



## Comments on the Principles for Operational Resilience

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The principles presented by the Committee, certainly, reflect the spirit of our context. Financial intermediaries (including those labelled as P2P), following the infrastructural trends unleashed by the Fourth Industrial Revolution (FIR) rely on global value chains, which are constituted by networks of actors that are linked through different sets of agreements in the development and offering of financial services. Within our financial markets, intermediaries can be identified as the main stakeholders; however, behind them, we are going to find hierarchies structured around the power held by certain companies that exercise certain level of infrastructural control based on their ownership of Intellectual Property Rights (IPRs) and their power to process of data, including personal data through algorithmic black boxes.

Based on this, this comment highlights the following elements within the referred principles that could improve their gradual incorporation in positive hard law:

- 1. Explicability within Principle 2.** One of the greatest challenges of the technologies adopted and diffused throughout our financial infrastructures is their lack of explainability. Law making, regulation and supervision of financial markets rely on the analysis and forecasting of participants' behavior. Unfortunately, just as it was verified in the context of the Great Financial Crisis (GFC), current financial alchemy relies on asymmetries of information. In an opinion published in the *Financial Times*, Alan Greenspan<sup>2</sup> argued that regulators:

*"can never get more than a glimpse at the internal workings of the simplest of modern financial systems. Today's competitive markets, whether we seek to recognise it or not, are driven by an international version of Adam Smith's "invisible hand" that is unredeemably opaque."*

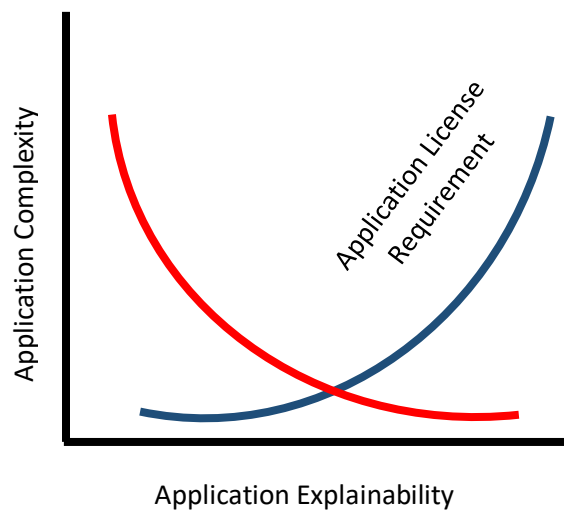
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<sup>2</sup> A. Greenspan, "Dodd-Frank Fails to Meet Test of Our Times" (2011), available at <https://www.ft.com/content/14662fd8-5a28-11e0-86d3-00144feab49a>, *Financial Times* (accessed on 6 February, 2020).

Now, this increased complexity and the product variability that results from it poses challenges not only for regulation, but also for those institutions that create and deal with new instruments and technologies. Consequently, if we want to improve operational risk management, Principle 2 could include or highlight a subprinciple based on the selection of explainable technology with the aim to simplify or standardize algorithmic finance to minimize the risks that could emerge from its complexity.

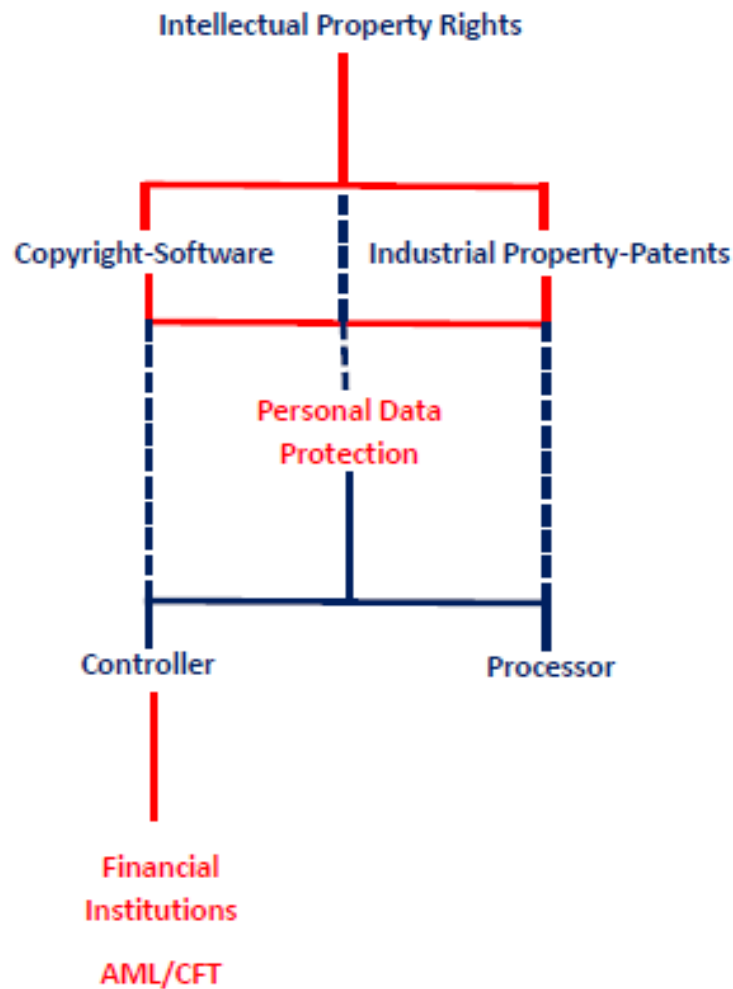
One of the normative elements that could emerge from this subprinciple could be a form of operating license by which the incorporation of certain explainable applications would require financial institutions to be licensed to do so<sup>3</sup>. Of course, those applications that could not comply under well-defined explainability requirements –particularly during their stay in a regulatory sandbox- should be banned from their incorporation within our financial infrastructures unless reasonable explanation for their operation is presented<sup>4</sup>.



