Innovation Labs in South American Governments: Congruencies and Peculiarities

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ABSTRACT

This study aims to identify and characterize innovation laboratories in South American governments by employing a comprehensive and exploratory multiple-case study approach. Data were obtained from documentary and bibliographic sources, as well as through structured questionnaires containing both open and closed questions. The collected data were then classified using the content analysis technique. The findings revealed consistencies and peculiarities between the labs, corroborating the extant literature. Specifically, there is a greater prevalence of government labs with a focus on organizational aspects, particularly at the local and regional levels, compared to citizen-oriented labs. Furthermore, these labs primarily serve as educators (77.78%) and innovators/developers (72.22%), with an emphasis on improving services, administrative processes, concepts, and public policies. The presence of innovation labs can facilitate systemic changes within the public sector, enhancing its capacity to deliver efficient and effective solutions to complex problems. Lastly, the study provides an overview of its practical and academic implications, particularly when highlighting the concept of governmental innovation poverty. Additionally, the study acknowledges its inherent limitations and suggests potential avenues for future research.

INTRODUCTION

Governments employ public innovation to swiftly and efficiently address intricate transformations, thus aiming to streamline public administration processes and alleviate skepticism toward traditional bureaucratic structures (Cavalcante, 2021). According to Cinar et al. (2022), innovation in the public sector entails embracing, generating, and advancing novel or substantially improved ideas, objects, and methodologies that offer solutions to complex problems.

In the context of public sector innovation, increasing emphasis has been placed on creating favorable environments in which to foster experimentation and collaborative co-creation, paying particular attention to open government and collaborative innovation (Väyrynen et al., 2023). Among these environments, government innovation labs are particularly noteworthy (Acevedo & Dassen, 2016; Lauriano & Ferreira, 2022; Lewis et al., 2020; Sano, 2020; Silva-Junior et al., 2021). These labs are defined as public spaces or organizations that embrace social participation and collaboration, with the aim of promoting innovative ideas, tools, and methodologies for public management, ultimately facilitating service delivery and social oversights (Law no. 14,129, 2021).

The establishment of innovation labs in South American governments has consistently risen, especially in the last five years, as observed by Sano (2020). These entities serve as platforms for developing diverse alternatives that equip the state apparatus and its personnel with the necessary tools and knowledge to tackle complex challenges in public administration. Additionally, they promote the integration and effective utilization of information technologies in management practices (Galhardo, 2019). Furthermore, their objective is to cultivate an innovation-oriented culture within the public sector and streamline processes, thereby enabling government actions to become more adaptable, agile, and responsive, resulting in improved effectiveness in addressing issues in the public domain (Ferreira & Botero, 2020).

Several studies have explored innovation labs in South America. However, it is worth noting that a considerable number of these studies are predominantly limited to technical reports, thereby lacking a comprehensive overview of this phenomenon, specifically regarding its distinct attributes in the context of emerging countries (Sano, 2020). Hence, it is imperative to address existing research gaps by extensively characterizing these environments. This approach will give the literature a more comprehensive understanding thereof and facilitate the generation of new insights.

This research aims to investigate government innovation laboratories in developing nations, with a particular focus on South America. The study endeavors to address the following questions: What empirical evidence exists on this subject? What are the main characteristics of these environments? What are the congruencies and peculiarities of these laboratories?

Furthermore, the article aims to examine and describe government innovation labs in South America, aiming to identify both commonalities and distinctive features among the identified laboratories. This research holds international significance in light of the ongoing technological and political transformations taking place in South America. Moreover, these changes are further amplified by the emergence of new citizen demands, which exert pressure on governments to devise strategies for modernization, transparency, and openness. Such strategies necessitate a high degree of innovation (Acevedo & Dassen, 2016; Ferreira & Botero, 2020; Silva-Junior et al., 2022).

South American governments face a multitude of challenges, including the expanding role of the state within society, resource constraints, and the erosion of public organizations' credibility in promoting collective welfare. These challenges underscore a need to foster a culture of innovation within the public sector. Consequently, there is growing recognition of the significance of establishing new innovation laboratories and teams at the local, regional, and national levels of government, as emphasized by Cole (2022) and Osorio et al. (2020).

The importance and necessity of examining innovation laboratories should be acknowledged, particularly due to the scarcity of available studies in the academic literature. The majority of existing reports is primarily technical and originates from international organizations such as the Inter-American Development Bank (IDB) and the National Endowment for Science, Technology and the Arts (NESTA). Furthermore, there is a scarcity of scientific research conducted by South American scholars on this subject. It is also noteworthy that most investigations on laboratories are carried out in developed nations, underscoring the need for more comprehensive investigations into this area within emerging countries (Emmendoerfer, 2020). This is of particular significance when taking into account the institutional, social, economic, and political factors that shape the innovation landscape in these regions.

INNOVATION IN THE PUBLIC SECTOR

The field of public sector innovation has garnered considerable interest at both the national and international levels. This increased attention can be attributed to

politicians' inclination to modernize public institutions to effectively address the intricate difficulties that have long plagued conventional bureaucratic frameworks (Emmendoerfer, 2019). According to Cavalcante and Cunha (2017), these challenges stem from diverse realms encompassing economics, politics, society, organizations, and technology. Moreover, the interconnected and globalized nature of our world has further intensified these challenges, as evolving citizen expectations and financial limitations have necessitated tighter budgets for public organizations.

As a result of governmental endeavors to improve effectiveness and public service provision, innovation can be defined as the continuous development and implementation of organizational enhancements in the form of new products, processes, and services that are considered novel by an individual or another adopting entity (Vries et al., 2016). According to Sørensen and Torfing (2022), innovation also entails reshaping the beliefs and culture of public institutions through the integration of fresh knowledge, norms, organizational structures, and procedural capabilities.

Innovative practices can be classified based on their nature, which may encompass administrative processes, technological processes, products or services, governance strategies, new concepts and visions, and public policies (Bekkers et al., 2011; Bloch, 2011; Isidro, 2018; Sano, 2020; Vries et al., 2016), as presented in Table 1.

Table 1. Public sector innovation classification.

Innovation type	Description
Administrative processes	Creation of new organizational forms, as well as the introduction of new administrative, management, and work methods significantly different from existing ones (Bloch, 2011; Isidro, 2018).
Conceptual	Development of new concepts, new worldviews, frames of reference, and new paradigms that question previous conceptions, reframing specific problems and addressing possible solutions for the public sector context (Bekkers et al., 2011; Isidro, 2018).
Governance	Introducing novel forms and procedures of interaction and collaboration with stakeholders in decision-making can occur within or beyond an organization, encompassing relationships with other public institutions, constituents, non-governmental organizations, and the private sector, with the purpose of tackling specific societal issues (Sano, 2020).
Public policies	Changes in public policies, and may also result from conceptual innovations (Sano, 2020).
Products or services	Introducing a new or significantly improved service or product compared to the organization's existing services and goods, resulting in new forms of access and delivery (Bloch, 2011).
Technological processes	Creating new technologies to assist in delivering services to users, citizens, and government activities (Vries et al., 2016).

Note. Source: Adapted from Sano (2020).

A wide range of innovative practices can be identified within the public sector, encompassing multiple dimensions of public organizations. This has resulted in the establishment of specialized laboratories dedicated to distinct approaches to innovation in democratic nations; for example, some innovation laboratories focus on public policies (Kim et al., 2022). These innovative practices span across various areas, including internal administrative and technological processes, as well as external methods pertaining to governance, service delivery, and the formulation of public policies.

In addition to these categories, innovation laboratories, including those within government sectors, can foster territorial and marketing innovations. These particular forms of innovation often involve cross-sectoral approaches, such as in the creative economy and tourism realms (Emmendoerfer, 2023; Emmendoerfer et al., 2023). However, due to the focus of this article, these specific approaches will not be further examined.

In order to enhance the performance of the public sector, it is essential to integrate innovation into the daily operations of public organizations. By collaborating with citizens and non-governmental organizations (both from the private and third sectors), a more efficient, legitimate, and respected public sector can be established, thereby increasing trust and credibility in the government (Isidro, 2018). Furthermore, by monitoring and addressing local needs using available resources and technology, the effectiveness of public services can be improved while simultaneously reducing costs (Queyroi et al., 2022).

