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Designing Regulatory Experimentation: A practical Guide for the Public Sector

Approaches and Criteria for Designing Regulatory Experimentation and Innovation Spaces



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Table of contents

Acknowledgment ii

Foreword iv

PART I: FOUNDATIONS AND CONCEPTUAL FRAMEWORK 1

1 Introduction 1

1.1 General context 1

1.2 Risks of traditional regulatory action 1

1.3 Emergence of experimentation 2

1.4 Objective and scope of the guide 3

1.5 Local evidence and regulatory proportionality 4

1.6 Lessons Derived from Engagement with Authorities of Central America and the Dominican Republic (Validation of the Guidance) 5

2 Guiding Principle: Experimentation as Learning Infrastructure in the Public Sector 7

3 Typology of Regulatory Experimentation Spaces 9

3.1 Preliminary Distinction: Sandboxes and Complementary Instruments 9

4 Implementation Cycle 13

PART II: DECISION MATRIX AND OPERATIONAL TOOLS 14

5 Decision Matrix for Selecting the Appropriate Figure 14

5.1 When to Use Each Experimentation Figure 16

5.2 Illustrative Examples of Experimentation Space Design According to the Decision Matrix 17

6 Elements and Guidance to Support Initial Implementation 19

6.1 From Decision Making to Operational Deployment 19

6.2 Quick Start Sequence in 10 Steps 20

6.3 Minimum Viable Packages by Figure (MVP) 20

6.4 Practical Implementation Tools (Templates and Minimum Formats) 25

6.5 Ensuring Useful Evidence: Indicators, Data, and Traceability 27

6.6 Simplified Risk Management: Safeguards and Stop Rules 27

6.7 Rapid Coordination Mechanisms 27

6.8 Accelerating Without Losing Legitimacy: Communication and Transparency 28

7 Conclusions 29

Annex: Integrated Example: Designing and Documenting an Experimentation Space in the Telecommunications Public Sector 30

References 32

List of tables and figures

Tables

Table 1: Use, Objectives, and Expected Results of Sandboxes and Experimentation Instruments in the Public Sector 10

Table 2: Implementation Cycle of Experimentation Spaces in the Public Sector 13

Table 3: Comparative Table of Instruments 24

Figure

Figure 1: Flowchart of Practical Application of the Decision Matrix 15

Foreword



I am pleased to present this practical guide for the public sector, conceived as a general orientation framework that establishes principles, criteria, and approaches for experimentation.

As digital technologies continue to expand at an accelerated pace, policymakers and regulators face increasing challenges in adapting regulatory frameworks to new technological realities while safeguarding the public interest. Traditional regulatory approaches, based on lengthy rulemaking cycles, often prove insufficient to respond with the agility required by the speed of innovation.

In this context, experimentation in the public sector, including different forms of regulatory experimentation, has emerged as a key tool to support evidence-based policymaking and promote more adaptive approaches. These mechanisms enable authorities to better understand the risks, opportunities, and impacts of emerging technologies before adopting broader decisions.

This guidance provides policymakers and regulatory authorities with a conceptual and operational framework to design, select, and guide different types of experimentation spaces in the public sector. Rather than promoting a single model, it proposes a decision-oriented approach that helps identify the most appropriate instrument based on the type of uncertainty to be addressed, the level of risk involved, and the available institutional capacities.

The document also includes principles, criteria, and supporting elements to facilitate the transition from strategic decision-making to implementation, such as decision matrices, governance instruments, and monitoring mechanisms. These elements aim to strengthen institutional capacity to generate useful evidence, improve regulatory quality, and promote responsible innovation environments.

Through initiatives such as this guidance, the International Telecommunication Union reaffirms its commitment to supporting its Member States in strengthening their institutional capacities and in building digital governance frameworks that foster innovation, protect users, and contribute to sustainable digital development.

We trust that this guidance will serve as a valuable resource for public authorities, policymakers, regulatory bodies, and other stakeholders interested in developing more flexible, evidence-based approaches aligned with the challenges of the digital economy.



Dr Cosmas Luckyson Zavazava
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International Telecommunication Union

PART I: FOUNDATIONS AND CONCEPTUAL FRAMEWORK

1 Introduction

1.1 General context

The accelerated adoption of digital technologies, particularly artificial intelligence (AI) and other data-based systems, poses structural challenges for traditional regulatory frameworks. These frameworks were conceived for relatively stable contexts, characterized by slower and more predictable technological advances, and where regulatory effects could be anticipated with greater certainty.[1] In contrast, contemporary digital technologies evolve at an unprecedented speed and are characterized by increasingly shorter innovation cycles. This dynamism makes it difficult to apply traditional regulatory approaches, which usually require extensive processes of analysis, consultation, and normative adoption, generating temporal misalignments between innovation and the regulatory response[2].

Additionally, many of these technologies present transversal impacts that cross economic sectors, public policy areas, and previously separate institutional competencies. Artificial intelligence, for example, can simultaneously affect labor markets, public services, fundamental rights, and competition structures, challenging regulatory frameworks designed under more rigid sectoral logics. Likewise, the effects of these technologies are often systemic and difficult to anticipate in an *ex ante* manner. Interactions between data, algorithms, and human behaviors can generate emergent results that do not stem directly from the initial design of the technology, limiting the ability of authorities to evaluate risks and benefits solely based on theoretical assumptions.[3] As a result, authorities face increasing difficulties in applying regulatory instruments conceived under assumptions of technological stability, predictable markets, and clearly delimited sectoral boundaries. This gap requires more agile and adaptive mechanisms that allow observing the real interaction between technology, the market, and regulation before adopting wider-reaching decisions.

1.2 Risks of traditional regulatory action

In the context of accelerated technological innovation, authorities face a structural tension between two opposing risks that condition regulatory action. On one hand, the risk of regulatory inaction, which can translate into impacts on fundamental rights, persistent market failures, information asymmetries, or a progressive loss of public trust in the State's capacity to govern

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1 **Guston, D. H. (2014)**. *Governance of emerging technologies as a wicked problem. Vanderbilt University*. https://cdn.vanderbilt.edu/vu-wordpress-0/wp-content/uploads/sites/278/2020/12/19115820/Governance-of-Emerging-Technologies-as-a-Wicked-Problem.pdf

2 **Genus, A., & Stirling, A. (2018)**. *Collingridge and the dilemma of control: Towards responsible and accountable innovation*. Research Policy, 47(1), 61–69. https://doi.org/10.1016/j.respol.2017.09.012

3 **Sarewitz, D., & Pielke, R. A. Jr. (2018)**. *The neglected heart of science policy: Reconciling supply of and demand for science*. Issues in Science and Technology, 34(4), 68–75. https://doi.org/10.1080/23299460.2018.1495033

innovation. The absence of timely intervention can allow certain technologies to be deployed without adequate safeguards, generating negative impacts that are difficult to reverse later. In sensitive sectors such as telecommunications, public services, health, or public administration, this inaction can deepen existing inequalities or consolidate practices that are contrary to the public interest.[4]

On the other hand, authorities also face the risk of premature or disproportionate regulation, based on incomplete assumptions about the functioning of the technology or its real effects. This type of intervention can inhibit legitimate innovation, discourage investment, distort emerging markets, or impose unnecessary regulatory burdens that do not correspond to the effectively observed risks.[5] Regulation adopted without sufficient evidence can generate unintended effects that later require complex and costly institutional or political corrections, affecting the credibility of the regulatory framework. In these cases, normative rigidity hinders timely adjustments and reduces the regulator's learning capacity in the face of rapidly evolving technologies.[6] This tension is particularly relevant in institutional contexts with limited capacities, rigid or fragmented legal frameworks, and high levels of technical and normative uncertainty.[7] In these environments, the margins for regulatory error are smaller, and the consequences of poorly calibrated decisions can be amplified, affecting both institutions and citizens.

1.3 Emergence of experimentation

In response to these risks, experimentation spaces in the public sector, including different forms of regulatory experimentation, have emerged as strategic instruments of public governance, oriented towards reducing the gap between the dynamics of technological innovation and the capacity for normative response. These spaces allow authorities to learn under controlled conditions, observe real impacts, and generate evidence before adopting larger-scope regulatory decisions.[8] Through experimentation, authorities can practically evaluate how technologies interact with existing normative frameworks, identify emerging risks, and contrast regulatory assumptions with observed results. This approach contributes to more informed decision-making and more proportional management of regulatory risk.[9]

It is fundamental to underline that these spaces, particularly in the case of regulatory experimentation, do not pursue deregulation, but rather aim to improve regulation through practical learning and the generation of empirical evidence. Regulatory experimentation must operate as a learning complement and not as a substitute for formal processes of normative formulation, reinforcing its quality, legitimacy, and effectiveness in the long term.[10]

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4 **Gasser, U., & Palfrey, J.** (2025). *Advanced introduction to law and digital technologies*. Edward Elgar Publishing.

5 Ibid

6 **International Telecommunication Union. (2023)**. *Global digital regulatory outlook 2023*. ITU. https://www.itu.int/pub/D-PREF-BB.REG_OUT01

7 **Organisation for Economic Co-operation and Development. (2023)**. *Digital government review of Latin America and the Caribbean*. OECD Publishing.

8 **Guío, A., & König, P. D. (2025)**. *Regulatory sandboxes for AI in the majority world: A learning-centric approach to legal adaptation.*Cambridge Forum on AI: Law and Governance. Cambridge University Press. https://www.cambridge.org/core/journals/cambridge-forum-on-ai-law-and-governance/article/regulatory-sandboxes-for-ai-in-the-majority-world-a-learningcentric-approach-to-legal-adaptation/2352427E99FCEA2B34F4B8DB1DC18095

9 Ibid

10 **Gasser, U., & Mayer-Schönberger, V. (2024)**. On the shoulders of others: The importance of regulatory learning in the age of AI. *Virginia Journal of Law & Technology, 28*(1). https://static1.squarespace.com/static/5e793709295d7b60295b2d29/t/678a8a5f088d4e6288ea4353/1737132644184/28+Va.+J.L.+%26+Tech+1+%282025%29+Final

However, the challenge also lies in expanding and operationalizing other mechanisms complementary to regulatory sandboxes. A key risk in the current context is placing excessive emphasis on the development of regulatory sandboxes alone, which, in certain cases, can be complex and require significant regulatory reforms that take considerable amount of time.