2. **Identifying stakeholders for purposes of Principles 4 and 5.** Complementing the comment issued on principle 2, it is possible to argue that Principles 4 and 5 are very relevant to 1) identify the stakeholders involved and 2) the set the agreements by which intermediaries will have to answer for the failures of their systems. In other words, independently of the existence of the networks of stakeholders and agreements, intermediaries have to have the control of their infrastructures. Consequently, this comment presents a complementary proposal to identify the relevance of the stakeholders and refine the requirements set for the agreements referred within Principle 5.

<sup>3</sup> E. Kahana, “Quantum Computing and AI Algorithmic Bias” (2020), available at <https://law.stanford.edu/2020/02/06/quantum-computing-and-algorithmic-bias/>, *Stanford Law School* (accessed on 7 February, 2020).

<sup>4</sup> J. Schemmel, “Artificial Intelligence and the Financial Markets: Markets as Usual?” in T. Wischmeyer and T. Rademacher (eds), *Regulating Artificial Intelligence* (2020, Cham: Springer Nature) 255-276, at 270.



In the figure shown above, we can see scheme that represents the interaction of several stakeholders within a single service under the light of three regulatory spheres (IP Law, Personal Data Protection and Anti-Money Laundering/Combating of Financing of Terrorism (AML/CFT)), which could be useful to materialize the mapping described in Principle 4. In the first level, we are going to find the owners of IPRs. Within this level, we have to separate/identify 1) the owners of moral and economic rights related to copyright elements, such as, software, and 2) the owners of the industrial property rights related to the inventions and innovations protected by patents, utility models, among other figures that support the referred software. With the exception of those intermediaries that develop and control their own infrastructures, we need to verify that financial intermediaries have the rights that will allow them to control the selected infrastructures. For example, a survey developed by the Bank of England<sup>5</sup> mentions that some intermediaries employ OS software; however, we have

<sup>5</sup> Bank of England, “Machine Learning in UK Financial Services” (2019), available at <https://www.bankofengland.co.uk/report/2019/machine-learning-in-uk-financial-services>, Bank of England (accessed on 6 June, 2020).

to be careful given that most of the times we do not consider the existence of moral rights that give certain control to the original author as we can infer from the case *Jacobsen v Katzer*<sup>6</sup>. With these elements in mind, we have to consider these elements in the agreements referred in Principle 5.

Within the second level, we are going to find the controllers and processors of personal data, which can be identified following the chain of transfers of IPRs. For instance, a financial institution that acquires a license on the components of a technological infrastructure used to process personal data for purposes of credit scoring, will be considered the controller for purposes of regulations, such as, the European General Data Protection Regulation (GDPR). At the same time, if the referred infrastructure is supported/controlled by a third party, this latter would be considered as a processor. Again, these relationships have to be developed appropriately in the respective agreements reflecting the requirements set by GDPR; a relevant point if we consider the reports required by the Financial Action Task Force, which could rely on technologies like Machine Learning (ML) to process personal data and avoid the “crying wolf” problem.

From the content of the principles under analysis and these comments, we can conclude that risks and their contagion will not depend on Eugene Fama’s rationality, but on the interaction among infrastructures, which are based on “irrational” coded algorithms, which, in turn, will not react on a coordinated way. Building upon this fact, through the gradual implementation of these principles, we have to highlight the risks behind financial black boxes that could give form to the next generation of financial infrastructures and their systemic relevance, and propose a set of standards to uniform these structures to coordinate actions and avoid contagion in Machine-to-Machine (M2M) interactions.

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<sup>6</sup> [2008] 535 F.3d 1373 (US), at 1381.