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## ***Technology and Regulation in Digital World of Finance. RegTech and SupTech: benefits and challenges for the upcoming years***

### ***Abstract***

*The development of new technologies such as artificial intelligence, cloud computing, or blockchain is changing the world of finance. We are producing more and more data that may be gathered, analyzed and enriched in seconds to create more personalized outcomes, including products. At the same time, we are facing a regulatory tsunami that creates new challenges for financial institutions that have to comply with an increasing amount of obligations. As a result, such entities are not only generating more operational costs but also are more vulnerable to human errors that may be a consequence of manual processes and a lack of automation. As the answer to this challenging environment, many technology providers are proposing new solutions for regulatory compliance (RegTech) and supervision (SupTech). The level and pace of development in this area are however not sufficient and satisfactory due to challenges and barriers that currently exist. This paper identifies the most challenging issues that should be eliminated to create a more friendly environment for RegTech and SupTech – and in fact – financial institutions and supervisors. It also proposes certain actions to be taken at the global and national levels.*

### **Introduction**

Financial services will never be the same as they were 10 years ago<sup>1</sup>. The ongoing and dynamic digital transformation and the evolution of customer and supervisor expectations present banks (and the financial sector in general) with yet another challenge that must be met to maintain not

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<sup>1</sup> R. Pothumsetty, *Implementation of Artificial Intelligence and Machine learning in Financial services*, International Research Journal of Engineering and Technology, Volume: 07 Issue: 03, Mar 2020,.

only trust but also position in a world where the barrier to entry is no longer "spectacular" and the appetite for a thriving business in the financial sector is not lacking. There is a growing number of regulations that financial institutions have to "cope" with, not only in terms of one-off implementation but ongoing monitoring, i.e. legal and regulatory compliance<sup>2</sup>. In this increasingly competitive and uncertain environment, there are more and more temptations to bend some standards to achieve a business goal. Risks may emerge also as a result of the malfunctioning of technology, such as an algorithm-based systems, which are, after all, still being developed and not always fully transparent.

The level of accountability for customers and their resources and external threats, including cybersecurity, is at an all-time high and subject to increased oversight by regulators. Customers are also becoming more aware and their expectations in this area are rising. This is causing financial institutions to grapple with an increasing number of responsibilities and requirements<sup>3</sup>, while at the same time there is growing pressure (mainly from shareholders) to reduce operating costs<sup>4</sup>. In all of this comes ethics, which can be understood in many ways especially with regard to the application of new technology<sup>5</sup>, including the need to ensure that human actions<sup>6</sup> or tools, such as popular chatbots, comply with the aforementioned regulations<sup>7</sup>.

Maintaining the pace of these changes can be difficult if done solely in a manual manner. Such processes are also prone to human error. Manual processes have the disadvantage that they do not always capture all the nuances of regulation and may not cover all the areas. Therefore, with the growing number of regulations, it seems necessary to "harness" technology, at least to support humans in the area of compliance.

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<sup>2</sup>[https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Reports/2021/1015484/EBA%20analysis%20of%20RegTech%20in%20the%20EU%20financial%20sector.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1015484/EBA%20analysis%20of%20RegTech%20in%20the%20EU%20financial%20sector.pdf) (access: 31.07.2021).

<sup>3</sup> . Prenio, J. Yong, *Humans keeping AI in check – emerging regulatory expectations in the financial sector*, FSI Insights on policy implementation No 35, August 2021, p. 5.

<sup>4</sup> J. Truby, R. Brown, A. Dahdal, (2020) Banking on AI: mandating a proactive approach to AI regulation in the financial sector, *Law and Financial Markets Review*, 14:2, 110-120, DOI: 10.1080/17521440.2020.1760454, p. 117.

<sup>5</sup> T. Hagendorff, *The Ethics of AI Ethics: An Evaluation of Guidelines*, *Minds and Machines* (2020) 30:99–120 <https://doi.org/10.1007/s11023-020-09517-8>.

