Md Khalid Rayhan Shawon, CGAP Photo Contest

Regulatory Sandboxes:
A Practical Guide for Policy Makers

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Table of Contents

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Sujan Sarkar, CGAP Photo Contest

Section 1: **Introduction**

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"A regulatory sandbox is a tool for developing evidence about how a new product, technology, or business model (innovation) works and the outcomes it produces. Evidence gathering can help assuage (or confirm) regulatory concerns about the impact of innovations, allowing beneficial innovations to reach the marketplace."

CGAP Technical Guide: How to Build a Regulatory Sandbox (2020)
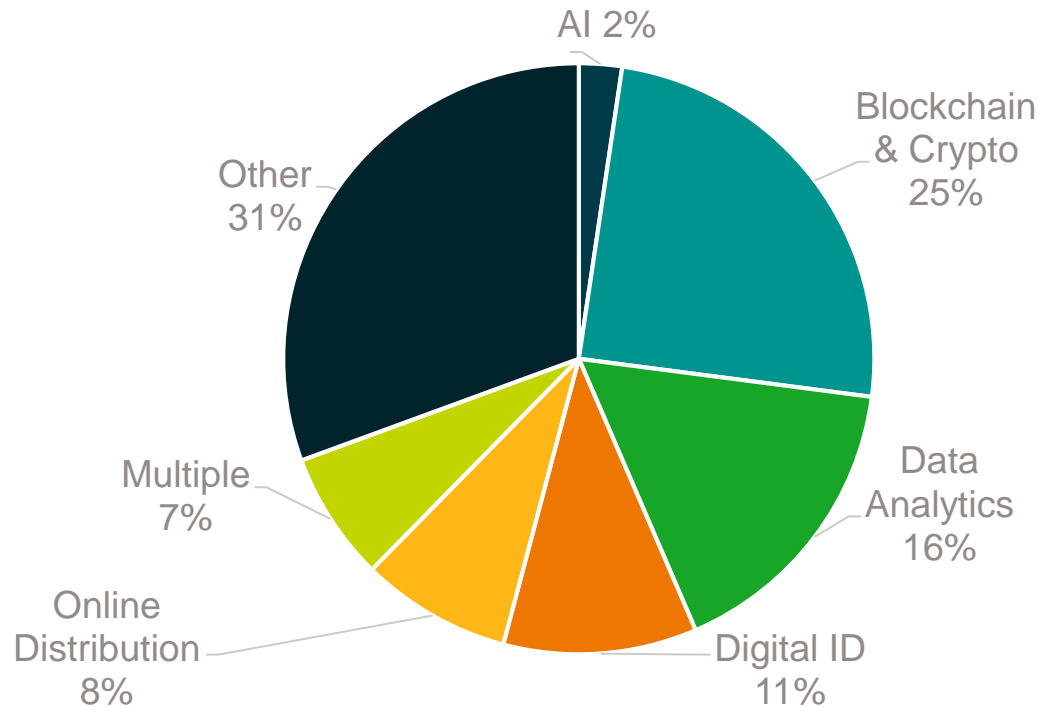
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What is a regulatory sandbox?

A formal regulatory initiative:

➢ to test innovation

➢ in the live marketplace

➢ on a time- and scope-limited basis

➢ to determine the appropriate regulatory treatment/status

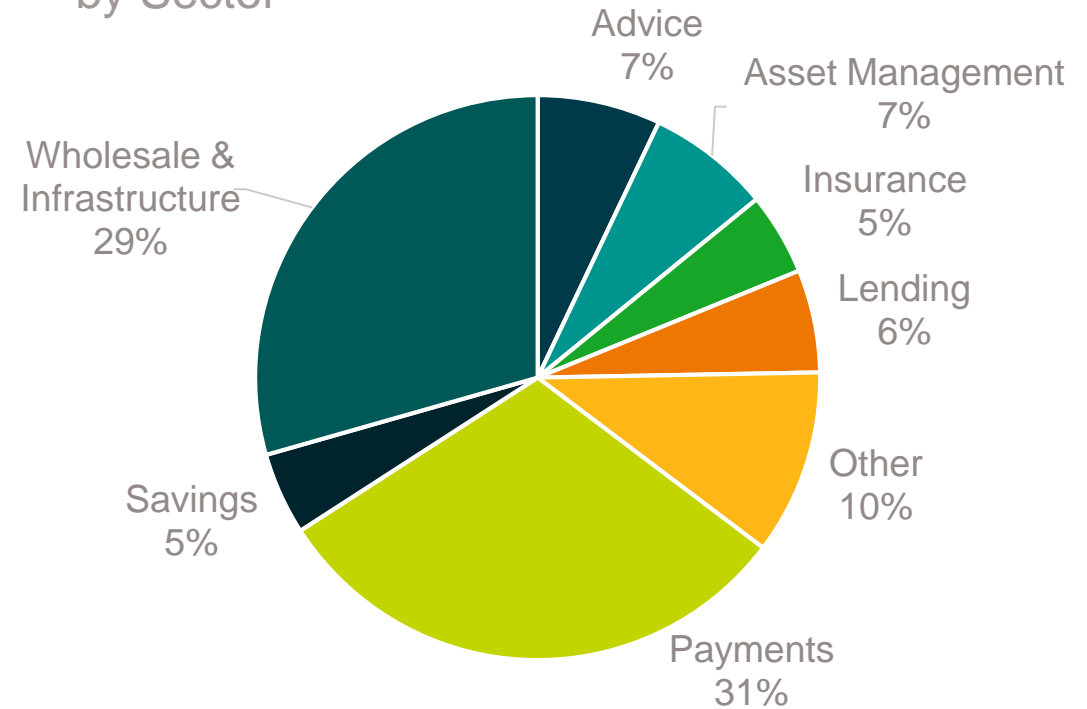➢ before the innovation can fully operate in the marketplace

…**where other options fall short** …

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How are regulatory sandboxes used?

Technology Tested

- AI 2%
- Blockchain & Crypto 25%
- Data Analytics 16%
- Digital ID 11%
- Online Distribution 8%
- Multiple 7%
- Other 31%

Participants by Sector

- Advice 7%
- Asset Management 7%
- Insurance 5%
- Lending 6%
- Other 10%
- Payments 31%
- Savings 5%
- Wholesale & Infrastructure 29%

EXAMPLES

- Equity crowdfunding
- Blockchain-based payments
- Robo advisors

- Alternative credit scoring
- Automated savings
- Personal finance management

Source: CGAP analysis (2019)

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Benefits and risks of a regulatory sandbox

Benefits	Risks
Lowers cost of innovation in some cases	Competition issues (regulators pick winners, create uneven playing field)
Opens access to regulator	Limited capacity of regulator to run sandbox
Creates formal framework for safe, live testing	Liability issues in case of failed testing
Allows for market monitoring	Unclear pathways for successful exit
Signals openness to innovation	Intra- & inter-agency coordination issues
	Limited regulatory tools to implement sandbox

For more information, see CGAP Working Paper.