Borins (2006) identifies five essential elements for attaining successful innovation in the public sector: adopting a systemic approach, leveraging information technology, enhancing process efficiencies, fostering collaboration with both private organizations and volunteers, and empowering communities, citizens, and employees. To summarize, adopting a systemic approach entails the promotion of collaboration and knowledge sharing among various actors and organizations within the public sector, thereby establishing innovation as a public value and priority. This approach can yield improved outcomes and facilitate the delivery of more efficient and effective services (Isidro, 2018).

By incorporating feedback mechanisms, web analytics, and extensive analysis of big data, information technology assumes a pivotal role in facilitating the implementation of innovative management systems and processes. Such advancements are essential in enhancing the efficiency and effectiveness of public services and policies, improving organizational workflows, and generating substantial public value (Fuglsang et al.,

2022). Moreover, the engagement of private organizations and the empowerment of citizens are fundamental elements of open and collaborative innovation approaches fostering the creation of new capabilities through co-creation. This approach dismantles organizational barriers and fosters the formation of alliances to tackle complex challenges (Gesierich, 2023), in addition to perceiving public issues from citizens' perspective and empowering them to contribute to the development of more efficient solutions to the problems they encounter.

To incorporate innovation into the realm of public administration, a collaborative and participatory approach involving private organizations and civil society has been deemed essential. As a result, government-led innovation labs have emerged, and their significance will be explored in next section.

Innovation labs within governments

The concept of innovation laboratories has garnered significant attention in recent years. Similar movements were observed during the restructuring process of the US government in the 1990s, as highlighted by Tõnurist et al. (2017). Such innovation labs have gained significance in political agendas both at a global level and specifically in Latin America due to their dynamic nature and ability to effectively handle risks, as emphasized by Acevedo and Dassen (2016). According to Silva-Junior et al. (2021), this increased attention is primarily driven by their integration within traditional bureaucratic public sector organizations, where implementing policy changes involves substantial risks and challenges.

Laboratories display diverse configurations, with each unit showcasing distinct attributes tailored to its specific context. These variations encompass methodologies, institutional structures, personnel, project categories, and levels of independence. Furthermore, region-specific institutional and organizational factors further influence their ability to cultivate innovation capacities (Schiuma & Santarsiero, 2023) and achieve favorable results (Ferrarezi et al., 2018).

Accordingly, Feitoza (2018) states that the terminologies used to describe innovation laboratories in the public sector can differ or even be used interchangeably. Indeed, Emmendoerfer (2020) clarifies that these labs may be referred to as living labs or bear specific designations based on their origins or areas of emphasis. McGann et al. (2018) further classify labs as public sector innovation, government innovation, social innovation, public and social innovation, and change, policy, design, citizenship, and innovation teams.

The establishment of state-level laboratories occurred in response to the limitations of conventional approaches to policy-making and the design of public services (McGann et al., 2018). According to Tõnurist et al. (2017), the public sector has six contextual characteristics that can lead to the creation of innovation labs. These include the complexity of the external environment, advancements in technology, competition between traditional and emerging structures, emulation, and the consolidation of expertise and learning. These factors are integral to the promotion of innovation in the public sector, which is widely recognized as a crucial imperative for organizations (Emmendoerfer, 2019; 2022).

As per Sano (2020), government innovation laboratories are "collaborative spaces designed to foster creativity, experimentation, and innovation through the utilization of active methodologies and co-creation in problem solving" (Sano, 2020, p. 18). Karo and Kattel (2016) conclude that these laboratories are physically distinct from other public organizations but remain relatively similar. These labs present a fresh approach to boosting innovation capabilities and addressing specific obstacles to innovative practices, all while upholding traditional bureaucratic structures, regulations, and procedures.

According to Rodríguez and Grandinetti (2018), the Latin American public sector encompasses two types of innovation laboratories: government laboratories and citizen laboratories. Government laboratories, which we refer to as organizational laboratories, concentrate on internal processes and services delivered by public organizations. These laboratories serve as catalysts for innovation by leveraging the knowledge and expertise of public employees. On the other hand, citizen laboratories function as facilitators for developing cutting-edge solutions and provide an external perspective for experimentation. Consequently, laboratories established and connected to governments aim to foster social innovations through co-production. This entails citizens engaging in the development of experiments and prototypes to enhance civic participation and generate solutions for various societal problems and challenges (Araújo et al., 2021).

Based on the model proposed by Emmendoerfer, Olavo et al. (2022) and Rojas-Martín and Stan (2018) as cited in Rodríguez and Grandinetti (2018), Figure 1 presents a comprehensive overview of the key characteristics of government innovation labs. These labs are classified into two types: organizational labs and citizen labs. This categorization was selected as part of the research methodology, which examines the public agencies that establish government labs with diverse orientations based on the government's chosen approach.
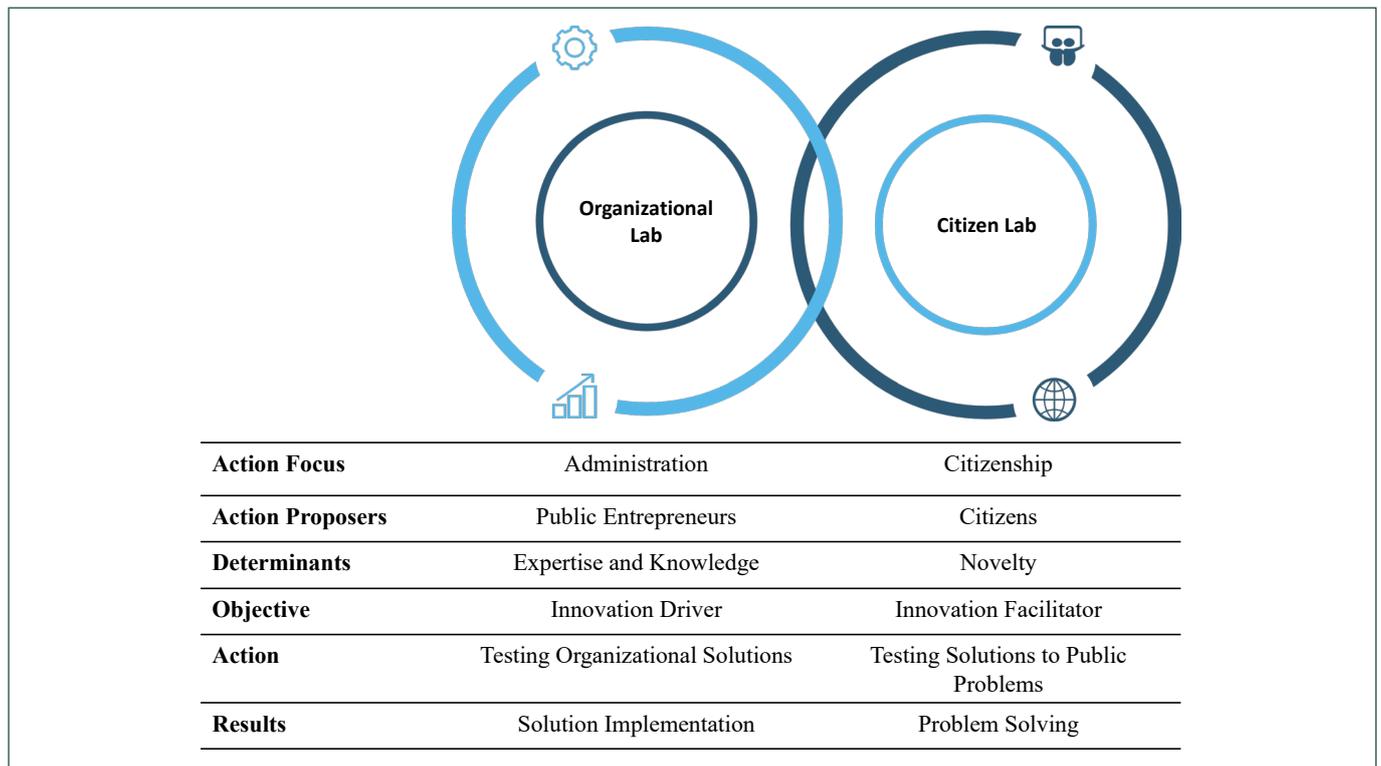
Figure 1. Action dynamics of government innovation labs.
Source: Emmendoerfer et al. (2022), Rojas-Martín and Stan (2018) as cited Rodríguez and Grandinetti (2018).

