


# Exploring Barriers to Innovation in Public Administration: An Empirical Study of the Local Layer of Government

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## ABSTRACT

This study deepens our knowledge on innovation barriers within Public Sector Innovation (PSI) processes in local governments. It analyzes the barriers to PSI from a mixed method approach using an original survey directed to innovation managers in the largest Spanish city councils and semi-structured interviews within a case study. This study shows the most relevant barriers to innovation in different stages of development, the strategies used to overcome these barriers and the relationships among them. This research contributes to PSI literature by shedding light on the barriers' dynamics and how they operate in local governments within contexts of high levels of digitalization. Results suggest a significant prevalence of institutional barriers, more common in countries with a Napoleonic administrative tradition, and uncover the relevance of politics and human resource management foster innovation at the local level.

## KEYWORDS

Barriers, Public Sector Innovation, Innovation Process, Local Government

## INTRODUCTION

Public sector innovation (PSI) has become a central theme in fostering government transformations in response to fiscal constraints, complex challenges, and increasing demands for digitalization (Rønning et al., 2022). In different contexts, local governments have emerged as key players in PSI due to their extensive experience in the design and implementation of services and have expanded their understanding of citizens' demands and needs (Gullmark & Clausen, 2023). In the context of local governments in Spain, studies indicate a timid predisposition toward innovation (Ruano de la Fuente, 2014; Gonzalez et al., 2013). Most initiatives have focused on digitizing local administrations to cut costs and boost transparency (Labrador & Olmo, 2019; Rodríguez Bolívar et al., 2016). However, in recent years, Spanish local governments (SLG) have developed multilevel networks to explore innovative ways to create public value (Barrutia & Echebarria, 2019). In fact, municipalities with more than 50,000 inhabitants in Spain have additional powers in areas such as public transport, waste

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collection and disposal, street cleaning, leisure facilities, and civil protection. SLG often provide a wider range of services than specified by law, including functions related to economic development, tourism, and, recently, innovation.

This empirical article explores and tests how SLG perceive barriers to innovation in the public sector context. Barriers to innovation refer to aspects that constrain innovation in an organization. However, recent studies uncovered that innovation barriers reported by public servants do not negatively affect innovative outputs; hence, an organization's employees can innovate despite barriers (Demircioglu & Audretsch, 2017; Torugsa & Arundel, 2016). As noted by Choi and Chandler (2020, p. 1), "Innovation is not determined to succeed or fail *a priori* when certain factors are found; instead, it depends on how public managers, politicians, and stakeholders effectively respond to the prior conditions and challenges emerging through the implementation process."

Although extant studies have collected extensive evidence on factors constraining the adoption of PSI (Criado et al., 2023), efforts fail to gauge the dynamic nature of barriers (Cinar et al., 2019): how they vary across the innovation process, how they can contribute to the innovation process positively, and how they are interrelated in a vicious cycle. Moreover, existing studies on innovation adoption either have provided limited detail in certain contexts (Meijer, 2015) or have focused on specific internal factors (Meijer & De Jong, 2020) or on specific innovations (Criado & Villodre, 2022; Roy, 2019). This limits a wider appreciation of barriers and their influence.

To fill this gap in the literature, this study examines the perception of barriers to innovation in larger SLG. We propose two research questions that enable, on the one hand, gaining insights into local governments' assessment of barriers to innovation and, on the other hand, analyzing the dynamic nature of barriers during the innovation process (Cinar et al., 2021):

RQ1: What are the barriers to innovation at the local government level?

RQ2: What is the dynamic nature of barriers to innovation at the local government level?

To answer the two research questions, we conducted an exploratory study in two phases following a mixed-method approach. First, we analyzed the content of an original survey directed to the person in charge of the innovation department/function in all SLG with more than 50,000 inhabitants. Second, semi-structured interviews were conducted within a case study that we identified as a successful innovation benchmark based on a PSI index. The data were also triangulated through the analysis of official documentary sources.

Thus, this study makes three contributions. First, we developed an original index on PSI. The PSI index is based on theoretical conceptions of innovation and is applied to understand the level of innovation in SLG. Second, we explore the relationships of factors perceived as adoption barriers and the level of innovation. Third, this article focuses on a SLG case study to assess the process of innovation and the nature of barriers. All these aspects are developed in the following sections.