<sup>6</sup> J. Prenio, J. Yong, *Humans keeping AI in check – emerging regulatory expectations in the financial sector*, FSI Insights on policy implementation No 35, August 2021.

<sup>7</sup> S. L. Piano, *Ethical principles in machine learning and artificial intelligence: cases from the field and possible ways forward*, *Humanities and Social Sciences Communications* volume 7, Article number: 9 (2020), p. 6.

However, the environment of so-called Regulatory Technology (RegTech)<sup>8</sup>, that is broadly defined as a technology that helps regulated entities to navigate the difficult area of regulation and fulfill their obligations to regulators, is still an undeveloped space whose value and importance are constantly growing<sup>9</sup>. Irrespective of the fact that in 2018 alone, global investments in this area amounted to nearly \$4.5 billion<sup>10</sup>.

More and more solutions are appearing on the side of supervisory authorities that perform an "analogous" function to RegTech for the financial sector. We are talking about the so-called SupTech, which is also implemented at the national level. These types of solutions allow - ultimately - to conduct supervision in real mode, thus increasing the effectiveness of supervision, also with respect to the ethical<sup>11</sup> part of business that becomes more important that ever.

These areas have been recognized by both national and EU supervisors and regulators<sup>12</sup> and the Commission (EU), which emphasized in the Digital Finance Strategy the importance and necessity of further development of RegTech and SupTech at the EU level<sup>13</sup>. Significant changes in this area, including ensuring that "parts of EU legislation are available for natural language processing, in machine-readable and executable format and, more broadly, to facilitate the development and implementation of reporting requirements" are to be realized over the coming years (as proposed – by 2024). The European Banking Authority also has similar assumptions<sup>14</sup> and has a strong motivation to create a more friendly environment for RegTech and SupTech solutions that will inevitably help institutions and public authorities in coping with regulatory requirements. In Asia the RegTech is also becoming more and more important. Hong Kong Monetary Authority has recently started implementing<sup>15</sup> its 2-years

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<sup>8</sup> J. A. Barefoot, Digitizing Financial Regulation: Regtech As A Solution for Regulatory Inefficiency and Ineffectiveness, M-RCBG Associate Working Paper Series | No. 150, June 2020.

<sup>9</sup> <https://fintech.global/the-regtech-sector-shows-no-signs-of-cooling-with-2-5bn-raised-already-this-year/> (access: 1.08.2021).

<sup>10</sup> <https://fintech.global/more-than-9-5bn-has-been-invested-in-regtech-companies-globally-over-the-last-five-years/> (access: 1.08.2021).

<sup>11</sup> - M. D. Dubber, F. Pasquale, S. Das, *The Oxford Handbook of Ethics of AI*, Oxford 2020.

<sup>12</sup> <https://eba.europa.eu/eba-consults-use-regtech-solutions-and-ways-support-uptake-regtech-across-eu> (access: 1.08.2021).

<sup>13</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0591> (access: 31.07.2021).

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[https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Reports/2021/1015484/EBA%20analysis%20of%20RegTech%20in%20the%20EU%20financial%20sector.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1015484/EBA%20analysis%20of%20RegTech%20in%20the%20EU%20financial%20sector.pdf) (access: 1.08.2021).

<sup>15</sup> <https://www.hkma.gov.hk/media/eng/doc/key-information/press-release/2021/20210617e5a1.pdf> (access: 1.08.2021).

roadmap<sup>16</sup> for regulatory and supervisory technologies. It is worth noting that also the ECB that has significant impact on supervision in the Eurozone is highlighting the importance of SupTech<sup>17</sup>.

We should not also forget that the vast number of legal acts, including Digital Operational Resilience Act (DORA)<sup>18</sup>, NIS2<sup>19</sup> and Artificial Intelligence Act (AIA)<sup>20</sup>, are currently under development and – if adopted – will increase a regulatory burden for financial institutions. For example, Center for Data Innovation has made its own assessment of the impact of AIA that concluded that average cost of compliance for one high-risk systems may cost SMEs around 400.000 EUR<sup>21</sup>. Even though this assessment may be a little bit exaggerated, the cost of regulatory compliance for financial institutions will be rising in the upcoming years<sup>22</sup>.