Want to learn more at your own pace?
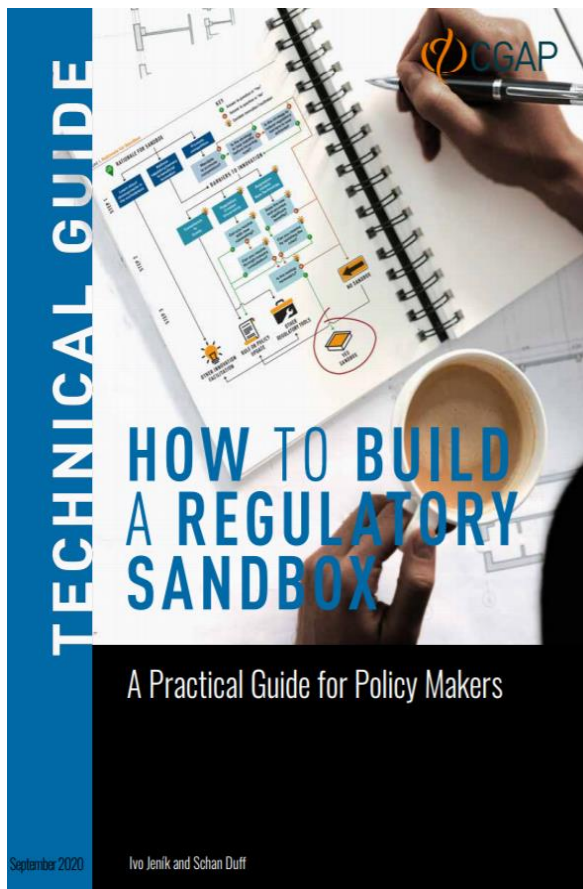
Visit CGAP's Collection of resources:

www.cgap.org/Sandbox

- **Technical Guide**: How to Build a Regulatory Sandbox
- **Working Paper**: Regulatory Sandboxes and Financial Inclusion
- **Interactive map** of sandbox firms
- **Global repository** of sandbox policy documents
- **Blog post** series

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Section 2: **Deciding if a sandbox is the right tool**

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CGAP Tip

"If you do not need to test the innovation in the live marketplace to identify and/or effect a regulatory change, you most likely do not need a regulatory sandbox."
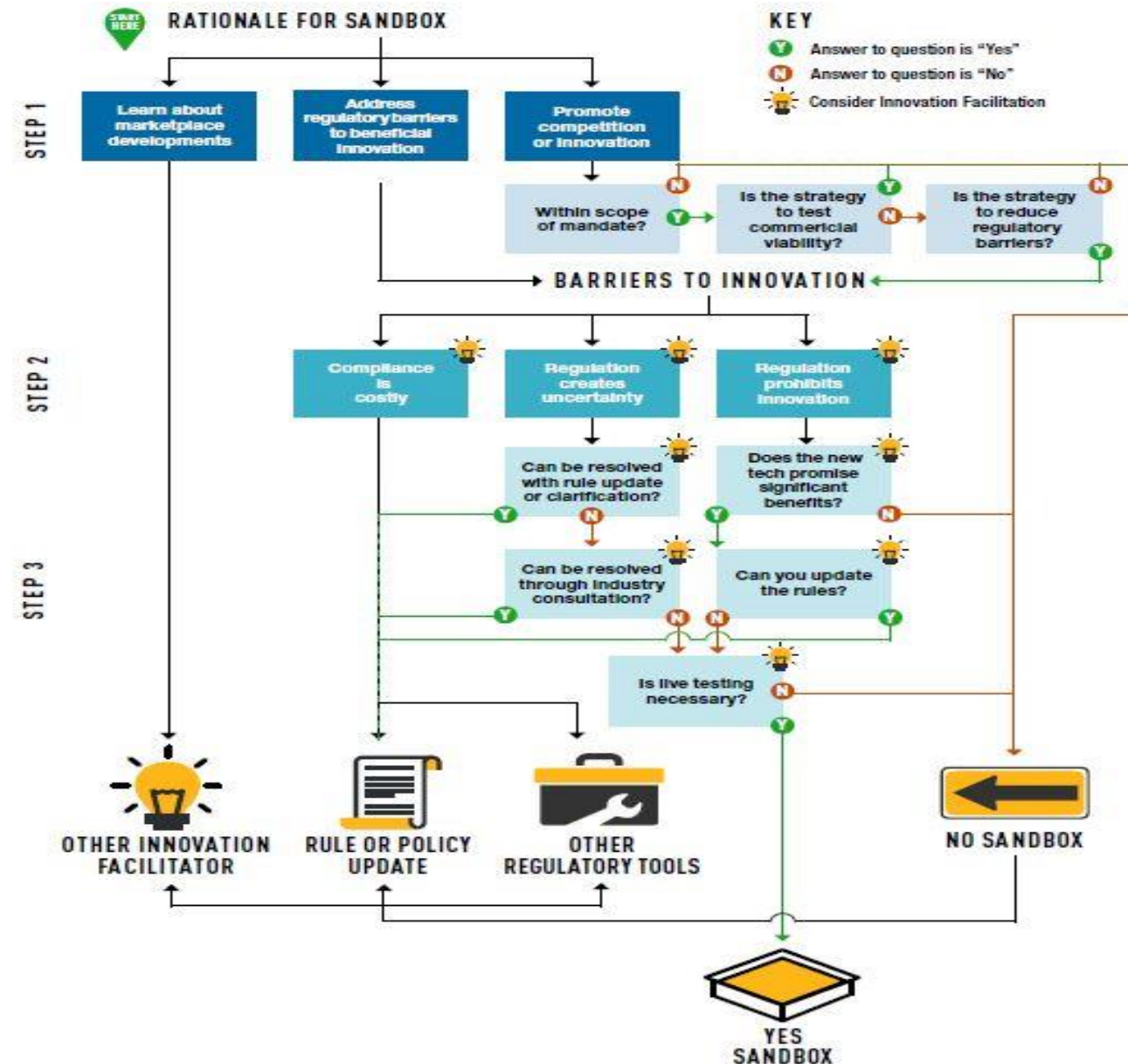
Ivo Jeník (CGAP)

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A 3-step process to decide if you need a sandbox

Step 1: Define objectives

Step 2: Identify barriers
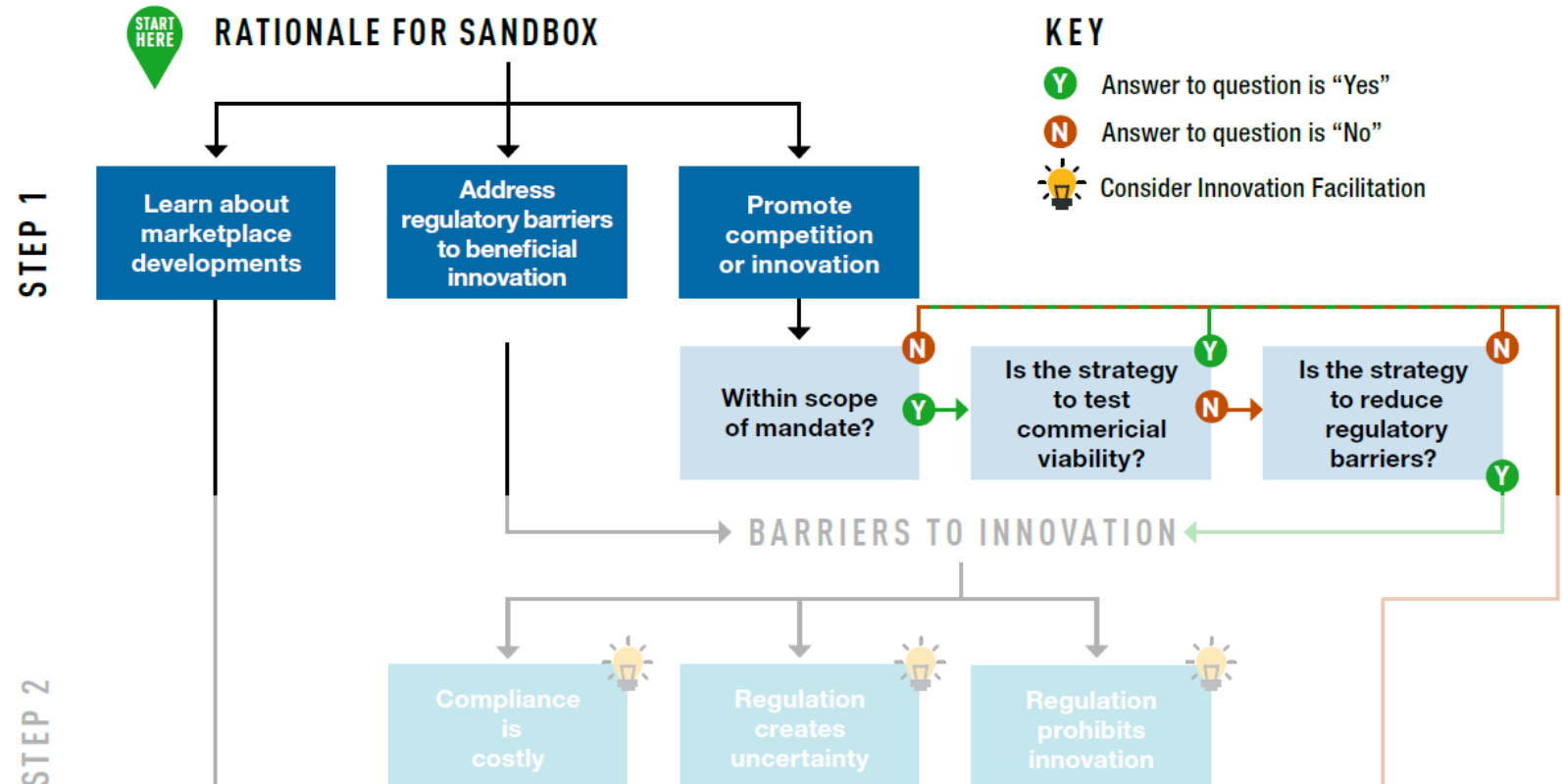
Step 3: Assess solutions

Step 1: Define your objectives

Regulators frequently cite three overarching reasons to use a sandbox:

1. Promote innovation and/or competition
2. Address regulatory barriers to innovation
3. Learn about developments in the marketplace

But is a sandbox really the right tool to achieve all these objectives?

