DESIGNING A SANDBOX

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A primer for designing a Regulatory Sandbox

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Methodology

Methods

A **three pronged** methodology to help **design the Regulatory Sandbox**

- **Legal Analysis**

  Activity: Examination of the existing legislative infrastructure that could support the establishment of a regulatory sandbox ecosystem in Karnataka. This included a detailed review of the Karnataka Innovation Authority Act, 2020, along with the subsequent Karnataka Innovation Authority Rules, 2020.

  Result: *The legal analysis of these instruments informed the development of a preliminary process framework for the sandbox. It also helped identify the government authorities, as well as new institutional teams, that would need to be engaged to operationalise and manage the sandbox effectively.*

- **Benchmarking Exercise**

  Activity: Desk research conducted to review existing literature on the design and implementation of regulatory sandboxes globally. This included examining sandbox practices across different geographies, as well as within India, and studying other innovation-testing mechanisms used by government bodies globally.

  Result: *The exercise helped identify key best practices that can inform the implementation of a regulatory sandbox in Karnataka, supporting both its smooth functioning and the development of appropriate guardrails to mitigate potential risks and harms arising from the sandbox framework.*

Methods

A **three pronged** methodology to help **design the Regulatory Sandbox**

- **Internal Coordination, Alignment and Discussions**

  Activity: Engaged closely with key government stakeholders from the Department of Electronics, Information Technology and Biotechnology, Government of Karnataka through **eight in-depth consultations** conducted over a six-month period.

  Result: *These engagements enabled the collaborative identification of priority areas, perceived implementation barriers, and regulatory considerations, drawing on stakeholders' institutional experience and domain expertise. The insights generated through this process directly informed the proposed design of the regulatory sandbox framework.*

Key Benchmark Cases

India Example: Reserve Bank of India

Insights on the operation of RBI's regulatory sandbox

While the Reserve Bank of India's Enabling Sandbox Framework is tailored to the fintech sector specifically, it offers valuable operational insights into how a Regulatory Sandbox can function.

List of excluded tech from sandbox

Insight: The RBI framework lists out entities and financial service products which are not suitable for testing within it's regulatory sandbox framework.

Takeaway: Defining clear boundaries on regulatory exemptions and eligible technologies for testing is essential to set firm criteria and mitigate critical risks and harms at the outset.

Mechanisms for inter-department coordination

Insight: While being sector specific, the RBI frameworks allows for inter-department coordination, through its Inter-Departmental Group on RS.

Takeaway: Inter-Departmental Group on RS, will oversee a comprehensive sandbox process from start to completion, allowing for smooth coordination across the relevant departments of the RBI.

Risk mitigation practices

Insight: With transparent and clear entry and exit criteria, liability for losses/harms rests solely with the sandbox participant, not the RBI.

Takeaway: Clear liability rules protect the regulator and push participants to manage risks upfront, reducing potential harm to consumers and the system.

Effective exit strategies

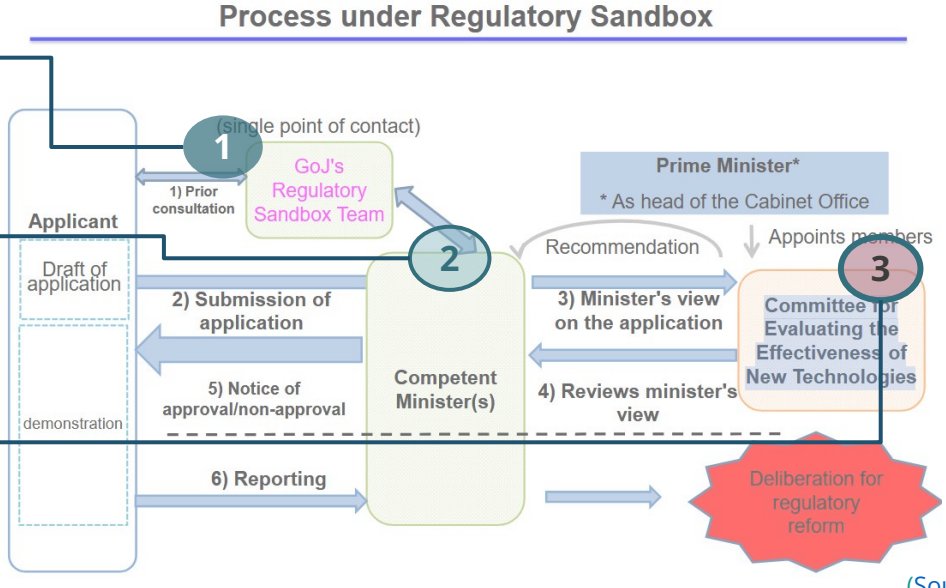
Insight: The RBI framework clearly lays down the exit strategies and options participants have on successful completion of the sandbox testing.