The combination of technology and regulatory compliance can significantly contribute to better management of the institutions and people performing tasks on the institution-client line, especially when there is an automated tool on the front-end of the institution, such as a chatbot or robo-advisor. It's also important to support ongoing compliance. Ethics that also calls for legal and regulatory compliance in finance can no longer be viewed solely through the prism of the "proteinogenic" element, which is the human being<sup>23</sup>. We are subject to increasing automation and there is no escaping the fact that solutions based on commonly understood artificial intelligence<sup>24</sup> and data analysis will begin – sooner or later - to take over some of our roles, also in the sales context (even if this will not happen overnight).

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<sup>16</sup> <https://www.hkma.gov.hk/media/eng/doc/key-information/press-release/2020/20201102e3a1.pdf> (access: 1.08.2021).

<sup>17</sup> <https://www.bankingsupervision.europa.eu/press/speeches/date/2021/html/ssm.sp210527~8b69fbb1de.en.html> (access: 5.08.2021).

<sup>18</sup> Proposal for a Regulation of the European Parliament and of the Council on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014 and (EU) No 909/2014, COM(2020) 595 final, 2020/0266(COD).

<sup>19</sup> Proposal for a Directive of the European Parliament and of the Council on measures for a high common level of cybersecurity across the Union, repealing Directive (EU) 2016/1148, COM(2020) 823 final 2020/0359 (COD).

<sup>20</sup> Proposal for a Regulation of the European Parliament and of the Council laying down harmonized rules on Artificial Intelligence and amending certain union legislative acts, COM/2021/206 final.

<sup>21</sup> <https://media-exp1.licdn.com/dms/document/C4E1FAQGTDdFzyPZ7FQ/feedshare-document-pdf-analyzed/0/1627456372680?e=1627592400&v=beta&t=BSoaHsfgKuxCLFJLFOVpsjot8-vDJw9W0oyTzoJgwvQ> (access: 1.08.2021).

<sup>22</sup> [https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Reports/2021/1013948/Study%20of%20the%20cost%20of%20compliance%20with%20supervisory%20reporting%20requirement.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1013948/Study%20of%20the%20cost%20of%20compliance%20with%20supervisory%20reporting%20requirement.pdf) (access: 1.08.2021).

<sup>23</sup> M. Chinen, *Law and Autonomous Machines. The Co-evolution of Legal Responsibility and Technology*, Elgar 2019, p. 13.

<sup>24</sup> I will not elaborate on the definition of artificial intelligence, even though, it is interesting and important topic from a legal and regulatory perspective. For more on that issue see, i.a. M. Ebers, S. Navas (ed.), *Algorithms and*

At the same time, it should not be forgotten that solutions based on the latest technologies may also generate certain risks<sup>25</sup>, including bias, discrimination, or explainability<sup>26</sup>. These issues will be discussed later in this paper, but now it should be pointed out that many of the RegTech solutions use quite imperfect technology of natural language processing, so further development - at least in some areas - depends on the pace of changes at the system level.

## I. What is RegTech

There is no uniform definition<sup>27</sup> of RegTech, but there is a consensus that this includes solutions that, using the latest technologies, allow more efficient management of the regulatory environment of the institution<sup>28</sup>. In one of the reports on the state of development of RegTech, we can find a definition according to which it is the use of technology to combine structured and unstructured data into advanced networks (so-called taxonomies) or decision rules to automate compliance and other similar processes.

