection Regulation

Preliminaries

- **European Parliament (17 May 2017): FinTech: the influence of technology on the future of the financial sector**
  - Resolution, i.e. non-binding text, calling for action
- **Applicability**
  - whereas a broad range of FinTech developments are underpinned by new technologies, such as distributed ledger technology (DLT) applications, innovative payments, robo-advice, Big Data, the use of cloud computing, innovative solutions in customer onboarding/identification, crowdfunding platforms and many more
  - whereas FinTech developments, in particular in the area of domestic and cross-border payment solutions, can also support the continued development of a single market in goods and services and facilitate the achievement of the G20 and G8 '5x5 objectives' of reduction of cost of remittances;



European Parliament
2014-2019

TEXTS ADOPTED
Provisional edition

P8_TA-PROV(2017)0211

FinTech: the influence of technology on the future of the financial sector

European Parliament resolution of 17 May 2017 on FinTech: the influence of technology on the future of the financial sector (2016/2243(INI))

The European Parliament,

– having regard to its resolution of 26 May 2016 on virtual currencies[1],

– having regard to its resolution of 15 September 2016 on access to finance for SMEs and increasing the diversity of SME funding in a Capital Markets Union[2],

– having regard to its resolution of 22 November 2016 on the Green Paper on Retail Financial Services[3],

– having regard to the Commission communication of 14 September 2016 entitled 'Capital Markets Union – Accelerating Reform' (COM(2016)0601),

– having regard to the Commission staff working document of 3 May 2016 on crowdfunding in the EU Capital Markets Union (SWD(2016)0154),

– having regard to the Commission's public consultation paper of 10 January 2017 on 'Building a European data economy' (COM(2017)0009),

– having regard to the European Supervisory Authorities' report of 16 December 2016 on automation in financial advice,

– having regard to the European Supervisory Authorities' discussion paper of 19 December 2016 on the use of Big Data by financial institutions (JC 2016 86),

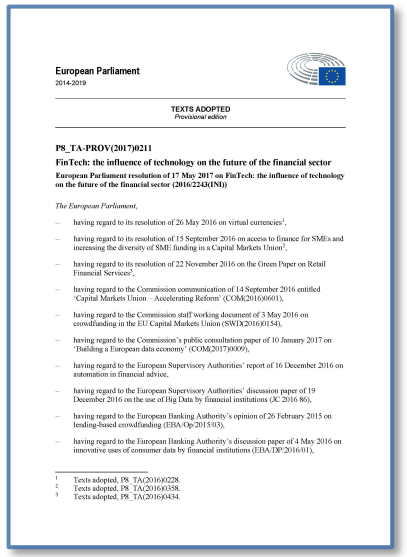
– having regard to the European Banking Authority's opinion of 26 February 2015 on lending-based crowdfunding (EBA/Op/2015/03),

– having regard to the European Banking Authority's discussion paper of 4 May 2016 on innovative uses of consumer data by financial institutions (EBA/DP/2016/01),

1 Texts adopted, P8_TA(2016)0228.
2 Texts adopted, P8_TA(2016)0358.
3 Texts adopted, P8_TA(2016)0434.

Preliminaries

- **European Parliament (17 May 2017) resolution:**
  - whereas legislation, regulation and supervision have to adopt to innovation and strike the right balance between incentives to innovative consumer and investor protection and financial stability; whereas FinTech requires a more balanced attitude as between 'regulating the institution' and 'regulating the activity'; whereas the complex interplay between FinTech and the current regulation can result in mismatches, with companies and service providers being regulated differently even if they perform substantially identical activities and with some activities not being well captured by the definition and/or scope of activities in the current regulation; whereas the current EU consumer and investor protection framework for financial services does not address all FinTech innovations adequately;
  - whereas, as FinTech emerges, consumers and investors must be able to continue relying on high standards of consumer and investor protection, of data protection and privacy rights and of legal responsibility on the part of financial services providers;



European Parliament
2014-2019

TEXTS ADOPTED
Provisional edition

P8_TA-PROV(2017)0211

FinTech: the influence of technology on the future of the financial sector

European Parliament resolution of 17 May 2017 on FinTech: the influence of technology on the future of the financial sector (2016/2243(INI))

