



INDUSTRY
SANDBOX

CALL FOR INPUT

INNOVATE / FINANCE



CONTENTS

Foreword	4
Executive Summary	5
Target Recipients and Timeline to Respond	7
Background to the Consultation	8
Industry Context	9
Why introduce an Industry Sandbox?	10
Use Cases by Stakeholder Group	11
Industry Sandbox and “Wicked” Industry Problems	12
Implementing an Industry Sandbox	13
Key Design Components	15
Access Criteria	17
Roles of Public and Regulatory Bodies	18
Funding and Governance Options	19
Legal and Governance framework for an Industry Sandbox	20
Summary of Questions	22
Next Steps	23
Glossary of Terms	24
Contacts	25



FOREWORD

The rise of FinTech as measured by capital flows, employment and intellectual property generated, has been a success story for financial services innovation globally and for the UK to date.

Measured by capital raised and company valuations, the most successful FinTech ventures are those attracting retail customers with lower fees, more affordable products, and better customer experience. Trends across financial services however, clearly point that a significant share of the opportunities sit with innovation for the enterprise market – both in terms of generating new revenue streams and cutting costs for wholesale clients.

Synergies between startups and enterprises, whether market driven or following regulatory changes (such as opening access to bank data) are a key function of using innovation to deliver better products and services.

The UK FinTech ecosystem was among the first to recognise this trend, shifting the conversation in FinTech from disruption to collaboration and enablement. Activity in corporate venture capital funds, corporate-backed accelerators and innovation labs, scouting programmes and similar initiatives demonstrate a healthy corporate emphasis on, and investment in making such collaboration possible.

While signs of activity are abundant in the FinTech ecosystem, the amount of output – as measured by enterprise-grade FinTech innovation taken into production – is relatively low.

This Consultation aims to assess the demand for and feasibility of setting up an Industry Sandbox as a way to improve the adoption of innovation in financial services.

An Industry Sandbox is an industry-led collaborative environment which firstly, enables the validation of innovative product by giving developers access to relevant data, technologies and services and secondly, allows industry to come together and resolve shared challenges.

Following feedback that FinTech startups are struggling to access corporate-level prototyping, i.e. sandbox

environments, the FCA invited Innovate Finance to chair a consultation on an industry-led virtual sandbox.

Innovate Finance accepted this invitation at a time when our own members were indicating that a shared environment that facilitates prototyping and demonstrating innovative solutions would be in demand.

The hypothesis that the Industry Sandbox Consultation reviews is as follows:

There is demand among the startup and enterprise participants in the UK FinTech ecosystem to develop a shared sandbox where facilitated access to data, systems and professional services expedite taking innovative ideas to market, and that regulatory engagement is a feature of such an off-market testing environment. While access to live data may be in scope for an Industry Sandbox, access to consumers and live production environments is strictly out of scope.

The Industry Sandbox Consultation is being conducted between July 2016 and April 2017. It encompasses a range of consultation techniques such as surveys, interviews, stakeholder mapping, and design workshops.

This Call for Input is the final opportunity for industry participants to contribute to the Consultation, before a conclusion is issued in the form of a Blueprint. It puts forward a range of possible business cases, as well as design, governance and funding features that can be part of an Industry Sandbox.

Your feedback is critical for this process. Thank you for taking the time to respond.

EXECUTIVE SUMMARY

Background and Context

Proprietary software sandboxes have existed for a long time and most financial services technology providers rely on them to test new solutions.

Shared Industry Sandboxes are collaborative spaces where different FinTech ecosystem participants can partner to co-develop and test a solution in a virtual environment which simulates multiple potential client production environments.

These or similar collaborative research and development labs, are relatively few in financial services, although they have had wide application in other industries such as pharmaceuticals.

In 2015, both the Government Office of Science and the FCA invited industry to consider the benefits and feasibility of developing an Industry Sandbox which would bring startups, financial institutions, data vendors, technology vendors, investors, academics, and regulators together in order to experiment in a virtual environment.

An Industry Sandbox would be an industry-led solution for testing in an off-market environment.

Innovate Finance accepted this invitation in mid-2016, as our startup members called for support with validating and demonstrating their innovative solutions, as well as for reducing friction around multiple repetitive due diligence processes in the procurement process with corporate clients.

In 2016 in the UK, the FCA launched a Regulatory Sandbox allowing certain innovative solutions to be tested on-market.

In 2017, stemming from the Competition Markets Authority (CMA) retail banking market investigation and subsequent remedies, environments for testing third-party access to transactional bank data are being considered.

An Industry Sandbox could interoperate with all these structures but should not be duplicative of their remits.

Why introduce an Industry Sandbox?

The Consultation process so far has identified three barriers to innovation which an Industry Sandbox could reduce: (1) cost and inefficiency in validating innovative solutions, (2) cost and inefficiency in developing collaborations between the key stakeholders in a FinTech ecosystem – startups, institutions, technology vendors, and data vendors, and (3) regulatory uncertainty around innovative technology or business models.

Data from an industry-wide survey and stakeholder interviews points out access to data, development environments and support with procurement into financial institutions as the main “assets” that according to startups will decrease time and cost of product development. Therefore, the Industry Sandbox could be a test-bed where providers of such assets can be efficiently connected with multiple startups.

To explore how an Industry Sandbox can facilitate product procurement, the Call for Input also suggests that the Sandbox develops a certification capability.

In terms of fast-tracking industry collaboration, the Call for Input introduces the concept of “Wicked Industry Problems” - issues that a critical mass of industry participants identify as significant and ones which would have implications for systemic resilience, transparency or consumer outcomes (e.g. development of a portable digital identity).

The Call for Input puts forward the idea that given the unprecedented speed of FinTech innovation, and the impact of digitalisation on consumers and businesses more broadly, there are enough big thorny issues which lend themselves to industry-level solutioning to justify the resourcing of a shared research facility, such an Industry Sandbox.

Finally, on addressing regulatory uncertainty, the Consultation suggests that relevant regulators should have dedicated engagement with an Industry Sandbox.