In turn, the European Securities and Markets Authority (ESMA) report refers to RegTech as information technologies used for regulatory compliance, including risk management. These technologies most often refer to the use of machine learning (or more broadly - artificial intelligence), cloud computing, and deep learning, including natural language processing (NLP)<sup>29</sup>. So-called application programming interfaces - APIs - are also more widely used, which allows different components to be linked together in a single network of relationships. In short – we can just say that RegTech is ‘the use of technology to help regulated firms meet their regulatory obligations’<sup>30</sup>.

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*Law*, Cambridge 2020, L. Lai, M. Świerczyński, *Prawo sztucznej inteligencji* (available in Polish), Warszawa 2020 and other.

<sup>25</sup> M. Cantero Gamito, M. Ebers, *Algorithmic Governance and Governance of Algorithms: An Introduction* [in:] M. Cantero Gamito, M. Ebers, *Algorithmic Governance and Governance of Algorithms. Legal and Ethical Challenges*, Springer 2021, p. 2.

<sup>26</sup> B. Kim, J. Park, J. Suh, *Transparency and Accountability in AI Decision Support: Explaining and Visualizing Convolutional Neural Networks for Text Information*, April 2020, *Decision Support Systems* 134:113302.

<sup>27</sup> D. W. Arner, J. Barberis, R. P. Buckley, *FinTech, RegTech and the Reconceptualization of Financial Regulation*, *Forthcoming: Northwestern Journal of International Law and Business*, October 2016.

<sup>28</sup> M. Becker, K. Merz, R. Buchkremer, *RegTech—the application of modern information technology in regulatory affairs: areas of interest in research and practice*, <https://doi.org/10.1002/isaf.1479>, June 18, 2020.

<sup>29</sup> [https://www.esma.europa.eu/sites/default/files/library/esma50-report\\_on\\_trends\\_risks\\_and\\_vulnerabilities\\_nol\\_2019.pdf#page=42](https://www.esma.europa.eu/sites/default/files/library/esma50-report_on_trends_risks_and_vulnerabilities_nol_2019.pdf#page=42) (access: 1.08.2021).

<sup>30</sup> <https://www.theglobalcity.uk/PositiveWebsite/media/Research-reports/2021-A-Critical-Year-for-RegTech-final.pdf> (access: 1.08.2021).

Regardless of the definition adopted, RegTech can have many applications<sup>31</sup>, including:

1. Customer verification (Know Your Customer) and AML<sup>32</sup>.
2. Risk management, including creditworthiness assessment<sup>33</sup>.
3. Fraud prevention (anti-fraud) systems.
4. Supporting reporting processes to the regulator.
5. Regulatory "change management" processes.
6. Automation of processes and the most interesting in the context of ethics - monitoring of potentially unethical behavior.

The advancement of specific technologies is not yet at the same level. Some technologies are developing faster (cloud computing), while others require solving many problems, including systemic ones, in particular those widely understood artificial intelligence. Recent years, however, clearly showed that the dynamics of these changes are significant and, in many places, may "exceed" the capabilities of the financial sector. This results from the use of so-called "legacy systems" or regulatory constraints arising from old systems or regulatory restrictions resulting from, among others, banking law and guidelines of relevant authorities (outsourcing).

## **II. RegTech – applications and issues**

RegTech offers many possibilities which can successfully replace "manual" or "proteinogenic" processes in an equally, if not more, efficient way. An example of such application may be the verification of the so-called client communication for the presence of certain phrases which may suggest prohibited or unethical behavior, e.g. in the context of the borderline between investment advice and brokerage (intermediary) services. Solutions based on the NLP (natural language processing) may also be used for detecting attempts at fraud or violations of standards concerning conflicts of interest and related issues. They can also be used to support the credit

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<sup>31</sup> But only from the RegTech perspective: L. Al-Blooshi, H. Nobanee, *Applications of Artificial Intelligence in Financial Management Decisions: A Mini-Review*, SSRN Electronic Journal · February 2020.

<sup>32</sup> FATF, *Opportunities and Challenges of New Technologies for AML/CFT*, July 2021, accessible <https://www.fatf-gafi.org/media/fatf/documents/reports/Opportunities-Challenges-of-New-Technologies-for-AML-CFT.pdf> (access: 2.08.2021).