For more information, see CGAP Technical Guide.

Step 1: Why it's important to start with objectives
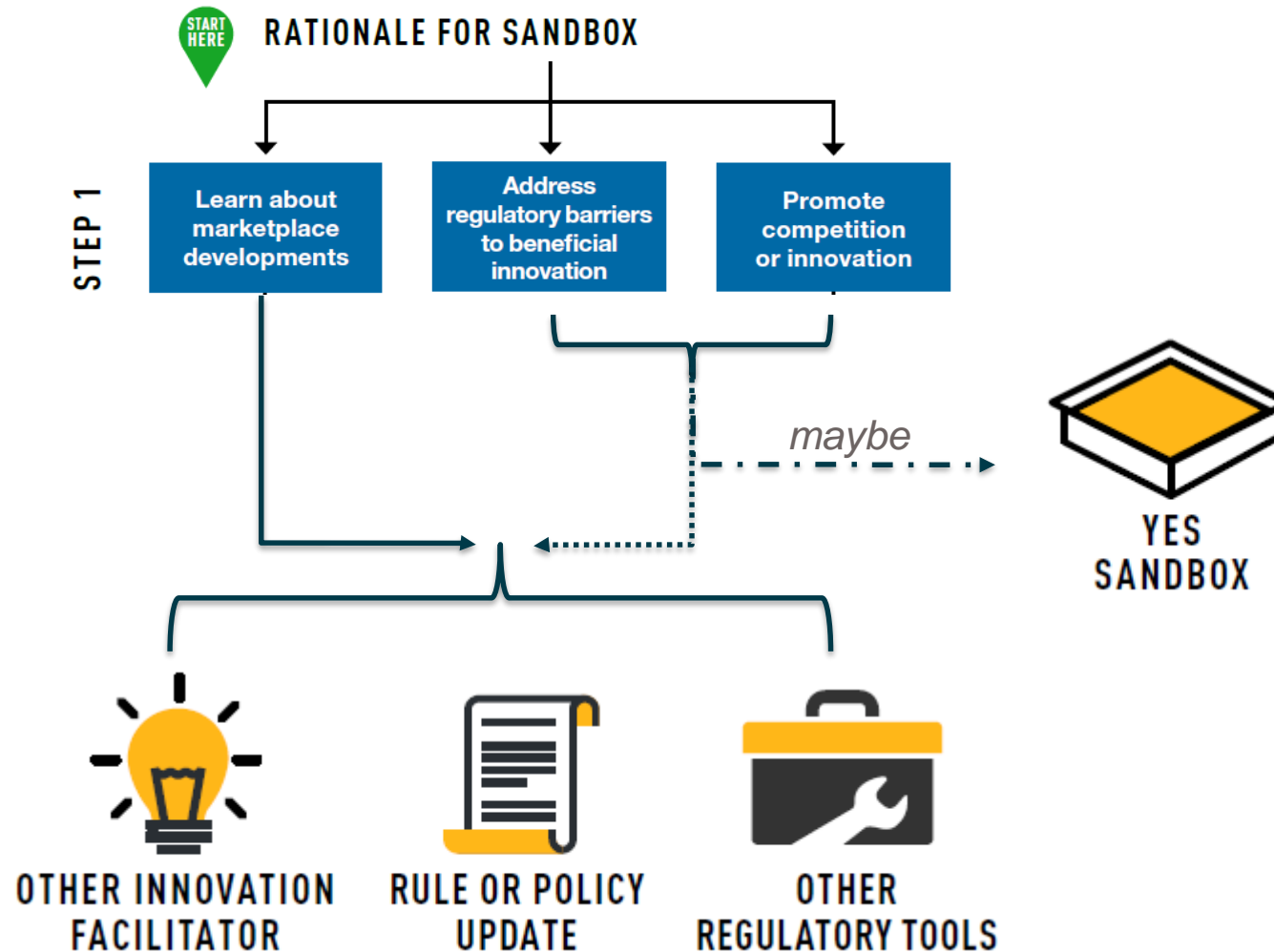
- Defining objectives upfront is key

- Objectives help regulators select the right tool(s)

- Objective setting is driven by regulators' needs and limited by specific circumstances (threshold constraints - see Section 3)

- Objectives help define expected outcomes and impact

Defining objectives: An example

"[T]he Sandbox is intended to foster responsible innovation that benefits consumers in Sierra Leone by improving the quality of, and access to, financial products and services."

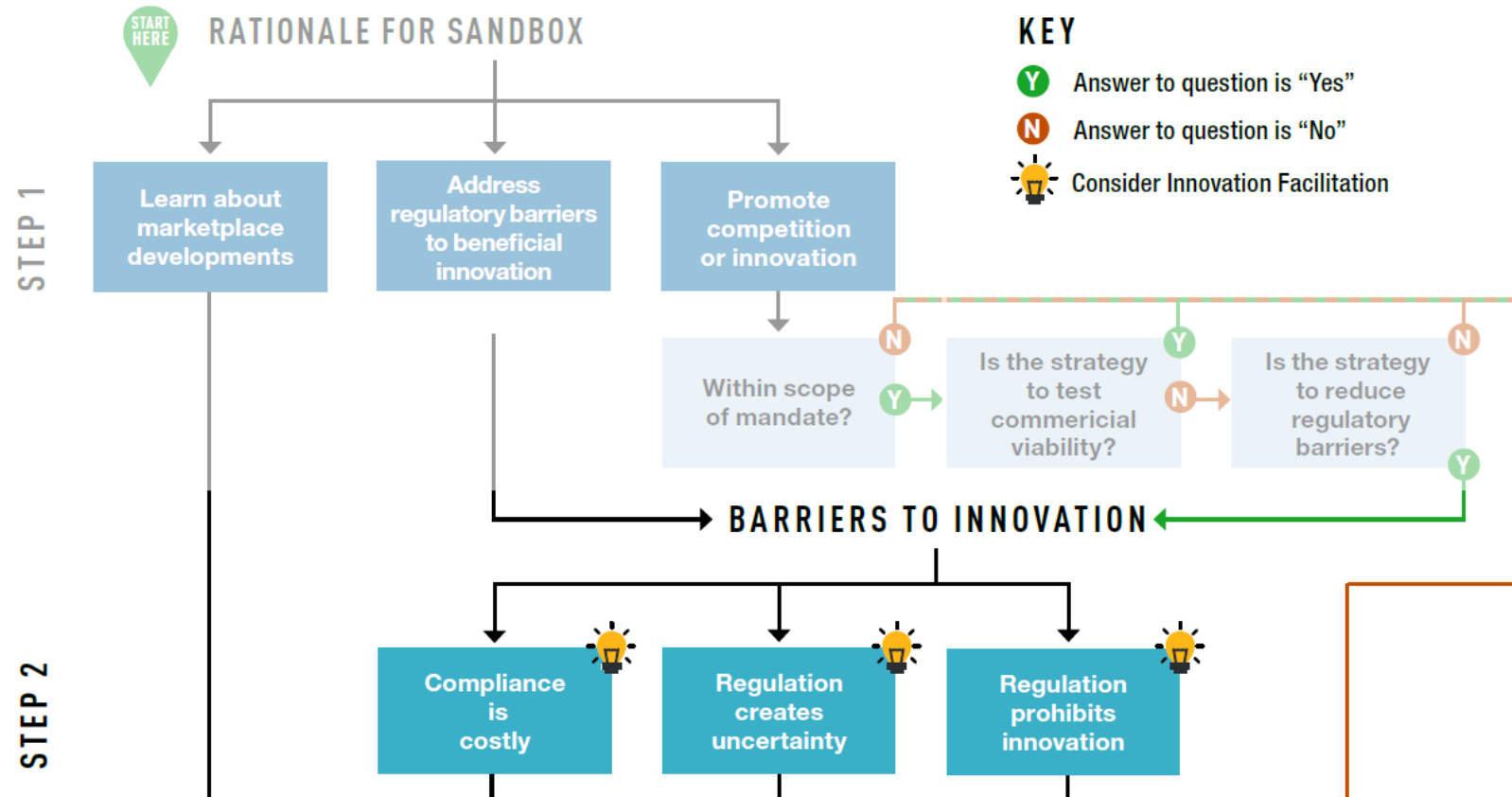For more examples, see CGAP Technical Guide.