Implementing an Industry Sandbox

The Call for Input outlines a set of key design principles (underlying rules and parameters) and components (technical features and governance policies) which could form the backbone of an Industry Sandbox.

In terms of Design Principles, the design sessions with industry indicated that an Industry Sandbox should be:

- Validating innovative ideas
- Engaging relevant regulator
- Realistic
- Multi-stakeholder
- Interoperable
- Voluntary
- Scalable
- Modular
- Secure
- Additive
- Neutral
- Auditable
- Economically viable
- Self-sustainable

Based on these principles, a number of design components were indicated in the consultation process, such as having the continuum of datasets, reference architectures and test run environments, as well as access to certification, professional advice and regulatory steer.

Not all components will be essential or feasible for the launch version of an Industry Sandbox. The consultation process thus far has indicated that a minimal viable product (MVP) of an Industry Sandbox can be either driven by creating a basic testing environment where innovative ideas can be validated irrespective of their focus, or it can start by identifying a “wicked industry problem” and pose it as a challenge to the FinTech community.

Role of Public and Regulatory Bodies

The Consultation process to date has received indication that there is demand for regulatory bodies to participate in the Industry Sandbox for the purposes of (1) education and (2) engaging early in the lifecycle of a product.

The Call for Input asks for further feedback on what engagement from UK and international regulators the Industry Sandbox would benefit from.

Access

The Call for Input suggests that any FinTech entity can engage with an Industry Sandbox as either a user, a partner or a sponsor based on a set of eligibility criteria.

Users would be providers of innovative solutions who can demonstrate both a use case for the Industry Sandbox, which does not in itself constitute a revenue generating activity, and a level of product maturity which would reach a meaningful milestone through Sandbox testing.

Partners are providers of testing assets that can demonstrate availability, quality and support associated with an appropriate asset.

Entities can sponsor the Industry Sandbox in order to set up issue-specific testing environments and exercise decision-making power under an agreed governance model.

Funding and Governance Models

Based on the access profiles of Sandbox participants, the Call for Input lays out the following funding models: subscription-based, sponsorship, in-kind participation, and foundation funding.

In terms of governance, the suggested key principles are that the Industry Sandbox is simple and flexible, vendor-agnostic, set up as a stand-alone not-for-profit entity, and legally robust.

It would be operated by a dedicated secretariat, with participants invited to join dedicated forums.

Next Steps

This Call for Input will be used towards the development of an Industry Sandbox Blueprint, which will be issued in early April 2017.

The objective of the Blueprint is to support the implementation of an Industry Sandbox by interested parties, for the UK market or internationally.

It is envisioned that a subset of design components could comprise the first version of an Industry Sandbox, and scalability should be embedded in an implementation plans. The first version of an Industry Sandbox does not necessarily have to meet all suggested use cases and objectives in this Call for Input, but a prioritised subset.

TARGET RECIPIENTS AND TIMELINE TO RESPOND

This Call for Input is for the consideration of the FinTech industry, across its wide spectrum of participants.

The core stakeholder groups for an Industry Sandbox are FinTech startups, all financial institutions, data vendors, and technology providers with presence in the UK.

Within financial institutions, the Call for Input is most pertinent to departments responsible for innovation, engagement with the FinTech ecosystem, data strategy and Application Programming Interfaces (APIs) management, research and development, technology procurement, and technology strategy more broadly.

The Call for Input also welcomes views from industry bodies, academia, the investment community, professional services firms and developers of similar sandbox projects internationally.

While the Industry Sandbox Consultation is primarily considering the UK, the final solution could be open to international participants.

Responses to the Call for Input are welcome in written format and can be made public upon the respondent's request on the dedicated Consultation website, www.industrysandbox.org. Please submit your responses to sandbox@innovatefinance.com

The Call for Input is open for a period of four weeks.

All submission should be made by 10th March 2017. Responses will be used towards the final output of the Industry Sandbox Consultation. This blueprint will be issued by 10th April 2017.

BACKGROUND TO THE CONSULTATION

Origin of the Industry Sandbox

Software developers have used sandboxes for many years, and most financial services institutions or technology providers would have proprietary sandbox environments. However, shared Industry Sandboxes, or similar collaborative research and development utilities, are relatively few in financial services.

In the UK, the concept of an industry sandbox was first put forward in the Government Office of Science report on FinTech Trends from 2015: ***"In fostering close collaboration between regulators, institutions and FinTech companies, much might be learnt from clinical trials (i.e. Phase III) structures. Specifically, regulator monitored 'sandboxes' for innovators to experiment with virtual environments or real people. Grand challenges are also catalysts to stimulate collaboration and knowledge exchange (e.g. an open-source compliance system)¹."***

The Industry Sandbox Consultation seeks feedback specifically on, sandboxes for innovators to experiment with virtual environments. Access to live customers is out of scope.

In parallel, Innovate Finance FinTech startup members have been calling for facilitated access to both testing and showcasing Proofs of Concept.

In 2015, the UK Financial Conduct Authority (FCA) consulted industry on a "Regulatory Sandbox" and an "Industry-Led Virtual Sandbox". The consultation was in support of the FCA's statutory objective to improve competition in financial services which benefits consumers by making it easier for companies of any size to test out innovative ideas.

This 2015 consultation led to the launch of the FCA Regulatory Sandbox, and the launch of the Industry Sandbox Consultation.

Timeline and process of the Industry Sandbox Consultation

The Industry Sandbox Consultation opened in July 2016, seeking wide industry feedback on the demand for such a solution, the incentives of different stakeholders to support it, and its key technical, operational and legal features.

The Industry Sandbox Consultation has been overseen by a Steering Committee composed of representatives from Innovate Finance, the FCA, HM Treasury, and Innovate Finance's Strategic Legal Partner Hogan Lovells. The Boston-based FinTech Sandbox, TISA, FCA, TechUK and NESTA have also engaged on an advisory panel.

Between July 2016 and January 2017, through the Consultation process Innovate Finance has conducted a stakeholder mapping exercise, an industry-wide survey and a series of design sessions with industry in order to collect initial views for this Call for Input.