Based on Figure 1, we can infer that organizational laboratories serve as experimental environments for state initiatives, implementing new management approaches, improving public services and policies, and influencing individual and collective behavior (Emmendoerfer et al., 2022). On the other hand, citizen labs are described as spaces that prioritize experimentation and propose alternative forms of participation. Through collaborative work, they integrate and support citizens' projects and initiatives in the pursuit of innovative solutions (Canzani et al., 2019). It is important to note that citizen and government innovation are not mutually exclusive concepts. An effective government innovation laboratory must thus operate harmoniously under both approaches to maximize its efficiency and achieve its desired outcomes (Rojas-Martín & Stan, 2018, as cited in Rodríguez & Grandinetti, 2018).

As indicated by Acevedo and Dassen (2016), government innovation laboratories (both organizational and citizen) are designed to achieve seven primary goals. These objectives encompass the creation of an innovative environment in public administration, the development of specific innovations, the integration of technologies into public administration, the modernization of administrative processes, the establishment of novel mechanisms for citizen participation, the introduction of innovative communication methods in public administration, and the promotion of public data transparency. Considering these objectives, it is

crucial to adapt and modernize public organizations to address the multifaceted dynamics of technology, culture, economy, and politics. This necessitates the implementation of innovative elements and practices to transform government operations.

Government innovation labs can be classified based on their objectives and action dynamics. According to Puttick et al. (2014) and Sano (2020), these objectives can be grouped into four categories: (1) Innovation Developers and Creators; (2) Facilitators; (3) Educators; and (4) Architects (Figure 2).

Evidence suggests that innovation laboratories have the capacity to generate and cultivate innovative solutions within the public sector. Labs stimulate public servants' creativity, enabling them to propose projects encompassing various technological and non-technological domains to effectively address the intricate issues prevalent in the public domain. Moreover, these laboratories have the potential to engage and guide private stakeholders and citizens in the generation of collaborative ideas, which public organizations can subsequently develop and implement. Cooperation and networking serve as vital mechanisms for social participation and governance (Unceta et al., 2021).

Innovation labs play a pivotal role as educators in transforming prevailing paradigms in public policy development. Furthermore, they seek to address the limitations inherent in bureaucratic frameworks when navigating complex environmental shifts.
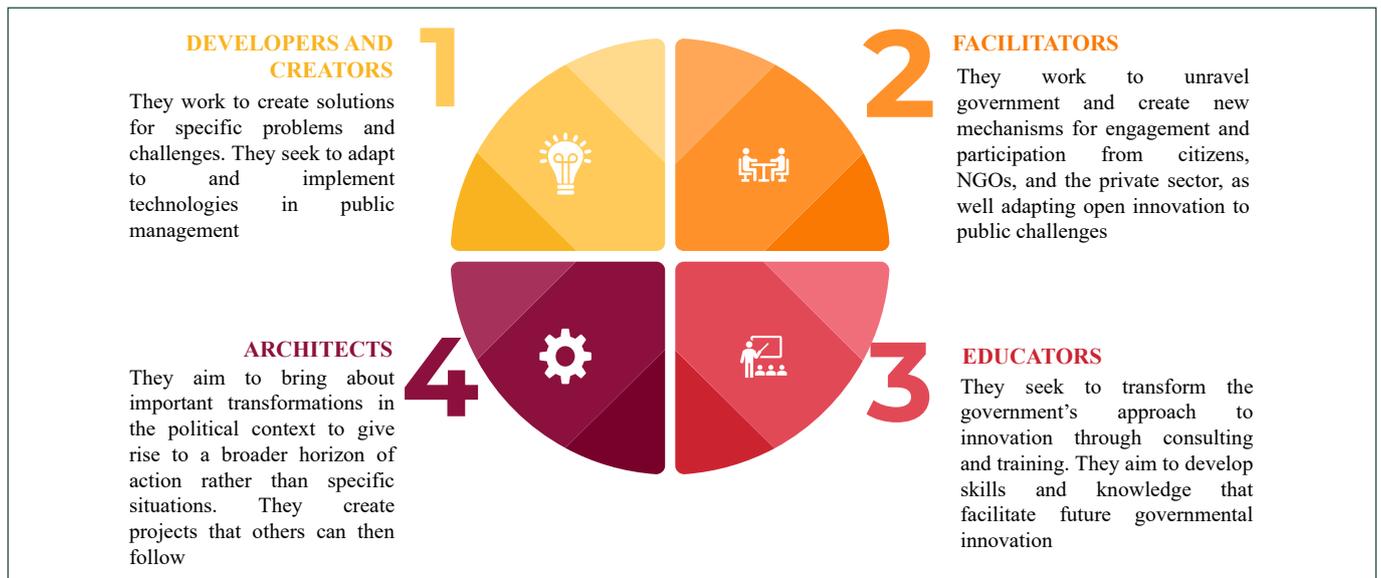
DEVELOPERS AND CREATORS

They work to create solutions for specific problems and challenges. They seek to adapt to and implement technologies in public management

1

2

FACILITATORS

They work to unravel government and create new mechanisms for engagement and participation from citizens, NGOs, and the private sector, as well adapting open innovation to public challenges

ARCHITECTS

They aim to bring about important transformations in the political context to give rise to a broader horizon of action rather than specific situations. They create projects that others can then follow

4

3

EDUCATORS

They seek to transform the government's approach to innovation through consulting and training. They aim to develop skills and knowledge that facilitate future governmental innovation

Figure 2. Innovation lab typologies regarding the objectives.
Source: Developed by the authors, based on Puttick et al. (2014).

Utilizing methodologies including design thinking, ethnographic design, agile methodologies, and behavioral and data sciences, these laboratories aim to cultivate and develop new mindsets and capabilities in public servants. This comprehensive approach facilitates a broader understanding of the context within which they operate, facilitating prompt and dynamic responses to environmental transformations (Acevedo & Dassen, 2016; Criado et al., 2021; Lewis et al., 2020).

Finally, laboratories can serve as catalysts, operating across extended timeframes and employing diverse methodologies, avoiding being confined to specific domains or scopes of operation such as healthcare, education, urban mobility, or management. Indeed, they strive to offer varied perspectives and approaches to innovation through coworking spaces, hackathons, hacker marathons, and technological gatherings, while providing guidance and advisory services to other startup laboratories (Puttick et al., 2014). Consequently, these actions cultivate an innovation culture within the public sector.

Often referred to as frontier spaces given their distinct characteristics and objectives, innovation labs facilitate the exploration of new ideas and approaches by public organizations, allowing for small-scale experimentation and the use of trial-and-error methods. Through collaboration, innovation labs aim to generate innovative solutions to public challenges. The primary objective of these labs is to validate and refine ideas, thereby enhancing the effectiveness of the innovation process and establishing the legitimacy of government interventions in complex situations (Long, 2020).

In relation to current knowledge, research exploring the main drivers and impacts of innovation labs has been limited (Criado et al., 2021; Sano, 2020). Nevertheless, notable instances of successful innovation labs can be found in Brazil and Chile. For example, São Paulo's (011).Lab has made significant strides in streamlining and digitalizing municipal services, while fostering an innovative culture through various events and knowledge sharing among staff members (011.Lab, 2022b). Similarly, Chile's *Laboratorio de Gobierno* promotes and advances innovation by challenging established paradigms and instilling a culture of innovation (Valdivia & Ramírez-Alujas, 2017).

Several Latin American studies have underscored laboratories' significance in addressing public challenges. These labs function as collaborative arenas for governance, bridging the gap between governments and citizens (Ferreira & Botero, 2020). Additionally, they can manage public sector data and monitor innovation ecosystems, thereby promoting transparent and effective communication (Zurbriggen & Lago, 2019). Moreover, these laboratories act as intermediary hubs for innovation, facilitating a better comprehension of public issues and enabling the adjustment of operational regulations and service dynamics within the public sector (Criado et al., 2021; Lauriano & Ferreira, 2022; Osorio et al., 2020).