This may delay or even discourage the impulse of broader experimentation, innovation, and regulatory learning agendas, especially when it is not possible to start pilots in an agile and actionable manner. In some cases, earlier-stage mechanisms may help lay the groundwork for more effective and impactful regulatory sandboxes. This underscores the need to adopt a broader perspective on experimentation in the public sector, in which regulatory sandboxes represent only one of several available tools.

In this sense, it is necessary to broaden the approach beyond regulatory sandboxes by incorporating a wider range of experimentation instruments that enable proportional responses to different types of uncertainty.

This Guide seeks precisely to contribute to the identification and characterization of those other mechanisms, as well as to make visible the set of existing experimentation possibilities. Experimentation is not limited to the adoption of formal norms or frameworks for regulatory sandboxes but can be deployed through various tools that strengthen the institutional capacity for learning and adaptation.

1.4 Objective and scope of the guide

The objective of this guidance is to provide authorities with high-level, adaptable, and legally informed orientation to design and implement different types of experimentation spaces in the public sector, including regulatory experimentation instruments where appropriate.

This document is based on a process of direct engagement with authorities from all countries in Central America and the Dominican Republic, which included workshops, technical exchanges, and institutional diagnostic exercises. Building on this experience, the approaches, criteria, and recommendations presented herein have been tested and refined to ensure their practical relevance and applicability across different institutional contexts, enabling their use by public authorities beyond the regional scope in which they were initially developed.

The guide explicitly recognizes:

- The diversity of institutional capacities.
- The heterogeneity of legal frameworks.
- The economic and social development priorities in different contexts.

In this sense, the guide adopts an approach, aimed at facilitating decision-making on experimentation in the public sector in contexts of uncertainty and limited resources. Rather than promoting single models or standardized solutions – such as the widespread adoption of regulatory sandboxes – it proposes a set of flexible tools that enable each authority to assess, select, and adapt the most appropriate mechanism according to its level of institutional maturity, regulatory priorities, and available capacities.

Likewise, this guidance is intended to serve as a supporting instrument to strengthen the coherence and consistency of experimentation initiatives in the public sector over time, across diverse institutional contexts. By offering criteria and reference elements for the design,

implementation, monitoring, and evaluation of these spaces, it contributes to the integration of experimentation into regular public policy processes aligning it with development objectives and principles of evidence-based regulation.

1.5 Local evidence and regulatory proportionality

This guidance addresses the need for mechanisms that enable the generation of local and context-specific evidence, in a context where many regulatory decisions rely on external experiences or theoretical assumptions that do not always reflect the institutional, economic, and social realities of the environments in which they are applied.

This need has been repeatedly identified by authorities in Central America and the Dominican Republic during the work process that gave rise to this guide, who have highlighted the importance of having tools that allow the generation of their own evidence in an agile and contextualized manner.

Excessive dependence on evidence generated in other contexts can limit the effectiveness of regulation by transferring normative models designed for different realities in terms of state capacities, market structures, and levels of technological development.[11] The guide therefore proposes strengthening the capacity of authorities to produce and use their own evidence as a central input for regulatory decision-making.

This is compounded by a context of increasing urgency among regulatory authorities to advance in the regulation of new technologies and business models, which calls for mechanisms that are not only technically robust, but also capable of being implemented within short timeframes.

Within this framework, experimentation in the public sector is conceived as a mechanism to observe the functioning of technologies, business models, and normative approaches in real conditions, allowing regulatory or public policy hypotheses to be contrasted with empirical results and evidence. This reduces the risk of adopting decisions based solely on theoretical projections or experiences foreign to the local context.[12]

Likewise, the guide emphasizes the application of principles of proportionality and graduality in the use of experimentation instruments, recognizing that many countries – particularly in contexts of limited institutional capacity – face institutional limitations in designing and implementing complex governance frameworks. Not all innovations justify the same level of regulatory intervention or the same degree of sophistication in their design; therefore, it is essential to calibrate the design of experimentation spaces based on the level of risk, potential impact, and available institutional capacities.[13]

Finally, by promoting proportional, gradual solutions and operationally viable solutions, the guide seeks to respond to countries' need for innovative, agile, and sustainable regulatory tools, while avoiding approaches that are excessively complex, costly, or difficult to implement

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11 **Guío, A., & Marco, F. (2024)**. *Quantum sandboxes for the majority world.* T20 South Africa Policy Brief. https://t20southafrica.org/wp-content/uploads/2025/11/T20_TF2_SB3_PB9_QuantumSandboxes.pdf

12 **Stanford Institute for Human-Centered Artificial Intelligence. (n.d.)**. *Top scholars call for evidence-based approach to AI policy*. https://hai.stanford.edu/news/top-scholars-call-for-evidence-based-approach-to-ai-policy

13 **Guío, A. (2024)**. *Regulatory sandboxes in developing economies: An innovative governance approach.* Santiago: ECLAC. LC/TS.2024/59. https://www.cepal.org/en/publications/80496-regulatory-sandboxes-developing-economies-innovative-governance-approach

in the short term. This challenge is not specific to a particular context but rather reflects a broader global trend in the regulation of emerging technologies. This emphasis contributes to institutional sustainability and maximizes the value of the generated evidence.

1.6 Lessons Derived from Engagement with Authorities of Central America and the Dominican Republic (Validation of the Guidance)

As part of the development of this guide, a process of direct engagement was conducted with authorities from all countries in Central America and the Dominican Republic, including regional workshops, technical exchanges, and institutional diagnostic exercises. This process was iterative and participatory, enabling the alignment of conceptual approaches with concrete institutional realities.

This engagement not only served to validate the proposed conceptual approaches, but also to identify common patterns that are critical for the design and implementation of experimentation mechanisms across different institutional contexts.

Based on this work, the following key lessons were identified on the regional process, whose relevance extends beyond the specific context in which they were observed:



1. **Not all institutional contexts require or prioritize the implementation of regulatory sandboxes.**

   The diversity of institutional contexts, legal frameworks, and regulatory priorities means that there is no single solution applicable to all countries. In many cases, authorities require alternative experimentation mechanisms or simpler and more flexible instruments that enable the generation of evidence without relying on complex schemes or formal regulatory exemptions.

2. **There is a strong sense of urgency to advance regulatory agendas in contexts of rapid technological evolution.**

   Countries face increasing pressure to adopt regulatory decisions within short timeframes in response to the rapid evolution of technologies and business models. This context calls for agile tools that can generate evidence and deliver results in the short term, without relying exclusively on traditional regulatory processes.

3. **There is a need to structure cooperation agendas at both national and international levels to facilitate the exchange of experiences and capacity development.**

   A consistent need has been identified to strengthen national and international cooperation mechanisms that support capacity-building, facilitate knowledge exchange, and enable the coordinated implementation of experimentation initiatives in the public sector.

4. **Institutional constraints limit the design of complex governance frameworks**

   In many countries, existing institutional capacities are insufficient to design or sustain sophisticated governance structures. In some cases, these issues extend beyond the executive branch, involving other levels of government, which introduces additional constraints in terms of feasibility and implementation timelines.

5. **There is a need for innovative, proportional, and agile regulatory responses**

   Authorities require solutions that combine flexibility, simplicity, and adaptability, while avoiding approaches that are excessively complex, costly, or difficult to implement in the short term. This reinforces the need for modular and scalable instruments that can be adapted to different levels of institutional capacity.[14] The legal analysis carried out throughout the region has shown that institutions and authorities already have certain measures that can support regulatory experimentation. However, it is essential that practitioners and public officials are able to interpret and identify these provisions with an innovation-oriented perspective, enabling them to advance experimentation without necessarily waiting for significant regulatory reforms to formally enable such spaces.

These lessons from the empirical and conceptual foundation of this guide. While these lessons are derived from a specific process of institutional engagement, they reflect recurring patterns in the management of regulatory uncertainty in the context of technological innovation, thereby supporting their broader applicability. Accordingly, the typologies, tools, and decision criteria presented in the following chapters have been designed to respond to these realities and common challenges across different institutional contexts., providing authorities with a flexible, proportional, and operationally applicable framework to support the selection of the most appropriate mechanism based on their specific needs, capacities, and policy objectives. This approach is consistent with broader efforts to promote regulatory innovation and excellence in an increasingly dynamic and rapidly evolving technological environment.[15]

Furthermore, these lessons highlight the importance of understanding experimentation not as an isolated instrument, but as part of a broader regulatory learning infrastructure – an approach that underpins the overall design of this guide.

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[14] **Bello, Carlos A. (2026)**. *Technical Report on Comparative Regulatory Analysis of Sandboxes: Regulatory Sandbox Mechanisms in Telecommunications and Digital Technologies*. Technical Assistance Project on Regulatory Innovation in Central America and the Dominican Republic (Project 9RCA24005, Activity Reports 3–5, November–January).

[15] **Vogel, D. (2015)**. Regulatory excellence: The role of policy learning and reputation (Discussion Paper 06). Penn Program on Regulation, University of Pennsylvania. https://pennreg.org/regulatory-excellence/wp-content/uploads/sites/5/2023/01/vogel-ppr-bicregulatordiscussionpaper-06-2015.pdf

2 Guiding Principle: Experimentation as Learning Infrastructure in the Public Sector

Based on the lessons identified, and from evidence derived from experimentation processes in the public sector, the central principle guiding this guide is that experimentation spaces in the public sector must be conceived as learning infrastructures, whose main purpose is to generate empirical evidence that allows authorities to improve the quality, legitimacy, and effectiveness of public decision-making. Within this approach, regulatory experimentation constitutes a specific subset of instruments, aimed at generating evidence for the design, adjustment, or evaluation of regulatory frameworks.