Takeaway: These strategies lay down a pathway for participants post the sandbox testing, allowing them to have clarity on the prospective approaches they can take post testing, incentivising participation.

Global Examples: Japan

Japan's **sector-agnostic** sandbox ecosystem

1. Applicant, in consultation with the GovT of Japan (GoJ) regulatory sandbox team applies for the regulatory sandbox
2. GoJ team **identifies relevant competent ministers** to assess the application
3. Further, the Committee for Evaluating the Effectiveness of New Technologies, appointed by the Prime Minister assesses the application



(Source)

Key takeaways

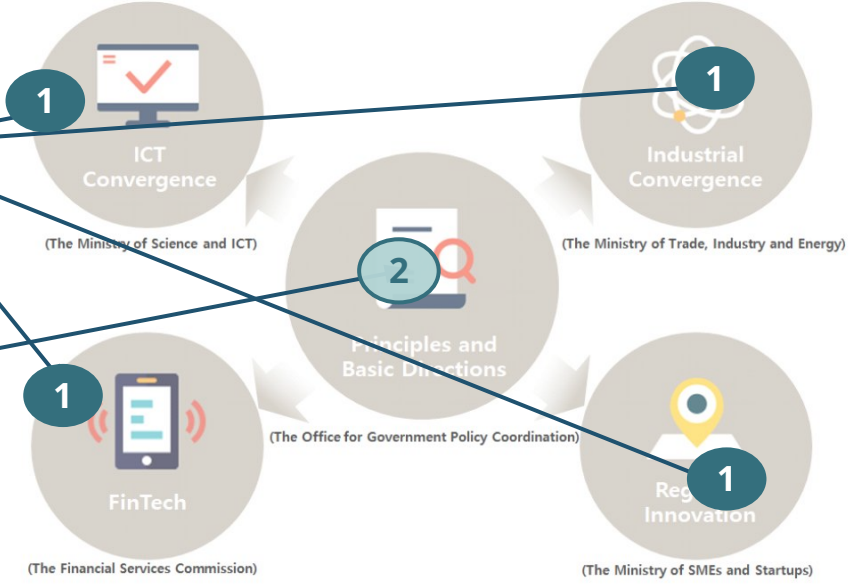
- Japan's sandbox blueprint is a **sector agnostic framework** for any applicant wanting to test novel technologies, similar to the Karnataka sector-agnostic framework
- To accommodate for different types of application, **the permanently housed team**, as per an application, **identifies relevant ministers of various departments,** similar to how the **Technical Secretariat** calls for **interdepartmental consultation**

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Global Examples: South Korea

South Korea's **sector specific, sandbox** ecosystem

1. South Korea's regulatory sandbox covers **four main sectors:** ICT convergence, industrial convergence, innovative finance, and regional innovation.
2. Even while each ministry leads its sectoral sandbox, **permanent coordination body-**the Office for Government Policy Coordination ensures inter-ministerial cooperation- **oversees the overall system.**



(Source)

Key takeaways

- South Korea approach to the sandbox ecosystem is **sector-specific** with multiple sandboxes being **run by relevant government departments**
- However, even in such a framework a **permanent coordination body** oversees the overall system and cooperation between departments, reiterating the **need for an independent body** to assess applications

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Global Examples

Non-sandbox approaches to testing new technologies

Autonomous Vehicle Testing Programme, California (USA)

- **Administered** by California Department of Motor Vehicles (DMV) and the California Public Utilities Commission (CPUC).
- **Formal regulation** passed by the California Legislature, **guides** the process and conditions under which the DMV and CUPC allows the testing of autonomous vehicles.

Zipline: Drone blood delivery in Africa

- Zipline has entered into a **partnership** with the Nigerian government.
- Partnership uses Zipline autonomous drone technology for delivering essential medical supplies and other goods in areas where healthcare is inaccessible.

Key takeaways

- While these approaches are innovative ways of testing novel technologies, they remain **technology** or **product/service specific**.
- Further, these models of testing new technologies are **different from a sandbox model** and more aligned to **regulatory frameworks for testing specific technologies** or **private partnership with the government.**

Findings

1. Principles of designing a Sector-Agnostic Sandbox
2. Best practices and Implementation strategies
3. Overview of Sandbox Process Design

Principles of designing a Sector Agnostic Sandbox

Foundational principles to consider in the design process of a sector-agnostic sandbox

Defined Regulatory Scope and Risk Guardrails

Clear boundary conditions and defined available legal exemptions ensure regulatory sandboxes enable safe and purposeful experimentation rather than uncontrolled regulatory bypass. They provide,

- Protection against unacceptable technological and societal risks.
- Clarity and predictability for innovators and regulators.
- Preventive guardrails against misuse of the sandbox ecosystem.