The European Parliament,

– having regard to its resolution of 26 May 2016 on virtual currencies[1],

– having regard to its resolution of 15 September 2016 on access to finance for SMEs and increasing the diversity of SME funding in a Capital Markets Union[2],

– having regard to its resolution of 22 November 2016 on the Green Paper on Retail Financial Services[3],

– having regard to the Commission communication of 14 September 2016 entitled 'Capital Markets Union – Accelerating Reform' (COM(2016)0601),

– having regard to the Commission staff working document of 3 May 2016 on crowdfunding in the EU Capital Markets Union (SWD(2016)0154),

– having regard to the Commission's public consultation paper of 10 January 2017 on 'Building a European data economy' (COM(2017)0009),

– having regard to the European Supervisory Authorities' report of 16 December 2016 on automation in financial advice,

– having regard to the European Supervisory Authorities' discussion paper of 19 December 2016 on the use of Big Data by financial institutions (JC 2016 86),

– having regard to the European Banking Authority's opinion of 26 February 2015 on lending-based crowdfunding (EBA/Op/2015/03),

– having regard to the European Banking Authority's discussion paper of 4 May 2016 on innovative uses of consumer data by financial institutions (EBA/DP/2016/01),

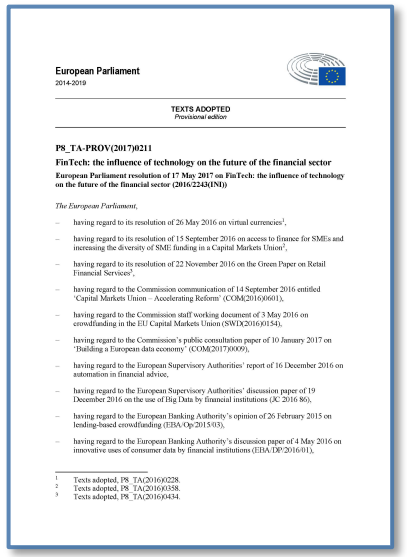
1 Texts adopted, P8_TA(2016)0228.
2 Texts adopted, P8_TA(2016)0358.
3 Texts adopted, P8_TA(2016)0434.

Preliminaries

- **European Parliament (17 May 2017) resolution – on Data:**

- 22. Recalls that the collection and analysis of data play a central role for FinTech, and therefore stresses the need for consistent, technology-neutral **application of existing data legislation, including the General Data Protection Regulation (GDPR)**, the Revised Payment Service Directive (PSD2), the Electronic Identification and Authentication Services (eIDAS) Regulation, the Fourth Anti-Money Laundering Directive (AMLD4) and the Network and Information Security (NIS) Directive; stresses that in order to scale up innovative finance in Europe a free flow of data within the Union is needed; calls on the Commission to take measures to ensure that only objective and relevant data elements are used in the context of the provision of financial services; …

- 23. Emphasises the need for clear rules on data ownership, access and transfer; highlights that increasing amounts of data are generated by machines or processes based on emerging technologies, such as machine learning; stresses that the **GDPR provides a clear legal framework on personal data** but that more legal certainty is needed regarding other categories of data; believes, in this regard, that a clear distinction should be made between raw data and data resulting from further processing;



European Parliament
2014-2019

TEXTS ADOPTED
Provisional edition

P8_TA-PROV(2017)0211

FinTech: the influence of technology on the future of the financial sector

European Parliament resolution of 17 May 2017 on FinTech: the influence of technology on the future of the financial sector (2016/2243(INI))

The European Parliament,

– having regard to its resolution of 26 May 2016 on virtual currencies[1],

– having regard to its resolution of 15 September 2016 on access to finance for SMEs and increasing the diversity of SME funding in a Capital Markets Union[2],

– having regard to its resolution of 22 November 2016 on the Green Paper on Retail Financial Services[3],

– having regard to the Commission communication of 14 September 2016 entitled 'Capital Markets Union – Accelerating Reform' (COM(2016)0601),

– having regard to the Commission staff working document of 3 May 2016 on crowdfunding in the EU Capital Markets Union (SWD(2016)0154),

– having regard to the Commission's public consultation paper of 10 January 2017 on "Building a European data economy" (COM(2017)0009),