Considering the diverse aspects and potentialities of South American government innovation labs, it is essential to comprehend their structure to generate knowledge in this field. Such an understanding will facilitate the establishment of fresh arenas for experimentation, transformation, and knowledge acquisition within the public sector. Hence, it is vital to explore and examine the arrangements of these laboratories in order to fully harness their potential in this field.

RESEARCH METHODS

In order to investigate and define innovation labs in South American governments, we employed a research methodology combining the exploratory and descriptive approaches. This research strategy involved the utilization of multiple case studies, each of which was carefully and independently selected to facilitate the identification of commonalities, as well as distinctive characteristics and peculiarities. Moreover, the cases were considered to be integral components of a broader system, allowing for a comprehensive understanding of the subject (Yin, 2017); Yin states that this particular approach to case study research is beneficial when the researcher has limited control over events and when the focus is on contemporary phenomena situated within their authentic context.

Data collection for this article involved a combination of open and closed questionnaires, as well as documentary and bibliographic materials from both primary and secondary sources. It is noteworthy that all research resources utilized were in their original language (Portuguese) and adhered to open science principles. These resources can be accessed and retrieved from the publicly available Zenodo repository. Extensive research was conducted through the examination of various publicly accessible resources, including books, scientific articles, regulations, legislation, and decrees. These materials were obtained from institutional websites of diverse laboratories, official social media platforms such as Facebook, Instagram, Twitter, and LinkedIn, as well as reputable scientific databases like Google Scholar. The utilization of these sources thus played a pivotal role in accomplishing this study's research objective.

To compile information on innovation laboratories and practices in the public sector, three databases were employed. The initial database is the *Ciudadana* Innovation project (https://www.innovacionciudadana.org/en/), supported by the Ibero-American General Secretariat (SEGIB). This project aims to facilitate citizen innovation and foster social transformation, democratic governance, and social, cultural, and economic development in Ibero-American countries. The second database, as provided by the Apolitical Association (https://apolitical.co/government-innovation-lab-directory/), is a non-profit organization dedicated to promoting political leadership and enhancing government efficiency. It offers a comprehensive survey of government innovation laboratories worldwide, providing valuable insights and resources around the globe.

The authors also consulted Latinno, a respected database that documents innovative citizen participation and democratic practices within Latin America. Furthermore, they conducted an extensive review of the existing literature to identify evidence of public sector innovation labs, both within and beyond Latin America. This research aimed to uncover fresh insights that were not yet available in the databases, as well as to validate the evidence already obtained. The searches were carried out from March to December 2021, leading to the identification of 23 active government innovation labs in South America. Here, it is important to note that our decision to focus on South America in this research was driven by the nascent nature of the field and the limited availability of data in Central American countries. However, we should acknowledge that this choice may affect the representativeness of studies on Latin America, as evidence from government innovation labs is predominantly concentrated in Mexico, which is a Latin American country located in the northern hemisphere.

Moreover, we must emphasize that this research exclusively focuses on government innovation laboratories that are implemented and affiliated with the executive branch, encompassing secretariats, agencies, and direct public administration at the local, regional, and national levels. The deliberate selection of such entities, which are characterized by their similar institutional dimensions, ensures enhanced comparability across cases. It should be noted, however, that government innovation labs have also been identified in the legislative and judiciary branches, as well as within educational institutions (Sano, 2020).

After mapping and identifying 23 laboratories, we distributed structured online questionnaires using the Google Forms platform. The questionnaires were designed to validate the gathered information and collect new data for analysis. They were based on theoretical categories related to innovation in the public sector and the characterization of government innovation laboratories, as discussed in the literature review. This second step yielded responses from 22 participants working in 18 innovation laboratories in South American governments, as illustrated in Table 2. The questionnaire comprised 41 open and closed questions, with Part II specifically tailored for this research. It is important to note that the questionnaire was administered only after obtaining approval from the Research Ethics Committee.

Table 2. Research participant codes.

Research participant code (RPn)	Country	Innovation laboratory
RP1	Brazil	(011).Lab — Government Innovation Lab of the City of São Paulo
RP2	Brazil	LA-BORA!gov — Laboratory for Innovative Management of the Secretariat for Personnel Management and Performance at the Ministry of Economy
RP3	Argentina	LabBahia — Government Laboratory for Citizen Participation and Democratic Innovation
RP4	Uruguay	MvdLab — Montevideo Citizen Innovation Lab
RP5		
RP6	Brazil	GNova — Brazilian Federal Government Innovation Lab
RP7		
RP8	Brazil	Lab.MG — Government Innovation Lab of Minas Gerais
RP9		
RP10		
RP11	Brazil	PequiLab — Government Innovation Laboratory of Goiás
RP12	Brazil	LAB.ges — Innovation Laboratory in Management of the Espírito Santo Government
RP13	Chile	*Laboratorio de Gobierno* — Chilean State Government Laboratory
RP14	Argentina	NQNLab — Neuquén Citizen Innovation Laboratory
RP15	Brazil	CEMICAP — Municipal Innovation and Capacity Building Center of Arcos
RP16	Colombia	LabTeusaquillo — Teusaquillo Innovation Lab
RP17	Brazil	LABNit — Innovation Lab of the Niterói Municipality
RP18	Colombia	*EiP* — Colombia Public Innovation Team
RP19	Brazil	Nidus — Innovation Lab of the Santa Catarina Government
RP20	Colombia	iBO — Bogota Public Innovation Lab
RP21	Brazil	Íris — Innovation and Data Laboratory of the Government of Ceará
RP22	Colombia	SubaLab — Innovation Laboratory of the Suba District

Note. Developed by the authors.

The empirical material obtained from primary and secondary sources was analyzed using the content analysis technique. Our aim was to categorize the material and determine the frequency of specific themes, thereby characterizing the phenomenon under investigation and validating knowledge construction. To operationalize the analysis, we compared the data collected from questionnaires and the documentary data identified, along with the authors' perspectives. The analysis findings provided insights into the functioning of government laboratories in their respective areas. In order to gain a comprehensive understanding and characterization of these laboratories, the dimensions and categories presented in Table 3 were considered.

Table 3. Dimension analysis and characterization of government innovation labs.

Dimensions	Categories	Objectives
Institutional ties	Type of public sector organization	Understand the institutional dimension of the laboratories and the public sector body to which it is attached.
Action dynamics (orientation)	Organizational citizen	Understand how laboratories are defined by the agencies and the people in them and their focus/scope (internal and external).
Laboratory characterization	Innovation developer and creator Facilitator Educator Architect	Understand laboratories' main functions/dimensions, seeking to identify their purpose for the public sector.
Types of innovation projects	Administrative processes Technological processes Services Governance Conceptual Public policies	Understand the types of innovation projects the labs develop to understand their scope.

Note. Developed by comparing the literature review and empirical material data.

The information was compiled and outcomes were identified in accordance with the aforementioned categories. In Results and Discussions section, the government innovation labs were recognized and delineated. Consistencies and distinctive features were corroborated and elucidated through textual descriptions and visual aids like figures and tables. Subsequently, these discoveries were examined in relation to other relevant research in the field, as expounded upon in the literature review section of this article.

RESULTS AND DISCUSSIONS

In addressing the questions forming part of this study's objectives, this section unveils the empirical proof regarding innovation labs in South American government entities. Consequently, the fundamental characteristics of these labs were ascertained, duly

considering both their shared attributes and distinctive traits.

Mapping innovation labs in South American governments

Through exploratory research, 23 innovation labs were identified in South American governments, as depicted in Figure 3. This task involved a documental analysis using information gleaned from the respective labs' websites and social media profiles.

Upon analyzing Figure 3, it becomes evident that Brazil, Colombia, and Argentina possess the greatest concentration of innovation laboratories within their respective governmental structures. In contrast, no laboratories were identified in Bolivia, Ecuador, Guyana, French Guiana, Paraguay, Suriname, and Venezuela. To offer a comprehensive view of their distribution across South America, Table 4 presents the aggregate count of laboratories operating within each country and at each government level.

Figure 3. Mapping innovation labs in South American governments.
Source: Research data.

Table 4. Number of South American government innovation labs.