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Step 2: Identify the barriers to innovation
A sandbox can address some types of barriers

A sandbox can help address regulatory barriers such as:
1. Costly compliance
2. Regulatory uncertainty
3. Prohibitive regulation

But a sandbox only makes sense when those barriers cannot be addressed without live testing.

RATIONALE FOR SANDBOX

START HERE

KEY
- **Y** Answer to question is "Yes"
- **N** Answer to question is "No"
- Consider Innovation Facilitation

STEP 1

Learn about marketplace developments

Address regulatory barriers to beneficial innovation

Promote competition or innovation

Within scope of mandate?

Is the strategy to test commericial viability?

Is the strategy to reduce regulatory barriers?

BARRIERS TO INNOVATION

STEP 2

Compliance is costly

Regulation creates uncertainty

Regulation prohibits innovation

For more information, see CGAP Technical Guide.

Step 2: Identify the barriers to innovation
Not all barriers require a sandbox

- Regulation is often cited as a barrier to innovation

- Not every innovation should reach the marketplace

- Barriers to good innovation should be lifted

- To lift the barriers, regulators can choose from a portfolio of tools

**Sandbox is only suitable when live testing is needed.**
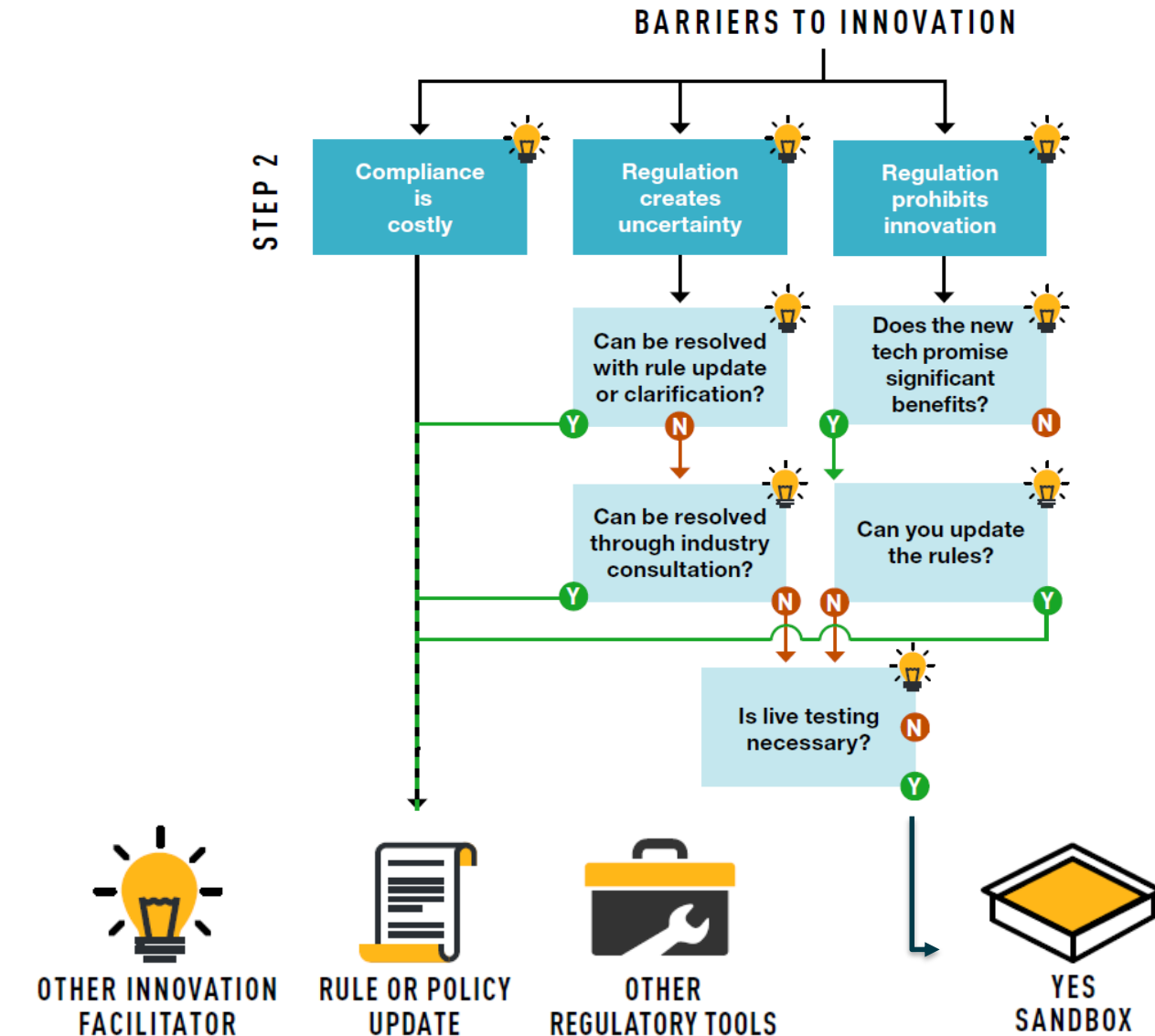
Step 3: Assess (alternative) solutions

There are several regulatory tools that may be more suitable than a sandbox:
1. Other innovation facilitators (e.g., Innovation Office)
2. Adopting a change of rules
3. Granting exemptions
4. For more options see Section 5

Some of these tools <u>can</u> be used instead of a sandbox, some <u>should</u> be used instead of it, and some <u>along with</u> a sandbox.