– having regard to the European Supervisory Authorities' report of 16 December 2016 on automation in financial advice,

– having regard to the European Supervisory Authorities' discussion paper of 19 December 2016 on the use of Big Data by financial institutions (JC 2016 86),

– having regard to the European Banking Authority's opinion of 26 February 2015 on lending-based crowdfunding (EBA/Op/2015/03),

– having regard to the European Banking Authority's discussion paper of 4 May 2016 on innovative uses of consumer data by financial institutions (EBA/DP/2016/01),

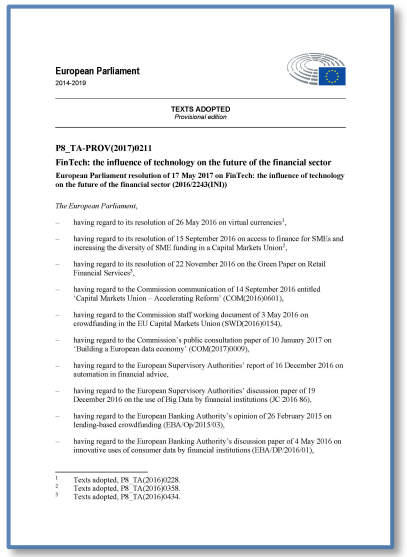
1 Texts adopted, P8_TA(2016)0228.
2 Texts adopted, P8_TA(2016)0358.
3 Texts adopted, P8_TA(2016)0434.

Preliminaries

- **European Parliament (17 May 2017) resolution:**

- 26. Notes the necessity of creating more awareness among consumers as regards the value of their personal data; ….

- 27. Recalls, in the context of the increased use of customer data or big data by financial institutions, the provisions of the GDPR, which grant the data subject the right to obtain an explanation of a decision reached by automated processing and to challenge this decision; stresses the need to guarantee that incorrect data can be changed and that only verifiable and relevant data are used; calls on all stakeholders to increase efforts to guarantee the enforcement of these rights; is of the opinion that consent given to the use of personal data needs to be dynamic and that data subjects must be able to alter and adapt their consent;



European Parliament
2014-2019

TEXTS ADOPTED
Provisional edition

P8_TA-PROV(2017)0211

FinTech: the influence of technology on the future of the financial sector

European Parliament resolution of 17 May 2017 on FinTech: the influence of technology on the future of the financial sector (2016/2243(INI))

The European Parliament,

– having regard to its resolution of 26 May 2016 on virtual currencies[1],

– having regard to its resolution of 15 September 2016 on access to finance for SMEs and increasing the diversity of SME funding in a Capital Markets Union[2],

– having regard to its resolution of 22 November 2016 on the Green Paper on Retail Financial Services[3],

– having regard to the Commission communication of 14 September 2016 entitled 'Capital Markets Union – Accelerating Reform' (COM(2016)0601),

– having regard to the Commission staff working document of 3 May 2016 on crowdfunding in the EU Capital Markets Union (SWD(2016)0154),

– having regard to the Commission's public consultation paper of 10 January 2017 on "Building a European data economy" (COM(2017)0009),

– having regard to the European Supervisory Authorities' report of 16 December 2016 on automation in financial advice,

– having regard to the European Supervisory Authorities' discussion paper of 19 December 2016 on the use of Big Data by financial institutions (JC 2016 86),

– having regard to the European Banking Authority's opinion of 26 February 2015 on lending-based crowdfunding (EBA/Op/2015/03),

– having regard to the European Banking Authority's discussion paper of 4 May 2016 on innovative uses of consumer data by financial institutions (EBA/DP/2016/01),

1 Texts adopted, P8_TA(2016)0228.
2 Texts adopted, P8_TA(2016)0358.
3 Texts adopted, P8_TA(2016)0434.

- **Any Questions?**

I. What is this GDPR?

- **GDPR = General Data Protection Regulation (Regulation(EU) 2016/679)**
  - New data protection law for the EU → Really new?
  - Builds on current data protection legislation: Directive 95/46/EC → think of **timeline**: 1981-1995-2002-2009-2012-2016-2018
  - Introduces new rights and obligations for **data subjects (DS)** and **data controllers (DC)** and **data processors (DP)**

