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Author(s): Dardykina, Anastasiia

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IS THERE ENOUGH SAND IN THE SANDBOX?

Anastasiia Dardykina*

ABSTRACT

In the realm of rapidly advancing technologies, regulatory sandboxes have emerged as a promising solution to the regulatory challenges facing the FinTech industry. As a notable example of soft law, regulatory sandboxes offer a more adaptable framework for managing complex financial technologies. However, though the years their implementation across the EU has revealed several shortcomings.

Furthermore, despite the intention to utilize regulatory sandboxes for AI regulation across the EU, there has never been a genuine effort to evaluate their effectiveness. This paper aims to measure the efficiency of current EU regulatory sandboxes from perspectives of regulators and participating companies. To achieve that, the research collects information on the claimed objectives of various EU regulatory sandboxes, categorizes them into regulator-oriented and company-oriented goals, and ultimately assesses whether these goals have been achieved from both perspectives.

In addition, this research paper seeks to identify the flaws in the current regulatory sandboxes and propose potential improvements. By providing a comprehensive overview of the existing European regulatory sandboxes, the author highlights practical omissions encountered during their establishment and explores strategies to address these issues.

KEY WORDS: Regulatory sandboxes, soft law, principle-based regulation, effectiveness of regulation, FinTech regulation, innovation hubs, European regulatory sandboxes, regulation of innovations, participation in regulatory sandbox, unified approach to regulatory sandboxes

1. INTRODUCTION

The rapid growth of new financial and digital technologies has created a bunch of regulatory challenges. EU Member States have worked hard to keep up with these changes and create appropriate regulatory mechanisms that balance flexibility and safety. In an effort to support FinTech innovations, a new era of regulation brought novel regulatory tools such as innovation hubs and regulatory sandboxes.

Financial companies have been the main consumers of IT solutions since the mid-1990s, leading them to spend heavily on the latest IT products and services. Interestingly, a huge portion of the banking industry workforce is made up of engineers rather than bankers.[1] This

*Anastasiia Dardykina is a Doctoral Researcher at the Business Law Department, School of Finance and Accounting at the University of Vaasa, Finland, and a member of the Digital Economy Research Platform at the University of Vaasa, Finland.

development has added to the emergence of a regulatory industry focused on financial technologies.

FinTech regulation, including methods like innovation hubs and regulatory sandboxes, shows a new approach to regulatory goals. It is not solely about making sure everything compiles and preventing violations but also supporting innovation and finding common ground with private companies. These companies are no longer just seen as subjects of regulation but as partners.[2]

At least, that was claimed to be the initial aim of this new regulatory approach - to foster a dialogue between regulators and the regulated companies, such as FinTech firms. However, this research will demonstrate that, eight years after the regulatory sandbox was first introduced in the UK, there remains a strong tendency to view the regulator as the dominant player in this framework.

In a general sense, regulatory sandboxing can be seen as a "principles-based" regulatory approach, where decision-making and regulatory processes are driven by the regulators, rather than legislators. This is different to a "rule-based" approach that places more stress on the law and statutory requirements.[3] While principles-based regulatory methods may seem vague and easy-to-manage at first look, they need more effort and involvement from both private companies and regulatory authorities.[4]

By committing enough financial and human resources each year to keep up innovative regulatory methods, EU and national regulatory authorities aim to signal to the FinTech industry that they take innovation seriously. Setting up a regulatory sandbox is a clear sign that regulatory bodies of a particular jurisdiction are prepared for a change and willing to embrace innovation.

Since the introduction of the first regulatory sandbox by the UK FCA in 2016, they have become quite popular example of a flexible regulatory regime for testing new financial technologies.[5] The regulatory sandbox is a practical way for companies to try out innovative technologies in real-market conditions and get around relevant compliance requirements.

The use of the term "quite popular" was deliberate as it is now a growing debate about how effective regulatory sandboxes are and whether there is a justified reason for applying them instead of traditional regulatory methods. Usage and relevancy of regulatory sandbox in the EU

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[1] Jonathan Marino, *Goldman Sachs is a tech company* (last visited September 19, 2024), available at: https://www.businessinsider.com/goldman-sachs-has-more-engineers-than-facebook-2015-4.

[2]Dirk Andreas Zetzsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation* 23 Fordham Journal of Corporate and Financial Law 31 (2017).

[3]Julia Black, et al., *Making a success of principles-based regulation* 1 Law and Financial Markets Review 191 (2007).

[4]Cristie Ford, *Principles-based securities regulation in the wake of the Global Financial Crisis* 55 McGill Law Journal 257 (2010).

[5]Financial Conduct Authority https://www.fca.org.uk/ (last accessed September 19, 2024).

has been a controversial matter not only in light of its questionable effectiveness, but also because there is neither a unified approach to a regulatory sandbox, nor a clear formula of how participation in the sandbox would look.

Also, even among new regulatory tools regulatory sandboxes do not hold the leading position- compared to innovation hubs, for example, which gained more success within EU start-up companies during the last few years.[6]It is, however, worth noting that despite the controversial nature of regulatory sandboxes and the lack of evaluation regarding their effectiveness, there is a growing trend to expand their use. They are expected to become one of the regulatory tools for AI across the European Union.

The author suggests that before using regulatory sandboxes for something as significant as AI regulation across the entire EU, it is important to first assess whether these sandboxes are truly effective. This idea largely shaped the purpose of this research paper, which is to evaluate the success of regulatory sandboxes at their current stage of implementation. Indeed, the task seems quite challenging. Not only is there a lack of data to base the evaluation on, but it is also inherently difficult to define the principles and criteria for such an assessment.

As mentioned earlier, although the initial principle was meant to ensure equal treatment of both regulators and FinTech companies, the focus in the relevant literature and official EU documents tends to heavily emphasize the role of regulatory bodies when discussing sandboxes. It quickly becomes clear that no one has assessed whether sandboxing has been beneficial for the companies involved, which represents a critical flaw.[7]

It is claimed that the main goal of setting up a regulatory sandbox is to encourage innovation, and the EU clearly aims to pioneer in this field. It is, however, obvious that the regulation, whether helpful or burdensome, might only play a side role in this process – the real innovative driver is the company that develops a new product and wants to bring it to the market. Undoubtedly, if there is no technological impulse, no matter how suitable the regulation is, that would not encourage innovation. If that is so, one should ask why there is so little effort put in understanding how companies feel about sandboxes.

Therefore, the aim of this research paper is to analyze the effectiveness of regulatory sandboxes from the perspective of both key stakeholders: regulatory bodies and participating companies.

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[6]In accordance with the ESA Report as of December 11, 2023 by October 2023 there have been 14 regulatory sandboxes in EU in comparison with 41 innovation hubs at the same time. See European Banking Authority Report available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 09, 2024).

[7]As suggested by J. McCarthy "The coordination will not amount to much if there are deficiencies in the availability of empirical data. Reasons for such deficiencies can be either because of flaws in the design of particular sandboxes, or because of the failures to study how firms coped after exiting sandboxes which possessed certain design features". See Jonathan McCarthy, *From childish things: The evolving sandbox approach in the EU's regulation of Financial Technology,* 15 Law, Innovation and Technology 1 (2023).

One of the key challenges of this research was the lack of information that could clarify how participation in the sandbox affected the stakeholders. Therefore, the few sources of empirical data that became available during the course of the study have proven to be crucial. The 2018 and 2023 ESA Reports, in particular, offer highly valuable insights from the perspective of regulators, who are one of the key stakeholders.[8] Additionally, the Deloitte survey on regulatory sandboxes gathers feedback from some participants in the FCA Regulatory Sandbox, providing insights into the challenges they faced and their suggestions for improvement.[9] Finally, one of the most notable examples of an effort to gather feedback from companies that participated in regulatory sandboxes is the World Bank Report.[10] It is quite comprehensive and provides extensive details on the current status of regulatory sandboxes globally.

However, it just does not seem enough.