## **THEORETICAL FRAMEWORK**

### **Conceptualizing PSI**

Innovation is a complex (Damanpour & Schneider, 2009) and umbrella (Hirsch & Levin, 1999) concept that has been defined in different ways. Specifically, scholars have approached it from an individual (Bartlett, 2017), organizational (Rogers, 2003), and interorganizational or network (Munro, 2020) level. The following paragraphs elaborate on the conceptualization of PSI at the organizational level, leading us to identify four analytical dimensions: novelty, complexity, value, and breadth.

### *Novelty*

Following the work of Rogers (2003), most conceptualizations emphasize the novelty of innovation. Here we find a general open definition that could be applied to any organization: “an idea, practice or object that is perceived as new by an individual or other adoption unit” (Rogers, 2003, p. 11). Since the consideration of what is and what is not innovative depends on the organizational context, assessments of public employees have been used to understand the level of PSI (Oulasvirta & Anttiroiko, 2017). Innovativeness is defined as the degree to which an individual or other adopter is relatively earlier in adopting new ideas than other members of a system (Rogers, 2003). This is important because, as an innovation diffuses, a threshold is reached at which adoption provides legitimacy rather than enhancing performance (Meyer & Rowan, 1977).

### *Complexity*

The next dimension refers to the types of innovation implemented. The existence of multiple types, as noted by Goffin and Mitchell (2010), creates innovation complexity, which could increase the degree to which an innovation is difficult to understand and implement (Rogers, 2003). Because complex innovations require greater investment in activities to support innovation and efforts to overcome barriers (Torugsa & Arundel, 2016), they foster innovation in the organization. In contrast to the PSI typology framed by Chen et al. (2020), previous classifications developed without explicit criteria to classify innovation, which caused similarity and overlap among types. This typology is built from two dimensions of organizational behavior that lead to innovation: the process of public value creation (strategy, capacity, and operations) and the innovation setting (internal and external). The authors identified six innovation types (policy, mission, management, partner, service, and citizen innovation), which are here used as six levels of complexity of PSI.

### *Breadth*

Innovation breadth refers to the number of services that have implemented innovative processes. This approach to PSI comes from the e-government diffusion literature (West, 2005). Scholars have analyzed the degree of e-government using a dependent variable that measures the number of e-services (Jun & Weare, 2011). In our research context, all municipalities handle service delivery processes. These include the registrar’s office, local taxation, social care, public housing, the provision of services to promote economic development and services to businesses, urban planning, urban environment, local transportation, or the management of the local police (Boletín Oficial del Estado, 1985). Thus, understanding the scope of implementation can offer an accurate portrayal of innovation at the local government level.

### *Value*

Because innovation has been perceived as essential for competitive success (private sector) or for solving difficult problems (public sector), scholars have argued that the focus should be on only those innovations that are deemed successful (Mulgan, 2007). Despite criticism of these approaches that confuse innovation with success or utility (Meijer & Thaens, 2021), in recent years, the literature has emphasized the intention to create public value (Brorström, 2015). Chen et al. (2020, p. 4) define PSI as “the development and implementation of a novel idea to create public value within an ecosystem.” The value of innovation has become a key issue as governments increasingly embrace innovative practices as a strategic means of bolstering their legitimacy, effectively using innovation as a vehicle for self-promotion (Zheng & Zheng, 2014).

### **Barriers to PSI**

Barriers to innovation refer to obstacles or difficulties in implementing innovations that may cause organizations not to adopt or delay effective innovations. Public organizations face multiple

barriers to innovation (Moser-Plautz, 2023), stemming mostly from the characteristics and external environments of public organizations (Mergel, 2018). Broadly, public organizations' bureaucratic structures, such as bureaucratic rules, and a focus on processes rather than outputs are considered barriers to innovation (Criado et al., 2023). Public managers and politicians tend to be risk-averse, as media attention causes them to discourage innovation and resist change (Osborne et al., 2020).

### *Typologies of Barriers*

Different authors studied barriers to PSI from distinct approaches. D'Este et al. (2012) distinguished between two types of barriers. On one hand, "revealed barriers" slow innovation activities of organizations during the ongoing innovation process; on the other hand, "detering barriers" prevent the process itself from being initiated. Their study found that revealed barriers were more common than deterring barriers. This led researchers to suggest that employees were not deterred by barriers but were instead aware of and capable of overcoming them within the process (Meijer, 2015).