Conceiving experimentation as infrastructure implies recognizing it as stable and cumulative institutional capacity, rather than isolated interventions.[16]

From this perspective, experimentation: in the public sector

- reduces reliance solely on theoretical assumptions
- enables the identification of risks and opportunities in real-world contexts
- strengthens institutional capacities
- and enhances trust between regulators, innovators, and citizens

Conceiving experimentation as learning infrastructure implies recognizing it as a continuous and cumulative institutional capacity, rather than as an isolated intervention. This involves integrating different instruments, including, where appropriate, regulatory experimentation mechanisms, within a broader public sector learning approach. This approach allows regulatory learning to be internalized as a permanent function of the State.[17] Through repeated cycles of experimentation, evaluation, and adjustment, institutions develop analytical and operational capacities that strengthen their technical autonomy and reduce their dependence on external solutions not adapted to the local context.

Likewise, experimentation understood as learning facilitates more informed management of regulatory risk. Instead of attempting to anticipate all impacts *ex ante*, authorities can observe how risks materialize in controlled environments, adjusting safeguards before large-scale adoption. Finally, this principle reinforces the legitimacy of regulatory decisions, allowing normative adjustments – including decisions not to adopt or to reverse – to be based on verifiable empirical evidence, which is especially relevant in contexts of high political or social sensitivity.[18]

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16 **Novotny, T. E. (2018)**. Governance of responsible science and innovation. *Journal of Responsible Innovation, 5*(1), 1–5. https://philpapers.org/rec/NOVGRS

17 **Gasser, U., & Mayer-Schönberger, V. (2024)**. On the shoulders of others: The importance of regulatory learning in the age of AI. *Virginia Journal of Law & Technology, 28*(1). https://static1.squarespace.com/static/5e793709295d7b60295b2d29/t/678a8a5f088d4e6288ea4353/1737132644184/28+Va.+J.L.+%26+Tech+1+%282025%29+Final

18 **Guío, A., & König, P. D. (2025)**. ***Regulatory sandboxes for AI in the majority world: A learning-centric approach to legal adaptation.*** Cambridge Forum on AI: Law and Governance. Cambridge University Press. https://www.cambridge.org/core/journals/cambridge-forum-on-ai-law-and-governance/article/regulatory-sandboxes-for-ai-in-the-majority-world-a-learningcentric-approach-to-legal-adaptation/2352427E99FCEA2B34F4B8DB1DC18095

Methodological Note 1. Evidence-Based Regulation

The ITU and the OECD promote "evidence-based regulation" approaches that integrate *ex ante* evaluation, continuous monitoring, and *ex post* evaluation. Regulatory experimentation spaces constitute an operational mechanism to apply these principles in contexts of high technological uncertainty.

3 Typology of Regulatory Experimentation Spaces

Methodological Note 2. Origin and Construction of the Classification

The conceptual framework presented in this chapter is built on the integration and systematization of approaches developed in comparative experiences of public sector experimentation and innovation. In particular, it draws on: (i) the experimentation approach developed within GCcollab, which distinguishes experimentation spaces based on the type of public intervention and the object of learning; and (ii) the innovation sandbox approach promoted by the Canton of Zurich, which emphasizes the practical object of experimentation and the reduction of barriers to the controlled implementation of innovative solutions[19].

It is important to note that these references do not constitute formal or exhaustive models of regulatory experimentation but rather experiences that offer relevant analytical elements for the development of this classification.

The proposed classification should therefore be understood as a guiding conceptual framework, designed to facilitate decision-making across diverse institutional contexts, rather than as a closed or standardized taxonomy at the international level.

However, the classification and definition of different types of experimentation spaces, and particularly of sandboxes, remains an evolving area of practice and analysis, where no single taxonomy or standardized definition currently exists at the international level.[20]

On this basis, this document proposes an integrated framework that clearly distinguishes between different types of experimentation spaces in the public sector, including sandboxes, defined according to their object of experimentation, and other complementary instruments. This approach seeks to provide conceptual clarity, avoid terminological ambiguities, and support proportional and strategic decision-making by public authorities across diverse institutional contexts .

3.1 Preliminary Distinction: Sandboxes and Complementary Instruments

There is no single model of experimentation suitable for all contexts. Authorities have a set of complementary figures at their disposal, each designed to respond to different types of uncertainty: technical, normative, institutional, or political. These figures should not be

[19] **Canton of Zurich. (n.d.)**. Innovation sandbox. https://www.zh.ch/en/wirtschaft-arbeit/wirtschaftsstandort/innovation-sandbox.html

[20] See: **Arntzen, S., Wilcox, Z., Lee, N., Hadfield, C., & Rae, J. (2019, October)**. Testing innovation in the real world: Real-world testbeds. Nesta. https://media.nesta.org.uk/documents/Testing_innovation_in_the_real_world.pdf ; **Kalkar, U., Saxena, S., & Verhulst, S.** (2023). Data sandboxes primer. Open Data Policy Lab. https://incubator.opendatapolicylab.org/files/DataSandboxesPrimer.pdf ; **Lyman, M. (2025, September 12)**. Salesforce sandbox types: Complete environment guide. Flosum. https://www.flosum.com/blog/salesforce-sandbox-environment-types ; **Genicot, N., & Moraes Guimaraes, T. (2025).** Exploring the boundaries of AI regulatory sandboxes under the AI Act: Flexibility and real-world testing. Cambridge Forum on AI: Law and Governance, 1(e36), https://www.cambridge.org/core/journals/cambridge-forum-on-ai-law-and-governance/article/exploring-the-boundaries-of-ai-regulatory-sandboxes-under-the-ai-act-flexibility-and-realworld-testing/33039F16B76448F0EA86699385FD799E ; **Guío, A. (2024)**. **R**egulatory sandboxes in developing economies: An innovative governance approach. Santiago: ECLAC. LC/TS.2024/59. https://www.cepal.org/en/publications/80496-regulatory-sandboxes-developing-economies-innovative-governance-approach. **The Datasphere Initiative. (2025)**. *Sandboxes for AI.* https://www.thedatasphere.org/datasphere-publish/sandboxes-for-ai/

understood as closed or necessarily sequential categories, but rather as instruments that may be combined or adapted according to the context. Correct selection of the figure allows for the avoidance of over-regulation, misuse of the regulatory sandbox, and disproportionate institutional efforts. The following classification draws on various conceptual proposals and real-world examples to support a more systematic understanding of these spaces and their implementation, taking into account the diversity of existing approaches and a conception of the sandbox that transcends the fintech sector where it originated.[21]

Table 1: Use, Objectives, and Expected Results of Sandboxes and Experimentation Instruments in the Public Sector

Figure / Instrument	Definition	When to Use It	Main Object of Experimentation	Expected Results
Innovation Hub	Institutional mechanism for early guidance and support that facilitates dialogue between innovators and public authority. Does not enable controlled tests or normative exceptions.[22]	When there is high demand for guidance or lack of clarity on applicable regulatory requirements.	Preliminary clarity on regulatory requirements and project maturation.	Prioritized portfolio of initiatives and defined regulatory routes.
Testbed	Controlled technical environment to validate performance, interoperability, security, or technological resilience in simulated or semi-real conditions. Its main purpose is not to generate regulatory adjustments nor does it imply formal regulatory supervision.[23]	When predominant uncertainty is technical and validation of functioning is required before scaling to a regulatory environment.	Technical performance and technological security.	Verifiable technical evidence and recommendation on feasibility or next stage.
Public Policy Lab	Structured space for prototyping and generating evidence and lessons regarding rules, guidelines, or administrative processes before and after their formal adoption.[24]	When uncertainty is normative or institutional and not technological.	Design and effectiveness of regulatory instruments.	Adjusted regulatory instrument ready for adoption.

[21] **Lawrence Berkeley National Laboratory. (n.d.)**. *Sandbox navigator*. https://sandbox-navigator.lbl.gov/sandbo y **Ford, C., & Ashkenazy, Q. (2024)**. The legal innovation sandbox. *The American Journal of Comparative Law*, *72*(3), 557-600. https://doi.org/10.1093/ajcl/avae029

[22] See, e.g., **De Nederlandsche Bank (DNB)**, & Netherlands Authority for the Financial Markets (AFM). (n.d.). AFM & DNB InnovationHub. https://www.afm.nl/en/sector/themas/digitalisering/innovationhub-afm-dnb

[23] See: **Arntzen, S., Wilcox, Z., Lee, N., Hadfield, C., & Rae, J. (2019, October)**. Testing Innovation in the Real World: Real-World Testbeds. Nesta. https://media.nesta.org.uk/documents/Testing_innovation_in_the_real_world.pdf

[24] See: **Maor, M. Towards a minimal definition of policy innovation labs**. Policy Sci 59, 225–244 (2026). https://doi.org/10.1007/s11077-026-09605-z

Table 1: Use, Objectives, and Expected Results of Sandboxes and Experimentation Instruments in the Public Sector (continued)

Figure / Instrument	Definition	When to Use It	Main Object of Experimentation	Expected Results
Public Policy Prototype	Beta version of a normative or procedural instrument that is tested and adjusted before its final adoption.[25]	When rapid iteration on a specific instrument is required.	Practical validation of rules or processes.	Final version supported by empirical evidence.
High-Level Experimentation Framework	Permanent institutional infrastructure that establishes common principles, governance, and criteria for managing multiple experiments coherently.[26]	When seeking to institutionalize experimentation as a permanent public function.	Governance of the experiment portfolio and strategic coherence.	Installed institutional capacity and accumulated learning.
Cybersecurity Sandbox	Environment structured by a public authority to test innovations under reinforced supervision, with emphasis on validating security, resilience, data protection, and risk management in systems with potential critical impact.[27]	When innovation may affect critical infrastructures, sensitive data, or essential services and specialized validation is required before adoption or scaling.	Management of technological risks and security safeguards.	Technical and risk evidence to support scaling decisions, standards, or supervision requirements.
Emerging Technologies Sandbox	Supervised experimentation space where disruptive technologies (e.g., AI, 5G, blockchain, IoT, HPC) are implemented in real or semi-real conditions to observe their operational performance and regulatory implications.[28]	When technology is the central object of learning and applied evidence on its functioning in an operating environment is required.	Interaction between emerging technology and regulatory-operational environment.	Inputs for technical standards, regulatory guides, or future normative adjustments.