In summary, the context of the research is as follows: a) there is a clear trend in the EU towards expanding the use of regulatory sandboxes for innovative technologies, including AI; b) there is no unified approach or procedure for regulatory sandboxes in EU or elsewhere; and c) to date, there has been no comprehensive evaluation of the effectiveness of regulatory sandboxes, nor has sufficient data been collected on their impact.[11]

Thus, the author views the value of this research as providing insight into the effectiveness of sandboxing as an emerging regulatory approach.

2. WHAT IS A REGULATORY SANDBOX AND IS IT WORKING?

Most literature on FinTech regulation starts by acknowledging that the 2008 Financial Crisis was the first pillar that exposed the weakness of current regulatory development to deal with critical situations.[12] More importantly, the Crisis proved FinTech to be a matter of national security.[13] This weakness was probably caused by oppressive regulation lacking needed flexibility to deal with rapidly changing financial market realities.[14]

[8] See Fintech: Regulatory sandboxes and Innovation Hubs, available at: https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf (last accessed September 19, 2024) and Report on Innovation Facilitators, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

[9] Deloitte, *A journey through the FCA regulatory sandbox*, available at: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/financial-services/deloitte-uk-fca-regulatory-sandbox-project-innovate-finance-journey.pdf (last accessed September 19, 2024).

[10] Appaya Mandepanda Sharmista et al., *Global Experiences from Regulatory Sandboxes (English),* 8 Fintech Note Washington, D.C.:World Bank Group.

[11] As suggested by Dirk A. Zetsche "To date, the stringency of conditions imposed on regulatory sandbox participants, and the seemingly low numbers of them, fail to explain entrepreneurs' enthusiasm for countries with sandboxes. The regulatory sandbox alone, as presently structured, is typically too limited in scope and scale to promote further meaningful innovation". See Dirk Andreas Zetzsche et al *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation* 23 Fordham Journal of Corporate and Financial Law 31 (2017).

[12] James Crotty, *Structural causes of the global financial crisis: A critical assessment of the 'new financial architecture'* 33 Capitalism, Macroeconomics and Reality 563 (2009).

[13] Douglas W. Arner et al., *The evolution of fintech: A New Post-Crisis paradigm?*, University of Hong Kong Faculty of Law Research Paper No. 2015/047 (2015).

[14] Cristie Ford, *New Governance in the Teeth of Human Frailty: Lessons from Financial Regulation* 2 Wisconsin Law Review 442 (2010).

However, it would be an oversimplification to claim that the 2008 Financial Crisis and other financial crises happened solely due to over-regulation of the banking and financial sectors.[15] Innovation is primarily driven by companies and private entrepreneurs, rather than new regulatory tools introduced by authorities. Thus, while there is certainly a connection between regulatory developments and the growth of FinTech innovation, this relationship is complex and not always straightforward.

Regulation is indeed a method to set up rules for the common wellbeing, and in this light, can be effective or ineffective. The regulatory sandbox shows a shift in government regulation towards more collaborative and effective rulemaking through dialogue with companies. However, it has been eight years since the first introduction of regulatory sandbox in the EU. Now if not before, it is time to see how they actually worked out. In order to justify the financial, time, and human costs of maintaining a regulatory sandbox, we should at least understand whether they are indeed an effective mechanism to deal with technological innovations that should be better promoted.

The introduction of a regulatory sandbox is seen as a signal of policymakers' readiness to adapt to new regulatory approaches, and a company's decision to participate in sandboxing is viewed as an attempt to emerge from the "grey zone" and comply with necessary regulations. This proactive stance by companies enhances their investment appeal.[16] This might be due to the company's willingness to engage with the regulatory environment, which provides legal certainty normally sought by investment firms. In essence, a company, including a start-up company may use the regulatory sandbox as a tool to gain visibility and attract investments, a practical approach that could prove very beneficial.

From a perspective of a supervisory body, there is a phenomenon known as "forum shopping", where companies select jurisdictions to establish their businesses based on the presence of favorable regulatory treatment, e.g. regulatory sandboxes. Various locations, including EU Member States, are competing to be more welcoming to companies looking to establish themselves. This competition often leads countries to establish regulatory sandboxes primarily to attract FinTech companies seeking a favorable jurisdiction. While there is nothing harmful in these developments, they can shift the focus away from evaluating the effectiveness of the proposed regulatory approach to other motives for implementing specific regulatory tools.

[15]There are researches that show positive interconnection between liberalization of financial regulation and corresponding financial growth, as well as there are several examples when such construction worked out oppositely. See Ross P. Buckley, Douglas W. Arner, and Michael Panton, *Financial Innovation in East Asia*, 37 Seattle U.L. Rev. 307 (2014).
[16]Giulio Cornelli et al., *Regulatory Sandboxes and Fintech Funding: Evidence from the UK* 28 Review of Finance 203 (2023).

Another regulatory challenge is how to strike a balance between minimizing risks through adequate regulation and avoiding overly burdensome requirements that could hinder private companies' ability to operate. This is particularly important as the compliance has become a massive burden for companies, especially in the FinTech sector. It is important to recognize that costs associated with compliance, such as regulatory costs, can be a real struggle for many start-ups just getting into the market.[17]

During the cryptocurrency boom, investors exhibited different behaviors regarding blockchain regulation initiatives. Some claimed blockchain technology to be "the law" itself suggesting that any form regulation would undermine the concept of blockchain.[18] On the other hand, some investors cited the lack of industry regulation, legal uncertainty, and the absence of protection as major deterrents to investing in cryptocurrency businesses.[19]

Many issues still require clarification. It is essential not only to identify what should and should not be regulated, but also to determine the appropriate timing for regulation. With rapid technological growth, finding a definitive answer to this question is challenging. On one hand, early regulation can be inefficient and resource-intensive; on the other, delaying regulation for certain industries or products can introduce significant risks.

The past two decades have clearly highlighted the need for more efficient regulatory solutions to address various complex phenomena. Emerging technologies compel regulators not only to create new regulatory approaches but also to construct a regulatory framework that integrates a risk-based approach, legal management, and tools from diverse industries to achieve comprehensive regulation.

The regulatory sandbox was initially introduced as an innovative method for regulatory experimentation. However, eight years on, there is still no unified approach to regulatory sandboxes, nor any globally accepted criteria defining their essential characteristics.[20]

Following the FCA's lead, other regulatory authorities have established regulatory sandboxes with somewhat similar definitions. In today's landscape of complex, multifunctional technologies, it seems more practical to outline a set of characteristics for certain phenomena,

[17] Thomson Reuters Institute, *2023 cost of compliance report: Regulatory burden poses operational challenges for compliance officers*, available at: https://www.thomsonreuters.com/en-us/posts/investigation-fraud-and-risk/2023-cost-of-compliance-report/ (last accessed September 19, 2024).
[18] Dirk Andreas Zetzsche et al., *supra* n.2, at 33.
[19] Volodymyr Umantes, *Lack of regulatory preparation is key obstacle to Blockchain* (last visited September 19, 2024), available at: https://funds-europe.com/lack-of-regulatory-preparation-is-key-obstacle-to-blockchain.
[20] The FCA itself defines regulatory sandbox as "a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms without immediately incurring all the normal regulatory consequences of engaging in the activity in question." https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf

rather than trying to create a precise definition that may fall short. Therefore, rather than defining a regulatory sandbox, here are its key attributes:

- ✓ Regulatory sandbox is a safe environment initially created for FinTech products to test their abilities, evaluate associated risks, and recommend appropriate regulatory measures;
- ✓ Participation in a sandbox is subject to various requirements, depending on the specific purpose of the sandbox;
- ✓ This environment calls for an ongoing interaction between the supervising authority and the participant;
- ✓ Participation in the regulatory sandbox consists of distinct stages that each participant must navigate, with each stage serving a specific purpose.

Let us take a closer look at some of the listed characteristics.

2.1 Regulatory Sandbox as a Safe Testing Environment. What is the Goal?

Arguably, the biggest challenge in regulating innovative technology is that, in most cases, neither the developer nor the regulator fully understands all the associated risks. This is why a regulatory sandbox is a strategic choice—it allows the technology to be tested in a real-market environment with limited or modified regulatory requirements that would normally apply to the company or its product.