Although recent studies have classified and analyzed these obstacles, the related literature seems insufficient to support a rigorous classification. While Cinar et al. (2021) categorized revealed barriers into five separate categories (organizational, insufficient resources, innovation characteristics-related, contextual, and interaction-specific), scholars tend to distinguish among barriers that are internal and those that are external to the organization (Van Gestel & Grotenbreg, 2021; Vinarski Peretz & Kidron, 2023). In this study, we follow an inductive approach that enables the development of an original conceptual framework of barriers at the local level of government.

### *The Dynamic Nature of Barriers*

The characteristics of innovation barriers are dynamic rather than static (Hadjimanolis, 2003). The first dynamic dimension of barriers is how they vary within the innovation process (Meijer, 2015). Barriers show different features across phases of the innovation process, with the implementation phase experiencing the most barriers (Cinar et al., 2019). Some studies have found that innovation and perceived barriers to innovation are positively correlated. Innovators are more likely to report more barriers because they are more aware of innovative activities, including barriers to innovation (Demircioglu, 2018; Torugsa & Arundel, 2016). Accordingly, we analyze whether more innovative SLG report more barriers (RQ<sub>2,1</sub>).

The second dynamic dimension of barriers is their potential positive contribution to innovative outputs (Cinar et al., 2021). Innovators find solutions to overcome barriers and learn how to innovate more effectively in the long term (Torugsa & Arundel, 2016). These barriers have been found to contribute to forming and situating innovation in the relevant context. Hence, they may act as windows of opportunity rather than impediments to PSI (Qiu & Chreim, 2022). Therefore, innovation barriers express a connection to knowledge processes in public organizations. Following this line of research, we investigate the strategies implemented to manage innovation barriers (RQ<sub>2,2</sub>).

The third dynamic feature is that each barrier at a particular process stage may result in further barriers at later stages of the process. Barriers may reinforce one another, creating the need to investigate the underlying mechanisms (Termeer, 2009). Yet few empirical studies have investigated this dimension of innovation barriers. According to Knox and Marin-Cadavid (2023), barriers should not be considered in isolation from the organizational practices that are enacted to maintain them, i.e., the practices that structure the organization's processes. Therefore, we explore the relationships among innovation barriers (RQ<sub>2,3</sub>).

## **RESEARCH STRATEGY AND METHODS**

The general purpose of this article is to study factors perceived by public managers as innovation barriers and how they inhibit innovation in local governments. To do so, our research strategy follows methodological triangulation based on three stages: (1) measuring levels of innovation in local

governments, including the analysis of variables from an original survey on innovation adoption; (2) quantitative study of barriers perceived by public managers and their relationship with the level of innovation; and (3) qualitative assessment of the innovation process in a SLG with semi-structured interviews within a selected case study.

## Data

Data for this paper were collected from different sources. We conducted (a) an original survey between June 2022 and December 2022, (b) semi-structured interviews between March and May 2023, and (c) documentary analysis and other secondary sources across the data collection process. Prior to launching the survey, a pretest was conducted with some scholars and practitioners. The survey was sent via email to the person in charge of the innovation function/department in all city councils of our sample. The identification process encompassed a website search looking for the organizational chart and/or institutional information provided by the transparency portal. Follow-up calls were carried out when no more responses were received by e-mail. In these cases, innovation leaders were identified and requested to respond to the survey. To reduce the social desirability bias in the survey responses, a definition of innovation was included at the beginning of the questionnaire and the anonymity of the responses and the absence of any ranking were stressed.

From our initial population of 149 municipalities with more than 50,000 inhabitants, 115 answered the survey, a response rate of 77%. Due to missing values, we used 112 responses in this study. The questionnaire consisted of three sections, aimed at assessing (1) the organizational characteristics of the municipalities regarding innovation; (2) the status of innovation development; and (3) the individual respondent's information. The selection decision on municipality size came from the fact that Spain has a high number of municipalities with a very low number of inhabitants. This is a phenomenon known in the local government literature as infra-municipalism (Olmeda Gómez et al., 2017), and it is the key motivation to limit the sample of cases to this group (more than 50,000 inhabitants). Therefore, local governments with more resources (i.e., people, budget, technology, etc.) are expected to adopt innovation more comprehensively and effectively.