- **Applicability**
  - Already in force, directly applicable in all EU Member States from 25 May 2018
  - Replaces Directive 95/46/EC + national data protection laws:
    - In Luxembourg: the GDPR replaces the Amended Act of 2 August 2002 concerning the protection of individuals with regard to the processing of personal data ("Data Protection Act") → currently happening…

The GDPR at a glance

- Art. 2 GDPR: “This Regulation applies to the processing of personal data wholly or partly by automated means and to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system.“
- Extended (territorial) **scope of application** to non-EU companies that target the EU market („marketplace EU“)
- Strenghtened and partially new **rights of the data subjects**
- Enhanced responsibility and new **obligations of the data controllers and data processors**
- Stronger national **data protection authorities (DPA)**
  - in Luxembourg the CNPD

The GDPR at a glance

- Art. 2 GDPR: “This Regulation applies to the processing of personal data wholly or partly by automated means and t[illegible]e processing other than by automated means of pers[illegible]ata which form part of a filing system or are intend[illegible]orm part of a filing system.“
- Extended (territorial) **scope of a[illegible]tion** to non-EU companies that target the E[illegible]rket („marketplace EU“)
- Strenghtened and [illegible]ly new **rights of the data subjects**
- Enhanc[illegible]ponsibility and new **obligations of the data con[illegible]s and data processors**
- Stronger national **data protection authorities (DPA)**
  - in Luxembourg the CNPD

(4) The processing of personal data should be designed to serve mankind.

Data subjects under the GDPR

- **Stronger, opt-in consent** required for data processing
- Rights of the data subjects: old and new
  - Right to information
  - Right of access
  - Right of rectification
  - Right to erasure **(„Right to be forgotten“)**
  - Right to the restriction of processing
  - **Right to data portability**
  - Right to object to the processing
  - Right not to be evaluated on the basis of automated processing (including profiling)

Controller and processors under the GDPR

- Enhanced responsibility of DC due to the new accountability principle
- Strenghtened and new obligations:
  - Enhanced transparency & documentation obligations
  - Enhanced security obligations
  - Data protection impact assessment
  - Data protection by design and by default
  - Data protection officers
  - Data breach notifications
- One single contact point due to the new one-stop-shop: DPA of main establishment is responsible for the supervision in the entire EU
- Dissuasive administrative sanctions in case of DP infringments: up to 4% of an undertaking‘s total annual worldwide turnover

Overview

I. The **GDPR***

II. Big Data & the **GDPR**

Preliminaries

1. Scope of protection
2. Respect for fundamental data protection principles
3. User control
4. Security
5. Data protection by design & by default

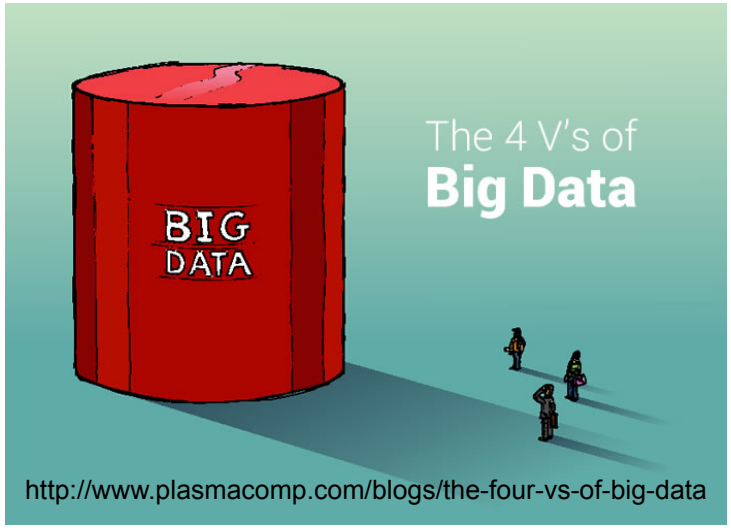
III. Fintech & Big Data & the **GDPR**

IV. Conclusions

II. What is Big Data?

- **Big Data = 4Vs**

Volume: Scale of the data
Variety: Diversity of the data in terms of sources of data generation
Velocity: High processing speed
Value: Added value due to data analysis



http://www.plasmacomp.com/blogs/the-four-vs-of-big-data

Data protection in the context of Big Data

- **There is no legal definition of Big Data!**
- **In terms of data protection**, Big Data encompasses the analysis of the data using software to extract new and predictive knowledge for decision-making purposes regarding individuals and groups