The fundamental concept of the sandbox is straightforward: a company that meets specific criteria is allowed to enter the sandbox for a defined period during which it can test its product in real market conditions. The types of exemptions or exclusions available to sandbox participants vary significantly - exempting or granting a restricted license, providing no-action letters, granting waivers from certain legal requirements. Regardless of the specific type of easing provided by a sandbox to a participant, it is generally understood that such regulatory relief does not exempt companies from liability for any damages caused by their actions or their technology. [21] Originally designed to support FinTech regulation, the use of regulatory

[21] Jon Truby et al., *A sandbox approach to regulating High-Risk Artificial Intelligence applications* 13 European Journal of Risk Regulation 270 (2021).

sandboxes has recently expanded into various unexpected sectors.[22] There is a trend towards extending the use of a sandbox to diverse industries, but is this expansion justified? [23][24]

There have been many discussions on the scope of regulatory sandbox use and the need to justify sandboxing over traditional regulatory methods.[25] Despite the abundance of research papers on regulatory sandboxes, there is a notable lack of justification for applying regulatory sandboxes to specific technologies. The EU's strong desire to lead globally in this space is understandable, given the rapid technological advancements in the US and Asia; however, this ambition should not translate into a "lead at all costs" approach. It is crucial to keep the primary aim of regulation in mind: ensuring safety and stability.

A company entering a regulatory sandbox must have a clear understanding of its commitments and the associated benefits. Participants should thoroughly grasp the sandbox's objectives and the specific eligibility criteria required for entry. This clarity enables companies to align their innovation goals with the sandbox's framework, ensuring that they meet regulatory expectations and fully leverage the advantages of the sandbox environment.

Let us explore the objectives and eligibility criteria claimed by some of the European regulatory sandboxes:

Table 1.

Country	**Name of the sandbox**	**Claimed objectives**	**Eligibility criteria**
Austria	FMA Sandbox[26]	• simplify the pathway towards becoming a supervised entity for young FinTechs as well as incumbent players (together with an unlicensed entity) that have FinTech business models and cooperations; • deepen the FMA's knowledge about innovations in the financial marked as well as the opportunities and threats presented.	• business model shall be based on information and communication technology (ICT); • business model shall be subject to supervision of the FMA, including license requirement; • public interest in the business model due to its innovative value; certain amount of readiness of the business model for public testing.
Denmark	FT Lab[27]	• provide the basis for testing innovative financial products and services;	• the activity is directly or indirectly covered by the financial legislation;

[22] Data Privacy Regulatory Sandbox in Saudi Arabia, available at: https://sandbox.sdaia.gov.sa/en/FilesOfInterest/NDMO_%20Data%20and%20Privacy%20Regulatory%20Sandbox_FAQs.pdf (last accessed October 01, 2024), Singapore Data Regulatory Sandbox, available at https://www.imda.gov.sg/how-we-can-help/data-innovation/data-regulatory-sandbox (last accessed October 01, 2024), European DLT regulatory sandbox initiative, available at: https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/dlt-pilot-regime (last accessed October 01, 2024), the European Blockchain Regulatory Sandbox, available at: https://ec.europa.eu/digital-building-blocks/sites/display/EBSI/Sandbox+Project (last accessed October 01, 2024).
[23] Adrian Pratt, *The benefits of a regulatory sandbox* 25 Veterinary Record 573 (2017).
[24] Dierdre Ahern, *Regulatory lag, regulatory friction and regulatory transition as FinTech Disenablers: Calibrating an EU response to the regulatory sandbox phenomenon* 22 European Business Organization Law Review 395 (2021).
[25] European Commission, *Final Report to the European Commission 2019 of the Expert Group on Regulatory Obstacles to Financial Innovation (ROFIEG)* available at: https://finance.ec.europa.eu/document/download/98a331c4-6700-4355-b545-cb97a49f13c2_en?filename=191113-report-expert-group-regulatory-obstacles-financial-innovation_en.pdf (last accessed September 03, 2024).
[26] FMA Sandbox https://www.fma.gv.at/en/fintech-point-of-contact-sandbox/fma-sandbox/.
[27] FT-lab https://www.dfsa.dk/Supervision/Fintech/FT-lab.

		• promote the development of beneficial financial products and services for the consumers and the society; • enable the Danish Financial Supervisory Authority to better understand Fintech; • support the use of new technology in the financial sector.	• the technology or the business model is new; • the product or the service is beneficial for the consumers or the society; • there is a need to participate in the FT Lab; • the company is ready to test in the FT Lab.
Estonia	Sandbox[28]	• support the work of supervisory body by enabling an entrepreneur and supervisory body to agree, as needed, on the long-term systematic monitoring of an innovative solution; • to map the risks associated with the solution; • identify opportunities to mitigate negative impacts; • make more informed decisions in qualifying the service, analysing the applicable legal framework and developing financial supervisory positions.	• company shall offer innovative financial services themselves or offer innovative solutions that support the activities of financial service providers or financial supervisors; • intended only for companies or solutions where it is not possible to answer questions related to financial supervision based on the description or demo of the solution alone.
Spain	Espacio controlado de pruebas (Controlled testing environment)[29]	test technological innovations applicable to the financial system in a testing environment controlled by the supervisory authorities.	• introduce a technological innovation applicable to the financial system; • innovative products are sufficiently advanced to be tested, meaning they present at least one minimum viable product to verify its usefulness and future viability; • technologies shall provide added value over existing uses in one or several of the following aspects: (i) regulatory compliance; (ii) benefits for users of financial services; (iii) increased efficiency of entities or financial markets; and/or (iv) creation of mechanisms for improving financial regulation or supervision.
Greece	Bank of Greece Regulatory Sandbox[30]	• facilitate financial innovation and preserve financial stability; • enhance legal certainty; • build and promote knowledge.	• authorised financial service providers that hold authorisation from the Bank of Greece; • technological solutions shall be innovative and relate to provision of financial services that fall under the Bank of Greece remit; • proposed solution shall be genuinely innovative or significantly different from those currently available within the Greek market, offer identifiable benefits to the users of financial services and the financial market and be ready for testing in a live environment; • applicant shall intend to deploy the proposed financial service /product in Greece.
Hungary	MNB Innovation Hub - Regulatory Sandbox[31]	provide life tests of technological solutions under real circumstances meeting tailor-made standards	• innovative service, technology or business model;

[28]Finantsinspektsioon https://www.fi.ee/en/news/finantsinspektsioon-offering-chance-testing-innovations.
[29]Finantza Sandbox https://www.tesoro.es/eu/sandbox/solicitudes-para-el-espacio-controlado-de-pruebas.
[30]Bank of Greece Regulatory Sandbox https://www.bankofgreece.gr/en/main-tasks/supervision/regulatory-sandbox.
[31]Hungarian Regulatory Sandbox https://www.mnb.hu/en/innovation-hub/regulatory-sandbox.

			• innovation technology shall provide benefits for the its users; • readiness of innovation for testing; • intention to apply the innovation in Hungary.
Italy	IVASS Sandbox Regolamentare[32]	• observe the dynamics of technological development; • identify the most appropriate and effective legislative measures to promote and develop InsurTech, thus reducing the spreading of potential risks associated with these activities.	• applications shall relate to significantly innovative activities and bring added value to the final users, to the efficiency of the market or of market participants; • projects shall be in a sufficiently advanced stage of testing and sustainable from an economic and financial viewpoint.
Italy	Banca d'Italia Regulatory sandbox[33]	• support the growth and development of the Italian FinTech market, thanks to the introduction of innovative models in the banking, financial and insurance sectors, while guaranteeing adequate levels of consumer protection and competition, and safeguarding financial stability; • opportunity to observe the latest technological developments; • identify the most appropriate and effective regulatory interventions to facilitate the development of FinTech.	• the activity shall be significantly innovative; • technology requires derogation from the rules issued by the supervisory authorities or experimentation and joint examination with the authority; • technology brings added value to end users, to the efficiency of the financial system, etc.; • technology is in a sufficiently advanced state for experimentation; • technology is sustainable from an economic and financial point of view or in any case enjoys adequate financial coverage.
Italy	CONSOB Regulatory Sandbox[34]	n/a	• the activity is significantly innovative; • the activity requires the derogation from one or more supervisory guidelines or general acts adopted by the supervisory authorities or an experimentation and a joint test with one or more supervisory authorities; • the activity adds value to at least one of the following profiles, without significantly affecting one of the others: ✓ benefits to end-users ✓ efficiency of the banking, financial and insurance system ✓ effectiveness in the application of the regulation in the banking, financial and insurance sectors ✓ improvement of the systems/procedures/processes of operators in the banking, financial or insurance sector in relation to risk management • the activity is in a sufficiently advanced state for the experimentation;

[32]IVASS Regulatory Sandbox https://www.ivass.it/operatori/sandbox/index.html?dotcache=refresh.
[33]Bank of Italia Regulatory Sandbox https://www.bancaditalia.it/focus/sandbox/index.html?com.dotmarketing.htmlpage.language=1.
[34]CONSOB Regulatory Sandbox https://www.consob.it/web/consob-and-its-activities/sandbox.