In Q3 2016, a stakeholder mapping exercise constituted over 100 one-on-one interviews with indicative Sandbox stakeholders as well as industry subject-matter experts with relevant experience.

In Q4 2016, a survey was shared with all four key stakeholder groups to the Call for Input, with data influencing all suggested Sandbox design principles and components. TechUK, the British Bankers Association and TISA took part in the survey process as distribution partners.

Between July 2016 and January 2017, Innovate Finance conducted three consecutive "design sessions" – workshops designed to bring together a subsection of stakeholders in order to collaborate on the use cases, design features, funding and governance models.

¹ FinTech Futures. Government Office of Science. March 2015.



INDUSTRY CONTEXT

The Industry Sandbox

The Industry Sandbox would be a market-wide utility developed by the FinTech industry, in its broadest definition, for use by the FinTech industry.

The Industry Sandbox aims to create a “safe space” for FinTech startups and industry players to collaborate on new products and proof of concepts in an “off-market” environment without accessing consumers or wholesale clients.

Participation would be voluntary, while the governance structure of the Industry Sandbox should ensure that the final solution is provider-agnostic.

There are no regulatory implications from testing off-market, so creating a bespoke regulatory framework is not necessary. The sandbox environment can be used to simulate consumer or market behaviour in order to test and trial applications to a functional acceptance level desired by the organisation using the sandbox.


Access to the Industry Sandbox will be tiered and the eligibility criteria are currently under consultation.

It is envisioned that there will be wider access to the Industry Sandbox than the Regulatory Sandbox.

Regulatory Sandboxes

In the UK, an FCA Regulatory Sandbox creates a “safe space” where a FinTech and a limited number of real consumers can engage in an “on-market” trial. Some of the regulatory requirements can be amended to create a bespoke framework for the duration of the trial where the normal regulatory consequences do not apply, thus limiting the FinTech’s liability to, in the worst case, consumer recompense for out-of-pocket losses.

This Regulatory Sandbox is the only non-proprietary sandbox in the UK, which is currently operational. It is operated by the FCA. The Regulatory Sandbox was launched in the UK in May 2016. The FCA accepted 24 companies in its first cohort to go forward to develop testing plans. Applications for a second cohort closed in January 2017.



Globally, there are 19 other regulatory sandboxes which are in various phases of development.

The engagement between the Industry Sandbox and regulatory sandboxes is addressed further down in this Call for Input.

Links to the CMA Open Banking Reforms

Stated in the invitation to conduct the Industry Sandbox Consultation was a clear ask from the FCA to consider on-going work on opening access to bank data in the UK when putting forward a blueprint on an Industry Sandbox.

In August 2016, the Competition and Markets Authority (CMA) recommended that the nine largest retail banks in Great Britain and Northern Ireland develop and adopt an open API banking standard – and release information on products and prices by March 2017, and transaction data by early 2018.

Currently, an Implementation Entity (IE) is taking this recommendation forward, while The National Endowment for Science Technology and the Arts (NESTA) is developing a Challenge on improving small and medium enterprises (SME) access to comparative information on banking services. A sandbox is under development for the purposes of both the Implementation Entity and the NESTA Challenge, with scope limited to the respective mandates.

The NESTA Challenge Sandbox is to provide access to anonymised banking transactional data to the 20 participants in the challenge between June and December 2017.

Under current plans, an IE Sandbox is being considered in order to provide a testing environment where third parties can test their offering on synthetic transactional data as the nine designated banks prepare to comply with the CMA Remedies.

WHY INTRODUCE AN INDUSTRY SANDBOX?

A FinTech Industry Sandbox would aim to accelerate innovation and improve market competition by developing a cost-effective way for industry participants to collaborate and validate innovative solutions in financial services. The final solution should be an addition to proprietary commercial initiatives.

Barriers to innovation addressed in an Industry Sandbox

The three main barriers to innovation an Industry Sandbox seeks to reduce are (1) cost and inefficiency in validating innovative solutions, (2) cost and inefficiency in developing collaborations between the four key stakeholders in a FinTech ecosystem – startups, institutions, technology vendors, and data vendors, and (3) regulatory uncertainty around innovative technology or business models.

Cost and Inefficiency in Validating Innovative Solutions

Industry surveys and stakeholder mapping have indicated that there can be significant cost, both in terms of resources and time, to startups developing multiple proofs of concept with multiple potential institutional clients. At the same time, there is qualitative evidence that, while an increasing amount of proof of concepts (POCs) are being developed at an industry level, a disproportionately small number of these are being taken into production, indicating that the process can be made more efficient.

Beyond the POC stage, both providers and buyers of innovative solutions indicate that multiple and repetitive due diligence processes add a significant amount of cost and friction to the industry.

Cost and Inefficiency in Developing Collaborations

As advances in FinTech and the digital economy change both the nature of risk and risk mitigation in finance at an unprecedented pace, a collaborative research laboratory could serve the FinTech community to more efficiently identify shared industry-wide issues multiple actors are seeking to resolve. Some of these might be best resolved by pooling resources to the benefit of all participants.

An Industry Sandbox could serve as a test-bed for, at the very least, identifying and collaborating on such industry issues in a lean and inclusive way.

All Design Session conducted as part of this Consultation indicated that identifying several such industry-wide issues would be a solid foundation on which to develop an Industry Sandbox.

Regulatory uncertainty around innovative technology or business models

In addition to validation at a business model and technology level, FinTech innovation requires clear understanding of compliance requirements and supervisory expectations. In FinTech, both lack of awareness of compliance requirements and lack of clarity in supervisory expectations have manifested themselves as barrier to innovative solutions going into production. Early indication of compliance implications can be instrumental in product development as well as in providing the level of certainty necessary for funding raising and commercial partnerships.



SURVEY RESULTS

Nearly 80% of the surveyed startups agree that access to data would expedite their company's route to market. When asked what other assets would support innovation, startups rank access to integration tools, development environments and support with procurement as the top three.

At the same time, the majority of surveyed institutions either strongly agree or agree that procurement processes can be made more efficient, development of POCs is costly, and integrating startup innovation at scale remains a challenge.