[25] See, e.g., **Gustetic, J., Teixeira, C., Carroll, B., Cheung, J., O'Malley, S., & Brewster, M. (2020)**. Policy prototyping for the future of work. Harvard Kennedy School Ash Center for Democratic Governance and Innovation & IDEO CoLab. https://ash.harvard.edu/wp-content/uploads/2024/02/colab-hks_5-6-2020_1_1.pd

[26] See, e.g., **Guío, A. (2020)**. Modelo conceptual para el diseño de Regulatory Sandboxes & Beaches en IA. Corporación Andina de Fomento (CAF) y la Consejería Presidencial de Asuntos Económicos y Transformación Digital. https://dapre.presidencia.gov.co/AtencionCiudadana/DocumentosConsulta/consulta-200820-MODELO-CONCEPTUALDISENO-REGULATORY-SANBOXES-BEACHES-IA.pdf

[27] See e.g., **OPSWAT. (2023)**. What is sandboxing? https://www.opswat.com/blog/what-is-sandboxing

[28] See e.g., **Harvard University Information Technology (HUIT). (n.d.)**. AI Sandbox. Harvard University. https://www.huit.harvard.edu/ai-sandbox

Table 1: Use, Objectives, and Expected Results of Sandboxes and Experimentation Instruments in the Public Sector (continued)

Figure / Instrument	Definition	When to Use It	Main Object of Experimentation	Expected Results
Innovation Sandbox	Structured experimentation environment designed by a public authority to allow controlled implementation of innovative solutions under institutional supervision, aiming to generate practical evidence on their interaction with the current regulatory framework.[29] Does not necessarily imply normative flexibility.	When practical or administrative regulatory uncertainty exists, but current regulations allow testing without needing legal exceptions.	Interaction between innovation and current regulation; reduction of administrative barriers.	Regulatory clarity, interpretative criteria, procedural improvements, or adjustment recommendations.
Regulatory Sandbox	Formal facility established by a regulatory authority allowing temporary and supervised flexibility of certain normative obligations to test innovations that do not fully fit within the current legal framework.[30]	When existing regulations prevent or restrict testing and a temporary exception is required to generate evidence.	Adequacy, proportionality, or sufficiency of the normative framework.	Concrete proposal for normative reform or a reasoned decision to maintain the current regime.

Sandboxes and complementary instruments are not mutually exclusive or alternative figures, but components of the same regulatory experimentation ecosystem. While sandboxes allow for the generation of empirical evidence around a specific object, complementary instruments facilitate case preparation, institutional coordination, and the translation of learning into concrete normative decisions. Clearly distinguishing between both levels allows authorities to:

- Use the regulatory sandbox only when necessary.
- Reduce legal risks and institutional costs.
- Strengthen traceability between generated evidence and regulatory decisions.

This conceptual architecture reinforces the principle of experimentation as regulatory learning infrastructure and forms the basis for the decision matrix and operational tools developed in the following chapters.

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[29] See e.g., **Canton of Zurich. (n.d.)**. Innovation sandbox. https://www.zh.ch/en/wirtschaft-arbeit/wirtschaftsstandort/innovation-sandbox.html

[30] See: **Madiega, T., & Van De Pol, A. L. (2022)**. Artificial intelligence act and regulatory sandboxes. European Parliamentary Research Service (EPRS), PE 733.544. https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI(2022)733544_EN.pdf ; United Kingdom Financial Conduct Authority (FCA). (2015). **Regulatory Sandbox**. Discussion Paper. https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf ; United Nations Secretary-General's Special Advocate for Inclusive Finance for Development (UNSGSA) Fintech Sub-Group on Regulatory Sandboxes. (2020, September). Briefing on regulatory sandboxes. https://www.unsgsa.org/sites/default/files/resources-files/2020-09/Fintech_Briefing_Paper_Regulatory_Sandboxes.pdf

4 Implementation Cycle

The implementation cycle provides a structured reference to guide the design and implementation of experimentation spaces in the public sector. Its function is to ensure that experimentation generates useful, comparable and traceable evidence, avoiding isolated or *ad hoc* initiatives.

Table 2: Implementation Cycle of Experimentation Spaces in the Public Sector

Stage	Description
1. Problem Identification	Clearly define the public problem sought to be addressed and the type of uncertainty preventing an informed decision.
2. Selection of the Appropriate Tool	Determine, based on the nature of the problem and the required level of intervention, which instrument is most proportional and adequate.
3. Experiment Design	Structure the scope, duration, participants, hypotheses, indicators, and supervision mechanisms of the experimentation process.
4. Supervised Implementation	Execute the test under controlled conditions, ensuring monitoring, traceability, and risk management.
5. Evaluation of Results	Analyze the generated evidence and assess its technical, operational, and regulatory impact.
6. Subsequent Decision	Adopt a decision based on the evidence, which may include normative adjustments, interpretative guides, scaling, or closure of the experiment.

Methodological Note 3. Ex Ante and Ex Post Evaluation

Every experimentation space must define regulatory hypotheses from the design stage (*ex ante*) and contrast them with observed results at the close (*ex post*), guaranteeing traceability between evidence and the normative decision. This traceability is essential for justifying normative adjustments and institutionalizing learning within the authority.

This approach reflects the evidence-based regulatory learning logic that underpins experimentation spaces, where authorities use controlled testing environments to evaluate regulatory hypotheses before adopting permanent regulatory changes.[31]

[31] **Digital Regulation Platform. (2021)**. *A case for ICT regulatory sandbox*. https://digitalregulation.org/a-case-for-ict-regulatory-sandbox/

PART II: DECISION MATRIX AND OPERATIONAL TOOLS

5 Decision Matrix for Selecting the Appropriate Figure

Unlike some comparative approaches that present the regulatory sandbox as the central tool, this guide acknowledges that authorities operate at varying levels of institutional development in the field of experimentation in the public sector. For this reason, the matrix considers various graduated possibilities and proposes solutions proportional to the type of uncertainty and existing capacities.

The matrix responds to recurring patterns observed in the design and implementation of experimentation mechanisms, particularly the need to adopt proportional approaches tailored to institutional capacities and to the predominant type of uncertainty.

The matrix is structured into two successive levels. First, it identifies the predominant type of uncertainty the authority faces. Second, it suggests the most suitable proportional tool, considering both the nature of the problem and the available institutional capacities.

Level 1 – Predominant Type of Uncertainty

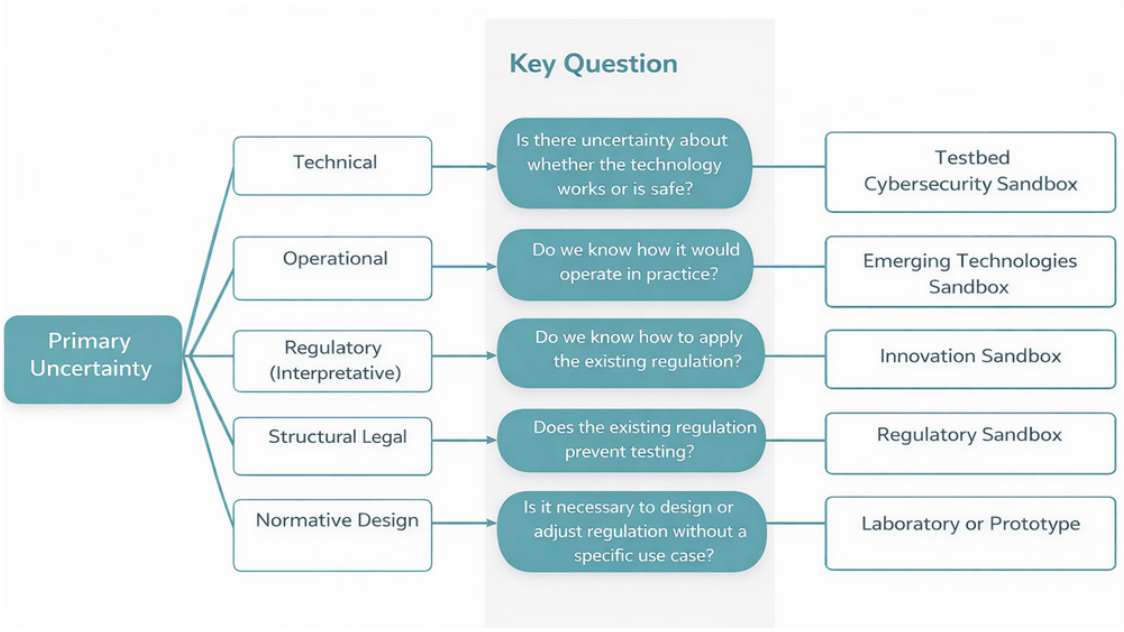
Type of Uncertainty	Key Question
Technical	Do we not know if the technology works or is safe?
Operational	Do we not know how to implement it in practice?
Regulatory Interpretative	Do we not know how to apply the current norm?
Structural Legal	Does the current norm prevent the test?
Normative Design	Is there a need to design or adjust a rule without a concrete case?