Institutional Coordination

Strong interdepartmental coordination ensures sector-agnostic sandboxes account for overlapping regulatory mandates and avoid fragmented decision-making. It ensures,

- Technologies are assessed through all relevant administrative and regulatory lenses.
- Prevents potential jurisdictional gaps or conflicts from oversight.
- Helps translate sandbox insights into aligned cross-government learnings.

Structured Outcome Oriented Testing Framework

A standardised proposal archetype ensures sandbox participation is structured, comparable, and aligned with clear objectives and accountability. It helps in,

- Clarifying purpose, scope, and expected outcomes of the proposed test.
- Ensuring consistent evaluation across applicants and reduces discretion.
- Strengthening risk management and monitoring through defined milestones and metrics.

Clear Transition Pathways

A sandbox testing framework should enable controlled market experimentation while ensuring clear pathways for extension, exit, or scale-up. It helps in,

- Ensuring participants have predictable routes for continuation, modification, or closure.
- Translating experimental results into regulatory insight and market readiness.

Best practices and implementation strategies (1/2)

Adaptation of principles into design considerations

Principle	Best Practices and Implementation Strategies	Source
Defined Regulatory Scope and Risk Guardrails	Define: • Clear eligibility criteria and types of technologies eligible for testing • Nature and extent of regulatory exemptions and waivers • Risk thresholds and mitigation plans • Non-negotiable compliance requirements	*"Enabling Framework for Regulatory Sandbox", RBI 2024* https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1262
Institutional Coordination	Set up a permanently housed coordination body to • Act as a single-window entry point • Assess and evaluate applications • Identify relevant government ministries or regulatory departments • Assign point of contact across the pre-identified departments	*Counsellor Secretariat of New Form of Capitalism Realization Headquarters Cabinet Secretariat, Government of Japan. 2023. "Japan's regulatory sandbox."* https://www.cas.go.jp/jp/seisaku/s-portal/pdf/underlyinglaw/Japans_Regulatory_Sandbox_presentation.pdf.

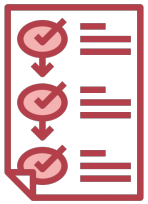
Best practices and implementation strategies (2/2)

Adaptation of principles into design considerations

Principle	Best Practices and Implementation Strategies	Source
Structured Outcome testing framework	Application process should follow a standardised proposal archetype requiring: • Clear problem statement and innovation statement • Defined scope and testing parameters • Implementation timelines and indicative budget • Key milestones and success metrics	*FinTech Center and Financial Supervisory Commision. 2021. "Regulatory Sandbox Guidance and Application Guidelines."* https://www.fsc.gov.tw/userfiles/file/Regulatory%20Sandbox%20Guidance%20and%20Application%20Guidelines.pdf.
Clear transition pathways	**Formal approvals:** Grant time-bound market access subject to exemptions/waivers, including mandatory partnerships wherever required. Lobbying opportunities: Facilitate engagement with nodal government departments through formal outreach channels.	"Digital Regulation Platform." n.d. https://digitalregulation.org/a-case-for-ict-regulatory-sandbox/.
	Extension of RS waivers Permit testing extensions wherever necessary for regulatory adjustments.	"A Few Thoughts on Regulatory Sandboxes - Stanford PACS." 2019. Stanford PACS. September 25, 2019. https://pacscenter.stanford.edu/a-few-thoughts-on-regulatory-sandboxes/.
	Lobbying opportunities Structured outreach programmes for participants, facilitating lobbying opportunities with nodal government departments.	"Banco Central Do Brasil." n.d. https://www.bcb.gov.br/en/financialstability/regulatorysandbox.

Overview of design of Sandbox Process

A **three-phase approach** in the design of the sandbox journey



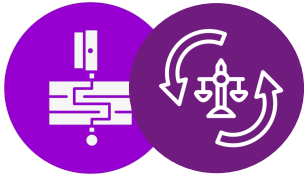
Phase I: Pre-Participation

- Application and eligibility screening
- Multi-stakeholder assessment of need and impact
- Regulatory leeway decision and setup



Phase II: Participation

- Sandbox is formally operationalised
- Participants are admitted and testing is conducted
- Ongoing oversight and compliance monitoring



Phase III: Post-Participation

- Sandbox testing concludes or is withdrawn
- Participants exit through defined pathways
- Regulatory learning feeds into policy change

This three-phase design has been **informed by the KIA Act and Rules.** Additionally, this is also informed by **other models of regulatory sandboxes** within India and globally.

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