Big Data = Big Data and Big Data analytics

(Council of Europe, Guidelines on the Protection of Individuals with regard to the processing of personal data in a world of Big Data, 23 January 2017)

1. Scope of GDPR protection in the context of Big Data

- GDPR applies to personal data
  - Art. 4 (1) 'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person
  - Pseudonymised data also fall within the scope of the GDPR!!!
  - Only anonymised data are completely excluded from its scope
- Big Data: not all data are personal
  - e.g.: data generated by sensors for monitoring natural or atmospheric phenomena like the weather or pollution, or for monitoring technical aspects of manufacturing processes, may not relate to 'an identified or identifiable natural person'
- But risk of re-identification!
  - it is increasingly easy to infer a person's identity by combining allegedly 'anonymous' data with publicly available information

2. Fundamental data protection principles potentially in conflict with Big Data processing

- GDPR principles for processing
  - Fairness and transparency
  - Purpose limitation
  - Data minimisation
  - Data accurancy and relevance

- Clash: GDPR / Big Data:
  - Big Data is not transparent, especially in view of complex computer analytics
  - Purposeful vs. “opportunistic” Big Data data collection & processing
  - Data minimisation vs. Data „tsunami“/storm:
    - Big Data = collection of as much data as possible and then look for patterns (and potential uses)

3. User control

- Central role of consent for processing in the conception of GDPR
  - Consent in the GDPR = **freely given, specific, informed and unambiguous**
  - Validity of consent is strongly linked to transparency and adequate information of the data subject
  - Consent is also linked to the purpose of processing
    - Consent of the data subject is tied to one or more specific purposes (Rec. 32)
    - For consent to be considered informed the DS needs to know the purposes of the collection
    - Under the GRPR unconditional right to withdraw consent at any time!
- The value and role of consent are undermined by Big Data
- Control requires awareness of the use of personal data and real freedom of choice

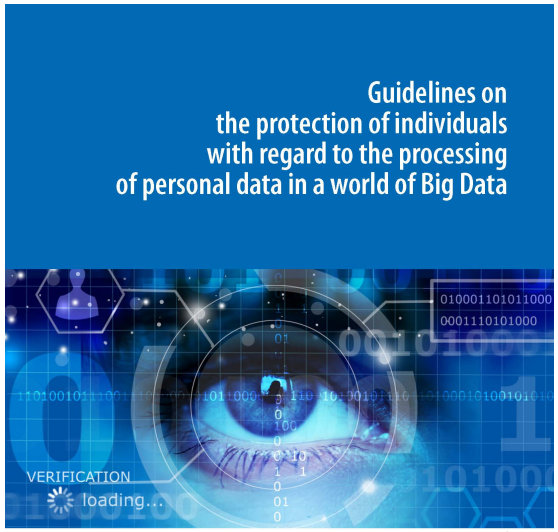
4. Security

- Existing security obligation enhanced by the GDPR
  - Art. 32 GDPR: „Taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, **the controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk**"
  - Risk-based approach of the GDPR
  - Role of codes of conduct and certifications
- Big Data: Increase in computing powers lead to increased data collection and data analytics
  - Challenge of ensuring adequate security
  - A system is as secure as the system's weakest link/element.
- Data Breach notification obligations

5. Data protection by design and by default

- DC shall **implement appropriate technical and organizational measures** (Art. 24)
- The exact measures to be implemented have to take into account:
  - state of the art, cost of implementation and the nature, scope and purposes of processing as well as the risks for the rights and freedoms of DS
- When do the measures need to be implemented?
  - **At the time of determining the means** for processing and throughout the entire processing to implement data protection principles and integrate safeguards into the processing
- What else has to be ensured?
  - That only data necessary for each specific purpose should be processed
  - That the data is not made accessible without the individual's intervention to an indefinite number of individuals