Level 2 – Suggested Proportional Tool

Predominant Uncertainty	Suggested Tool
Technical	Testbed or Cybersecurity Sandbox
Operational	Emerging Technologies Sandbox
Regulatory Interpretative	Innovation Sandbox
Structural Legal	Regulatory Sandbox
Normative Design	Lab or Prototype

This flowchart summarizes the logic of the matrix visually. It does not establish a mandatory sequence, but rather a proportionality criterion based on the nature of the predominant uncertainty.

Figure 1: Flowchart of Practical Application of the Decision Matrix



The decision matrix plays a central role in this guide: helping authorities strategically select the most appropriate experimentation figure according to the type of uncertainty they face. In contexts of rapid technological innovation, incorrect instrument selection can generate unnecessary costs, avoidable regulatory risks, or unrealistic expectations both within the public administration and among regulated actors. Comparative analyses also emphasize that regulatory sandboxes should not be treated as the default policy tool to address every regulatory innovation challenge. Their use should respond to a specific need for learning through controlled experimentation, rather than replacing regulatory reforms or administrative mechanisms that may resolve the issue more directly.[32]

In many cases, the temptation to directly resort to a regulatory sandbox responds more to political expectations, ecosystem demands, or the media appeal of the term "sandbox" than to a rigorous analysis of the regulatory problem. This can lead to using instruments that are disproportionate to the actual risk.

The matrix seeks precisely to counteract this trend, offering a structured framework that allows for aligning the experimentation tool with the pursued learning objective. Instead of promoting a single approach, the matrix starts from the principle of regulatory proportionality, widely recognized by the ITU and the OECD. This implies that the degree of intervention, institutional complexity, and normative flexibility must correspond to the level of risk, uncertainty, and potential impact of the innovation under analysis, avoiding oversized or difficult-to-sustain solutions. Proportionality also allows for sequencing tools, starting with light instruments (such as an innovation hub or testbed) and scaling toward sandboxes only when the evidence justifies it.

[32] **Digital Regulation Platform. (2021)**. A *case for ICT regulatory sandbox*. https://digitalregulation.org/a-case-for-ict-regulatory-sandbox/

5.1 When to Use Each Experimentation Figure

The following criteria are applicable across diverse institutional contexts and should be adapted in line with the applicable legal framework, the level of risk, and the available capacities.

- **When technology is not yet technically proven:** When the main regulatory question is whether a technology works adequately, safely, and reliably, the matrix recommends opting for a testbed or cybersecurity sandbox, depending on criticality. In these cases, the core of the uncertainty lies not in the norm, but in the technical performance of the solution. These spaces allow for validating performance, interoperability, security, and data use in controlled environments without introducing normative modifications. This approach is particularly suitable in early stages of innovation where regulatory flexibility would be premature or unjustified. By concentrating effort on generating robust technical evidence, these spaces reduce unnecessary regulatory risks and provide clear inputs for deciding if, when, and how to advance toward more complex figures like an innovation or regulatory sandbox. This approach protects institutional credibility by avoiding normative exceptions without prior evidence.
- **When there is a need for early guidance and channeling:** In many contexts, the main problem is not yet technological or normative, but rather the lack of clarity on how to interact with the regulatory authority, what requirements to apply, or what risks to consider. In these cases, the matrix recommends an **innovation hub**. The innovation hub works as an institutional contact point that allows for guiding innovators and public entities, ordering regulatory dialogue, and filtering cases before advancing to more demanding experimentation schemes. This figure reduces information costs, improves the quality of projects entering experimentation processes, and allows the authority to build a prioritized portfolio of cases aligned with its capacities and regulatory objectives. It also helps identify sectors where it might be necessary to create more structured learning infrastructure.
- **When practical implementation is required without legal exemptions:** When the authority needs to move from analysis to practical implementation – enabling the use of data, infrastructures, or real environments but without resorting to normative exemptions – the matrix points toward an **innovation sandbox**. This type of sandbox allows for executing projects in real-world conditions under clearly defined rules, regulatory accompaniment, and explicit commitments to learning and publication of results. Its focus is on producing applied and reusable evidence. The innovation sandbox is particularly useful when seeking to accelerate responsible innovation, generate regulatory clarity, and produce public learning without assuming the legal risks associated with normative flexibility.
- **When innovation does not fit into current regulation:** If innovation violates, contradicts, or simply is not contemplated in the existing normative framework, the matrix points toward a **regulatory sandbox**. This scenario is frequent in regulated sectors with rules designed for traditional models. The regulatory sandbox allows for observing the behavior of innovation in real market conditions under supervision and with reinforced safeguards. Its value lies not only in allowing temporary exceptions, but in generating empirical evidence on the adequacy of current regulation. Through this mechanism, authorities can evaluate if regulation is excessive, insufficient, or inadequate, informing more precise and well-founded normative reforms. This avoids structural reforms based on intuitions or external pressure. Accordingly, it requires explicit legal powers to grant temporary exceptions.
- **Simultaneous technical and legal uncertainty:** In situations where technical and regulatory uncertainties coexist, the authority must identify the predominant object of experimentation. If the primary need is to validate technological performance under reinforced supervision, an **emerging technologies sandbox** with additional safeguards may be chosen. If the innovation simultaneously requires normative flexibility, a **regulatory sandbox** with clearly delimited technical components will be appropriate.
- **When the problem is not technological, but normative:** Not all regulatory challenges arise from new technologies. In many cases, the problem resides in how existing rules are designed, interpreted, or coordinated. When the challenge is normative or institutional,

the matrix prioritizes a **public policy lab**. This instrument allows for prototyping rules, guidelines, or administrative processes before making them mandatory. Its value resides in reducing political and implementation risks, improving normative quality, and strengthening the legitimacy of regulatory decisions. Additionally, it allows for anticipating unintended distributive effects or administrative burdens.

- **When a concrete instrument needs to be tested:** When the objective is to design, validate, or adjust a specific instrument – a guide, a procedure, a normative clause – the matrix recommends a **public policy prototype**. The prototype allows for rapid iteration on a concrete regulatory product, generating evidence of functioning, and adjusting before its formal adoption.
- **Limitations of legal powers for exceptions:** In many regulatory contexts, authorities lack clear powers to grant temporary regulatory exemptions. Ignoring this restriction generates risks of legal insecurity. Faced with this situation, the matrix points toward testbeds, innovation sandboxes, or public policy labs, which allow for generating evidence without flexing binding rules. This approach preserves legality and demonstrates that experimentation can adapt to different constitutional and administrative frameworks.

In summary, the decision matrix not only guides the selection of the appropriate figure for each type of uncertainty but also functions as a strategic planning tool . It allows for anticipating the technical, legal, and coordination capacities that will be necessary during experimentation, as well as the operational and regulatory risks that must be managed from early stages. Likewise, it facilitates inter-institutional articulation, especially in contexts where experimentation may involve multiple authorities with complementary mandates. The matrix also reinforces proportionality and the efficient use of public resources, avoiding the deployment of more complex figures when they are not necessary and promoting a sequential approach that allows for building cumulative evidence throughout the regulatory cycle. By making the logic behind selection explicit, the matrix further contributes to strengthening accountability and institutional legitimacy before political and social actors and the innovation ecosystem.

5.2 Illustrative Examples of Experimentation Space Design According to the Decision Matrix

To facilitate the practical application of the decision matrix presented in this section, this numeral offers two illustrative examples of how an authority can design an experimentation space based on criteria of uncertainty, risk, and institutional capacities. The examples should not be understood as closed models, but as methodological references showing how to translate matrix logic into concrete design decisions.

Example 1. Telecommunications: Experimental Use of Spectrum for Private 5G Networks

- **Context of the regulatory problem:** A telecommunications regulatory authority faces increasing requests to deploy private 5G networks intended for industrial uses (ports, manufacturing, mining, logistics). The current spectrum allocation framework is designed for traditional mobile operators and does not clearly contemplate this type of deployment.
- **Predominant type of uncertainty:**
  - **Regulatory**: The model does not fully fit into existing licensing categories.
  - **Technical (secondary):** Coexistence with public networks and efficient use of spectrum.
- **Application of the decision matrix (5.1):**
  - Innovation does not fit into current regulation and requires exceptional conditions.

- Legal powers exist to authorize temporary and controlled uses of spectrum.
- Recommended Figure: Regulatory Sandbox (with technical components).

- **Design of the experimentation space:**
  - Temporary and limited spectrum authorizations for specific projects.
  - Limited scope (geographic zones, defined duration, delimited use cases).
  - Technical safeguards (non-interference, quality monitoring, reversibility).
  - Regulatory indicators: Spectrum use efficiency, impact on competition, interference risks.
- **Regulatory learning objective:** Generate empirical evidence to evaluate if the current spectrum allocation framework is adequate, or if new regulatory categories are required for private 5G networks.
- **Expected result:** Well-founded recommendations on normative adjustments, licensing criteria, or hybrid spectrum allocation schemes based on evidence observed in real conditions.

Example 2. Transversal Sector (AI and Data): Use of Artificial Intelligence for Prioritization of Inspections

- **Context of the regulatory problem:** A public authority seeks to use artificial intelligence models to prioritize inspections (for example, in transport, environment, or consumption) aiming to improve efficiency and focus resources. Existing regulations do not prohibit this use but do not define clear criteria on governance, transparency, or risk control.
- **Predominant type of uncertainty:**
  - **Technical:** Performance, biases, and quality of models.
  - **Institutional:** Supervision capacities and responsible use.
  - **Normative (incipient):** Absence of clear guidelines.
- **Application of the decision matrix (5.1):**
  - Practical implementation and use of real data are required.
  - Formal normative exemptions are not needed in a first stage.
  - Recommended Figure: Innovation Sandbox.
- **Design of the experimentation space:**
  - Controlled implementation of the model in a subset of processes.
  - Enabled access to specific administrative data with safeguards.
  - Minimum ethical and legal protocol (explainability, non-discrimination, audit).
  - Publication of technical and organizational learnings.
- **Regulatory learning objective:** Evaluate if AI use effectively improves prioritization, what risks emerge, and what regulatory capacities are necessary for broader adoption.
- **Expected result:** Applied evidence to develop guides, internal standards, or normative guidelines on the responsible use of AI in inspection and supervision functions.