For more information, see CGAP Technical Guide.
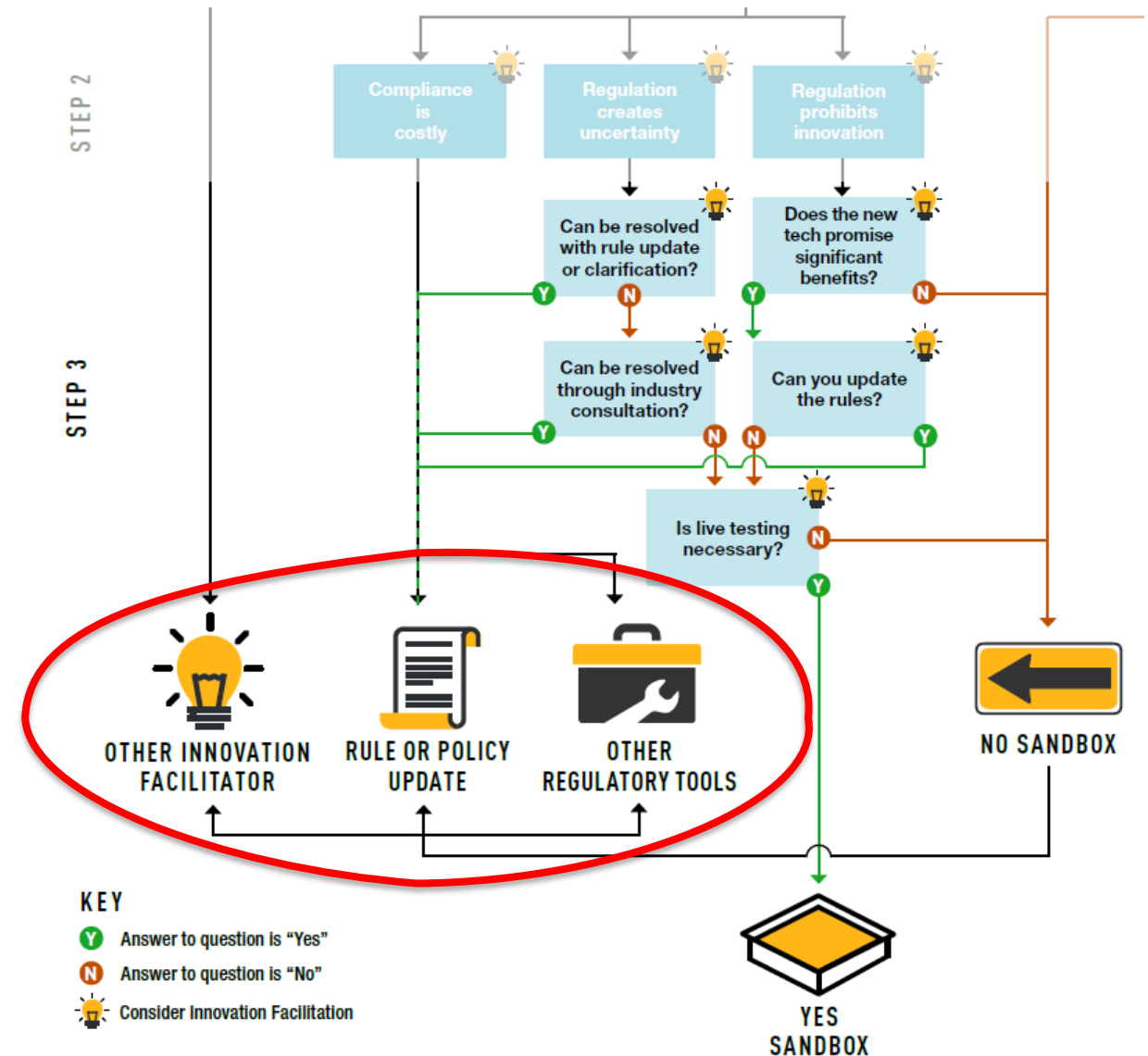
Country example: Thailand

Bank of Thailand: A regulatory sandbox for shared KYC/CDD utility

The Bank of Thailand is using its regulatory sandbox to test a shared KYC and ID verification utility that relies on the National Digital Identity Platform (NDID) to verify and authenticate identity (BOT 2020). NDID is provided by National Digital ID Company Limited, which has shareholders from 69 companies, including Thai commercial banks, specialized financial institutions, securities companies, fund management companies, life insurance companies, casualty insurance companies, electronic payment service companies, the Stock Exchange of Thailand, and Thailand Post Company.

The test allows six commercial banks to sign up new customers into savings account products using a combination of facial recognition technology and the ID verification information customers previously provided to the bank they already use. The goal of the test, which is limited to opening savings account products during normal business hours, is to foster more convenient and more secure remote account opening for digital financial services. The Bank of Thailand is monitoring the results of the test before making NDID functionality available more broadly to the financial sector.

The test builds on a previous sandbox effort in which 12 commercial banks and payment services providers tested biometrics technology—facial recognition—to verify customer identity through eKYC. The test was conducted to develop further guidance on the use of eKYC regulation to comply with requirements on anti-money laundering and combating the financing of terrorism (AML/CFT).

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Section 3: **How to design the sandbox you need**

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Key design elements of a regulatory sandbox

- There are five elements that are typically included in sandbox design:
  1. Eligibility
  2. Governance
  3. Timing
  4. Test restrictions
  5. Exit options
- Each element entails making choices that together determine the sandbox design
- The elements should reflect 'threshold constraints', which consist of the **legal framework**, **market conditions**, and **capacity** within the local jurisdiction.

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A closer look at these five sandbox design elements

Design Element	Description	Design Choices (examples)
Eligibility	Defines who can participate in the sandbox. Eligibility should be articulated clearly to ensure a level playing field across all market participants.	• Open to incumbents only • Open to newcomers only • Open to nonfinancial services providers (e.g., technology providers, regtech)
Governance	Defines the internal operating structure of the sandbox, roles and responsibilities, and key operational processes.	• Specialized sandbox unit • Hub-and-spoke: a central point of contact coordinating sandbox inquiries with other units of the regulator
Timing	Includes: • Duration of the admission window • Duration of the test	• Periodic admission (cohort-based) • Permanent admission window (on-tap) • Testing periods range from 3 to 36 months
Test restrictions	Limits to the scope, scale, and/or conduct of the sandbox test to minimize potential harm.	• Number of clients • Number of transactions • Volume of transactions • Geographical limits • Consumer protection safeguards • Minimum AML/CFT requirements
Exit	Includes: • Individual test outcomes (graduation, terminated test, etc.) • Program-level key performance indicators (KPIs) • Incorporation of insights and lessons learned into the broader regulatory agenda	• For test outcomes see Section IV • KPIs in terms of the absolute output (number of graduated firms) • KPIs in terms of a regulatory change promoted

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Matching design elements with constraints: **Legal framework**

Statutory mandate	• Regulator authorized to establish a sandbox (Capital Markets Authority of Kenya) • A legislative change needed (Colombia, Lithuania, Mexico, Poland, Spain) • Sandbox justified as a permissible extension of discretion
Eligibility criteria	• Licensed or otherwise formally authorized entities (Hong Kong Monetary Authority) • Entities outside the regulatory framework (PolicyPal in Singapore, Pezesha in Kenya) • Nonfinancial services providers (RegTech)
Testing restrictions	• Compliance with legally mandated restrictions and requirements that fall outside a regulator's discretion (minimum AML/CFT) • Measures to address potential consumer risks even when relaxation possible
Exit options	• License granted (FCA UK sandbox graduates) • Other permission to operate in the marketplace granted (Upstart in the US). • Regulatory change implemented (Pezesha in Kenya)

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Matching design elements with constraints: **Market conditions/capacity**

Demand refers to the demand from innovators for a regulatory sandbox.
Capacity refers to the capacity of the regulator to implement a regulatory sandbox.

	High demand	Low demand
High capacity	• Cohort-based sandbox • Dedicated sandbox team • Subject matter experts available to assess a diverse type of innovation • Operations and governance integrated into core regulatory and supervision functions	• Permanent ("on tap") application • Emphasis on nonsandbox innovation facilitators
Low capacity	• Cohort-based sandbox • Rigorous preapplication vetting • Narrow eligibility requirements • Short testing windows • Hub-and-spoke governance, with shared staffing of sandbox operation	• Nonsandbox innovation facilitators

For more information, see CGAP Technical Guide.

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Section 4: **How to run a sandbox successfully**

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Secret sauce for a successful sandbox

There are four ingredients for success:

1. Appropriate design (see Section 3)

2. Well-defined governance and processes

3. Sufficient capacity and resources

4. Strong stakeholder buy-in

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How to manage governance, process, capacity, and buy-in

Key steps to follow to ensure that a sandbox runs well:

- Define who owns the sandbox and who runs it

- Line up internal support

- Allocate sufficient resources

- Outline the internal process

- Ensure coordination with external stakeholders

- Establish formal and informal support channels

- Run external and internal stakeholder consultations

See templates for sandbox teams in CGAP Technical Guide.