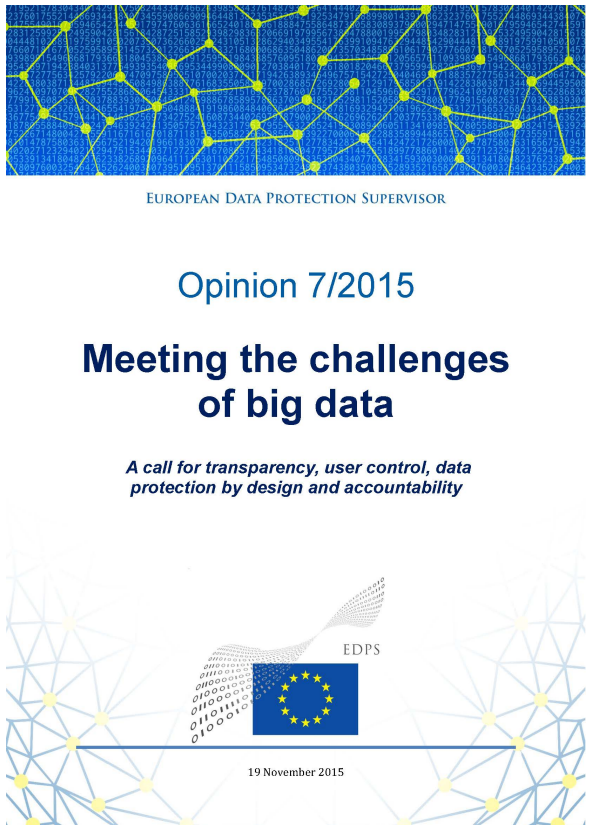
Council of Europe : Guidelines on the protection of individuals with regard to the processing of personal data in a world of Big Data, 23.01.2017



- Ethical and socially aware use of data
- Preventive policies and risk assessment
- Purpose limitation and transparency
- By-design approach
- Consent
- Anonymisation
- Role of human intervention in Big Data supported decisions
- Open data
- Education

EDPS: Opinion 7/2015 – Meeting the Challanges of Big Data

- European Data Protection Supervisor (EDPS) believes that responsible and sustainable development of big data must rely on four essential elements:
  - organizations must be much more transparent about how they process personal data;
  - afford users a higher degree of control over how their data is used;
  - design user friendly data protection into their products and services; and
  - become more accountable for what they do.



Overview

I. The **GDPR**

II. Big Data & the **GDPR**

III. Fintech & Big Data & the **GDPR**

Preliminaries

1. User control
2. Imbalance of power
3. Algorithm-based decisions
4. Many challenges to be tackled
5. EC Financial Technology Task Force

IV. Conclusions

III. What is Fintech?

- *„FinTech should be understood as finance enabled by or provided via new technologies, affecting the whole financial sector in all its components, from banking to insurance, pension funds, investment advice, payment services and market infrastructures “**
- *„any actor can be a FinTech, regardless of the kind of legal entity it is; whereas the value chain in financial services increasingly includes alternative actors such as start-ups or tech giants; whereas this term therefore includes a broad range of companies and services which differ widely from one another, pose different challenges and the regulatory treatment of which has to differ;“**

  *EP resolution of 17 May 2017 on „FinTech: the influence of technology on the future of the financial sector“

- Fintech:
  - traditional banks using new technologies
  - innovative start-ups disrupting the traditional banking sector
- <u>No legal definition of Fintech!</u>

What is Fintech?

- Examples of Fintech applications:
  - distributed ledger technologies (blockchain)
  - innovative payments
  - roboadvice
  - **big data** usage
  - cloud computing
  - crowdfunding platforms
  - innovative solutions in customer identification
- Cross-border financial services:
  crowdfunding and peer-to-peer lending
- Fintech enables tailor-made financial services
- Fintech encompassses also RegTech, InsurTech, Cybersecurity

Fintech and data

- The collection and analysis of data play a central role in Fintech
- Raw data and data resulting from further processing
  - Data generated by machines or processes based on emerging technologies such as machine learning
  - Data used for:
    - identifying opportunities for new products and services
    - optimising pricing and manage existing risks
- The data needs to be protected under the GDPR as long as it is personal data
- Financial data is not sensitive data under the GDPR, therefore no special protection regime
  - other than for medical data
  - other customer-related data may be sensitive

1. User control: the value of consent?

- Value of consent as a legal basis for data processing given the power imbalance is questionable: is consent really freely given?