These examples illustrate how the decision matrix allows for designing proportional experimentation spaces, avoiding both underutilization and excessive use of regulatory sandboxes. In both cases, the selected figure responds to the predominant type of uncertainty and is explicitly oriented toward generating useful evidence for future regulatory decisions.

6 Elements and Guidance to Support Initial Implementation

This section aims to provide authorities with a set of practical elements and guidance to facilitate the transition from decision-making to the implementation of experimentation initiatives. Its purpose is to offer a structured starting point that enables gradual progress, without replacing subsequent processes of institutional design, legal validation, or more detailed operational development.

The approach adopted responds to a recurrent finding from engagement with authorities in diverse context: in many cases, the main barrier is not a lack of interest in implementing experimentation mechanisms, but rather uncertainty about where to begin, what initial definitions are required, and how to translate them into concrete actions.

In many cases, processes may extend across preliminary stages – such as contextual analysis, benchmarking, or feasibility studies – without translating in a timely manner into operational decisions or concrete pilots.

While these analyses are essential to ensure the relevance, proportionality, and legitimacy of any experimentation initiative, the challenge lies in linking them to mechanisms that enable progressive movement toward implementation, maintaining a clear connection between diagnosis and action.

In response to this challenge, the guide proposes to simplify the initial conditions for action through a set of elements and sequences that enable authorities to begin in a structured and agile manner, quickly identify the most appropriate mechanism, and move forward with implementation based on a minimum set of clear initial definitions. The objective is not to provide an exhaustive design of each mechanism, but rather to facilitate an operational entry point that allows experimentation processes to be activated and early learning to be generated.

In this sense, the elements presented aim to reduce initial uncertainty, structure decision-making processes, and avoid implementation bottlenecks resulting from the pursuit of perfection at early stages. From this starting point, authorities can subsequently deepen the institutional, legal, and operational design of the selected mechanism, according to their specific needs and capacities.

6.1 From Decision Making to Operational Deployment

One of the main barriers to implementing experimentation spaces in the public sector is not a lack of interest, but the difficulty of translating a strategic decision into an executable process with clear responsibilities, a realistic schedule, and minimum governance mechanisms. This chapter offers elements and guidance to reduce implementation friction and support the transition from the selection of a mechanism to its effective implementation.

The proposed elements are deliberately modular. They do not seek to establish a rigid or unique model but rather to provide a set of guidance that enables authorities to adapt the design to their institutional reality, legal framework, and the level of the risk involved.

In contexts of limited capacities, good implementation depends less on formal sophistication and more on having simple instruments that that help structure the process, reduce ambiguities, and ensure traceability between evidence and public decision-making.

Finally, this chapter reinforces the guiding principle of the guide: experimentation is a learning infrastructure. Supporting timely implementation does not imply reducing safeguards, but achieving that the evidence–decision–adjustment cycle functions with clarity and in times compatible with technological innovation.

6.2 Quick Start Sequence in 10 Steps

Authorities can use the following sequence as a standard starting route applicable to any of the figures:

1. **Define a single and verifiable regulatory question** (a priority uncertainty).
2. **Select the figure** using the matrix.
3. **Appoint a "core team"** (minimum: technical leader, legal leader, data/monitoring leader).
4. **Agree on the minimum viable scope** of the experiment (what is and is not being tested).
5. **Define duration and milestones** (start, intermediate evaluation, close).
6. **Establish learning indicators** (not just "success" of the pilot).
7. **Define safeguards and stop rules** (interruption criteria).
8. **Formalize the enabling legal instrument** (if applicable): resolution, agreement, letter of understanding, terms of reference.
9. **Design the monitoring and reporting plan** (frequency, responsible parties, format).
10. **Agree on a final public product** (technical note or report) and its normative translation route.

This sequence reduces the risk of unstructured starts that later become difficult to govern or close. The objective is that before starting, there is clarity about the logic of the experiment and how its evidence will be incorporated into regulatory decisions. An ordered start also facilitates accountability and reduces the probability of scope creep during execution.

6.3 Minimum Viable Packages by Figure (MVP)

The different regulatory experimentation and innovation figures differ significantly in institutional load, legal complexity, and level of regulatory risk. Consequently, this guide recommends adopting a Minimum Viable Packages (MVP) approach, understood as the minimum set of indispensable elements for each figure to operate in a legitimate, proportional, and learning-oriented manner.[33] The objective of the MVPs is not to reduce regulatory standards but to avoid oversized or institutionally unsustainable designs. A well-defined MVP allows for starting experimentation with clarity, ensuring traceability between evidence and regulatory decision, and facilitating an ordered close of the process.

6.3(a) Innovation Hub – MVP

The Innovation Hub fulfills a function of orientation, channeling, and regulatory maturation. It does not imply pilot execution or normative flexibility.

[33] This is a concept inspired by the concept of "Minimum Viable Product." See **Ries, E. (2013, September). *Why the Lean Start-Up Changes Everything.* Harvard Business Review**. https://hbr.org/2013/09/building-a-minimum-viable-prod.

- **Minimum components:**
  - Formal institutional contact point.
  - Regulatory and technical guidance protocol.
  - Prioritization and referral criteria.
  - Systematic registry of inquiries.
- **Final product:**
  - Prioritized portfolio of cases with defined regulatory routes, ready for testbeds or sandboxes.

6.3(b) Testbed – MVP

The testbed is exclusively oriented toward resolving technical uncertainty in controlled environments, without regulatory intervention or real market access.

- **Minimum components:**
  - Technical scope document.
  - Controlled test environment.
  - Verifiable technical indicators.
  - Basic security and data protocol.
  - Plan for technical report.
- **Final product:**
  - Verifiable technical report allowing a decision on whether the technology is ready for practical implementation or requires adjustments.

6.3(c) Cybersecurity Sandbox – MVP

The cybersecurity sandbox focuses on evaluating resilience, vulnerabilities, and technological risks in controlled or segmented environments.

- **Minimum components:**
  - Isolated or segmented environment.
  - Penetration and resilience testing protocols.
  - Specialized technical team.
  - Security risk matrix.
  - Documented registry of vulnerabilities and mitigations.
- **Final product:**
  - Technical risk report and mitigation recommendations, with a reasoned decision on fitness for deployment.

6.3(d) Emerging Technologies Sandbox – MVP

The emerging technologies sandbox allows observing the performance of a disruptive technology in limited real conditions without needing to modify current regulations.

- **Minimum components:**
  - Clearly defined use case.
  - Delimited geographic or sectoral scope.
  - Active sectoral supervision.
  - Technical and operational indicators.
  - Minimum data and user protection protocol.
  - Commitment to publishing learnings.
- **Final product:**
  - Comprehensive evaluation of technological performance and regulatory route recommendations.

6.3(e) Innovation Sandbox – MVP

The innovation sandbox allows practical implementation with regulatory accompaniment under the current normative framework, focusing on organizational and applied regulatory learning.

- **Minimum components:**
  - Case document with explicit regulatory questions.
  - Authorization for data or infrastructure use (if applicable).
  - Minimum ethical and legal protocol.
  - Organizational and regulatory performance indicators.
  - Public documentation plan for learnings.
- **Final product:**
  - Applied reusable evidence for creating guides, standards, or future regulatory adjustments.

6.3(f) Regulatory Sandbox – MVP

The regulatory sandbox implies temporary and supervised normative flexibility to generate empirical evidence on the adequacy of the current framework.

- **Minimum components:**
  - Formal enabling instrument.
  - Explicit definition of flexed obligations and non-negotiable obligations.
  - Clear scope, duration, and closure criteria.
  - Safeguards for users and competition.
  - Specific regulatory indicators.
  - Continuous monitoring mechanisms.

- **Final product:**
  - Reasoned proposal for normative adjustment or a documented decision not to proceed.

6.3(g) Public Policy Laboratory – MVP

The public policy lab is oriented toward prototyping norms, processes, or institutional arrangements without needing normative flexibility.

- **Minimum components:**
  - Normative or procedural prototype.
  - Focused test plan with key actors.
  - Administrative effectiveness indicators.
  - Hypothesis document and adjustment criteria.
- **Final product:**
  - Revised version of the normative instrument with justification based on evidence.

6.3(h) Policy Prototype – MVP

The policy prototype is a specific product (rule, form, guide, procedure) that is iterated before formal adoption.

- **Minimum components:**
  - Beta version of the instrument.
  - Structured feedback methodology.
  - Registry of changes and evidence.
  - Explicit criteria for final validation.
- **Final product:**
  - Validated instrument ready for formal adoption.

6.3(i) High-Level Experimentation Framework – MVP

High-level frameworks do not correspond to an individual experiment but rather to a permanent institutional infrastructure designed to govern a portfolio of experiments.

- **Minimum Components:**
  - Common principles for experimentation.
  - Selection and prioritization criteria.
  - Governance and accountability rules.
  - Standards for duration, evaluation, and closure.
  - Comparable indicators across experiments.
  - Archiving system and institutional memory mechanism.

- **Final Product:**
  - A managed portfolio of experiments with accumulated learning and sustained regulatory coherence.