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Internal process: Testing and exit

- A testing plan outlines what is being tested, how it is being tested and the expected outcomes

- Testing plans are typically proposed by applicants and approved by the regulator on a case-by-case basis

- A testing plan should:
  - ✓ Define the overall timeline and budget
  - ✓ Identify precisely what is being tested, how and why
  - ✓ Define milestones and success criteria
  - ✓ Define risks and mitigating measures
  - ✓ Identify staff and their responsibilities
  - ✓ Establish rules for engaging with and reporting to the regulator throughout the testing period

- See the example of the Taiwan Financial Supervisory Committee (FSC)

For more information, see CGAP Technical Guide.
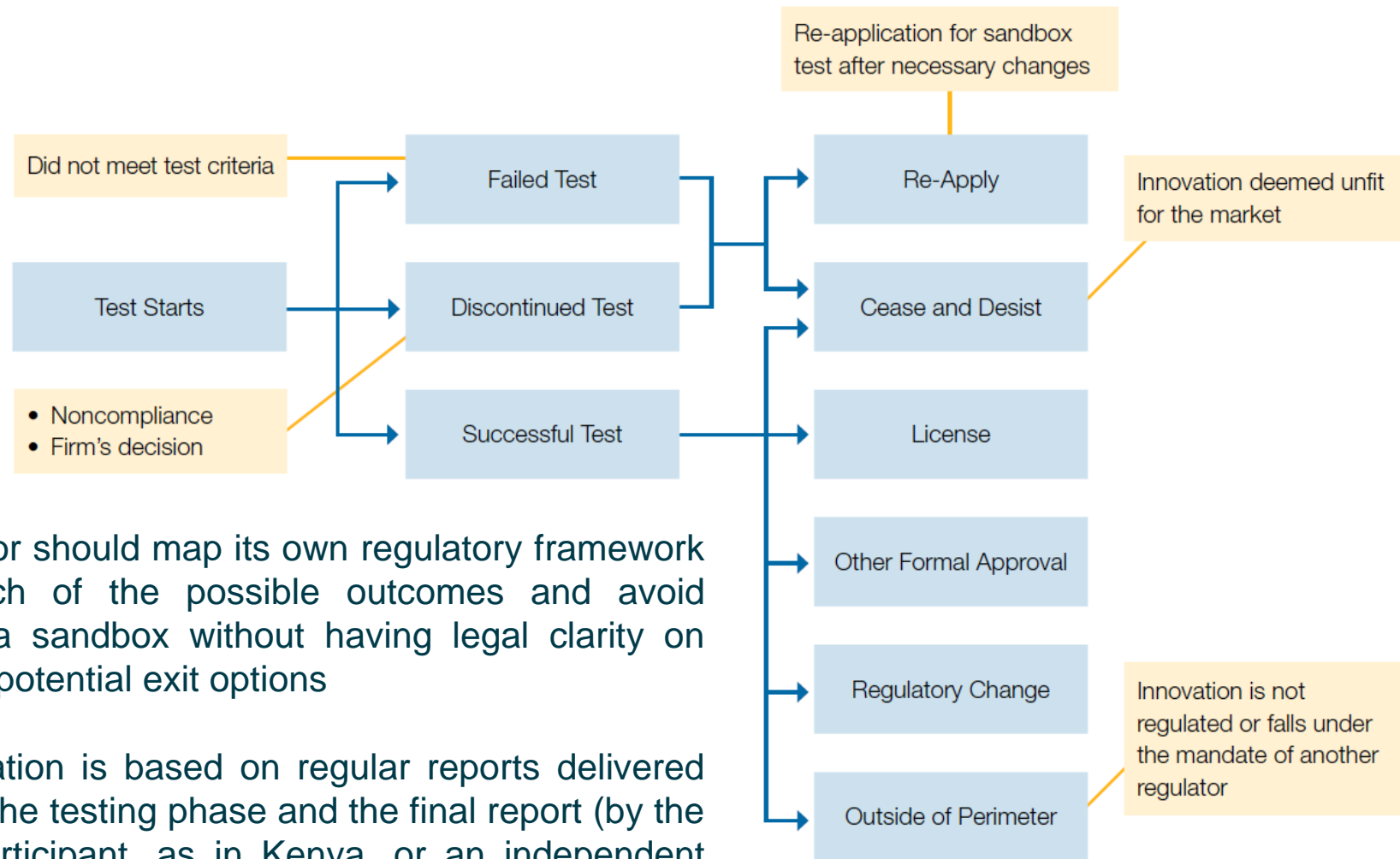
Taiwan's FSC Testing Plan

FSC requires that the sandbox test plan includes the following:

- Description of the source of funds
- Proposed financial business
- Description of innovativeness
- Scope, duration, and scale of the experimentation
- Participant protection measures
- Risk management mechanism (e.g., money laundering and terrorist financing risk, cybersecurity risk)
- Exit mechanism
- Expected benefits
- Benchmarks for measuring the benefits achieved

Based on the nature of responsible innovation, the key performance indicators (KPIs) or other performance indicators of innovative experimentation are set by the applicants.

When a local bank tested the use of an alternative credit scoring system based on mobile phone user data, the monitored metrics for the testing plan included the number of customer applications, the time needed for customer due diligence, the accuracy of credit modeling, the number of approved applications, and the default rate.

Exit scenarios: How a firm leaves the sandbox

Re-application for sandbox test after necessary changes

Did not meet test criteria

Failed Test

Test Starts

Discontinued Test

- Noncompliance
- Firm's decision

Successful Test

Re-Apply

Innovation deemed unfit for the market

Cease and Desist

License

Other Formal Approval

Regulatory Change

Innovation is not regulated or falls under the mandate of another regulator

Outside of Perimeter

- The regulator should map its own regulatory framework against each of the possible outcomes and avoid setting up a sandbox without having legal clarity on each of the potential exit options

- Final evaluation is based on regular reports delivered throughout the testing phase and the final report (by the sandbox participant, as in Kenya, or an independent auditor, as in Bahrain)

For more information, see CGAP Technical Guide.

Examples of exit scenarios: UK, Kenya, Brazil

	Description	Example
License	The sandbox participant can roll out the innovation in the market in compliance with regulatory requirements.	All successful firms graduating from the UK FCA sandbox have been licensed under a licensing regime that was already in place.
Other formal approval	The sandbox participant can roll out the innovation in the market in compliance with regulatory requirements subject to exemptions and/or waivers granted. This also may include a mandatory partnership with a licensed financial institution.	The Capital Markets Authority of Kenya uses the widely defined discretion granted in the Capital Markets Authority Act to authorize temporary operations until an appropriate regulation is adopted.
Regulatory change	The tested solution falls under the regulator's mandate but cannot be permitted without changes in the legal and regulatory framework.	The Central Bank of Brazil has created a sandbox framework that allows testing up to three years, which should provide enough time for regulatory changes should they be needed.