Country	National/Federal		Provincial/State		Local/Municipal		Total	
	Number	%	Number	%	Number	%	Number	%
Brazil	2	8.70%	6	26.09%	3	13.04%	11	47.83%
Colombia	1	4.35%	1	4.35%	4	17.39%	6	26.09%
Argentina	-	-	1	4.35%	2	8.70%	3	13.04%
Chile	1	4.35%	-	-	-	-	1	4.35%
Uruguay	-	-	-	-	1	4.35%	1	4.35%
Peru	1	4.35%	-	-	-	-	1	4.35%
Total	5	21.74%	8	34.78%	10	43.48%	23	100%

Note. Research data.

In the governmental realm, the majority of laboratories are located at the sub-national level, with a particular focus on the local (municipal) level, accounting for around 43.5% of the total laboratories. This underscores South American local governments' commitment to deliver high-quality public services and improve the effectiveness of public institutions. Moreover, it fosters an environment of innovation by facilitating closer engagement with citizens' demands and requirements.

Innovation is a valid approach that can be used at different government levels and in varying contexts, creating opportunities for knowledge sharing and enhancing public administration. The data collected indicates that most innovation labs are situated in larger South American cities, especially in state or provincial capitals. These regions require complex public management that demands innovative thinking to tackle challenging issues and increase the state's ability to offer effective solutions (Tessarolo et al., 2021). Consequently, innovative practices in larger cities may encourage the establishment of similar labs in areas with fewer resources; for example, some of these labs aim to foster citizen participation, co-design public services, or test new technologies and their impact on wider society.

Regarding the establishment of laboratories over time (as illustrated in Figure 4), from 2017 onward there has been a noticeable upward trend in South America. This trend aligns with the expectations put forth by Acevedo and Dassen (2016), who anticipated a stimulus for the creation of laboratories. Such laboratories are regarded as instrumental tools for effectively modifying routines in the public sector, thereby enhancing the efficiency and agility of decision-making processes.
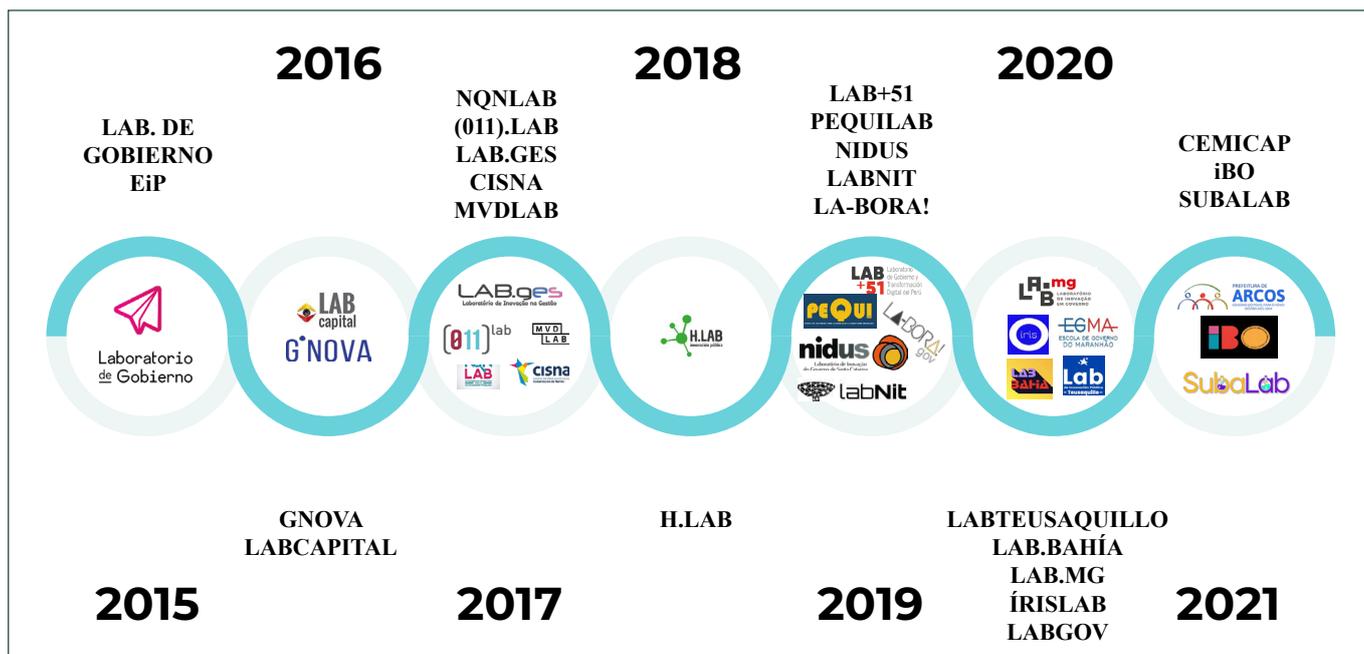

Figure 4. Timeline of government innovation lab establishment in South America.
Source: Research data.

In 2015, the establishment of Chile's *Laboratorio de Gobierno* and Colombia's *EiP* marked prominent milestones in the laboratory field. The Chilean laboratory was created with the explicit purpose of fostering innovative projects. This objective was pursued through the acquisition of knowledge, idea generation, prototyping, and testing, all while being guided by the design thinking principles applicable to public services (Isidro, 2018; Valdivia & Ramírez-Alujas, 2017). Indeed, its noteworthy achievements have sparked international interest. In contrast, *EiP* was founded to provide support for the experimental design of approaches and processes aimed at creating public policies that are effective, efficient, user-centered, and beneficial to the Colombian people (Christiansen & Landecker, n.d.).

In 2016, however, two more significant laboratories emerged: *Gnova* and *Labcapital*. *Gnova* was established in collaboration with *MindLab* from Denmark, a renowned global leader in public innovation labs, offering valuable technical support, guidance, and mentorship across various contexts. Indeed, *Labcapital* drew inspiration from *MindLab* and similar laboratories in Chile, Uruguay, and Mexico, serving as a platform for promoting public innovation in Bogotá and holding the distinction of being the first locally recognized laboratory in South America.

In 2017, five laboratories were founded, three of which stemmed from the *Innovación Ciudadana* initiative, a collaborative effort involving *SEGIB, Laboratorio de Aragón*, and *Medialab Prado*. The primary objective of these laboratories was to foster collaboration between public institutions and society in South America. In 2018, Argentina established a single laboratory at the municipal level. By 2019, five additional laboratories had been established, including two at the national level in Brazil and Peru, respectively, and three more in Brazil, consisting of two state-level laboratories and one municipal laboratory.

Between 2020 and 2021, eight laboratories were founded across South America, with five being established in 2020 and three in 2021. Among these, two laboratories were established at the municipal level in Argentina and Colombia, respectively, while the remaining six were either at the state or at municipal level in Brazil. Notably, this period coincided with the onset of the COVID-19 pandemic, leading to conjecture that the establishment of these laboratories was motivated by the need to address the intricate challenges arising from the global crisis (Emmendoerfer, 2020).

Hence, the purpose of this subsection was to introduce the innovation laboratories identified in South American governments, summarizing the evidence compiled in the course of this study. In next section, we delineate the laboratories corresponding to this research, elucidating their primary objectives, operational methods, and innovative strategies.

Characterization of research laboratories

Among the 23 laboratories situated in the South American region, 18 laboratories actively participated in the study. Unfortunately, five laboratories had to be excluded from the analysis due to a lack of communication. These laboratories include *LAB+51* (Peru), *Laboratório de Inovação em Governo do Estado do Maranhão* (LABGOV — Brazil), *CISNA* (Colombia), *H.LAB* (Argentina), and *LABCapital* (Colombia).

The findings were obtained through the administration of online surveys to employees, which were then cross-referenced with documentary data. This method was instrumental in confirming the accuracy of the information and offering valuable perspectives on the laboratories and their specific roles. The labs were categorized and subcategorized as indicated in Table 3, which was presented in the methodology section. Table 5 gives a comprehensive overview of the surveyed innovation labs, including their institutional affiliations and their main areas of focus and activities.