Table 3: Comparative Table of Instruments

Instrument	Primary Object	Does It Flexibilize Rules?	Testing Environment	Institutional Complexity	Final Product
Innovation Hub	Early guidance and intake channeling	No	Not applicable	Low	Prioritized portfolio
Testbed	Technical validation in controlled environment	No	Controlled	Low	Technical report
Cybersecurity Sandbox	Evaluation of resilience and vulnerabilities	No	Isolated/ segmented	Medium	Risk assessment report
Emerging Technologies Sandbox	Technological observation in limited real-world setting	No	Delimited real environment	Medium	Technological evaluation
Innovation Sandbox	Practical implementation with regulatory guidance	No (operates under existing rules)	Delimited real environment	Medium–High	Reusable applied evidence
Regulatory Sandbox	Assessment of regulatory adequacy through supervised flexibility	Yes	Delimited real environment	High	Proposal for regulatory adjustment
Public Policy Lab	Normative or institutional prototyping	No	Administrative environment	Medium	Revised version of instrument
Policy Prototype	Iteration of specific regulatory instrument	No	Limited environment	Low–Medium	Validated instrument
High-Level Framework	Permanent governance of experimentation	No	Institutional portfolio	High (structural)	Institutional infrastructure

6.4 Practical Implementation Tools (Templates and Minimum Formats)

6.4(a) Experiment Brief (1–2 pages)

The experiment brief is the most important instrument for transforming an experimentation idea into a governable object. Its value does not lie in producing a lengthy document, but in requiring the authority to articulate – briefly and verifiably – the regulatory problem it faces and why experimentation is the appropriate mechanism to reduce uncertainty.

In contexts of political pressure or multiple stakeholders with differing expectations, this brief functions as a minimum "technical contract": it fixes the purpose of the exercise and reduces the risk that the experiment becomes a diffuse agenda or a pilot without regulatory utility.

Second, the brief acts as an internal alignment mechanism. It requires legal, technical, data, and policy teams to share a common understanding of scope, preventing parallel interpretations that often generate execution bottlenecks. Early clarity regarding the selected instrument reduces the risk of designing a mechanism incompatible with the authority's legal framework or institutional capacities.

Third, the brief translates the experiment into an explicit regulatory hypothesis. This is critical: experimentation only produces useful evidence if it clearly defines what is expected to be learned and how that learning connects to concrete decisions. By including hypotheses, indicators, and expected outputs, the brief prevents the experiment from being evaluated solely based on "operational success" (e.g., whether the pilot worked) and instead requires evaluation based on regulatory learning (e.g., whether the existing rule is adequate, excessive, insufficient, or requires redesign).

The brief also introduces proportionality and risk-control discipline. By requiring identification of risks and limits (what is not being tested), it reduces the risk of scope expansion through accumulated demands that ultimately render the experiment institutionally unsustainable.

Finally, the brief creates traceability. As the initial document, it becomes the reference point against which final design, interim reports, and closing evaluations are compared. This facilitates accountability and protects the authority by demonstrating that the experiment was conceived with public purpose, clear limits, and an evidence-based rationale – even if the results suggest that scaling or regulation is not advisable.

6.4(b) Indicator Matrix (ex ante / during / ex post)

The indicator matrix transforms an experiment into a measurable, monitorable, and decision-translatable process. Its purpose is not to accumulate metrics, but to select a minimum set of indicators that respond to the experiment's central question and allow real-time assessment of whether the regulatory hypothesis is confirmed, refuted, or requires adjustment.

Without such a matrix, projects tend to rely on impressions, narrative reports, or fragmented evidence, limiting their value for subsequent normative decisions.

The matrix imposes an essential temporal logic:

- **Ex ante**: defines what evidence is sufficient to initiate and what assumptions must be tested.

- **During**: monitors deviations, incidents, and early risk signals.
- **Ex post**: ensures that closure involves explicit comparison between initial hypotheses and observed results.

It also strengthens governance by assigning clear responsibilities: each indicator has a data source, periodicity, and responsible party.

Another key component is the alert threshold and its link to decisions. An indicator without a threshold becomes descriptive; a threshold without a decision becomes decorative. The matrix forces a direct link between evidence and action: if risk exceeds threshold – safeguard activated; if compliance drops – scope adjusted; if technical performance fails – suspension or redesign.

Finally, standardized matrices enable comparability across experiments and accumulation of institutional learning.

6.4(c) Governance and Coordination Agreement (Minimum)

This agreement ensures institutional legitimacy and clear authority. It prevents informal experimentation sustained only by technical enthusiasm but lacking formal decision-making authority.

It defines:

- Leading authority
- Roles per institution
- Monitoring committee
- Escalation mechanisms
- Stop rules

Stop rules protect both authority and participants by predefining conditions requiring pause, adjustment, or closure. This reinforces legitimacy and public trust.

The agreement also ensures continuity beyond staff rotations, making governance structural rather than personal.

6.4(d) Public Final Report Template

The final report template guarantees that experimentation fulfills its central promise: producing usable and transferable evidence to improve regulation.

It ensures:

- Structured documentation
- Transparency
- Methodological rigor
- Explicit link between evidence and recommendations

A standardized report facilitates comparability, institutional memory, and external accountability.

Together, these four templates create documentary infrastructure that makes continuous regulatory learning viable.

6.5 Ensuring Useful Evidence: Indicators, Data, and Traceability

To preserve evidence quality, three minimum elements are required:

A) Verifiable Regulatory Hypothesis

Example:

- "Obligation X is excessive for model Y."
- "Risk Z is mitigated by safeguard W."
- "Minimum technical performance enables effective supervision."

Hypotheses must be specific and falsifiable.

B) Learning Indicators (not only performance indicators)

Indicators must address risk, compliance, impact, and governance – not only operational metrics.

C) Traceability: Evidence – Decision

Each key indicator must link to a potential decision at closure: scale, adjust, or discontinue.

Methodological Note 4. Use of "Falsifiable"

"Falsifiable" is used in its methodological sense: a hypothesis is falsifiable when it can be confirmed or refuted through observable evidence.

6.6 Simplified Risk Management: Safeguards and Stop Rules

Stop rules should be defined clearly and linked to critical risks:

- Severe security or privacy violations
- Rights violations without mitigation
- Unexpected competition risks
- Repeated non-compliance
- Insufficient monitoring data

Stop rules strengthen legitimacy and prevent arbitrariness.

6.7 Rapid Coordination Mechanisms

When multiple agencies are involved:

- Technical working table (operational)
- Strategic decision committee
- Designated focal points with explicit mandate

This structure accelerates implementation while preserving clarity of authority.

6.8 Accelerating Without Losing Legitimacy: Communication and Transparency

To avoid perceptions of undue privilege or "hidden deregulation," authorities should:

- Publish objectives, duration, and safeguards from the outset
- Explain regulatory flexibility clearly
- Publish results even if unsuccessful Separate regulatory learning from vendor promotion

Transparency does not delay processes: it reduces friction, anticipates criticism, and accelerates the sustainability of the process. It also facilitates accountability and strengthens public trust in the responsible use of experimentation in the public sector.

Methodological Note 5. Responsible Acceleration of Implementation

Accelerating implementation means reducing coordination costs, standardizing instruments, and clarifying responsibilities, without compromising safeguards or the quality of evidence. From an ITU/OECD perspective, acceleration is compatible with good regulation when it preserves traceability between evidence and decision-making.

When applied together, the elements and approaches presented enable experimentation in the public sector to evolve from isolated exercises into a recurring mechanism for institutional learning. By standardizing instruments, clarifying roles, and ensuring traceability between evidence and regulatory decision-making, authorities can implement any of the selected mechanisms in an agile, legitimate, and proportionate manner. This strengthens regulatory capacity and consolidates a continuous learning infrastructure, aligned with the pace of technological innovation and with the principles of good regulation.

7 Conclusions

The present guide offers a conceptual and operational framework that allow the authorities to design, select, and implement experimentation spaces in a strategic, proportional, and evidence-based manner. In the face of accelerated innovation environments, experimentation should not be understood as an exceptional mechanism, but rather as a permanent learning infrastructure that allows regulators to reduce uncertainty, improve regulatory quality, and anticipate risks. This approach is applicable across contexts with well-established institutional capacities as well as those at early stages of development.

The decision matrix presented constitutes the methodological axis for aligning each figure with the type of uncertainty that is sought to be resolved. This approach avoids the indiscriminate use of the regulatory sandbox and promotes proportionality, ensuring that regulatory intervention is coherent with the level of risk, institutional capacity, and expected impact.

The guide also proposes a set of practical tools that facilitate the transition from strategic decision toward effective implementation: the experiment brief, the indicator matrix, the minimum governance agreements, and the final report template. These standardized tools reduce ambiguities, organize coordination among agencies, strengthen traceability between evidence and regulatory decision, and allow experimentation to become a repeatable, transparent, and auditable process.

Applied jointly, these tools allow experimentation in the public sector to evolve from isolated exercises toward a recurrent mechanism of institutional learning. Regulators may thus generate cumulative evidence, avoid reforms based on intuitions or external pressures, and move toward more adaptive, coherent, and legitimate regulatory frameworks. In this way, the public sector consolidates capacities to regulate better, protecting rights, promoting innovation, and strengthening public trust in the responsible use of emerging technologies.

Ultimately, experimentation in the public sector should be understood as a mechanism to enhance the quality of public decision-making through the generation of evidence, thereby strengthening institutional capacity to respond in a proportional, adaptive, and sustainable manner to the challenges of technological innovation.

Annex: Integrated Example: Designing and Documenting an Experimentation Space in the Telecommunications Public Sector

Methodological Note

This illustrative example demonstrates sequential application of Chapter 6 tools. It is not country-specific but reinforces traceability between problem, evidence, and decision.

Reference Case

Experimental Use of Private 5G Networks in a Port Environment

A. Experiment Brief

1. **Regulatory Problem**

   Uncertainty regarding authorization of private 5G networks without harmful interference to public networks or inefficient spectrum use.

2. **Verifiable Regulatory Question**

   Is it possible to authorize private 5G networks in a port environment, under specific safeguards, without affecting public networks or spectrum policy objectives?