			• the activity is expected to be economically and financially sustainable or otherwise has adequate financial coverage.
Latvia	Bank of Latvia Regulatory Sandbox[35]	help understand the regulatory framework and applicability of the existing legal framework to innovative financial services or business models	• existing or potential financial market participants whose activities further require authorisation of Latvijas Banka, or providers of technical services in the financial field such as RegTech or InsurTech; • financial services shall meet the following criteria: ✓ the service would be more beneficial, inexpensive and simpler for the consumer; ✓ individual intermediate steps would be excluded from the traditional supply chain (e.g., excludes the card scheme); ✓ the innovative service idea in the financial market could potentially result in a response from the traditional market participants, either by improving their service or by adopting the new innovative business model; ✓ customers would have access to a financial market share that has not usually been available to them.
Lithuania	Regulatory Sandbox[36]	• ease the implementation of financial innovation in Lithuania's financial market; • help the Bank of Lithuania understand in advance the possible effects of financial innovation on consumers and the financial system; • identify emerging risks; • determine possible shortcomings regarding regulation of the financial market and eliminate or reduce such regulatory shortcomings and any possible negative effects of financial innovation.	• financial services, products or business models that are new to Lithuania's market; • adoption of financial innovation will bring identifiable benefits to society, e.g. more convenient, safer and cheaper financial services, or otherwise contribute to the sustainable development of the financial market; • necessity to test financial innovations in a controlled environment is objectively justified, while testing itself can contribute to the implementation of the said innovation; • financial market participant has carried out an adaptability assessment, prepared a testing plan with clear objectives, testing conditions and risk analysis, as well as allocated sufficient resources; • financial services, products or business models, tested in the regulatory sandbox, will be further developed in Lithuania.
Malta	MFSA FinTech Regulatory Sandbox[37]	• provide a regulatory environment allowing technologically enabled financial innovation – new business models, applications, processes or products – to operate within the financial services market; • monitor participants to observe whether their innovations truly offer value to the consumer	• solution shall be technology-enabled and innovative, resulting in new business models, applications, processes or products within the financial services sector; • genuine need to test the solution in the sandbox with clear outcomes in accordance with the

[35]Latvijas Banka Regulatory Sandbox https://www.bank.lv/en/cooperation/support-for-fintech-and-innovations/regulatory-sandbox.
[36]Lietuvos Bankas Regulatory Sandbox https://www.lb.lt/en/regulatory-sandbox.
[37]Malta Financial Services Authority Regulatory Sandbox https://www.mfsa.mt/fintech/regulatory-sandbox/.

		and the wider financial services sector, whilst ensuring consumer/ investor protection, market integrity and financial soundness. • enhance legal certainty within the financial services market; • enhance capacity to access the regulatory implications and gaps of such solutions, and identify the appropriate response as necessary.	scope of the sandbox being to identify any inherent regulatory gaps, challenges and risks; • solution should provide identifiable value added by addressing a problem or bring identifiable benefits to the consumers and/or financial sector and be sustainable from an economic and financial point of view; • solution should, at the time of commencement, be released or ready for release to the client and/or financial service provider and the applicant should have adequate financial and operational resources to operate throughout the duration of the sandbox.
Norway	Finanstilsynet's regulatory sandbox[38]	• help innovative businesses gain increased knowledge about the relevant regulations; • help raise regulator's understanding of new technological solutions in the financial market; • enable technological innovation and open up for new players.	• technology associated with regulated financial services shall be under the regulators' responsibility; • technology shall bring benefits to consumers or the financial system as a whole; • service shall be innovative or genuinely new; • participation in sandbox is crucial to the realisation of the service; • readiness of company and its product to participate in the sandbox.
Slovakia	Regulačný sandbox[39]	• facilitate the implementation of innovations in Slovakia; • link the interest of Slovak supervised entities with the interest of FinTech companies.	• applicant's readiness to participate in regulatory sandbox; • readiness of financial innovation for testing; • need for testing; • innovativeness; • positive impacts on clients in the Slovak financial market and absence of significant negative impacts on financial stability in the Slovak Republic.

It is indeed challenging to identify a goal that benefits both the regulator and the sandbox participant equally, as their priorities often diverge. "Fostering innovation" which is claimed by most of the sandboxes as a primary objective, indeed could serve as a unifying goal for both regulators and sandbox participants. However, this objective is overly broad. Furthermore, using innovation promotion as a justification for regulatory sandboxes, rather than relying on traditional regulatory methods, can lack a solid basis and may introduce risks.[40]

To enhance understanding, the objectives mentioned in the Table 1 above can be categorized into those relevant to regulators and those relevant to sandbox participants.

[38] Finanstilsynets Regulatory Sandbox https://www.finanstilsynet.no/en/topics/fintech-and-regulatory-sandbox/finanstilsynets-regulatory-sandbox/.
[39]Narodna Banka Slovenska Regulatory Sandbox https://nbs.sk/en/financial-market-supervision1/fintech/regulatory-sandbox/.
[40]Saule T. Omarova, *Technology v Technocracy: Fintech as a Regulatory Challenge* 6 Journal of Financial Regulation 75 (2020).

- **Regulator-Focused Objectives**: 1) deepen regulator's knowledge on Fintech technologies (Austria, Denmark, Estonia, Greece, Lithuania, Norway); 2) enhance legal certainty and identify legislation appropriate to FinTech (Italy, Greece, Latvia, Lithuania, Malta).
- **Participant-Focused Objectives**: 1) simplify the entry of the company/product to the market (Austria); 2) help businesses increase the knowledge on applicable regulation (Norway); 3) promote the development of the FinTech products (Denmark, Spain, Hungary, Slovakia).

As we observe, the primary aim for regulators in establishing sandboxes tends to be "*gaining knowledge on FinTech,"* while for sandbox participants, it is the "*promotion of FinTech product development*." Since there is such a deficiency of data on applicability of regulatory sandboxes, assessing whether these goals have been met becomes challenging, but it is worth examining.

So, does participation in a regulatory sandbox have a positive effect on regulator's gaining knowledge on current FinTech development?

Two important data sources, the ESA 2018 and ESA 2023 Reports, suggest that regulatory sandboxes do indeed help achieve this claimed goal. These reports compile limited but insightful data on the implementation of regulatory sandboxes within the EU. Interviews with relevant regulators indicate that while understanding the complexities of FinTech technology remains challenging, regulators are increasingly familiarizing themselves with FinTech developments and the underlying technologies. This growing understanding points to the potential of sandboxes to bridge regulatory knowledge gaps and foster more informed oversight.[41]

Regarding the second most popular goal, determining whether participation in a regulatory sandbox effectively promotes FinTech development is not a straightforward task. There is no clear understanding of how such promotion can be measured or what criteria should be taken into account. Moreover, it is also unclear to whom this question should be directed.