<sup>33</sup> L. Gambacorta, Y. Huang, H. Qiu and J. Wang, *How do machine learning and non-traditional data affect credit scoring? New evidence from a Chinese fintech firm*, BIS Working Papers No 834, December 2019.

rating process<sup>34</sup>, although they may also contribute to accusations of discrimination<sup>35</sup> and algorithmic bias<sup>36</sup>, which will be discussed later.

In general, it can be said that RegTech solutions can support all those processes which are based on certain rules and which can be verified and analyzed, e.g. by an algorithm. For example, if an employee uses certain phrases in correspondence with a client, a tool using natural language processing can send an appropriate alert to a supervisor (e.g. compliance officer) with information about a potential violation (e.g. unauthorized investment advice). This can be done in "real-time" mode, i.e. on an ongoing basis (more difficult variant) or *post factum*, e.g. in specific time intervals (easier variant). It is worth noting that such solutions work not only for written language but also for spoken language, although here the progress is much smaller.

A very similar application can be found concerning the creation and verification of marketing materials. With a properly calibrated tool, it is possible to review such materials for the presence of "incorrect" phrases or entire sentence constructions that could, for example, mislead the customer.

Similarly, algorithms can review more structured data or information, e.g. financial data or remuneration levels (e.g. in the context of remuneration policies required by CRDV/CRR II), and provide information to the relevant entities in an early-warning mode.

From the client's point of view, it is also important to use such solutions concerning unauthorized (payment) transactions. Such tools allow us to verify - based on certain "model" behaviors - whether a given transaction "belongs" to a given user or whether it shows elements of an unauthorized transaction not initiated by the user. The ethical thread here is of course much smaller, but it is worth mentioning to see the benefits that arise in the RegTech context.

Less advanced (yet) in terms of technology, but equally important, are also solutions that allow monitoring compliance with laws and regulations and detecting possible shortcomings or

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<sup>34</sup> Ch. L. Dunis, P. W. Middleton et. al, *Artificial Intelligence in Financial Markets. Cutting-edge Applications for Risk Management, Portfolio Optimization and Economics*, Palgrave/MacMillan 2016.

<sup>35</sup> J. Gerards, R. Xenidis, *Algorithmic discrimination in Europe: Challenges and opportunities for gender equality and non-discrimination law. A special report*, 2020.

<sup>36</sup> D. Leslie, *Understanding artificial intelligence ethics and safety. A guide for the responsible design and implementation of AI systems in the public sector*, The Alan Turing Institute. <https://doi.org/10.5281/zenodo.3240529>.

violations. Thus, these are tools that can serve primarily the units involved in internal control, both compliance and audit units. These solutions can provide better control of business units and thus early detection of potential violations, their correction, and subsequent training. The important point here is that the more data there is, the more effective such tools will be, as algorithms have to learn constantly to become effective.

There are also tools that can supervise the actions of algorithms, especially in terms of the occurrence of discrimination or bias. This is one of the most interesting issues related to the use of artificial intelligence in the broad sense, however, one of the most challenging while there is no clear guidance how to avoid such irregularities. Also the level of technological advancement is still low, even though, some standards are being developed globally<sup>37</sup>.

It is worth noting that such solutions not only ensure that the activities of the institution remain ethical, but also make it possible to avoid possible reactions (actions) of the supervisor in case of a violation, including administrative sanctions, and reduce the reputation risk. They also allow for the reduction of operational risks in many areas.

So if we look at ethical issues from a broader perspective - like compliance with regulations and laws - then RegTech applications can be found in almost every area. However, as it has been emphasized, the level of development of these tools varies, which is also derived from certain limitations related to the processing of personal data, especially sensitive ones, and lack of wider guidance by the authorities and policymakers.