Previous analysis of survey responses and documents enabled the selection of cases to study through semi-structured interviews based on their innovation approach and development. In this paper, we selected one of those cases for its successful strategy to overcome innovation barriers. The interviews aimed at assessing the experiences of employees adopting innovation, including their perception of barriers. Combining the quantitative analysis from the survey with the qualitative analysis from the interviews provides a complete understanding of this phenomenon, balancing the strengths and weaknesses of different methodologies.

Apart from addressing the chain sampling technique (Guest et al., 2006) based on suggestions from the head of the Innovation Department, we completed a total of eight interviews until data saturation and redundancy signals emerged during the process and we were assured that further data collection would yield similar results (Faulkner & Trotter, 2017). People from different departments involved in innovation were interviewed to ensure a diversity of perspectives. The interviews were conducted and analyzed in Spanish, and the highlighted excerpts were manually translated into English. No specialized software was needed to conduct the analysis due to the number of interviews. Each interview lasted an average of one hour. Appendix A shows the respondents' organizational positions in the SLG; names are not disclosed to protect their anonymity.

## Operationalization

### *PSI Index*

Our PSI index included the following measures based on the survey data: (1) degree of novelty of innovations (novelty); (2) number of innovation types implemented (complexity); (3) number of services that have experimented with innovation (breadth); and (4) number of innovation benefits reported (value). Survey questions used to construct the index are displayed in Appendix B. To create

Table 1. Barriers to innovation

Barrier	Description	References
Electoral dynamic	Influence of the political cycle	Yuriev et al. (2022); Andrews et al. (2021)
Regulatory framework	System of laws, regulations, and procedures that shape the activity of the organization and the behavior of its members	Lane (2018); Wagner and Fain (2018)
Lack of political support	Deficit of political appointees' support for innovation	Mehiriz (2021); Trivellato et al. (2021)
Lack of leadership	Deficit of influencing others' motivations, steering their attention, and directing their efforts toward innovation	Park et al. (2021); Torfing et al. (2020)
Fear of failure	Uncertainty about innovation outcomes, especially those unintended or undesirable	Meijer and Thaens (2021); Osborne et al. (2020)
Employees' compensation and promotion	Existence of an innovation-inducing bureaucratic labor market	Lapuente and Suzuki (2020); Kim and Lee (2009)
Lack of employee skills	Deficit in employee skills to initiate and implement innovations	Schultz Larsen (2015)
Lack of staff	Lack of employees dedicated to promoting innovation in the organization	Gascó (2017)
Organizational structure	Division of labor into distinct units and tasks	Guimarães et al. (2011); Cassell (2008)
Technological infrastructure	Set of technological elements supporting an organization's operations	Kattel et al. (2020); Ravishankar (2013)
Lack of coordination	Deficit of the alignment of tasks and efforts	Touati et al. (2019)
Bureaucratic culture	Organizational set of norms, values, beliefs, and attitudes	Smith et al. (2019)
Fear of innovation	Uncertainty generated by the relaxation of public control in the innovation process	Meijer and Thaens (2021)
Resistance to change	Preference for the status quo generally of actors who have privileged positions of power	Bello et al. (2018)

the PSI index, the variables complexity, value, and breadth were recoded as additive variables. A factor analysis (principal component analysis function) was performed in Stata software to create the index (see Appendix C).

### Barriers to Innovation

Our original survey on innovation included a question about barriers to the development of innovation. This variable was based on a Likert scale from 1 to 7 for each barrier, with 1 being *I strongly disagree* and 7 being *I strongly agree* the barrier is hindering innovation in my local government. The list of possible barriers was extracted from a literature review and presented in the survey as shown in Table 1. The variable barrier breadth is constructed as the sum of the barriers that most hinder innovation (5–7), with the values ranging from 0 (no barrier) to 14 (all barriers reported) (Torugsa & Arundel, 2017).