If the question is directed to the regulator, it is likely that measurement would rely on a year-over-year comparison of sandbox popularity: tracking the increase in the number of sandboxes

[41] *Fintech: Regulatory sandboxes and Innovation Hubs*, available at: https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf (last accessed: September 19, 2024) and *Report on Innovation Facilitators*, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

across the EU, the expansion of the list of countries adopting regulatory sandboxes, and the rise in the number of participating companies.

Statistical comparisons indicate a clear growth in the popularity of regulatory sandboxes. From just one sandbox in 2017, the number of European sandboxes increased to fourteen by 2023. However, this growth has been uneven, with three sandboxes established in 2018, one in 2019, three in 2021, and a slow addition of just one sandbox in both 2022 and 2023. The expansion of jurisdictions participating in regulatory sandboxes has also been notable. Starting with the Bank of Latvia in 2017, there are currently twelve EEA countries that have implemented sandboxes, with plans for this number to rise to fourteen. Estimating the number of sandbox participants is more complex, as participant' names are typically disclosed only at later stages. However, it is estimated that around 50 companies have successfully engaged with EEA regulatory sandboxes by 2023.

If we refer this question—whether regulatory sandboxes indeed help promote FinTech development—to sandbox participants, the evaluation becomes even more challenging. Supervisory bodies do not track company's financial performance after participating in the sandbox, thus there is no real way to examine if such participation has impacted company's accomplishment.

The initial plan of the research was to compile a list of around 30 companies that had participated in various European regulatory sandboxes and gather financial information using the Orbis database as one of the most comprehensive financial databases in EU.[42] The goal was to assess the impact of regulatory sandboxes on companies' financial performance by comparing their financial data before and after participation. Key financial indicators such as turnover, number of employees, and profit and loss were selected for evaluation.

However, upon retrieving the relevant information from Orbis, it became apparent that conducting a meaningful comparative analysis would be impossible. Attachment 1 demonstrates financial figures available in Orbis related to some of the companies that participated in the European regulatory sandboxes.

We can agree that this effort to gather data was not successful. Much of the information is lacking, and what is available is insufficient to draw any credible conclusions.

Additionally, even if we had access to all the data, there remains a possibility that any observed changes in financial performance would not necessarily be attributed to sandbox participation.

[42]Orbis Financial Database https://login.bvdinfo.com/R0/Orbis

Various other factors could influence a company's financial outcomes. Elements such as revenue fluctuations, profit and loss margins can be affected by multiple variables beyond just participation in the sandbox, complicating the task of establishing a clear correlation between sandboxing and financial performance.

Summarizing, the currently available financial data does not permit a credible evaluation of a company's effectiveness stemming from its participation in a regulatory sandbox. This does not imply that such evaluations should not be conducted; rather, they should be pursued, albeit with considerable difficulty. Numerous financial metrics characterize any company, and to determine which criteria are most indicative, it is essential to comprehend how participation in a sandbox influences a company's daily operations.

Sandboxing offers companies a secure testing environment, partially by granting temporary exemptions from various statutory and regulatory requirements. This effectively allows companies to save time and effort that would typically be spent on compliance procedures outside of the sandbox. As a result, employees involved in compliance can either focus on other job responsibilities or their roles may even become unnecessary. For clarity, this parameter can be referred to as "labor effectiveness". This criterion appears to be a reasonable indicator for assessing the effectiveness of the regulatory sandbox.

Thus, when more financial data becomes available about companies participating in EU regulatory sandboxes, it would be wise to focus on financial metrics related to compliance costs, employment expenses, and the previously mentioned "labor effectiveness".

While this analysis may be more complex than a straightforward comparison of a company's turnover or revenue over consecutive years—including periods before and after sandbox participation—it could help eliminate speculation around financial data and yield more reliable outcomes. This approach would allow for a deeper understanding of how regulatory sandboxes influence company's operational efficiency and overall financial health.

2.2 Eligibility Criteria -Loud and Clear

Not every FinTech company can participate in a regulatory sandbox. Each EU regulatory sandbox has its own specific eligibility criteria that a company and/or its product must meet. Given that sandboxing can be resource-intensive for a company, it is crucial for them to understand from the outset whether they meet the necessary criteria and have a legit chance of entering a regulatory sandbox.

Due to the lack of a unified approach to sandboxing, different jurisdictions have a wide range of requirements for entry. Most of the requirements listed in Table 1 are interconnected and encourage companies to be proactive in the sandbox entry process. It is still unclear how the responsibility for evaluating whether a company meets the listed requirements should be allocated between the company and the regulatory authority.

Another challenge lies in the level of generalization in how requirements are formulated. The criterion of "*innovation and genuine novelty of technology or product*" serves as a fundamental prerequisite for all European sandboxes. While this may appear reasonable initially, it poses significant difficulties for companies trying to demonstrate their innovation and for supervisory bodies tasked with evaluating it. Even if a company is well-versed in its product and can articulate its innovative features, the supervisory body may struggle to assess these claims without specific knowledge of the company or the technology involved. This disconnect can complicate the evaluation process and hinder effective oversight.

Moreover, the term "*innovation*" itself is far from clear. What makes a product innovative? How different should it be from other similar products to be considered "*genuinely new*"? There are arguments that the vast majority of products claiming to be innovative are actually just updates and adjustments of previous versions of the same product or technology.[43]

On the other hand, even if a product is a modification of an existing product or technology, is it a valid reason to exclude a company from participating in a regulatory sandbox? Do supervisory bodies have enough knowledge and experience to distinguish between a novel technology and a mere update? Even if a technology is new, what innovative potential does it have? And what if it is just an update of a version, but clearly beneficial for public interests or a specific group of people? Supervisory bodies are becoming more educated in response to the latest industrial needs. However, it seems premature to assume that supervisory bodies have the ability to evaluate the innovation's potential.[44] The innovation requirement is unworkable and only adds uncertainty to the sandbox framework.

The eligibility criteria listed in the Table 1 above have slightly different wording but almost the same meaning. Aside from certain geographical requirements (e.g., benefiting a specific country), supervisory bodies in different jurisdictions have quite a similar approach to regulatory sandboxes. This is one of the reasons justifying a need for a unified attitude to EU regulatory sandboxes. A harmonized approach to regulatory sandboxes should include similar eligibility criteria. Ideally, this should be followed by an evaluation of results where the company-participant is tested and questioned on their experience and practical effects of participation.

[43]Hilary Allen, *Regulatory Sandboxes* 87 The George Washington Law Review 579 (2019).
[44]Dirk Andreas Zetzsche et al., *supra* n.2, at 35.

2.3 Suggestions

In pursuit of a unified approach to regulatory sandboxes, it is essential that the goals of the sandbox and the entry criteria for companies are interconnected. As previously discussed, both the objectives of regulatory sandboxes and the eligibility criteria should not be vague slogans; rather, they should provide clarity to regulators and, importantly, to private companies in understanding what they can and cannot gain from sandboxing.

The author's perspective on reasonable regulatory sandbox objectives and eligibility criteria is as follows:

Table 2

Objective of the Regulatory Sandbox	**Eligibility Criteria for the Companies**
adjust the regulation for FinTech companies providing adequate level of product/technology safety	• product shall be completed; • company shall be able to address why traditional regulation shall not apply

In contrast to a long list of vague goals and requirements of EU regulatory sandboxes, Table 2 suggests very clear and achievable metrics for both the sandbox supervisor and the company-participant.

Often, when a technology is developed by SMEs, or a start-up company that was set up more or less simultaneously with the product creation, by the time it enters the marker stage, such a company has no idea about applicable regulatory requirements and the next steps required for market placement of the related product or technology. In this light, participation in the sandbox is indeed valuable for a private company. It may participate in the sandbox to either understand how applicable regulation works or to capture the attention of potential investors. Therefore, it is crucial to make participation in the sandbox efficient for companies, not just for the authority.[45]

The suggested sandbox objective' definition contains:

- ✓ a clear focus on companies' interests; and
- ✓ validation that it is the regulator's task to ensure that the product or technology novelty does not supersede safety and risk minimization requirements.