### **III. SupTech - applications and issues**

RegTech is a solution on the side of financial institutions, but it should not be forgotten that new solutions are also emerging on the side of the supervisor. However, their level of sophistication and implementation is much lower due to the limitations of the public sector. These solutions, called SupTech or Supervisory Technology, may in the future contribute to improving the effectiveness of supervision, but also reduce the level of burdening supervised institutions with, among others, reporting obligations<sup>38</sup>.

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<sup>37</sup> <https://standards.ieee.org/industry-connections/ec/autonomous-systems.html> (access: 9.10.2021).

<sup>38</sup> Financial Stability Board, *The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions Market developments and financial stability implications*, 9 October 2020.

At this point it is worth noting two key solutions that may have such a significant impact<sup>39</sup>:

1. Regulations written in machine language (this is one of the assumptions of Digital Finance Strategy, which assumes that a significant part of the legislation will be written in language understandable for algorithms)<sup>40</sup> and
2. Real-time supervision using API access interfaces.

In addition, supervision authorities should use advanced analytics to ensure that entities are effectively supervised. This is, however, not an easy task as truly advanced analytics requires data of good quality and quantity, infrastructure (computing power), human resources (including knowledge, competences, and experience) and internal organization at a decent level. And of course – budget.

The first solution is very important from the point of view of RegTech development, which has been signaled before. Making it easier for algorithms to read certain rules or regulations and "translating" them into specific obligations can significantly improve the quality of regulatory compliance, as well as speed up many implementations or control processes within the organization, including the control of behavior in terms of compliance with ethical standards (more broadly - regulatory).

The second solution, however, which involves many changes at the legislative, operational, infrastructural, and technological levels, may in the future ensure that potentially dangerous activities on the part of supervised institutions may be detected at an early stage and eliminated. This may certainly contribute to more stable management of the individual institutions and the whole market. These reporting duties will also be able to be performed with greater precision and less human involvement.

Such tools, to some extent, are provided for in the Digital Supervision Agenda<sup>41</sup> of the Financial Supervision Authority in Poland, which also assumes the introduction of new forms of

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<sup>39</sup> S. di Castri, S. Hohl, A. Kulenkampff, J. Prenio, *The supotech generations, FSI Insights on policy implementation No 19*, October 2019, <https://www.bis.org/fsi/publ/insights19.pdf> (access: 2.08.2021).

<sup>40</sup> E. Micheler, A. Whaley, *Regulatory Technology: Replacing Law with Computer Code*, *European Business Organization Law Review* (2020) 21:349–377.

<sup>41</sup> [https://www.knf.gov.pl/knf/pl/komponenty/img/Cyfrowa\\_agenda\\_nadzoru\\_68264.pdf](https://www.knf.gov.pl/knf/pl/komponenty/img/Cyfrowa_agenda_nadzoru_68264.pdf) (access: 05.08.2021).

communication and interactivity with the Authority and the extension of process automation. Even such a small change can significantly contribute to preventing unethical activities if properly implemented. Greater accessibility to the supervisor and clarity of responsibilities (and the ability to obtain appropriate interpretation) can certainly increase certainty on the part of financial institutions.

#### **IV. Difficulties of RegTech and SupTech in the “traditional” environment**

The implementation and development of RegTech and SupTech solutions currently presents many challenges, although in some areas there are far fewer challenges due to the greater advancement of the technology and more openness of the ‘receivers’. These challenges are different and can be identified both in terms of infrastructure or technology, as well as regulatory or operational (including in the context of financial and human resources). One of the significant problems faced by developers of RegTech solutions is the lack of interoperability, which in this case should be understood as the inability to quickly implement solutions at the level of institutions, as well as limitations related to the possibility of banking outsourcing in risk management of banking activities. Institutions are often reluctant to engage immature institutions (start-ups) for sensitive areas of their regulated activity as the outsourcing requirements are overwhelming.