  - *GDPR, Art. 7 (4): "When assessing whether consent is freely given, utmost account shall be taken of whether, inter alia, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract."*

...especially if the data subject is requesting a much needed credit

2. Imbalance of power

- Informational imbalance having negative consequences on the data subject
  - e.g credit reporting and the (impossibility) to correct inacurate data / verify the accuracy of the data
  - Recital 71 GDPR also provides for the need to guarantee that incorrect data can be changed and that only verifiable and relevant data are used

- Underlying problem of lack of transparency
  - Especially when using predictive analytics based on „obscure“ algorythms
  - Risks: Potential underlying bias having negative consequences for the DS

3. Algorithm-based decisions

- Increasing combination of personal data and algorithms in order to provide services such as robo-advice: but potential errors or biases in the algorithms or underlying data can cause harm to consumers
- Risks posed by machine learning and artificial intelligence
- GDPR (Art. 22): DS has the right not to be subject to a decision based solely on automated processing, including **profiling**
  - DS shall not be subject to purely automated decisions i.e. automated refusal of an online credit application
  - When such decisions are admissible, there is a need for suitable safeguards
    - information of the DS
    - possibility to obtain human intervention
    - to challenge the automated decision etc.

4. Fintech raises many challenges...

- Finding the right balance between data sharing and transparency on the one hand and data protection and investor security on the other.
- FinTech concerns of EU Commission
  - data management
  - data standardization
  - data sharing
  - data security
  - data accessibility
  - data supervision

5. Outlook: EC Financial Technology Tesk Force

- new agile innovative players with new business models, user-friendly consumer interfaces, peer to peer services, or advanced automated tools are changing the existing financial market

- European Commission to set up a **Financial Technology Task Force (FTTF)**
  - Co-chaired by DG FISMA and DG CONNECT
  - FTTF brings together services responsible for financial regulation and for the Digital Single Market, along with other colleagues dealing with competition and consumer protection policy
  - To engage outside experts and stakeholders
  - Aim: **to formulate policy-oriented recommendations and propose measures in the course of 2017**
  - TF to devise strategies for meeting potential challenges and to assess innovations in this field

Overview

I. The **GDPR**

II. Big Data & the **GDPR**

III. Fintech & Big Data & the **GDPR**

IV. Conclusions

IV. Conclusions

- Fintech has many potentially positive aspects
  - Regtech could help the supervisory authorities to better and easier carry out their tasks and missions
  - Distributed ledger technologies such as Blockchain could also be used by the supervisory authorities
  - Offers new ways of assessing the creditworthiness of a potential customer
  - Benefits to consumers such as the development of more tailored, segmented and cheaper offers, based on more efficient allocation of risk and capital
  - Creates new business models etc.

- But: Compliance with GDPR is not an option or choice, it is a must and lack of compliance can be painful...

IV. Conclusions

- You indeed still have questions and comments to make?
- Hurry and participate in the Consultation...

EUROPEAN COMMISSION
Directorate General Financial Stability, Financial Services and Capital Markets Union

INVESTMENT AND COMPANY REPORTING
Economic Analysis and Evaluation

CONSULTATION DOCUMENT

FINTECH: A MORE COMPETITIVE AND INNOVATIVE EUROPEAN FINANCIAL SECTOR

Disclaimer

This document is a working document of the Commission Services for consultation and does not prejudge the final decision that the Commission may take.

The views reflected in this consultation document provide an indication on the approach the Commission Services may take, but do not constitute a final policy position or a formal proposal by the Commission.

Commission européenne/Europese Commissie, 1049 Bruxelles/Brussel, BELGIQUE/BELGIË - Tel. +32 22991111
https://ec.europa.eu/info/business-economy-euro_en

RUL | RESEARCH UNIT IN LAW

University of Luxembourg
Research Unit in Law
4, rue Alphonse Weicker
L-2721 Luxembourg

www.uni.lu/fdef

Prof. Dr. Mark D. Cole
Faculty of Law, Economics and Finance (FDEF)
www.medialaw.lu
mark.cole@uni.lu

Institute of European Media Law (EMR)
Franz-Mai-Str. 6
D-66121 Saarbrücken
www.emr-sb.de
m.cole@emr-sb.de