There was a strong degree of convergence across all surveyed stakeholder groups that the FCA could support an Industry Sandbox by:

- a) Making further feedback on regulatory treatment available to Sandbox participants
- b) Using the Sandbox to identify RegTech solutions for FCA use
- c) Leveraging Sandbox output towards development of applicable regulatory / supervisory approach
- d) Reviewing Sandbox tests in authorisation or supervisory decisions

USE CASES BY STAKEHOLDER GROUP

For **developers of new FinTech** products – both FinTech startups and established institutions – an Industry Sandbox would facilitate access to datasets or pre-production environments (reference architectures) through which the viability of products could be more easily demonstrated. In this instance, viability would extend to testing the scalability or security of solutions.

Examples of sandbox “assets” include market data, institutional data and sandbox environments which resemble the live production environment(s) within financial institutions. Data in the Industry Sandbox could be synthetic, anonymised, delayed or live. The types of data available will be driven by the Sandbox participants and each type will drive a specific set of engagement and security requirements. The Industry Sandbox should make use of applicable existing standards as they relate to data, semantics, messaging and other relevant areas.

In addition to data and reference architectures, the Industry Sandbox could provide access to certification and varying degrees of feedback in order to provide a steer and certainty as new ideas are being developed.

For **technology and data vendors**, accessing innovation via an Industry Sandbox environment could be an opportunity to develop managed access to the FinTech ecosystem, ultimately either developing new commercial relationships or better servicing existing ones.

Market experience to date demonstrates that collaborations between tech / data vendors and FinTech startups can accelerate innovative ideas into production. An Industry Sandbox could provide an environment where such collaborations can be tested at a manageable cost, pinpointing commercially viable partnerships. The benefit of developing an industry-wide Sandbox would be that multiple such collaborations can be tested simultaneously, creating a marketplace for vendors which resembles the interconnectivity in a live production environment.

For **financial institutions** access to innovation validated through an Industry Sandbox could reduce the time and cost in supporting such validation internally. While institutions

would have specific requirements as well as existing engagement models in open innovation, efficiencies can be made where such requirements are common at an industry level.

Furthermore, an Industry Sandbox could provide a neutral space for collaboratively prototyping new solutions. Such collaboration could be particularly beneficial in areas where wide adoption of a solution can benefit all institutional participants, for example identity management or regulatory reporting.

A shared prototyping space can also be utilised as a tool for education, making emerging technologies more accessible to the wider financial services industry.

Finally, some financial institutions have suggested that in a post-PSD2 world an Industry Sandbox can also provide a shared utility of management access, and providing analytics to proprietary data.

Investors in FinTech, such as angel networks, venture capital funds or corporate venture capital funds, could use the output of an Industry Sandbox to increase the certainty for current portfolio companies or potential new investments. Industry Sandbox outputs could provide due diligence against, for example, technical standards. It could test the security of solutions their ability to operate at scale at a reduced cost. Investors can consider integrating outputs of an Industry Sandbox into their own analytical process.

An Industry Sandbox could engage with a number of other stakeholder groups, notably academia or consumer groups. For the purposes of exploring a minimal viable product, these have been left out of scope.

INDUSTRY SANDBOX AND “WICKED INDUSTRY PROBLEMS”

In the post-2008 regulatory environment, ongoing and upcoming regulatory changes generate an unprecedented level of new compliance requirements. According to industry research, global risk management and risk-related regulatory compliance technology spending is to hit \$72 billion in 2019, a 10% annual growth rate². Technological advancements themselves can generate need for regulatory change, or at a minimum, a change in supervisory approach.

Compliance requirements could be efficiently solved via innovative solutions. This is the premise of the increased interest in RegTech from industry and supervisory authorities globally.

Innovation to address regulatory change has a unique set of success factors that can lend itself well to an Industry Sandbox.

Firstly, its aim is to reduce cost rather than develop a competitive edge in generating revenue. Secondly, the risk of adopting innovative RegTech solutions can be reduced with industry-wide validation. Thirdly, the level of due diligence and scrutiny required to adopt a RegTech solution can be prohibitively high for startups, while the due diligence process across institutions can be comparable for solutions that address the same compliance requirements. Finally, an early view from the regulator as RegTech solutions are being developed can give potential clients and investors a degree of certainty necessary to solidify the UK as a leader in taking RegTech solutions into production.

In addition to validating individual RegTech solutions, an Industry Sandbox can evolve to become a cost efficient mechanism to identify complex industry-wide regulatory issues – in short, wicked problems – and fast-forward their resolution.

A 'Wicked Industry Problem' is an issue that a critical mass of industry participants identify as significant, and one which would have implications for systemic resilience, transparency or consumer outcomes. Examples of such issues in FinTech at the moment could be: the development of portable digital identity; meeting requirements on risk data aggregation; asset tokenisation; issues related to cyber security; issues related to developing and supervising machine learning products in financial services.

Examples from other industries, notably pharmaceuticals, suggest that a governance structure which develops consensus on “wicked problems” combined with a mechanism to pool resources in their resolution can create significant cost reduction and advancement.

To the extent that lack of regulatory certainty can be a barrier to using innovation to resolve regulatory challenges, the engagement of the regulator – via the FCA's Project Innovate – in an Industry Sandbox could be beneficial.

Call for Input Questions

- 1. As a FinTech product provider, could access to an Industry Sandbox environment support the development of innovative FinTech products by your organisation?**
Please give us specific examples.
- 2. As a FinTech product buyer, partner or investor, could access to an Industry Sandbox support collaborating with providers of innovative FinTech products in your organisation?**
Please give us specific examples
- 3. From your practice, what are “wicked industry problems” that would lend themselves well to an Industry Sandbox, if any.**
- 4. Do you see a role for the Industry Sandbox in the development of RegTech solutions, specifically?**
Please elaborate.
- 5. Do you see a role for an Industry Sandbox as a tool for best practices and knowledge sharing?**

² Future of FinTech in Capital Markets. Deutsche Börse. June 2016.