This limits the possibility of introducing solutions to improve (automate) some processes in the bank (and other financial institutions). Banks have often different and outdated systems, usually quite old (legacy systems), that makes implementation of even relatively simple solutions technologically and operationally difficult (the challenge becomes even more challenging when CRM or ERP is mentioned). In addition, banks are often wary of entrusting such a sensitive part of the business as regulatory risk management or reporting to the regulator, believing that this area is the sole responsibility (and liability) of the institution. This is also influenced by the fact that many of the RegTech vendors are relatively new entities with an undeveloped reputation. This fact also plays a role in the bank's decision-making. A certain barrier is also the lack of effective (if any) SupTech solutions (including APIs) that could "receive" the data produced by RegTech and make use of it.

Another problem is undoubtedly the lack of harmonization of regulations across jurisdictions, which means that RegTech solutions are most often local with little potential for scalability,

although this does not mean that attempts to create multi-jurisdictional products are not being made (see [Global Financial Innovation Network](#)) . If we add to this the language component, which is important in the context of those algorithms that use natural language processing, it turns out that the barriers are much more numerous than the potential benefits - from the perspective of the provider of such solutions (investors are also looking for more scalable solutions).

It also cannot be forgotten that we continue to struggle - globally and regionally - with data access issues. In particular, projects aimed at opening up data and its possible use, e.g. through access interfaces (API), will influence the advancement of technological solutions. This is one of the conditions for further development of such tools, however, in many jurisdictions we see a clear direction for data restrictions that may – at some point – hamper the (r)evolution of RegTech.

## **V. Possible solutions**

Most of the actions that could lead to faster development of the RegTech and SupTech area require actions of a systemic nature, covering not only the financial sector. Both regulators and EU/international institutions pay attention (and see the potential) to the need to introduce solutions aimed at facilitating the functioning of RegTech tool providers. We can find an important statement in the already mentioned Strategy for the EU in Digital Finance, where the Commission indicates that "[t]he Commission will also explore how technical solutions developed to help firms meet their regulatory compliance obligations ("RegTech") could be certified and will promote common approaches in this area, including interoperability". This seems to be the right direction.

Introducing certain standards, including ethical ones, in terms of experience, knowledge, or security (e.g. in the context of "professional" secrecy) may lend credibility to such providers both vis-à-vis their potential clients - institutions - and supervisors, who to some extent may scrutinize these relationships e.g. in the context of outsourcing. A similar approach is presented by the draft NIS Directive 2, which provides a form of certification for providers of cybersecurity services. The question is, however, how such framework should be actually framed.

Regardless, for further development of such solutions, there is a need for:

1. Introduction of standards for creating regulations, so that they can be more easily read by algorithms and processed into specific obligations of institutions – a good example is the approach presented in the Open Data Directive<sup>42</sup> where public data should be presented in a machine-readable format<sup>43</sup>.
2. Open data and wider use of access interfaces – APIs.
3. Education on the availability of RegTech/SupTech tools.
4. Creating a transparent framework for providers and institutions, including outsourcing.

It is also important to develop solutions allowing for the verification of the operation of algorithms for violation of the principle of non-discrimination or bias (algorithmic bias), which is particularly important in the case of, for example, creditworthiness assessment. Some tools allow verifying whether a given algorithm - e.g. the aforementioned creditworthiness assessment - does not use discriminatory practices, e.g. only for people of particular skin color or religion, and may make appropriate corrections. This allows for non-discriminatory treatment of customers, which is also important in the context of transparency required.

What also seems to be important in the context of further development of RegTech is the creation of initiatives of a systemic and sectoral nature that will allow increasing interest in RegTech tools both on the part of recipients and potential providers. It seems that in this context it is worth considering the involvement of various industry organizations and associations, both at global and national level. Developing a common position and striving for the development of RegTech is important for the entire financial sector, including regulators. Implementation and use of tools from the broader compliance can significantly contribute to increasing the stability of institutions, as well as deepening confidence in the entire sector.

It is equally important to support all activities aimed at making laws and regulations clearer and more understandable (also to machines). This is a *sine qua non* condition for further development of RegTech and SupTech to a level enabling automation of many processes,

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<sup>42</sup> Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, J.o.l. of 2019, L-172/56.