The classification of innovation laboratories is based on an analysis of their mission, objectives, and project portfolios, resulting in two distinct perspectives: organizational and citizen-oriented. Among the 18 laboratories examined, 12 (66.67%) demonstrate a predominant organizational focus, prioritizing the development of innovative projects and public services. These projects are primarily proposed by public servants with the aim of improving administrative efficiency. Indeed, the laboratories strive to introduce new methodologies and competencies, equipping public servants with the ability to promptly address complex challenges. Additionally, they provide support and guidance to other government departments and agencies, including the legislative, judicial, and indirect administrations in the creation of innovative initiatives.

The documental analysis revealed that the organizational laboratories examined share several common objectives: (a) generate valuable ideas to enhance the design and effectiveness of public services and policies; (b) improve internal management processes; (c) encourage collaboration and foster innovation in management through clear communication and partnership building; (d) promote changes in public servants' relationship with their work; (e) create hands-on learning and training initiatives for government employees; (f) generate institutional capacity for innovation; (g) provide people with the necessary tools and skills to pursue innovation; and (h) share ideas, techniques, and approaches to encourage a mindset of creativity and business development within the public sector.

Table 5. Government innovation labs considered in the research.

Country	Laboratory	Institutional ties	Primary orientation	Focus
Brazil	Laboratório de Inovação em Governo (Gnova)	National School of Public Administration (ENAP)	Organizational	Internal
	Laboratório de Gestão Inovadora de Pessoas (LA-BORA!gov)	Secretariat for Personnel Management and Performance at the Ministry of Economy	Organizational	Internal
	Ponto de Encontro para Qualificação e União para a Inovação (PequiLab)	Government School of the State of Goiás	Organizational	Internal
	Laboratório de Inovação em Governo (LAB.MG)	João Pinheiro Foundation (FJP) and Planning and Management Secretariat (SEPLAG)	Organizational	Internal
	Laboratório de Inovação e Dados do Governo do Ceará (ÍrisLab)	Secretariat of Planning and Management (EGPCE)	Organizational	Internal
	Laboratório de Inovação na Gestão (LAB.ges)	State Secretariat of Management and Human Resources (SEGER)	Organizational	Internal/External
	Laboratório de Inovação do Governo do Estado de Santa Catarina (NIDUS)	Directorate of Technology and Innovation (DITI) of the State Administration Secretariat	Organizational	Internal/External
	Laboratório de Inovação da Prefeitura de Niterói (LABNit)	School of Management and Government of the City Hall of Niterói	Organizational	Internal
	Laboratório de Inovação em Governo da Secretaria Municipal de Inovação e Tecnologia de São Paulo — [(011).Lab]	Municipal Secretariat for Innovation and Technology (SMIT)	Organizational	Internal/External
	Centro de Inovação e Capacitação Municipal de Arcos (CEMICAP)	Municipal Secretariat of Education (SEMED)	Organizational	Internal
Colombia	Equipo de Innovación Pública (EiP)	National Planning Department (DNP)	Organizational	Internal
	Laboratorio de Innovación Pública de Teusaquillo (LABTeusaquillo)	Local Mayor's Office of Teusaquillo	Citizen	External
	Laboratorio de Innovación Pública de Bogotá (iBO)	General Secretariat of the Mayor's Office	Citizen	External
	Laboratorio de Innovación de la Localidad de Suba (SubaLab)	Suba Local Mayor's Office	Citizen	External
Argentina	Laboratorio de Innovación Pública del Neuquén (NQNLab)	Ministry of Citizenship	Citizen	External
	Laboratorio para la Participación Ciudadana y Gobierno Abierto en Bahía Blanca (LabBahía)	Undersecretariat for Public Innovation and Communication	Citizen	External
Chile	Laboratorio de Gobierno (Lab. Gobierno)	General Secretariat of the Ministry of the Presidency	Organizational	Internal
Uruguay	Laboratorio de Innovación Ciudadana de Montevideo (MvdLab)	Municipal Development and Participation Advisor	Citizen	External

Note. Developed by the authors.

Certain laboratories demonstrate notable particularities within the context of organizational orientation. For instance, *IrisLab* directs its actions and processes toward digital transformation and the integration of government technologies. This is accomplished by leveraging tools and emerging technologies, such as big data and analytical management, to establish agile processes and facilitate the digitalization of services. Conversely, *Nidus*, *LAB.ges*, and *(011).Lab* primarily focus on open innovation (external). These labs actively engage with the innovation ecosystem, collaborating with research institutions, startups, and companies to jointly invest in research and technological development, with the aim of devising solutions to public problems.

Citizen laboratories, constituting precisely one-third of the total labs, prioritize direct engagement and collaboration with society. These laboratories function as a platform on which citizens can exchange ideas with the government and devise innovative public policies to serve the greater good. Their core emphasis is on generating, experimenting, and disseminating projects within general society. Their underlying objective

is to foster citizens' active involvement in collective ventures and enhance their overall standard of living (Innovación Ciudadana, 2021).

The laboratories in question share several common objectives including but not limited to: (a) cultivation of collective intelligence and learning through citizen cooperation; (b) mobilization of the community around a shared goal; (c) acknowledgement and appreciation of individual capacities; (d) creation of a forum for dialogue, relationship building, and democratization of public decision-making; (e) establishment of a collaborative culture within the public sector; and (f) recognition and encouragement of citizens as catalysts for transformative social change.

Citizen laboratories directly collaborate with social innovations pertaining to various issues, including gender inclusivity, urban mobility for individuals with disabilities, and the integration of foreigners. These actions are oriented toward attaining the United Nations' Sustainable Development Goals (SDGs), while also prioritizing the enhancement of internal organizational processes. Citizen laboratories demonstrate a unique and remarkable attribute by employing temporary labs

in various locations. Indeed, these labs are character-ized by their flexible structure and limited duration, aiming to address shared challenges through the generation and exploration of fresh ideas, while also imparting knowledge about the significance of innovation to participants (Labcapital, 2021).

In addition to their classification based on their primary dimension and focus, laboratories can also be categorized according to their objectives. In this regard, participants' responses, as detailed in Table 6, indicate the wide range of objectives pursued by these labs. The majority of the labs demonstrate notable flexibility and adaptability, with multiple objective categories encompassing their operations and activities, as evident in Table 6. However, *LabBahia* and *LA-BORA!gov* stand out as exceptions with more specific objectives.

Table 6. Classification of South American government innovation labs by their objectives.

Country	Innovation lab	Developer and creator	Facilitator	Educator	Architect
Brazil	Gnova	◉		◉	◉
	LA-BORA!gov				◉
	PequiLab		◉	◉	
	LAB.MG	◉		◉	
	ÍrisLab	◉		◉	
	LAB.ges	◉	◉	◉	
	NIDUS	◉		◉	
	LABNit	◉	◉	◉	
	(011).Lab	◉	◉	◉	◉
	CEMICAP	◉	◉	◉	◉
Colombia	EiP		◉	◉	
	LABTeusaquillo	◉	◉	◉	◉
	iBO	◉	◉	◉	
	SubaLab	◉	◉	◉	
Argentina	NQNLab	◉			◉
	LabBahía		◉		
Chile	Laboratorio de Gobierno	◉		◉	◉
Uruguay	MvdLab		◉		◉
	Total	13	11	14	8
	Frequency	72.22%	61.11%	77.78%	44.44%

Note. Source: Research data.

One of the most notable findings of Table 6 is that a significant proportion of laboratories, amounting to 77.78% of the total, function as educators. These labs aim to revolutionize how individuals and organizations approach innovation by promoting new skills and competencies. Their training programs encompass a variety of activities, including events, meetups, and thematic workshops exploring the intricacies of innovation. These workshops cover various topics, such as design thinking, user experience, empathy, data literacy, creativity, prototyping, lean inception, and process management, among others.

Numerous laboratories collaborate with governments and research institutions/schools or operate their own training schools to provide preparatory courses and development programs. For instance, *NQNLab* has established the *Escuela de Facilitadores de la Innovación Pública Abierta de Neuquén*, while *SubaLab* has created the *Escuela SubaLab*, both of which offer training in open innovation, technological tools, and theoretical and practical experimentation skills to civil servants and citizens. These laboratories, acting as educators, conduct internal training initiatives for their members and public agency employees, as well as external training programs for citizens.