Regarding the entry requirements for sandboxing, they must be even clearer than the specific goals of a particular sandbox to enable companies to determine whether they really have a valid

[45] This does not in any way undermine safety and risk-mitigation requirement related to the product. Following the goal for introducing regulatory sandbox, participation process shall be productive primarily for companies as they are fostering innovations, and they are the only one who may indicate where regulation requires to be more feasible to meet the needs of FinTech.

reason to try out the sandbox. In this respect, only two requirements appear to be essential and relevant.

First, the product or technology must be fully developed. If a company seeks regulatory advice regarding an incomplete product or technology, it is more appropriate to address these matters within an innovation hub. This setting is ideal for discussing challenges without requiring extensive preparation from either the company or the supervisory body. In such cases, the innovation hub functions as a Q&A department, offering prompt and tailored advice on specific issues.

Participation in a sandbox is a complex and demanding process. The entry phase can be quite intricate, the preparatory work is time-consuming, and the testing phase typically lasts at least several months. Given these factors, it would be impractical for a company to test an incomplete product or technology, as changes to the product features could necessitate a reassessment of the initial risk evaluation and potentially require re-entering the sandboxing process. Therefore, the primary requirement for a company seeking to enter a sandbox is to have a fully developed product or technology that it intends to test.

The second and final entry requirement for sandboxing is a statement from the company justifying why traditional regulations should not apply to its technology or product. The sandbox represents a progressive approach, indicating that regulators recognize their limitations in the face of complex and evolving challenges and are willing to establish a justified regulatory compromise alongside private companies. This sandbox framework significantly differs from traditional regulation, as it transforms companies from being passive subjects of regulation into active participants in the regulatory development process.

With that in mind, it is important to acknowledge that a reliable evaluation of the effectiveness of sandboxes is lacking. In this context, it becomes essential to have a clear understanding of when the use of a regulatory sandbox, instead of traditional regulation, is justified. A company seeking to participate in a regulatory sandbox must grasp the rationale behind its decision. This requires an understanding of the alternatives to sandbox experimentation and the associated benefits. Consequently, the company needs to be well-informed about the regulatory framework that would apply to its product or technology if it were not accepted into the sandbox.

It is clear that this analysis necessitates legal expertise that a company, especially a start-up company, lacking a legal team or even a single lawyer, might not possess. Nonetheless, this evaluation is crucial as it benefits both the company and the regulatory authority overseeing the sandbox. For a company that would be engaged in the demanding sandbox procedure, it is priceless to know why it is worth it. If the assessment reveals that sandboxing does not offer clear advantages over traditional regulation for that specific company, product, or technology, it may be wiser to adhere to conventional regulatory mechanisms.

Maintaining a regulatory sandbox can be challenging for supervisory authorities. If there is no specific requirement for assessing the justification of the need for sandboxing, it may result in all companies engaged in innovation being able to join the regulatory sandbox without any real benefits. While this may not be a disaster, it raises the question of whether avoiding traditional regulation is the primarily goal of a sandbox. The initial objective of a regulatory sandbox should be to provide alternative regulation for those in need, rather than replacing traditional regulation entirely.

While still there is no unified approach to FinTech regulatory sandboxes in Europe, it is advisable to focus on adjusting regulations for FinTech companies to guarantee the safety of their products and technologies.

2.4 Regulatory Sandbox and Innovation Hub. What if They Can Work Together?

Regulatory sandboxes are suggested as one of the regulatory tools to promote innovation, but they are not the only option available. In contrast, innovation hubs have become more popular in the EU in comparison with regulatory sandboxes over the last couple of years.[46] There is a reason why these legal mechanisms have different appeal for regulating technological innovation.

A regulatory sandbox necessitates ongoing interaction and continuous dialogue with the sandbox supervisor. To gain entry into a sandbox, potential participants must satisfy specific eligibility criteria and navigate several stages within the sandbox framework. While participation allows companies to acquire valuable insights through engagement with the supervisory authority, it is fair to say that it does not guarantee any immediate benefits for the company.

On the other hand, through innovation hubs, private companies and individual entrepreneurs can seek one-time assistance from the supervisory authority—often the same entity that oversees the regulatory sandbox—regarding specific issues or challenges they encounter. These hubs serve as a valuable resource, enabling companies to gain insights and guidance without committing to the lengthy and complex process of participating in a regulatory sandbox.

[46]In accordance with the ESA 2023 Report, as of October 2023 there are 14 regulatory sandboxes in 11 EEA countries and 41 innovation hubs in 24 EEA countries, *Report on Innovation Facilitators*, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

Sometimes, recognizing that gaining acceptance into a regulatory sandbox can be more challenging, companies may choose to utilize the innovation hub as a preliminary step. This allows them to gather information and insights before deciding whether to pursue participation in the regulatory sandbox for a more comprehensive interaction. The innovation hub serves as an initial point of contact, helping companies assess their needs and the potential benefits of sandbox participation.[47][48]

The use of innovation hubs and regulatory sandboxes can also vary across different spheres.[49] Moreover, the maintenance costs of regulatory sandboxes and innovation hubs can differ substantially. Supporting companies in a regulatory sandbox requires more time, dedication, and expertise due to the complexity of the issues involved compared to an innovation hub.

Interestingly, many European jurisdictions that have adopted regulatory sandboxes have also set up innovation hubs, either within the same supervisory authority or across different ones. This arrangement could be advantageous if utilized effectively. It makes sense to implement innovation hubs alongside regulatory sandboxes. A regulatory sandbox is to be introduced when an innovation hub is already established.

This two-step approach, combining innovation hubs with regulatory sandboxes, can be advantageous for both the supervisory authorities and the companies involved. Companies can initially seek assistance from the innovation hub for simpler issues and then progress to the regulatory sandbox for more complex matters that require deeper engagement and regulatory support. Furthermore, this approach allows for streamlined documentation between the innovation hub and the regulatory sandbox, enabling the supervisory authority to review a company's background without requiring repetitive submissions from the company. This efficiency can expedite certain phases within the regulatory sandbox or even allow them to be bypassed entirely.

In summary, while innovation hubs and regulatory sandboxes serve distinct purposes, their combined implementation can create a mutually beneficial relationship. Establishing both

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[47] For additional information, see s.2.2 of the 2023 ESA Report. *Report on Innovation Facilitators*, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

[48] As suggested by the Národná Banka Slovenska 2022 Activity Report: "Although the Hub and Sandbox have similar goals, they are different tools with different uses. Hub consultations are mostly one-off and focused only on matters within a certain specific range. By contrast, Sandbox consultations are longer term and focus on the comprehensive configuration of financial innovations in line with the relevant legislation. Once the regulatory aspects have been resolved, the financial innovation is tested in the Sandbox on real clients." Narodna bank of Slovakia Activity Report of the Innovation Hub and Regulatory Sandbox of Národná banka Slovenska 2022, available at: https://nbs.sk/dokument/47a3ae0c-88af-43ef-8e67-6697e9dd1ec8/stiahnut?force=false (last accessed September 18, 2024).

[49] In accordance with the ESA 2023 Report innovation hubs are most commonly used for testing DLT, cryptocurrency, RegTech, whereas regulatory sandboxes are more frequently entered into while testing API, AI, Big Data and advanced analytics services. *Report on Innovation Facilitators*, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

within the same supervisory body can enhance information sharing, leading to greater efficiency in participation and outcomes for companies navigating the regulatory landscape.

3. SEARCHING FOR A UNIFIED APPROACH

Regulation as a dynamic phenomenon is constantly evolving. FinTech regulation, despite being relatively new, is no exception.[50] It is widely discussed that since its inception in 2016, regulators have been making great efforts to create regulatory sandbox conditions that are more favorable than others.

In essence, for quite a while all actions from regulators and supervisory bodies' perspective have been the opposite of unification. Aiming to attract FinTech companies, they have been setting up different conditions for participation and internal procedures (including time periods and types of legislative reliefs).

Some may argue that individual European Member States do not need approval from various European legislative institutions and could potentially find better solutions on their own. While this may hold some truth, is it effective for FinTech regulation? Regulating new technologies solely on a national level can be a daunting task for any national authority and may impose significant limitations in terms of applicability.