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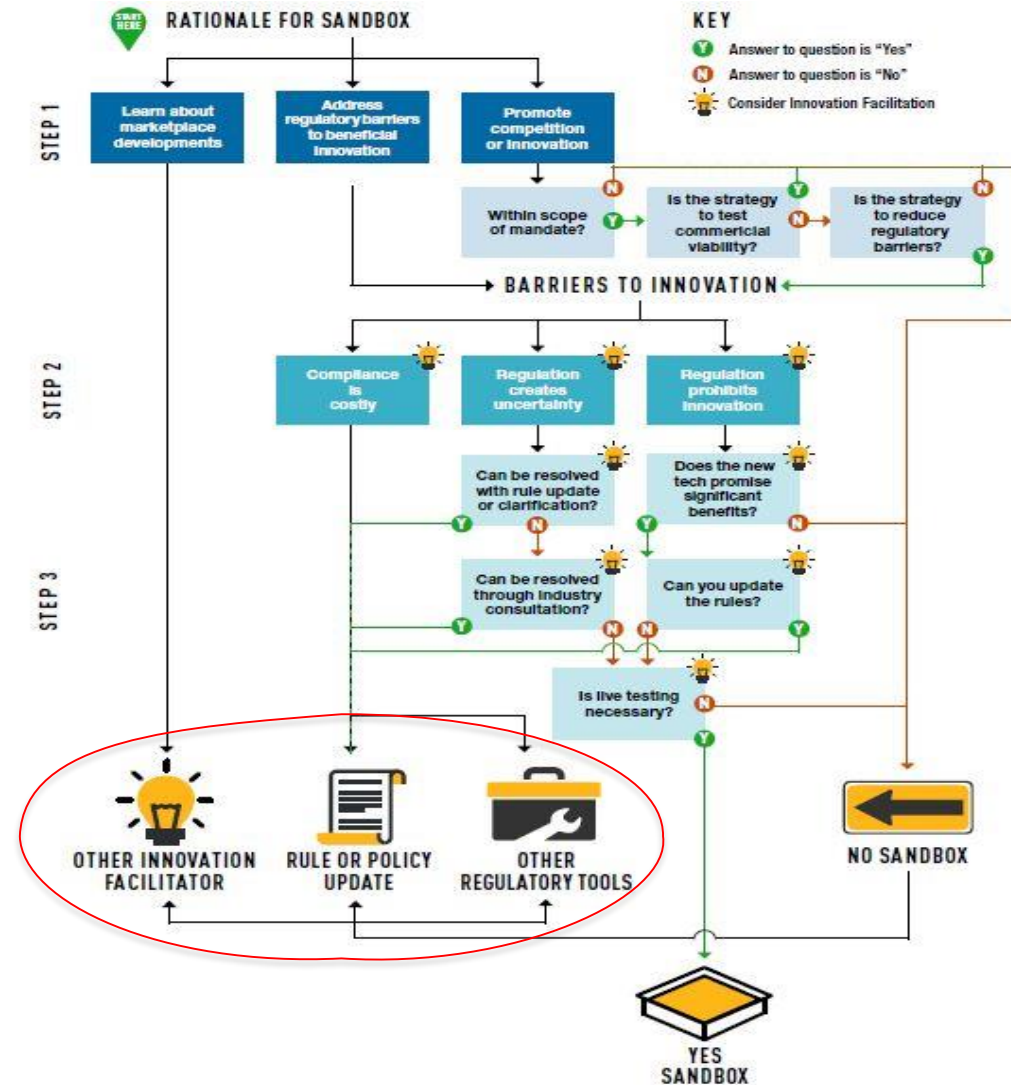
Section 5: **What are alternatives to a sandbox?**

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A sandbox is not the only option

There are several options that regulators can pursue in response to innovation. For example:

- Other innovation facilitators such as an Innovation Office, Innovation Hub or Accelerator
- A rule or policy update
- Other regulatory tools such as wait-and-see, test-and-learn or exemptions

Alternatives & complements (1)

	Description	When applicable	Examples
Wait-and-see/ Forbearance	The regulator monitors an innovation before deciding on a regulatory treatment. In case of forbearance, the regulator decides to tolerate certain behavior in the market otherwise deemed non-compliant.	Early-stage innovation where the level of regulatory uncertainty is too high to be overcome through a limited live testing.	P2P lending in China (early stages) Cryptocurrencies around the world (early stages)
Test-and-learn	The regulator defines an ad hoc framework for safeguarded live testing of a specific innovation.	A specific financial innovation is potentially beneficial and market-worthy but the regulator needs more information to resolve uncertainty.	Mobile money in Kenya, Philippines, Tanzania

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Alternatives & complements (2)

	Description	When applicable	Examples
Innovation Office / Hub	The regulator sets a structured and formal framework for regular engagement with the industry on innovation (without live testing).	The regulator identifies a reasonable demand for regulatory consultation and guidance from innovators.	France, Uganda, UK
Regulatory change	The regulator initiates a legislative change, adopts new regulation or amends the existing one, or re-considers interpretation and application of the existing rules.	The regulator has identified gaps or inconsistencies in the legal and regulatory framework or has deemed changed circumstance requiring a change in the existing rules.	Remote customer identification in Malaysia
New License	A special instance of the regulatory change – a new licensing regime for innovative businesses engaged in certain activities.	The regulator has identified areas of particular interest to innovators where licensing requirements can be defined without the need to evaluate them on a case-by-case basis.	Australia, Colombia, Switzerland

For more information, see CGAP Technical Guide.

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Country example: Taiwan's innovative ecosystem

Initiatives established by the Financial Supervisory Commission (FSC) to support innovation in the financial sector:

- **Business trial:** a licensed financial institution may apply for a business trial if it seeks to expand its approved business in innovative technological ways.
- **Fintech Space**: an incubator and accelerator for fintech startups.
- **Crowdfunding platforms**: the Taipei Exchange set up the equity-based "Go Incubation Board for Startup and Acceleration Firms" to help startups raise capital.
- **Consultation points**: the FSC also established consultation points such as the Innovation Center and the "Regulatory Clinic" in the FintechSpace to help startups resolve questions about financial regulations.
- **Task forces**: the FSC directed the financial industry associations to set up taskforces to deal with innovative businesses, fintech general issues, open banking, e-payment, blockchain, and robo-advisors.

For more information, see CGAP Technical Guide.

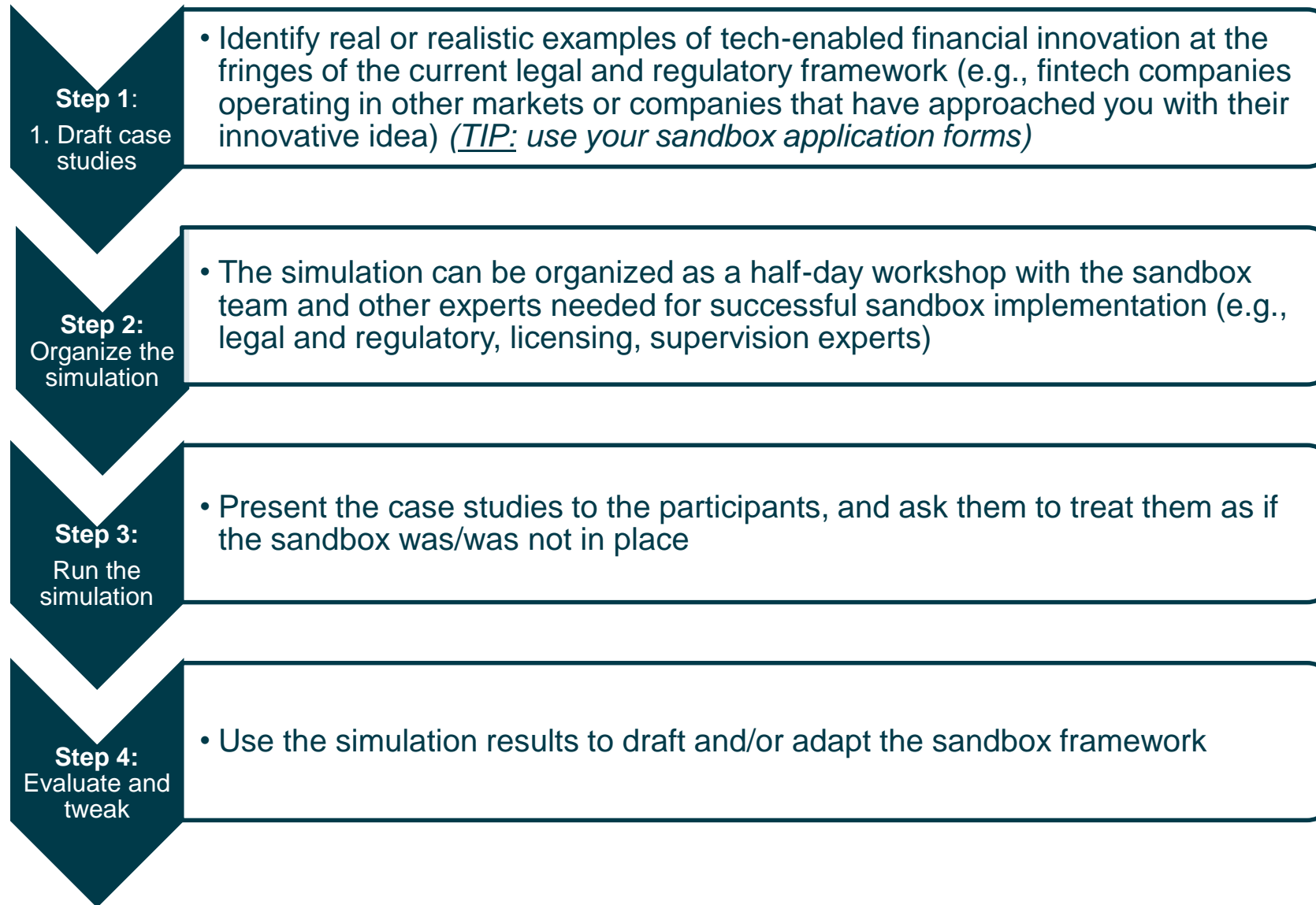Klienne Eco, CGAP Photo Contest

Section 6: **Sandbox simulation**

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How to use a sandbox simulation to build capacity

- Sandbox simulation is a way for regulators in a half-day workshop to quickly test the **need** for a sandbox and the proposed **framework**

- The sandbox simulation helps answer the following questions:
  - Do I need a sandbox?
  - Will a sandbox help to solve any specific issue I face?
  - What would such a sandbox look like?
  - Who needs to be involved in setting up the sandbox?
  - Does the proposed sandbox work as intended, or should it be modified?
  - Are all sandbox processes correctly defined?
  - Do we have enough capacity to implement the sandbox?
  - Does the sandbox cover all possible scenarios?