Facilitating experimental learning and practical expertise among public officials is a key element of training. The collaboration between *LAB.ges*, the State Secretariat of Management and Human Resources

(SEGER), and the Foundation for Research Support of Espírito Santo (FAPES) resulted in the development of the Acceleration Program for Public Projects. This program aims to expedite the achievement of outcomes by offering mentoring, training, methods, and monitoring support, as stated in its PP12 document.

Equipped with tools and methodologies to foster creative solutions and enhance the legitimacy of the state apparatus, innovation laboratories have played a crucial role in promoting the implementation of innovative ideas by both public and private actors (Unceta et al., 2021). These labs have undertaken notable innovative projects across various domains, including urban mobility, health, education, and inclusion. Such projects encompass the transformation and streamlining of processes, the development of applications, the redesign of institutional portals, and the formulation of novel approaches to public service delivery and policy-making. Furthermore, these laboratories have contributed to advancing legal and regulatory simplification and introducing new forms of participation and social control, guided by the principles of open government.

Apart from the aforementioned typologies, a significant majority of laboratories, specifically 61.11%, function as facilitators. These laboratories actively collaborate with public servants across diverse agencies, citizens, private companies, and other organizations to foster the development of innovative solutions. This engagement is facilitated through various strategies, including targeted events and workshops aimed at collective problem solving, as well as the establishment of public innovation ecosystems that prioritize inter-organizational cooperation at both national and continental levels. The informational exchange among stakeholders enables the adaptation and transfer of successful practices, both within agencies and between different organizations. An example of this collaborative approach is the widespread adoption of the Simple Language Program by Brazilian laboratories. In essence, these laboratories play a pivotal role throughout the entire implementation process by facilitating adaptation and ensuring successful outcomes.

Only 44.44% of government laboratories were categorized as architects. These architect labs strive for systemic transformations, serving as sources of inspiration and support for other organizations in their development. Moreover, they play a vital role in managing public innovator networks, thus fostering cooperation and collaboration among the stakeholders within each location's public innovation ecosystems. With the exception of *CEMICAP*, all other architectural laboratories have been operational for at least three years. Longevity is crucial for architect labs, as they inspire and disseminate successful practices (Puttick et al., 2014; Sano, 2020). These architect labs are involved in a wide range of government domains, including health, education, mobility, financial funding, and personnel management. They collaborate with multiple departments and agencies within the public sector, demonstrating a broad focus rather than limiting themselves to a single area.

The research participants identified three additional typologies apart from the ones previously mentioned. One of the identified typologies, named 'Head of Design: Accelerating State Transformations for the People' (PP13), is attributed to the *Laboratorio de Gobierno*, highlighting their pioneering role in public sector design. Another typology, known as 'Innovation Ecosystem Formulator,' involves efforts to promote open innovation with startups; this can be observed in *NIDUS'* objectives and its collaboration with startups, as stated in Decree no. 1,098 (2021). Additionally, (011).Lab implemented the *PITCHSAMPA* program, an open innovation initiative collaborating with São Paulo's innovation ecosystem to tackle public challenges. The final typology is the 'Enabler,' whose objective is to promote and create innovative public policy instruments and mindsets.

Innovation laboratories embrace various objectives, catering to a wide range of purposes and orientations. In this context, the current study explores the types of innovation undertaken by government laboratories. By analyzing the data presented in Table 7, the research seeks to shed light on the nature of innovation work in these labs, as reported by the research participants involved in developing such projects.

The findings are significant, revealing that 88.89% of government laboratories have demonstrated their innovative capabilities in delivering services. Among the identified projects, noteworthy instances include the redesign of institutional portals, streamlining invoice issuance and goods registration processes, enhancements in tax collection services, and the development of applications to optimize public services. These examples underscore how innovation labs prioritize the generation of public value and fostering trust in public administration. The primary focus of South American government laboratories has been to deliver high-quality public services, and their achievements emphasize the meaningful and positive impact of public sector innovation (Criado et al., 2021; Lewis et al., 2020).

Table 7. Classifying innovation typologies in South American public sector labs.

Innovation labs	Administrative processes	Conceptual	Governance	Public policies	Services	Technological processes
🇧🇷 Gnova	⊙	⊙	⊙	⊙	⊙	⊙
🇧🇷 LA-BORA!gov	⊙	⊙	⊙	⊙	⊙	⊙
🇧🇷 PequiLab	⊙	⊙			⊙	
🇧🇷 LAB.MG	⊙		⊙	⊙	⊙	
🇧🇷 ÍrisLab	⊙	⊙	⊙	⊙	⊙	⊙
🇧🇷 LAB.ges	⊙		⊙	⊙	⊙	⊙
🇧🇷 NIDUS	⊙		⊙		⊙	
🇧🇷 LABNit	⊙	⊙		⊙	⊙	⊙
🇧🇷 (011).Lab	⊙	⊙	⊙	⊙	⊙	⊙
🇧🇷 CEMICAP	⊙	⊙	⊙	⊙	⊙	⊙
🇨🇴 EiP	⊙	⊙	⊙	⊙	⊙	
🇨🇴 LABTeusaquillo		⊙			⊙	⊙
🇨🇴 IBO	⊙			⊙	⊙	⊙
🇨🇴 SubaLab		⊙			⊙	
🇦🇷 NQNLab	⊙	⊙	⊙	⊙	⊙	
🇦🇷 LabBahía	⊙	⊙	⊙	⊙		⊙
🇨🇱 Lab. Gobierno	⊙	⊙	⊙	⊙	⊙	⊙
🇺🇾 MvdLab		⊙	⊙	⊙		
Total	15	14	13	14	16	11
Frequency	83.33%	77.78%	72.22%	77.78%	88.89%	61.11%

Note. Research data.

Based on observational data, a noteworthy 83.33% of laboratories are actively involved in streamlining administrative processes. Their initiatives revolve around enhancing organizational efficiency through the implementation of debureaucratizing measures, optimizing processing times, and reducing resource inefficiencies. Of particular significance is the Plain Language Program, which plays a vital role in simplifying public documents, promoting better comprehension, and facilitating effective communication among public servants. This program aims to achieve improved process efficiency and foster greater clarity in administrative interactions (011.Lab, 2022a).

Most government innovation labs (77.78%) engage in conceptual innovations in public policies. These innovations aim to develop and disseminate new visions, methods, and concepts in public administration. As a result, they bring about paradigm shifts and inspire public servants to act as entrepreneurs in pursuit of new opportunities (Silva-Junior et al., 2022). Among these conceptual changes, of note is the establishment of award systems and a repository of best practices; these initiatives encourage mindset shifts and foster the development of public services. Additionally, the

labs offer a wide range of educational resources such as books, documents, courses, and mentorships. These resources contribute to inquiries and incorporate fresh elements into public management across various contexts.

The public policy frameworks encompass a holistic endeavor to renovate current policies and generate new ones that are better attuned to citizens' needs, while also promoting efficiency (Kim et al., 2022). Notably, laboratories undertake initiatives aimed at improving citizens' quality of life by intervening in public spaces, enhancing accessibility for individuals with disabilities, reducing harmful emissions, reformulating migration policies, and promoting greater gender inclusivity, among other domains. Moreover, the engagement of laboratories in innovative public policy has the potential to strengthen vital sectors such as healthcare, education, public safety, and urban mobility.

The governance sector has also witnessed a significant rise in the implementation of laboratory initiatives, with 72.22% of these labs dedicated to fostering new forms of collaboration and cooperation; such forms include both internal and external collaboration in public organizations, as well as promoting engagement with

society. These projects aim to cultivate innovative solutions developed by public servants and disseminate the best practices to other organizations. Additionally, convening events that bring stakeholders from different locations together can facilitate valuable exchanges of information and mutual learning. Open innovation initiatives play a crucial role in activating the innovation ecosystem, encouraging companies, particularly start-ups, to adapt their solutions to public challenges, and facilitating community-driven projects that enhance collaborative governance (Emmendoerfer, 2022; 2023). This finding therefore supports the justification for the subsequent outcome presented in this study.