If sandboxing is regulated exclusively at the national level, it can lead to a "forum shopping" and a legal nightmare for start-up companies unsure of which regulatory regime applies to the technology/product. Additionally, it opens up the possibility of regulatory arbitrage, where different national authorities regulate FinTech in totally different ways.

Fair competition is definitely a good thing, but it can also alter the original purpose of sandboxing. Many scholars argue for a unified approach to regulatory sandboxes at the EU level.[51] In the absence of a fully established legal framework for the FinTech industry, regulatory sandbox plays a crucial "gap-filling role" that allows companies to handle compliance procedures.[52] The lack of unified approach to regulatory sandboxes hinders the maintenance and facilitation of cross-border regulatory sandboxes, which could possibly be of benefit given the borderless nature of technologies.

Predicting the future development of FinTech and the applicable regulation is not at all easy. It is even more difficult to determine the most favorable type of regulation to promote FinTech

[50]For example, prof. Arner together with his co-researchers J. Barberis and R. Buckley suggest three versions of FinTech regulation depending on the goals and application practice – FinTech 1.0 (1866-1967); Fintech 2.0 (1967-2008); FinTech 3.0 (2008- present). See Douglas W Arner et al supra n.13, at 3. In the same work Prof. Arner together with his co-authors suggests there are five major areas in current FinTech today: 1) finance and investment; 2) operations and risk management; 3) payments and infrastructure; data security and monetization; and 5) customer interface.

[51]Dierdre Ahern, *supra* n.24, at 399.

[52]*Ibid.*,400.

development. On the one hand, a unified regulation at the EU level that would apply to all companies regardless of jurisdiction may seem a great advantage. However, on the other hand, fragmented but tailored national regulations that cater to specific company needs may be a more efficient regulatory option. Of course, this approach would only be effective if the supervisory body and the regulator put a lot of efforts into developing a tailor-made regime instead of simply "copy-paste" solutions from other jurisdictions.

There are widely differing opinions on whether a unified approach to sandboxing is necessary, with each perspective varying in its radicality. For example, the European Commission's Expert Group on Regulatory Obstacles to Financial Innovation strongly advocates for standardization.[53] There are clear indications that European regulators are moving towards a unified approach to sandboxing rather than allowing each EU Member State to create its own regulatory framework.

As outlined by the European Commission in 2018 when establishing the EU FinTech Lab, the main aim was to "*raise the level of regulatory and supervisory capacity and to share knowledge about new technologies*".[54] In the world of emerging technologies, it is absolutely crucial for regulators to understand the technical, legal, and economic aspects of the technology they are dealing with as it is key to proper risk analysis and evaluation.

Another indication that European regulators see the value of having a unified understanding of regulatory sandboxes is the launch of the European Forum for Innovation Facilitators by the European Commission a year after establishing the FinTech Lab. This forum operates under the supervision of the European Banking Authority and conducts comprehensive surveys that provide an overview of the use of regulatory sandboxes in different EU jurisdictions.[55]

The use of so-called soft regulation has become a workable option for cases where it is either too early or not possible to establish mandatory provisions and rules. Creating guidelines that are non-binding by nature but clearly signal how the regulator views certain phenomena could be a practical solution for such cases. Currently, it seems that there is not much more to discuss regarding the trend toward the unification of regulatory sandboxes. Various arguments exist both in favor of and against this unification. It is important to note that certain inherent characteristics of regulatory sandboxes must be considered by regulators, regardless of the chosen approach to sandbox regulation.

[53] Thirty Recommendations on Regulation, Innovation and Finance (last visited September 03, 2024), available at: https://finance.ec.europa.eu/document/download/98a331c4-6700-4355-b545-cb97a49f13c2_en?filename=191113-report-expert-group-regulatory-obstacles-financial-innovation_en.pdf.
[54]EU FinTech Lab, First meeting of the EU FinTech Lab, available at: https://finance.ec.europa.eu/publications/first-meeting-eu-fintech-lab_en (last accessed October 01, 2024).
[55]European Forum for Innovation Facilitators, available at: https://www.eba.europa.eu/european-forum-innovation-facilitators (last accessed September 30, 2024).

Douglas W. Arner, Ross P. Buckley and Janos N. Barberis and suggest the following positives and negatives of regulatory sandboxes.[56] The column "Suggestions" is added by the author as potential recommendations that one may apply to overcome some of the disadvantages listed below.

Advantages	**Suggestions**
• Enhanced communication between regulator and company	• Continue and improve communication between companies and regulator; • Introduce a company sandbox feedback collection system in order to keep the track of companies' needs and suggestions
• Promotion of innovation and competition by providing optimal level of flexibility	• Avoid adoption of binding regulatory provisions that might not be suitable for all technologies
Disadvantages	**Suggestions**
• Lack of regulation (risk of consumer's rights violation – therefore, it could be the reason why clients may refrain from entering into business with company participating in sandbox) which may lead to failure to use the full potential of the sandbox	• Come up with ground rules for regulatory sandboxes that would address potential risks; • Set up a clear risks limitation plan for certain technologies and/or technological sectors
• No transparency – if company is granted a relief from certain (e.g., licensing) requirements, it can be difficult to understand why.	• Even though it seems that it is too soon to suggest adoption of unified approach to sandboxing, such crucial things as eligibility criteria and potential reliefs that company may receive shall be published

4. SUGGESTIONS AND IMPROVEMENTS

This section will focus solely on potential enhancements. There is an old adage: instead of criticizing, one should suggest improvements. The purpose of this research paper was not to spotlight shortcomings in sandbox regulation and application. Instead, it aimed to analyze the current state of sandboxing and offer suggestions that could assist sandbox stakeholders—both companies and regulators—in navigating any challenges that may arise. Consequently, several

[56]Douglas W. Arner et al, *supra* no.13 at 33.

practical recommendations are deemed valuable for consideration when engaging with regulatory sandboxes at any stage.

4.1 Applicability

As noted, there is currently a notable increase in the establishment and adoption of innovative regulatory measures, such as regulatory sandboxes, in both the United States and the European Union. However, there is a lack of analysis on the practical effectiveness and appropriateness of these regulations for specific technologies. In some cases, the introduction of regulatory sandboxes in certain jurisdictions appears to be more about the perception and public relations than actual necessity.[57]

Establishing a regulatory sandbox can indeed signal a jurisdiction's openness to FinTech innovation and its willingness to adapt regulations as needed. However, implementing a sandbox merely to foster innovation may risk oversimplifying its purpose. Ideally, a regulatory sandbox should address specific challenges that existing regulations pose to novel technologies, providing a balanced testing ground rather than just an open-ended platform for innovation. In practice, though, many jurisdictions may not fully analyze why current regulations fall short or the precise needs that a sandbox is meant to fulfill. This approach can lead to inefficiencies, where sandboxes are deployed broadly rather than in a targeted way, potentially limiting their effectiveness and creating an incomplete framework for both innovation and regulation.[58]

Conversely, a company's interest in joining a regulatory sandbox can signal a start-up's commitment to regulatory compliance, which alone might justify a potential 75% increase in fundraising.[59] However, if companies are primarily entering sandboxes to enhance credibility and thereby attract investment, this outcome—while impactful—is not what the sandbox was originally designed to achieve.

Therefore, conducting a comprehensive analysis to determine when a regulatory sandbox should or should not be applied appears essential. Although participation in regulatory sandbox is and shall continue to be voluntary for private companies, this participation shall be justified by reasonable grounds. Since sandboxing is not intended to replace traditional regulatory regime, it should not be treated as such. This means that any reference to a regulatory sandbox

[57] The 2023 ESA Report illustrates that regulatory sandboxes can be ineffective and permanently suspended few years after being introduced. See Report on Innovation Facilitators, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

[58] The ESAs "observes that all but one surveyed NCA running regulatory a sandbox consider that their cost/benefit perception justifies the continuation of the regulatory sandboxes. However, no specific metrics have been set to measure their success or usefulness. As a result, this does not allow NCAs to objectively assess the functioning of their regulatory sandboxes". See Report on Innovation Facilitators, available at: https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf (last accessed September 19, 2024).