IMPLEMENTING AN INDUSTRY SANDBOX

KEY DESIGN PRINCIPLES

A Design Principle is the set of fundamental objectives, parameters or rules which would underpin any specific components of an Industry Sandbox. For example, if the design principle of an Industry Sandbox is that it should be multi-stakeholder, its access criteria need to allow from different types of FinTech players to engage in a feasible way.

Possible Design Principles for an Industry Sandbox are:

Validating Innovative Ideas:

The Sandbox should make it easier and cheaper to validate new ideas in an off-market environment.

Engaging the Regulator:

The Sandbox should benefit from the engagement of the FCA for the purposes of (1) early engagement with innovative products / services, and (2) education.

Realistic:

The assets available in the sandbox environment should closely resemble the production environments they seek to imitate.

Multi-stakeholder:

The Industry Sandbox should bring together a community of cross-disciplinary participants in order to maximize the benefits of collaboration it provides.

Interoperable:

The Industry Sandbox should acknowledge and leverage the existence of other sandbox or similar prototyping environments, and be set up in a way that enables interoperability.

Voluntary:

The Industry Sandbox should be set up as an opt-in marketplace, to which participants (or users) and providers subscribe.

Scalable: This principle applies to both engagement with the Industry Sandbox, and the development of the Industry Sandbox itself.

- Scalable engagement means that the entry point to the sandbox should be automated and frictionless, and provision of services and support would depend on how sophisticated the testing requirements of a participant are.
- Scalable development means that the Industry Sandbox should start with a minimum viable product and number of participants, and grow in size and complexity in time.

Modular:

Different sandbox environments should be developed to cater to the needs of companies at different growth stages or companies operating in different FinTech verticals. For example, an early startup looking to validate an idea by accessing datasets will need a different sandbox environment to a momentum growth play looking to scale its application.

Secure:

The handling of data, systems and intellectual property in the Industry Sandbox should be governed to appropriate standards of security. The sandbox virtual platform (portal) will support the discovery of and facilitate access to third-party data, but will not store data.

Additive:

The Industry Sandbox should be set up to solve additive industry issues – that is, it should take into account industry dynamics and regulatory changes, with their respective

timelines, and offer a space for identifying and resolving challenges which will support ongoing developments.

Neutral:

The Industry Sandbox should offer a space for experimentation and collaboration unaffiliated with any one organisation. From a regulatory perspective, the Sandbox should be an experimental 'safe space' for the purposes of supervision.

Auditable:

Use of testing assets in the Sandbox should be captured, with an analytics capability built in to provide feedback to providers of assets, and the governance of the Sandbox itself.

Economically Viable:

The Sandbox will have a viable and sustainable funding model that allows participants to have confidence that necessary funds are available for the proper functioning of the sandbox.

Self-sustainable:

The Sandbox should be resourced and operated by industry.

Call for Input Questions

6. Do you have comments on any one of the specific principles?
7. What are the key risks associated with the listed principles your organisation would like to see addressed in order to participate in an Industry Sandbox?
8. Which principles will be most important to your firm if it were to participate in the Industry Sandbox? *Please specify if your firm would participate as a user or partner or both.*
9. Overall, which principles are essential and which aspirational for the initial launch of an Industry Sandbox?
10. Are there other principles that should be part of an Industry Sandbox?



KEY DESIGN COMPONENTS

Design Components are a tangible technical element or governance policy of an Industry Sandbox, which in aggregate constitute the sandbox solution. For example, if the design principle of an Industry Sandbox is that it should validate innovative ideas, an associated component is the Sandbox having certification capability.

Possible Design Components for an Industry Sandbox are:

Data Sets

A key component of a sandbox is access to data required to demonstrate how an innovative solution would work in practice. Data could be synthetic, historic anonymised data, delayed or live. It can be provided via APIs or data feeds.

While the Industry Sandbox should not store any third party data, it should support users to identify the right providers for their required testing. It should also provide a view on the quality and type of providers' data as well as a streamlined legal process governing the relationship between the data user and data provider. The Industry Sandbox should seek to automate as much as possible the process of matching data users to data providers, as well as the process of assessing users' eligibility.

Each data provider (whether a data vendor or an institution) will join the Industry Sandbox as a partner, and will have the option to specify additional eligibility criteria for access to all or a subset of its datasets.

According to the surveyed startup population, the following datasets would be of most interest: AML data, KYC data, credit data, anonymized customer transaction data³, and global market data.

Access to live transactional data is a possible use case for the Industry Sandbox. However, this use case and its associated governance, security and compliance requirements need to be explored in further detail. Transactional data, whether it is synthetic, anonymised or live should be made available on a timeline consistent

with other regulatory changes in the UK, namely the implementation of the CMA Remedies and the implementation of PSD2.

Reference Architectures

A reference architecture could provide a template software solution for a particular domain. e.g. a payments engine or a core retail banking platform, where the elements, standards and vocabulary most common at an industry level are provided. A reference architecture would consist of a list of functions and some indication of their interfaces and interactions with each other and with functions located outside of the scope of the reference architecture.

The availability of reference architecture in the Industry Sandbox would serve to demonstrate that an innovative solution can integrate at scale with the domain it is aimed for.

Test Run Environments

The Industry Sandbox should be equipped with testing environments - a setup of software and hardware on which the testing team is going to perform the testing of the newly built software product.

Certification Capability

The Industry Sandbox should seek to lower the cost and time in developing corporate partnerships between startups and institutions. One reason for this barrier to innovation is the cost and inefficiencies that are associated with startups going through multiple repeatable institutional due diligence and procurement processes. The Industry Sandbox can support this process by providing certification against recognised industry standards, which can be used by corporate partners.

A dedicated industry board should assess certifications that can be given for a fixed period of time.

³ In addressing this feedback, ensuring coordination between an Industry Sandbox solution and the output from the on-going work on opening access to bank data in the UK

Certifications should be tiered thereby allowing both the startup and its potential corporate partners to determine the standards against certification that are requested.

Showcase Space

The Industry Sandbox could facilitate the discovery of innovative solutions whose validity has been tested by developing dedicated virtual showcase space, as well as off-line demo days.

