

Sandbox.Rio – a regulatory test lab for urban experimentation

Region	Latin America and the Caribbean
Award Scheme	Shanghai Manual
Themes	Data-Driven Process and Management Urban Governance and Legal Frameworks
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable Goal 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Summary

Sandbox.Rio, launched in 2022, is Brazil’s first municipal regulatory test lab designed to bridge the gap between rapid technological innovation and outdated urban regulation. By granting temporary exemptions under close monitoring, it enables startups, research institutes and non-profits to test innovations that do not yet comply with existing laws, providing data to inform future regulation. Early pilots include drone-based beverage delivery with Ambev and SpeedBird Aero, EV charging infrastructure with EZVolt, teleoperated ground drones for short-distance deliveries, micromobility trials with Whoosh, and a favela logistics model to improve last-mile access and inclusion. These initiatives test new technologies while generating insights into safety, environmental impact and community acceptance. The sandbox allows Rio’s government to collect empirical evidence, reduce regulatory uncertainty and strengthen cross-sector collaboration. It transforms regulation from a static process into a dynamic governance tool that learns and adapts through experimentation. By lowering barriers to entry for innovators and enhancing policymaking agility, Sandbox.Rio positions the city as a living urban laboratory for sustainable and inclusive innovation creating a framework that can guide other cities seeking to integrate emerging technologies while safeguarding social, environmental and regulatory integrity.

Background and Objective

Rio de Janeiro faces complex urban challenges, from congestion and inequality to fragmented regulation that hinders innovation. New technologies such as drones, e-mobility and smart infrastructure often develop faster than laws can adapt, limiting experimentation and slowing investment. Sandbox.Rio was established to address these constraints by creating a safe, legal environment for testing unregulated solutions. The objective is to modernize urban regulation, encourage innovation, and collect evidence for policy decisions before permanent adoption. By combining flexibility with oversight, it seeks to build a more responsive regulatory ecosystem that supports entrepreneurship, sustainability and efficient public service delivery.

Actions and Implementation

Inspired by models from the UK and Singapore, Sandbox.Rio was developed through workshops with legal experts, municipal departments and innovators to define priorities, governance and safeguards. Formalized by decree in 2022, it issued a public call for proposals across mobility, logistics, energy and smart city sectors. Selected projects received 12-month exemptions to operate under municipal supervision, producing data and regulatory impact reports. Early pilots included drone delivery, EV charging, teleoperated ground delivery and micromobility trials, each monitored for technical, safety and social outcomes. Results inform regulatory updates, ensuring innovations are tested safely and integrated into permanent policy frameworks.

Outcomes and Impacts

Espoo has transformed into a learning and data-driven city where digital tools, predictive modelling and co-creation inform daily governance. The integration of AI into social services improved early detection of vulnerable populations, while cross-sectoral data systems enhanced urban resilience and resource use. Pilot projects delivered measurable progress toward carbon neutrality and circular economy objectives. Staff training institutionalized systems thinking, creating a shared capacity for impact assessment and experimentation across departments. By connecting innovation ecosystems, local communities and private partners, Espoo strengthened sustainability governance, improved service efficiency and positioned itself as a European model for inclusive, data-informed urban transformation.

Sustainability and Scalability

Sustainability is built into Sandbox.Rio's operational design through continuous monitoring, evidence collection and integration into long-term urban strategies. Projects such as EV charging and drone logistics contribute to emissions reduction and efficiency improvements. The governance framework combining legal flexibility, technical oversight and public accountability ensures environmental, social and safety standards are upheld. The model's scalability lies in its adaptability: any city can replicate it by adjusting to local legal frameworks and urban priorities. Partnerships with national regulators and academia reinforce institutional learning, creating a scalable ecosystem for responsible innovation across Brazilian municipalities and beyond.

Gender and Social Inclusivity

Sandbox.Rio promotes inclusion by enabling experimentation in underserved areas and supporting social-impact projects such as Favela Delivery, which creates jobs and improves access in low-income communities. By including non-profits and universities alongside private firms, it ensures that social

innovation complements technological advancement. Transparent selection criteria, open calls and public reporting foster accountability and equal participation. The programme also incorporates accessibility and equity considerations into evaluation metrics, ensuring new technologies benefit diverse user groups. In doing so, Sandbox.Rio positions inclusion not as an outcome but as a core condition of innovation within Rio's evolving urban ecosystem.

Innovative Initiative

The initiative's innovation lies in transforming regulation into an active instrument of learning. Sandbox.Rio introduces adaptive policymaking that evolves alongside technology through real-world testing and evidence-based feedback loops. It bridges government, academia and private innovators under a controlled experimental regime, turning regulatory flexibility into a driver of sustainable innovation. By applying a sandbox model to the urban context traditionally limited to fintech it pioneers a governance mechanism suited for fast-changing cities. The programme institutionalizes experimentation, enabling regulators to anticipate disruption, co-design solutions with innovators and embed resilience into city management.

Resources devoted to delivery

The sandbox is managed by the Municipal Secretariat for Urban and Economic Development through the Undersecretariat for Regulation and the Business Environment. Resources include technical teams, legal advisors and partnerships with academic institutions and industry. Funding supports project evaluation, data collection and public communication. Private participants bear testing costs, while the municipality provides administrative and regulatory oversight. Collaboration with national agencies ensures alignment with aviation, energy and mobility regulations. The model minimizes public expenditure while maximizing learning, relying on in-kind technical contributions, research support and partnerships to sustain a low-cost but high-impact innovation ecosystem.

Conclusion

Sandbox.Rio exemplifies how cities can transform regulatory frameworks into engines of innovation and learning. By enabling temporary, supervised experimentation, Rio de Janeiro fosters collaboration between government, academia and business while gathering real-world evidence to guide policymaking. Early results show improved coordination, reduced risk for innovators and greater responsiveness in urban governance. The sandbox strengthens institutional capacity to manage emerging technologies responsibly, ensuring safety, inclusivity and sustainability. As an adaptive governance model, it offers a replicable path for cities seeking to align technological progress with public interest, shaping a new generation of evidence-based urban regulation.