Within the realm of digital transformation, a substantial percentage of innovation labs, approximately 61.11%, prioritize leveraging emerging technologies for government operations. These labs actively engage in conceptualization, prototyping, and experimentation of projects aimed at enhancing digital government (e-Gov) practices. Examples of such projects include the development of specialized applications, digital process automation, the implementation of secure digital document issuance systems, and the redesign of institutional portals (Fuglsang et al., 2022; Galhardo, 2019).

PRACTICAL AND ACADEMIC IMPLICATIONS

The study's findings highlight two distinct configurations of innovation laboratories in South American governments, with a majority leaning toward an organizational orientation, specifically in Brazil and Chile. These laboratories align with previous research conducted by Acevedo and Dassen (2016) and Cole (2022) and share common goals of modernizing public administration processes and improving management aspects. Their aim is to assist other public organizations in better understanding problem dimensions, developing innovative solutions, enhancing individual and collective capabilities (knowledge and skills), and transforming the relationship between public servants, their work, and bureaucratic routines. Moreover, the behavior of laboratory networks is influenced by the institutional context of the countries and organizations involved, with Hispanic countries typically favoring a citizen-oriented approach.

The innovation laboratory map reveals that most innovation labs are located in coastal cities and regions along the Atlantic or Pacific oceans. In contrast, central South America appears to lack such innovative environments. This observation leads us to speculate that the absence of innovation laboratories in this region indicates a lack of maturity, which we refer to as 'governmental innovation poverty' based on our research findings.

This South American article explores the concept of governmental innovation poverty, which can be attributed to multiple causes, including socio-economic, cultural, and political challenges. These challenges encompass issues such as inequality, corruption, environmental degradation, distrust in public bureaucracy, and political instability. Such factors significantly limit the state's capacity, particularly at the local level, to invest in innovation. Additionally, the lack of financial, technical, informational, and human resources hinders the government's potential to engage in innovative practices. This limitation often arises from the focus on fulfilling the population's basic needs, such as health, education, and security. Moreover, some regions have yet to fully embrace an innovation culture, preferring traditional solutions due to legal constraints.

Governmental innovation poverty may have several negative implications, including the absence of technological advancements, outdated procedures, ineffective public services, and a decline in regional competitiveness among businesses. Consequently, governments must recognize the significance of innovation in territorial developments (Emmendoerfer, 2023) and allocate resources toward policies and strategies that foster the creation, implementation, and dissemination of new ideas and technologies through innovation labs. These environments can be established through collaborative efforts between governments and existing innovation labs within the country or through cooperation agreements in cross-border regions. Such an approach can facilitate sustainability networking within government innovation labs and enable the development of other capabilities, such as acting as facilitators and architects (Puttick et al., 2014). However, a temporal dilemma exists regarding the viability of government innovation labs. On the one hand, laboratories must be both established and sufficiently maintained to achieve their objectives; on the other hand, they must be flexible enough to adapt to changing circumstances and needs.

In the Brazilian context, Law no. 14,129 (2021) is expected to provide impetus for digital transformation and innovation in public organizations. This, in turn, is expected to create opportunities for establishing innovation laboratories that align with the objectives, goals, and guidelines outlined in the aforementioned law. Chapter VI of the law specifically mandates the creation and structuring of innovation laboratories to generate digital transformations, enhance social participation, and improve transparency indicators (Law no. 14,129, 2021).

Other countries have implemented similar legislation. For instance, Colombia implemented the Digital Government Policy in 2015 through Decree 1,078 (Ministerio de Tecnologías de la Información y las Comunicaciones [MINTIC], 2015), and Chile has enacted Law no. 21,180 (2019) on the Digital Transformation of the State, which is under implementation until 2027 (Law no. 21,180, 2019). These measures reflect the global trend toward digitalization and innovation in public sector institutions.

It is essential to note that innovation projects may involve various typologies, including modifications in services, public policies, and technological and governance aspects. These projects can bring about significant conceptual changes in the public sector. The analyzed laboratories have been identified as mediation and articulation hubs (Lauriano & Ferreira, 2022) facilitating collaboration between public organizations and civil society, aiming to transform how public value is provided and co-produced (Gesierich, 2023; Fuglsang et al., 2022).

In order to adequately equip the public sector to address the intricate transformations brought about by globalization, it is imperative to cultivate novel governmental capabilities and nurture an innovation-oriented culture among civil servants (Isidro, 2018; Long, 2020; Schiuma & Santarsiero, 2023). This necessitates the implementation of policies and programs focused on the strategic management of personnel, advancing beyond traditional training initiatives. Moreover, besides providing traditional in-person and online programs, the incorporation of virtual reality technologies and 3D environments such as the metaverse can promote communication, improve mobility, and allow for temporary technological connections among public servants situated in different locations who face comparable public issues.

To accomplish this goal, it is crucial to demonstrate unwavering political resolve and implement institutional measures that go beyond the mere establishment of laboratories as educational spaces. By fostering a supportive network of public servants equipped with the necessary skills and knowledge to address emerging demands, governments can enhance their capacity to respond promptly, efficiently, and decisively to the challenges of the modern era (Emmendoerfer, 2019).

LIMITATIONS AND DIRECTIONS FOR FUTURE STUDIES

Our study seeks to identify and describe innovation laboratories in South American governments. This research is a collaborative effort that enhances the field of Contemporary Public Administration, particularly in the area of innovation and entrepreneurship in the public sector. While this study provides valuable insights, it is important to acknowledge its limitations to support future investigations.

The current study recognizes several limitations that should be taken into account when interpreting the results. Firstly, the sampling strategy was constrained by the unprecedented circumstances of the SARS-CoV-2 pandemic, which hindered the researchers' ability to physically access and engage with potential participants due to social distancing measures. As a result, data collection was primarily conducted through remote and online interactions, potentially affecting the representativeness of the sample. Additionally, the study did not fully capitalize on the potential of socio-demographic and geographic data, which could have yielded further insights into the characteristics of innovation laboratory managers and the contextual factors influencing their activities. By omitting these potentially vital variables, the analysis may have overlooked crucial nuances and patterns present in the data. Lastly, the cross-sectional design employed in this study only offers a snapshot of the present state of the innovation laboratories and their managers, which restricts the generalizability and conclusiveness of our findings.

While the results offer valuable insights into the current situation, they cannot be extrapolated to different contexts or predict future advancements in the field. Hence, although this study has provided valuable insights, it is crucial to acknowledge these limitations and approach the interpretation of the results with caution, also considering the specific characteristics of the sample and the research design.

Future studies can address these limitations by exploring several areas of inquiry. Firstly, researchers can delve deeper into the internal and external outcomes of innovation laboratories, developing measurement and evaluation tools to assess the impact of projects on organizations and society in terms of public value. Secondly, there is a need to analyze the role of innovation laboratories in the digital transformation of the state, particularly considering the accelerated technological changes prompted by the pandemic. Additionally, gaining a more comprehensive understanding of the future of innovation laboratories in the public sector is crucial, with a focus on aspects such as institutionalization, discontinuation, and the essential resources (financial, human, and technological) required for successful implementation and maintenance. Furthermore, the literature should also explore the role of international collaboration networks in fostering an innovation culture within the public sector.

Future studies should explore various thematic and methodological aspects related to the study subject, including examining public administration models, re-evaluating the concept of 'governmental innovation poverty,' investigating work quality within innovation laboratories, exploring the impact of diversity, analyzing entrepreneurs and their outcomes, assessing the role of government agencies and economic blocs in promoting innovation laboratories, developing institutional capabilities and partnerships, utilizing research methods such as ethnography, focus groups, interviews, and observations, and conducting longitudinal studies to fully understand the continuity of innovation laboratories in the public sector.

Accordingly, the present article has shown that the integration of innovation laboratories into government practices is a growing trend in South America, especially at the sub-national level. These entities are fundamental in driving systemic changes within the public sector, serving as governance platforms and innovation intermediaries. Furthermore, the study has uncovered that laboratories can adopt different approaches and employ a wide range of tools and methodologies, depending on the resources available, organizational and institutional characteristics, and the complexity of the challenges present in each specific context. While they share common features, their diversity in terms of establishment and operation underscores the importance of adapting to the unique circumstances of each context in order to achieve optimal outcomes.

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