Advice: Professional or Technical

Depending on the availability of partners, the Industry Sandbox can provide access to pro-bono or low-cost professional, including legal, advice. Advice should be restricted to the testing performed in the Industry Sandbox and limited to the residency of any startup in it. Advice should not be sought for associated revenue seeking activities.

Technology providers can also participate in the Industry Sandbox as providers of services such as security testing, scalability testing, product architecture and product market fit. Such services will be limited for the duration of the Sandbox test and can be transformed into either commercial relationships or partnerships after the test is completed.

Regulatory Involvement

Regulators could have a role in the Industry Sandbox community. The involvement of regulators as part of the Industry Sandbox could promote understanding of new technologies and trends within financial services firms. It could also give regulators an early sight of possible regulatory questions that arise from innovative technologies.

Environments specific to "Wicked Problems"

Regulators could have a role in the Industry Sandbox community. The involvement of regulators as part of the

Industry Sandbox could promote understanding of new technologies and trends within financial services firms. It could also give regulators an early sight of possible regulatory questions that arise from innovative technologies.

Community Forum

The Industry Sandbox can be equipped with discussion forums where users share experiences during their residency in the Sandbox. Community Forums, or dedicated channels in existing appropriate forums, would be a key vehicle for Sandbox users to make open code contributions as well, where deemed appropriate.

Analytics & Audit tools

The Industry Sandbox can provide both users and partners analytics of the frequency and user base of different testing assets. Such tools would ensure that usage of the Industry Sandbox is auditable.

Virtual Platform

A number of components of the Industry Sandbox can be made available via a virtual platform. Such a portal can serve for sign-up, first automated eligibility assessment, and hosting:

1. a catalogue of available datasets and reference architectures
2. matching engine between sandbox users and available testing assets
3. showcase space of completed tests
4. showcase of on-going tests
5. eligibility, access and subscription information

Cohorts

Access to the Industry Sandbox can be organised on a cohort basis to manage resourcing requirements and make demonstration of results via a demo day manageable.

Call for Input Questions

11. Do you have comments on any one of the specific components?
12. What are the key risks associated with the listed components your organisation would like to see addressed in order to participate in an Industry Sandbox?
13. Which components will be most important to your firm if it were to participate in the Industry Sandbox?
Please specify if your firm would participate as a user or partner or both.
14. Overall, which components are essential and which aspirational for the initial launch of an Industry Sandbox?
15. Are there other components that should be part of an Industry Sandbox?

ACCESS CRITERIA

The Industry Sandbox is open to all FinTechs, which includes startups to momentum growth plays, financial institutions, technology and data providers, and, where relevant, investors and academia.

Based on best practices from professional membership bodies, other shared sandboxes or industry research bodies, there could be three types of engagement models:

- 1. Users:** Entities conducting testing via the Industry Sandbox would participate as users, provided they satisfy the user eligibility listed below. Users would subscribe to the Industry Sandbox at a cost proportional to the size of their organisation, as proposed under the Funding Models of this Call for Input.
- 2. Partners:** Entities providing assets, including data, technologies or services to the Sandbox, would engage as partners, provided they satisfy the partner eligibility criteria listed below. As providers of resources, partners would engage at no additional cost, unless they also participate as users or sponsors.
- 3. Sponsors:** Entities can sponsor the Industry Sandbox should they be interested in setting up issue-specific testing environments as well as exercise decision-making power in the development of the Industry Sandbox.

Users Eligibility Criteria:

- **Need:** Does the business have a demonstrable need to test using assets available on the Industry Sandbox?
- **Readiness:** Is the business ready to test their innovation in an off-market environment? Is the solution mature enough to require validation or certification? Will the business reach a meaningful milestone during its residency in the Industry Sandbox?

- **Non-commercial use:** Can the business demonstrate that sandbox assets will be used in a non-revenue generating environment?
- **Pre-authorisation:** Products or services being tested in the Industry Sandbox should not be already authorised by the FCA?
- **Geographical scope:** There is no requirement that users of the Industry Sandbox be UK-domiciled, but they need to demonstrably commit a dedicated resource to the testing process.
- **Partnerships:** startups can partner with firms of any size for the purposes of an Industry Sandbox test.

Partner Eligibility Criteria:

- **Availability of asset:** Is the partner prepared to commit an asset (dataset, element of reference architecture, service) to the Industry Sandbox on a pro-bono basis for a minimum of 12 months?
- **Availability of support:** Is the partner prepared to commit an dedicated support for its testing asset to the Industry Sandbox on a pro-bono basis for a minimum of 12 months?
- **Auditability:** Does the partner agree to the usage of its testing asset to be monitored and reported on for its residency in the Industry Sandbox?

Partners that provide access to sensitive testing assets, for example live or sensitive data, will be able to set up additional eligibility requirements upon agreement with the governance of the Industry Sandbox.

Call for Input Questions

- 16. If you are a potential Sandbox user, do you find the user eligibility criteria actionable and the partner eligibility criteria sufficient?**
- 17. If you are a potential partner, do you find the partner eligibility criteria actionable and the user eligibility criteria sufficient?**
- 18. If your organisation is a potential partner, what are be specific key eligibility requirements for those accessing your testing assets?**

ROLES OF PUBLIC AND REGULATORY BODIES

Regulators could potentially have a role in the Industry Sandbox community. The involvement of regulators as part of the Industry Sandbox could promote understanding of new technologies and trends within financial services firms. It could also give regulators an early sight of possible regulatory questions that arise from innovative technologies.

As part of an earlier consultation survey, nearly all respondents across start-ups, financial institutions, data vendors and technology vendors strongly agreed or agreed that regulatory involvement would contribute to an Industry Sandbox environment by:

- a. Make further feedback on regulatory treatment available to Sandbox participants
- b. Use the Sandbox to identify RegTech solutions for FCA use
- c. Leverage Sandbox output towards development of applicable regulatory / supervisory approach
- d. Review Sandbox tests in authorisation or supervisory decisions

At subsequent dedicated Industry Sandbox design sessions, two key roles for a regulator were highlighted:

1. Education, and
2. Engaging early in the lifecycle of a product.

Furthermore, shared experiences from the first cohort of the FCA Regulatory Sandbox has indicated a number stumbling blocks that applicants to the first cohort experienced. A subset of these could be addressed and resolved in an Industry Sandbox, particularly as

they related to securing partner arrangements and demonstrating that the product is sufficiently technically developed.