For more information, see CGAP Technical Guide.

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Four steps in a sandbox simulation

Step 1:
1. Draft case studies

- Identify real or realistic examples of tech-enabled financial innovation at the fringes of the current legal and regulatory framework (e.g., fintech companies operating in other markets or companies that have approached you with their innovative idea) *(TIP: use your sandbox application forms)*

Step 2:
Organize the simulation

- The simulation can be organized as a half-day workshop with the sandbox team and other experts needed for successful sandbox implementation (e.g., legal and regulatory, licensing, supervision experts)

Step 3:
Run the simulation

- Present the case studies to the participants, and ask them to treat them as if the sandbox was/was not in place

Step 4:
Evaluate and tweak

- Use the simulation results to draft and/or adapt the sandbox framework

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Step 1: Draft case studies

- Draft a series of applications (some eligible for sandbox, some not)

- Draft applications with insufficient information

- Draft applications that have additional information

- Be as realistic as possible

- (See Sandbox Repository for examples of application forms)

Regulatory Sandbox Pilot Program
Application Form

1. General Information

Name of company	ExampleTech
Full names of all owners/founders	Alex Funder
Business address	[Your City, Your Country]
Phone number	800 123 456
Website URL *(if available; if password protected, please provide relevant access details)*	www.exampletech.com
Contact person: Name Title Telephone number Email address	Alex Funder CEO 800 123 456 info@exampletech.com
Is your business or any affiliated business (or their owners/founders or employees) currently registered, licensed, or supervised by the Capital Markets Authority? If yes, please provide details.	Yes (investment advice)
Is your business, any affiliated business (or their owners/founders or employees) currently involved in an active dispute or enforcement action with the Capital Markets Authority? If yes, please provide details.	No
Please describe the nature and scale of your current operations in Kenya.	Team of 2 investment professionals, 3 full time engineers and 1 digital marketing advisor based in [Your City]. Other contractors engaged throughout the world working on aspects of the platform.

2. Details of the Sandbox Proposal

Please limit written responses to 200 words per question. Additional information may be provided as supporting documents

Describe your innovative product, service, or solution. If you already have a business plan or project synopsis, attach it to this application form.	We are registered with [Your Agency] as an investment advisor and are proposing to launch an entirely digital asset management platform (a so-called "robo-advisor"). The platform will periodically adjust asset allocation of customer accounts based on market conditions, changes in account asset levels, and the express preferences of clients. Client assets will be held in a custodial account and trades executed and settled via an unaffiliated broker-dealer registered with [Your Agency].
Describe the technology and/or methodology that will be used to offer your product, service, or business model.	ExampleTech will deliver customized investment advice via a fully digital platform – mobile app and mobile web. The investment advice will consist of a diversified portfolio of equities currently listed on [Your Exchange]. ExampleTech will provide customers with a personalized glide path, and simulated forecasts of wealth and retirement readiness. ExampleTech will monitor clients' accounts and either automatically rebalance their portfolio to the most recent recommendation from their respective personal glide path or notify the Clients that they need to manually rebalance their portfolio and provide them with instructions. ExampleTech's approach builds on modern portfolio theory and incorporates recent advances in asset allocation, risk management, portfolio optimization and retirement planning to provide Clients with optimized goal-based investment strategies. ExampleTech offers personalized investment management services, which are designed to help Clients achieve their investment objectives with the least risk possible. The following factors are taken into account when determining the personalized glide path and investment strategy: age, desired retirement age, wealth, income, and saving rate. Portfolio composition is based on investor responses to a in-app questionnaire that the investor completes

Step 2: Organize the simulation workshop

- You need at least 3 hours for the simulation workshop

- The sandbox team is the primary participant

- Invite colleagues whose support of sandbox is essential (legal & regulatory, licensing, IT, supervision)

- Invite representative from other regulatory agencies, if their buy-in is needed

- Send workshop materials in advance and ask participants to prepare

- Ask participants to bring/have ready any documents that may be necessary to perform the exercises (sandbox framework, laws, regulations)

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Step 3: Run the simulation

- Ensure that everyone understands the purpose of the simulation

- Divide participants into teams to emulate the internal organization of the sandbox and its governance

- Distribute the first application, ask the participants to evaluate it, decide whether to accept it, reject it or seek more information, and ask them to provide justification for their decision

- Distribute the application with additional information and ask participants again to decide whether to accept or reject it, or whether a different action would be more appropriate

- For the accepted applications, participants outline the test plan and present it to others

- Distribute an interim test report and information about test results for discussion

- Ask participants to decide on exit option(s) and provide justification

Step 4: Evaluate and tweak sandbox design

- Use simulation results to design or adapt the sandbox framework
- Adjustments can be made to any part of the sandbox framework. Typical changes include:
  - Application form content and structure
  - Eligibility criteria
  - Governance and processes
  - Test plan requirements
  - Test monitoring and evaluation
  - Exit options

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Simulation templates (download [here](#))

Template	Description	File
Application with insufficient info	Application form that lacks essential information for the regulator to decide on the next steps, and needs to be supplemented	Document
Application with sufficient info	Completed application that should provide enough detail for the regulator to decide on next steps, particularly admission to the regulatory sandbox	Document
Proposed Test Plan	Proposed test plan. The regulator may decide to modify the test plan further if necessary, to make sure the test results sufficiently inform regulatory actions	Document
Interim test report	Regulatory report submitted by the sandbox participant during the test	Document
Test results	Final results that should inform the final decision on the most appropriate exit option.	Document

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# Section 7: **Conclusion**

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Key points to remember

- Many regulatory objectives concerning innovation can be achieved through other tools

- A regulatory sandbox helps inform a regulatory response where live testing is necessary

- Specific design elements fit specific circumstances (legal, market, capacity)

- Successful implementation requires clearly defined ownership of sandbox and KPIs
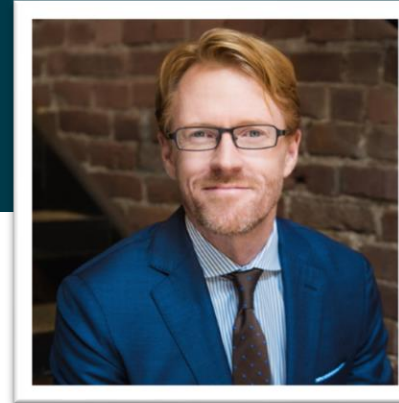
More information: www.cgap.org/sandbox
Share your feedback: sandbox@cgap.org

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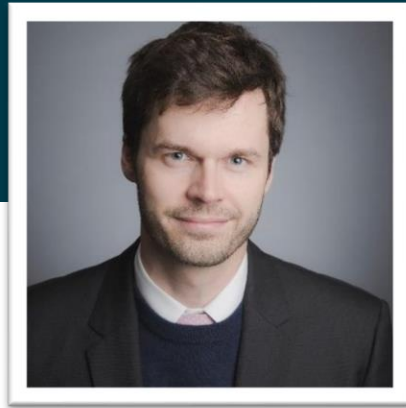
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