3. **Selected Instrument**

   Regulatory sandbox with technical components.

4. **Scope**

   - Delimited geographic area
   - Internal industrial use only

     No public service provision

5. **Duration**

   6 months (mid-term evaluation at 3 months)

6. **Expected Final Product**

   Regulatory recommendation regarding authorization schemes and technical conditions.

B. Indicator Matrix

Type	Indicator	Timing	Source	Alert Threshold	Associated Decision
Technical	Interference level	During	Spectrum monitoring unit	Exceeds defined limits	Activate stop rule
Technical	Compliance with power parameters	During	Operator/ Regulator	Repeated non-compliance	Suspend or modify
Regulatory	Sandbox condition compliance	During	Lead authority	Material breach	Adjust or close
Risk	Impact on public networks	During	Regulator/ operators	Evidence of impact	Immediate interruption
Evaluative	Adequacy of legal framework	Ex post	Legal team	N/A	Scale, adjust, or maintain

C. Governance Agreement

- Lead authority: National telecommunications regulator
- Involved entities: Spectrum authority, port authority, monitoring unit
- Technical working table (biweekly)
- Decision committee
- Stop rules: serious interference, repeated non-compliance, insufficient data

D. Final Public Report Structure

1. Description and justification
2. Methodology and limitations
3. Technical and regulatory findings
4. Identified risks and mitigation
5. Assessment of legal adequacy
6. Regulatory recommendations

Possible Outcome:

Creation of specific authorization regime for private 5G networks or reasoned decision not to amend existing regulation.

References

Arntzen, S., Wilcox, Z., Lee, N., Hadfield, C., & Rae, J. (2019, October). Testing innovation in the real world: Real-world testbeds. Nesta. https://media.nesta.org.uk/documents/Testing_innovation_in_the_real_world.pdf

De Nederlandsche Bank (DNB) y Netherlands Authority for the Financial Markets (AFM) (n.d.). AFM & DNB InnovationHub. Disponible en: https://www.afm.nl/en/sector/themas/digitalisering/innovationhub-afm-dnb

Canton of Zurich. (n.d.). *Innovation sandbox*. https://www.zh.ch/en/wirtschaft-arbeit/wirtschaftsstandort/innovation-sandbox.html

Digital Regulation Platform. (2021). *A case for ICT regulatory sandbox*. https://digitalregulation.org/a-case-for-ict-regulatory-sandbox/

Ford, C., & Ashkenazy, Q. (2024). The legal innovation sandbox. *The American Journal of Comparative Law, 72*(3), 557–600. https://doi.org/10.1093/ajcl/avae029

Gasser, U., & Mayer-Schönberger, V. (2024). On the shoulders of others: The importance of regulatory learning in the age of AI. *Virginia Journal of Law & Technology, 28*(1). https://static1.squarespace.com/static/5e793709295d7b60295b2d29/t/678a8a5f088d4e6288ea4353/1737132644184/28+Va.+J.L.+%26+Tech+1+%282025%29+Final

Gasser, U., & Palfrey, J. (2025). *Advanced introduction to law and digital technologies*. Edward Elgar Publishing.

Gen5 Digital. (n.d.). *G5 Accelerator*. https://gen5.digital

Gen5 Digital. (n.d.). *G5 and the digital transformation*. https://gen5.digital

Genicot, N., & Moraes Guimaraes, T. (2025). Exploring the boundaries of AI regulatory sandboxes under the AI Act: Flexibility and real-world testing. Cambridge Forum on AI: Law and Governance. https://www.cambridge.org/core/journals/cambridge-forum-on-ai-law-and-governance/article/exploring-the-boundaries-of-ai-regulatory-sandboxes-under-the-ai-act-flexibility-and-realworld-testing/33039F16B76448F0EA86699385FD799E

Genicot, N., & Moraes Guimaraes, T. (2025). Exploring the boundaries of AI regulatory sandboxes under the AI Act: Flexibility and real-world testing. Cambridge Forum on AI: Law and Governance, 1(e36), 1–17

Genus, A., & Stirling, A. (2018). Collingridge and the dilemma of control: Towards responsible and accountable innovation. *Research Policy, 47*(1), 61–69. https://doi.org/10.1016/j.respol.2017.09.012

Government of Canada. (n.d.). *What is regulatory experimentation?* GCcollab Wiki. https://wiki.gccollab.ca/What_is_Regulatory_Experimentation%3F

GSR – Global Symposium for Regulators. (2024). *Directrices de prácticas idóneas.*

GSR – Global Symposium for Regulators. (2025). *Directrices de prácticas óptimas.*

Gustetic, J., Teixeira, C., Carroll, B., Cheung, J., O'Malley, S., & Brewster, M. (2020). Policy prototyping for the future of work. Harvard Kennedy School Ash Center for Democratic Governance and Innovation & IDEO CoLab. https://ash.harvard.edu/wp-content/uploads/2024/02/colab-hks_5-6-2020_1_1.pd

Guston, D. H. (2014). *Governance of emerging technologies as a wicked problem*. Vanderbilt University. https://cdn.vanderbilt.edu/vu-wordpress-0/wp-content/uploads/sites/278/2020/12/19115820/Governance-of-Emerging-Technologies-as-a-Wicked-Problem.pdf

Guío, A. (2020) Modelo conceptual para el diseño de Regulatory Sandboxes & Beaches en IA. Corporación Andina de Fomento (CAF) y la Consejería Presidencial de Asuntos Económicos y Transformación Digital. https://dapre.presidencia.gov.co/AtencionCiudadana/DocumentosConsulta/consulta-200820-MODELO-CONCEPTUALDISENO-REGULATORY-SANBOXES-BEACHES-IA.pdf

Guío, A. (2024). *Regulatory sandboxes in developing economies: An innovative governance approach*. Santiago: ECLAC. LC/TS.2024/59. https://www.cepal.org/en/publications/80496-regulatory-sandboxes-developing-economies-innovative-governance-approach

Guío, A., & König, P. D. (2025). Regulatory sandboxes for AI in the majority world: A learning-centric approach to legal adaptation. *Cambridge Forum on AI: Law and Governance*. Cambridge University Press. https://www.cambridge.org/core/journals/cambridge-forum-on-ai-law-and-governance/article/regulatory-sandboxes-for-ai-in-the-majority-world-a-learningcentric-approach-to-legal-adaptation/2352427E99FCEA2B34F4B8DB1DC18095

Guío, A., & Marco, F. (2024). *Quantum sandboxes for the majority world*. T20 South Africa Policy Brief. https://t20southafrica.org/wp-content/uploads/2025/11/T20_TF2_SB3_PB9_QuantumSandboxes.pdf

Harvard University Information Technology (HUIT). (n.d.). AI Sandbox. Harvard University. https://www.huit.harvard.edu/ai-sandbox

International Telecommunication Union. (2023). *Global digital regulatory outlook 2023*. ITU. https://www.itu.int/pub/D-PREF-BB.REG_OUT01

International Telecommunication Union. (n.d.). *Best practices for regulatory and market environment*. https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/bestpractices.aspx

International Telecommunication Union. (n.d.). *Global ICT Regulatory Outlook series*. https://www.itu.int

Kalkar, U., Saxena, S., & Verhulst, S. (2023). Data sandboxes primer. Open Data Policy Lab. https://incubator.opendatapolicylab.org/files/DataSandboxesPrimer.pdf

Lawrence Berkeley National Laboratory. (n.d.). *Sandbox navigator*. https://sandbox-navigator.lbl.gov/sandbox

Lyman, M. (2025, September 12). Salesforce sandbox types: Complete environment guide. Flosum. https://www.flosum.com/blog/salesforce-sandbox-environment-types

Madiega, T., & Van De Pol, A. L. (2022). Artificial intelligence act and regulatory sandboxes. European Parliamentary Research Service (EPRS), PE 733.544. https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI(2022)733544_EN.pdf

Maor, M. Towards a minimal definition of policy innovation labs. Policy Sci 59, 225–244 (2026). https://doi.org/10.1007/s11077-026-09605-z

Novotny, T. E. (2018). Governance of responsible science and innovation. *Journal of Responsible Innovation, 5*(1), 1–5. https://philpapers.org/rec/NOVGRS

Organisation for Economic Co-operation and Development. (2023). *Digital government review of Latin America and the Caribbean.* OECD Publishing.

Ries, E. (2013). Why the lean start-up changes everything. *Harvard Business Review.* https://hbr.org/2013/09/building-a-minimum-viable-prod

Sarewitz, D., & Pielke, R. A. Jr. (2018). The neglected heart of science policy: Reconciling supply of and demand for science. *Issues in Science and Technology, 34*(4), 68–75. https://doi.org/10.1080/23299460.2018.1495033

Stanford Institute for Human-Centered Artificial Intelligence. (n.d.). *Top scholars call for evidence-based approach to AI policy.* https://hai.stanford.edu/news/top-scholars-call-for-evidence-based-approach-to-ai-policy

The Datasphere Initiative. (2025). *Sandboxes for AI*. https://www.thedatasphere.org/datasphere-publish/sandboxes-for-ai/

United Kingdom Financial Conduct Authority (FCA). (2015). Regulatory Sandbox. Discussion Paper. https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf

United Nations Secretary-General's Special Advocate for Inclusive Finance for Development (UNSGSA) Fintech Sub-Group on Regulatory Sandboxes. (2020). Briefing on regulatory sandboxes. https://www.unsgsa.org/sites/default/files/resources-files/2020-09/Fintech_Briefing_Paper_Regulatory_Sandboxes.pdf

Vogel, D. (2015, June). Regulatory excellence: The role of policy learning and reputation (Discussion Paper 06). Penn Program on Regulation, University of Pennsylvania. https://pennreg.org/regulatory-excellence/wp-content/uploads/sites/5/2023/01/vogel-ppr-bicregulatordiscussionpaper-06-2015.pdf

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