A wide range of regulatory and public bodies, both domestic and international, may have a potential interest in the Industry Sandbox, particularly to monitor innovation trends, which emerge from the Industry Sandbox.

Engagement of any regulatory will be within the parameters of the existing regulatory and legal framework.

Any regulatory involvement is still to be determined and under consideration as part of this consultation.

Questions

19. What engagement from UK or international regulators do you think the Industry Sandbox would benefit from?
20. What barriers to innovation would such regulatory involvement help address?

FUNDING AND GOVERNANCE OPTIONS

The Industry Sandbox should be accessible to all participants in the FinTech ecosystem. It should be governed as an independent entity with an open and inclusive subscription base. The cost of participation will depend on the type of engagement as well as the size of the participating organization. Participation should be voluntary.

FUNDING MODELS

As a principle, industry will bear the costs of making the Industry Sandbox available.

The cost of setting up and operating an Industry Sandbox would vary based on what its initial set of components is determined to be.

A low-cost, low-impact initial solution could constitute a catalogue of existing sandbox environments with details on available assets and access criteria.

A mid-cost, mid-impact initial solution could constitute a digital portal, which facilitates access to existing sandbox environments and other validation tools.

A high-cost, high-impact solution would have all the components outlined in this consultation and will serve to not only make access to validation tools easier and cost efficient, but identify and resolve shared industry "wicked problems".

A range of funding models is available to address the cost of setting up and running an industry sandbox.

- **Subscription:** participants in the sandbox, both users and providers, would be charged a subscription fee based on a tiered subscription model. The size of the participation fee will be determined by the (1) size of the participating organisation; (2) its level of utilisation of the sandbox; (3) the duration of utilisation of the sandbox.
- Subscription packages should not be limited to users and providers. Participants interested in the outputs from the sandbox should be charged a subscription fee in order to access them. Such participants could be financial institutions interested in accessing validated innovative products or venture capital funds using the Industry Sandbox as a business development tool.

- **Sponsorship:** Organisations interested in exploring a particular issue via the Industry Sandbox (e.g. digital identity or cyber security) should be able to sponsor these challenges to a level proportionate to the resources required to set up and operate the required testing environment and engagements.
- **In-kind participation:** There is significant scope for providers to participate through in-kind contributions. These can include providing pro-bono technical or other professional advice, developing elements of the digital Industry Sandbox platform, or providing access to data.
- **Foundation funding:** The Industry Sandbox should review options to align its objective of fast-tracking open innovation with the objectives of public bodies or private foundations committed to supporting the growth the UK FinTech sector and innovation and competition in financial services.

LEGAL AND GOVERNANCE FRAMEWORK

In order to ensure that it functions effectively and that participants have confidence in it, an Industry Sandbox will need an appropriate legal and governance framework in place.

The consultation to date has identified a number of characteristics that this framework could have, in order to be fit for purpose:

- **Simple and flexible:** The legal and governance structures of the Industry Sandbox should be as simple as is possible given the functions of the Industry Sandbox itself. Therefore, the framework should also be flexible and able to evolve as the Industry Sandbox develops. The scalability of the Industry Sandbox itself should be built into and accommodated by the governance structure.
- **Neutral:** The governance of the Industry Sandbox should be neutral and should not represent the interests of any one participant, regardless of their role as a user, partner or sponsor. This means that the framework will need to include checks and balances to ensure that all participants (regardless of their position in the market) are appropriately represented.
- **Not-for-profit:** The Industry Sandbox can be set up as a separate not-for-profit entity, for example, a company limited by guarantee. By establishing the Industry Sandbox as a not-for-profit entity, participants can be confident that it will be run in a way which is consistent with its function as a forum for collaboration, rather than to further profitability for one or more investors.
- **Legally robust:** To ensure confidence in the Industry Sandbox, participants are likely to look for certainty over the rights and obligations which will exist between them, the Industry Sandbox itself and other participants. Participants will therefore need to agree to contractually binding terms of participation.

Throughout the consultation, information security has been raised as a key concern; the contractual arrangements would need to deal particularly with participants' respective rights and obligations in relation to the sharing and use of information. The complexity of these issues will depend on the type of information that is being used (for example, whether or not it is synthetic or real data).

Legal and governance frameworks for organisations such as the Industry Sandbox tend to have some or all of the following key components:

- A **governance body** (which could be structured as a board of directors). This would oversee the operation of the Industry Sandbox in the interests of Industry Sandbox sponsors, partners, and users. This body would have terms of reference setting out its role and responsibilities. If required by size, membership of a leadership governance structure could be elected or rotational to ensure fair participation. The governance body would be responsible for ensuring that the Industry Sandbox fulfils its objectives and that any developments beyond the initial set up are in line with these objectives as well;
- A **dedicated secretariat** to carry out the day-to-day operations of the Industry Sandbox. This could include, for example, managing applications to the Industry Sandbox, communicating with participants and assisting the governance body.
- A **legal structure** that supports the effective functioning of the Industry Sandbox. For example, if the Industry Sandbox were set up as a company limited by guarantee, its participants would be members of that company and the governing body its directors. The constitutional documents would set out the respective rights and duties of these two groups, together with any additional agreements or terms of reference.

- Dedicated **Participant Forums** could be set up in order for different types of participants, for example sponsors, to discuss, agree and input into the strategy, operations and priorities of the Industry Sandbox.
- **Terms of participation** which set out each participant's rights and responsibilities in respect of the Industry Sandbox. These terms would be tailored as appropriate for each type of participant but, to ensure fairness, would be the same for each participant of that type. There would be penalties for those who breach the terms of participation (for example, being bound to compensate those who have suffered as a result of the breach, or to leave the Industry Sandbox).
- A **Dispute resolution procedure** to deal with disputes between participants. Although participants would have legally enforceable rights against each other, alternative dispute resolution procedures such as negotiation and mediation tend to reduce cost and can ensure that differences are reconciled quickly and easily.