[59] Jonathan Bone et al., *The impact of business accelerators and incubators in the UK* (last visited November 03, 2024), available at: http://oro.open.ac.uk/67380/.

should be accompanied by enough explanations as to why traditional forms of regulation may not be suitable for a particular technology or product.

4.2 Establish Appropriate Entry Criteria

National financial supervisory authorities have the flexibility to create regulatory sandboxes tailored to different sectors and needs.[60] Due to the lack of a unified approach to regulatory sandboxes, these authorities have the autonomy to define entry criteria that are suitable for specific sandbox initiatives. As noted earlier, among the various eligibility criteria proposed by different regulators, the author sees only those listed in Table 2 to be truly valid: the product shall be complete, and a company-participant shall prove why traditional regulatory methods do not apply.

4.3 Additional Interaction for Sandbox Participants and Supervisors

Currently, participation in a sandbox is primarily analyzed from a regulatory point of view, focusing on enhancing the supervisor's understanding of new technology and associated risks. However, shifting the focus to include the company's perspective can improve the experience for both parties. Regardless of how flexible and accommodating regulations are to new technologies, innovation is primarily driven by companies striving for success. Regulations can facilitate innovation or hinder it, depending on how they are applied. While the regulatory sandbox is not a one-size-fits-all solution for all regulatory challenges related to innovative technologies, it is a very positive step towards embracing principle-based regulation and moving towards "soft regulation".

One of the key advantages of the sandbox over traditional regulation is direct interaction between regulators and start-up companies, fostering open dialogue to understand the needs of start-ups and the risks regulators aim to mitigate. However, the effectiveness of this cooperation in reality raises another question. Are existing sandboxes really designed in such a way that helps facilitate effective collaboration between regulatory bodies and sandbox participants?

During all stages of participation, including preliminary entry stage, regulator and the start-up company have various ways of communicating. However, once the company exists the sandbox, communication stops.[61] Cooperation, in a broader sense, serves a link between the law and the businesses, which is the primary purpose of regulatory sandbox. Utilizing

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[60] Austrian FMA Sandbox, available at https://www.fma.gv.at/en/fintech-point-of-contact-sandbox/fma-sandbox/.

[61] The ESA 2018 Report does not mention the opportunity to collect feedback. Under the ESA 2023 Report "…the ESAs observe that only a small number of NCAs actually collect feedback from participants in the activities of innovation facilitators or establish indicators to track their performance". Fintech: Regulatory sandboxes and Innovation Hubs, available at: https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf (last accessed September 19, 2024).

sandboxes more efficiently could improve this link. One of the main challenges with the current status of regulatory sandboxes is the inability to measure their effectiveness due to the lack of information and figures that could highlight the correlation between a company's participation in a sandbox and its financial performance.

A private company that has participated in a regulatory sandbox for 6 up to 24 months is a valuable source of information for those companies considering entering a sandbox, as well as for regulators looking to enhance the efficiency of sandboxing procedures. Currently, once a company exits a sandbox, it is completely on its own without there being any feedback gathering or follow-up procedure in place. This lack of interaction means that regulators totally miss out on the opportunity to collect important information that could be easily obtained if the sandbox procedures were adjusted.

Therefore, it is crucial to introduce the following additional interactive activities within a sandbox: a) obtaining feedback at the exit stage; b) follow-up feedback 12-18 months after the exit; c) continuous interaction between former and current sandbox participants.

a) Obtaining feedback from the company at the exit stage of the sandbox

This would allow regulators to gain a firsthand impression of the company's experience in the sandbox and gather valuable information for further improvement.

b) Obtaining detailed feedback from the company 12-18 months after exiting the sandbox[62]

The World Bank Report as well as the ESA 2018 and ESA 2023 do indeed contain some information collected from the participants. However, it would have been more efficient if such feedback was collected by a separate division of the supervisory body maintaining the sandbox.[63] Period of 12-18 months after exiting the sandbox should be sufficient enough to measure the impact of sandboxing on the company's business. The feedback should be detailed enough to provide specifics but not necessarily require much effort from the company. Possible suggestions for the feedback are outlined in Attachment 2 thereto.

[62] One of the ways to collect feedbacks could be in a form of reporting requirement set out for a participant. See s.10.1 of the Financial Technology regulatory Sandbox Framework of Bank of Negara Malasiya available at: https://www.bnm.gov.my/documents/20124/938039/pd-sandbox-feb24-1.pdf (last accessed September 03, 2024). However, regulator shall make sure that the report is prepared when sufficient time has passed after participating in a sandbox. That allows gathering information not only in respect to company's personal insights on participation, but also see financial figures change (if any) sometime after exiting the sandbox.

[63] The World Bank Report, available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/912001605241080935/global-experiences-from-regulatory-sandboxes (last accessed September 15, 2024).

This questionnaire is designed to be time-efficient for participating companies while still gathering valuable insights. It is divided into three sections:

- ✓ The first section focuses on the general impressions of sandboxing and seeks to enhance the participation process.
- ✓ The second section requests information on any changes in company's business performance, allowing us to assess the effectiveness of the sandbox from the company's perspective.
- ✓ The third section aims to collect suggestions from participants on how to improve the sandbox experience for future participants and supervisory bodies.

c) Engage previous participants in interaction with current or future sandbox participants

It is important when companies that are willing to participate in sandbox but have doubts of any nature, have an opportunity to contact current or previous participants for advice. It shall be voluntarily done by company, but makes a lot of sense to engage the company that already had troubles and obstacles while participating in the regulatory sandbox help out those start-ups that are thinking of entering. The infrastructure for such interaction shall definitely be provided by the supervisory body maintaining particular regulatory sandbox.

CONCLUSION

As initially outlined, the goal of this research paper, was to assess the current state and evolution of regulatory sandboxes and propose recommendations to enhance their effectiveness. This improvement is intended to benefit not only regulatory authorities but also private companies and entrepreneurs who play a crucial role in technological innovation. While we currently face a lack of information on the application of regulatory sandboxes, we are simultaneously missing a valuable opportunity to gather data from sandbox participants. To gather valuable insights and make meaningful suggestions, the paper recommends using the proposed questionnaire and other interaction methods.

Due to the lack of quantitative data, evaluating the effectiveness of regulatory sandboxes remains challenging. The paper suggests that once more data becomes available from companies that have engaged with EU regulatory sandboxes, their business performance should be assessed. One potential evaluation criterion proposed by the author is "labor effectiveness," which can help measure improvements in a company's early-stage business performance.

The author hopes that the recommendations provided in this paper will contribute to the advancement and better implementation of regulatory sandboxes within the EU.

Attachment 1

Attachment 2

Feedback questionnaire[64]

No.	Question	Answer
General impression		
✓	On a scale from 1 to 10 how would you rate your participation in a sandbox?	
✓	How did you decide to participate in a sandbox? What influenced on your decision to try sandboxing?	
✓	Looking back and comparing your efforts while participating and the outcomes after exiting a sandbox, would you say it was worth it? Please elaborate.	
Impact		
✓	Now that substantial time has passed after your participation in a sandbox, do you see how that has benefited your company/technology/product? Please give details.	
✓	Have you experienced an increase in investments after participating in a sandbox? Perhaps you have experienced an increase in investment already during the participation phase? Please give details.	
✓	Has participation in a sandbox had an influence on the financial performance of your company? Please give details.	
Suggestions		
✓	Do you have any suggestions/comments related to the time scale set for all or any specific procedures within the sandbox (duration of particular stage, length of participation in general, etc.)? Please elaborate.	
✓	Do you have any suggestions or comments related to sandbox personnel skills or knowledge? Please elaborate.	
✓	Do you have any suggestions or comments related to specific phase or part of the sandboxing procedure? Please elaborate.	
✓	Would you agree to provide some assistance to start-up companies that are currently thinking of entering a sandbox?	

[64] Shall be forwarded by the regulatory authority to a start-up company 12-18 months after exiting the relevant regulatory sandbox.