<sup>43</sup> D. Szostek, *Is the Traditional Method of Regulation (the Legislative Act) Sufficient to Regulate Artificial Intelligence, or Should It Also Be Regulated by an Algorithmic Code?*, Białostockie Studia Prawnicze 2021, vol. 26, nr 3.

including reporting. Currently, laws and regulations are written in a way that makes it difficult to identify individual obligations, as well as difficult to "decipher" by, for example, machine learning algorithms.

As already indicated, both the Commission (EU) and the European Banking Authority aim to introduce standardization in this area by developing legislation and regulations in an algorithm-readable format by 2024. Such an approach at the EU level can significantly support the further development of RegTech, however, it should not be forgotten that we still do not have fully harmonized regulations for the financial sector in the European Union.

The role of unions and industry associations is also to raise the awareness of supervisory authorities of the issues that are important for a given sector (represented). Hence, it seems reasonable to start a dialogue with the regulators to establish a position on the use of RegTech solutions by the financial sector. Seemingly obvious issues such as outsourcing may not be obvious to the regulator and it may be necessary to take appropriate action, e.g. to issue an appropriate position resolving the doubts of solution providers and users.

It is worth noting here that most of these recommendations were expressed in the EBA's document responding to the Commission's (EU) consultation on the shape of the Digital Finance Strategy. Although in the final shape of the document adopted by the Commission, we will not find such a detailed description of the intended actions, it is visible that the aim is to create a strong framework for the development of RegTech in the European Union, also by supporting solutions developed by entities from outside the EEA.

I want to mention that one of the factors that limit the development of RegTech is the fact that a significant number of providers are new entities (usually start-ups) that do not have an established market position and therefore find it more difficult to gain the trust of institutions that may be concerned about the security of their data. While activities undertaken by many organizations, associations, or unions, such as the creation of "manuals" or good practices in the field of cybersecurity or cloud computing, is a very good starting point, creating a standard for RegTech providers that would take into account the specificity of this area would be desirable here.

Finally, on the regulator side as well, we have barriers to remove and of a very diverse nature. In addition to the obvious challenges highlighted by the Financial Stability Board report cited above, such as lack of sufficient resources (financial, personnel) or lack of adequate infrastructure, there are also strict legal limitations that also require a reasonable approach. In the case of supervision, which is supposed to take place in real-time, it is necessary to ensure appropriate guarantees for the entities subject to such action by the authority.

For this reason, it will also be important to enter a dialogue with the market to work out optimal solutions, as well as to plan the entire process robustly. It should be borne in mind that the mere issuance of the access interface by the authority will be only one element, and it will be for the supervised institutions to take the appropriate measures (including the adaptation of the infrastructure) to connect to this interface.

## **VI. Today or tomorrow?**

As indicated, the development of RegTech and SupTech depends on the fulfillment of many prerequisites, including those of a systemic nature, which may be extremely difficult to achieve. Nevertheless, we cannot forget that the legal and regulatory environment of the financial sector is constantly changing and the number of regulations that institutions have to face is not decreasing at all, which generates not only significant costs but also increases the risk of error that may result in negative consequences for both customers and institutions.

Therefore, taking initiatives to create an effective framework for interaction between RegTech/SupTech providers and their customers should happen as soon as possible. Given the plans of the (EU) Commission and the European Banking Authority, it should be expected that on "day zero" (we assume 2024) many interesting solutions may emerge, which, however, due to insufficient recognition in the financial sector, may be overlooked and delay further RegTech development.

This, in turn, may affect the financial sector's difficulties in coping with the increasing number of legal acts and regulations, and thus fulfilling ethical standards, among others. Therefore, even if RegTech is currently at an early stage, it seems necessary to start intensive work between all stakeholders. Broader promotion among those who have a significant influence on the shape and form of regulations, including legislators, may seem beneficial.