Call for Input Questions

21. **Would your organisation consider participating in an Industry Sandbox at a cost?**
22. **What are key governance best practices the Industry Sandbox should observe?**
23. **What are key financing best practices the Industry Sandbox should observe?**

SUMMARY OF QUESTIONS

Industry Sandbox and “Wicked” Industry Problems

1. As a FinTech product provider, could access to an Industry Sandbox environment support the development of innovative FinTech products by your organisation?
Please give us specific examples.
2. As a FinTech product buyer, partner or investor, could access to an Industry Sandbox support collaborating with providers of innovative FinTech products in your organisation?
Please give us specific examples
3. From your practice, what are “wicked industry problems” that would lend themselves well to an Industry Sandbox, if any.
4. Do you see a role for the Industry Sandbox in the development of RegTech solutions, specifically?
Please elaborate.
5. Do you see a role for an Industry Sandbox as a tool for best practices and knowledge sharing?

Implementing an Industry Sandbox

6. Do you have comments on any one of the specific principles?
7. What are the key risks associated with the listed principles your organisation would like to see addressed in order to participate in an Industry Sandbox?
8. Which principles will be most important to your firm if it were to participate in the Industry Sandbox?
Please specify if your firm would participate as a user or partner or both.
9. Overall, which principles are essential and which aspirational for the initial launch of an Industry Sandbox?
10. Are there other principles that should be part of an Industry Sandbox?

Key Design Components

11. Do you have comments on any one of the specific components?

12. What are the key risks associated with the listed components your organisation would like to see addressed in order to participate in an Industry Sandbox?
13. Which components will be most important to your firm if it were to participate in the Industry Sandbox? *Please specify if your firm would participate as a user or partner or both.*
14. Overall, which components are essential and which aspirational for the initial launch of an Industry Sandbox?
15. Are there other components that should be part of an Industry Sandbox?

Access Criteria

16. If you are a potential Sandbox user, do you find the user eligibility criteria actionable and the partner eligibility criteria sufficient?
17. If you are a potential partner, do you find the partner eligibility criteria actionable and the user eligibility criteria sufficient?
18. If your organisation is a potential partner, what are the specific key eligibility requirements for those accessing your testing assets?

Roles of Public and Regulatory Bodies

19. What engagement from UK or international regulators do you think the Industry Sandbox would benefit from?
20. What barriers to innovation would such regulatory involvement help address?

Legal and Governance framework for an Industry Sandbox

21. Would your organisation consider participating in an Industry Sandbox at a cost?
22. What are key governance best practices the Industry Sandbox should observe?
23. What are key financing best practices the Industry Sandbox should observe?



NEXT STEPS

Responses to this Call for Input will inform the development of a “blueprint” – an assessment of demand among different stakeholder groups and guide to best practices in setting up an Industry Sandbox.

The Blueprint will review the desirability as well as feasibility of the various design principles, components, governance elements and funding options for an Industry Sandbox.

It will also make recommendations towards the feasible “minimum viable products” or starting points of an Industry Sandbox and the “ultimate desirable product” or the gold standard for an Industry Sandbox.

Industry subject matter experts have been and are being invited to join the blueprint editorial team and contribute in writing to chapters relevant to their background and the views of their institution.

Following the publication of this blueprint, it is the anticipation of the Industry Sandbox Consultation SteerCo that a critical mass of interested parties take the recommendations into production.

Should these recommendations give rise to more than one Industry Sandbox, Innovate Finance will consider supporting the development of an interoperable network and any relevant standards between them as it is our view that driving open innovation and interoperability are in the best interest of the members we represent.

GLOSSARY OF TERMS

API

API (Application Programming Interface) is a set of features and rules that exist inside a software program that enables interaction between the software and other items, such as other software or hardware.

Industry Sandbox

An Industry Sandbox is an industry-led collaborative environment which firstly, enables the validation of innovative product by giving developers access to relevant data, technologies and services and secondly, allows industry to come together and resolved shared challenges.

Proof of Concept

Proof of concepts (PoCs) are generally done early in the development cycle. PoCs are used to validate technical feasibility, help identify potential stumbling blocks and help determine the scope and level of customisation necessary to complete the project. The outcome would be a technical feasibility confidence factor along with factors that impact overall scope and estimate of effort.

Prototype

A prototype is normally created after the PoC has been done. It is an early sample, model, or release of the product, built to further test the feasibility of the solution. Prototypes are used to evaluate a new design and test a real, working system with system analysts and users.

Reference Architecture

A reference architecture provides a template solution for a specific domain. It provides developers with a common vocabulary and often consists of a list of functions and interfaces (or APIs), indicating how these interact with each other and with functions located outside of the scope of the reference architecture.

RegTech

RegTech refers to the application of technology to address regulatory challenges within the financial services industry. RegTech is an umbrella term encompassing a broad range of technologies and verticals. Examples include automation of employee surveillance, compliance data management, fraud prevention, and audit trail capabilities; and data and predictive analytics to reduce organisations' non-compliance risks, among others. A RegTech solution can be used by either industry participants, or supervisors, or both.

Regulatory Sandbox

A Regulatory Sandbox is a regulator-led environment that aims to create a "safe space" for FinTechs and a limited number of real consumers to engage in an "on-market" trial.

Test Environment

A test environment is an isolated environment in which the product being tested is installed. The test environment should as closely as possible mimic the actual environment where the product will be run.

Wicked Industry Problem

A Wicked Industry Problem is an issue that a critical mass of industry participants identify as significant, and one which would have implications for systemic resilience, transparency or consumer outcomes. Examples of such issues in FinTech at the moment could be: the development of portable digital identity; meeting requirements on risk data aggregation; asset tokenisation; issues related to cyber security; issues related to developing and supervising machine learning products in financial services.

CONTACTS

Dea Markova

Head of Programmes
Innovate Finance
dea@innovatefinance.com

Lawrence Wintermeyer

CEO
Innovate Finance
lawrence@innovatefinance.com



INDUSTRY
SANDBOX

www.industrysandbox.org