### Analysis

To answer our two research questions, we conducted different analyses. RQ1 (what are the barriers to innovation at the local government level?) is analyzed using the descriptive statistics of the survey regarding the barriers perceived by innovation managers. In RQ2 (what is the dynamic nature of barriers to innovation at the local level of government?) we aim to analyze the dynamic

**Table 2. Descriptive statistics**

Barrier	Mean	Median	SD	Min.	Max.
Electoral dynamic	3.54	3	1.82	1	7
Regulatory framework	4.09	4	1.72	1	7
Lack of political support	3.38	3	1.93	1	7
Lack of leadership	3.83	4	1.89	1	7
Fear of failure	3.32	3	1.76	1	7
Employees' C&P system	4.48	5	1.81	1	7
Lack of skills	4.47	5	1.59	1	7
Lack of staff	5.57	6	1.52	1	7
Organization structure	4.44	4	1.68	1	7
Technological infrastructure	3.44	3	1.60	1	7
Lack of coordination	5.22	5.5	1.42	1	7
Bureaucratic culture	5.04	5	1.62	1	7
Fear of innovation	4.46	5	1.69	1	7
Resistance to change	5.18	5	1.53	1	7
Barrier breadth	6.86	7	3.64	0	14

*Note.* N = 112.

nature of barriers, including how they change depending on the level of innovation or implementation approach (RQ2<sub>1</sub>), the strategies implemented to overcome them (RQ2<sub>2</sub>), and their relationship (RQ2<sub>3</sub>). We use our PSI index to divide SLG by hard and soft implementation approaches (Nasi et al., 2011). Governments are divided according to their score on the PSI index, using the median to divide the group into two. The mean of each group is then estimated for each of the barriers and the barrier breadth to perform an analysis of variance (ANOVA). This analysis tests the assumption that more innovative managers have a greater knowledge of the barriers to innovation. A case study with semi-structured interviews reveals the relationships among barriers as well as the strategies implemented to overcome them.

## RESULTS

### Barriers

To answer RQ1, Table 2 shows descriptive statistics for the survey question regarding potential barriers to innovation. The results of the variable barrier breadth are also added. Respondents perceived lack of coordination, lack of staff, resistance to change, and bureaucratic culture as the most relevant barriers. On the other hand, political barriers, such as elections or lack of political support, were the least prominent among the SLG surveyed. With a mean value of approximately 4.5, we found aspects that include the organizational structure, the lack of employee skills, or the employees' compensation and promotion (C&P) system. Regarding the variable barrier breadth, most respondents identified seven barriers as relevant.

### *Barriers and Implementation Approach*

To answer RQ2<sub>1</sub>, we analyzed the differences in perceived innovation barriers concerning the level of innovation by conducting an ANOVA. Following Nasi et al. (2011), we use our PSI index to

distinguish between two types of implementation of innovation: soft or hard. Soft implementation does not lead to substantial changes in bureaucratic processes since it is usually managed according to the existing administrative structure, while hard implementation involves permanent changes in government processes and information systems through a shift from a bureaucratic model to more flexible and citizen-centered models (Ho, 2002).

Table 3 shows the comparison of means of perceived barriers to innovation between the two types of implementation. SLG with a soft approach to innovation implementation are, in general terms, more aware of barriers. Specifically, the difference in means of lack of political support and lack of leadership are statistically significant. In contrast to hard innovators, soft innovators perceive these two factors as important barriers. Although the value of barrier breadth is higher for soft innovators, the difference is not significant.

## Managing Barriers

To answer RQ<sub>2</sub>, we analyzed the interviews of our success case study, hereafter referred to as SLG A. We distinguish between barriers internal and external to the organization. In addition, we grouped some barriers together since their close relationship complicates their distinction in the discourses of the interviewees. The response to the survey question on barriers to innovation of SLG A is shown in Table 4 using the original Likert scale of 1–7.

### *External Barriers*

**Political: Electoral Dynamic and Fear of Failure.** The electoral cycle can create a fear of failure, particularly in politically unstable environments like that of SLG A. Because innovation failures may be criticized by the opposition and the media, the prospect of a government change may discourage the adoption of disruptive innovations. The interviewees emphasized that, to overcome this barrier, the innovation strategy was approved by the municipal plenary, achieving a majority in the chamber. The SLG A head of innovation explained that an important decision was not to approve an innovation mission until it had the consensus of the government and the opposition, “because it is difficult to change the mission every four years.” Having the support of both the government and the opposition allowed the SLG A team to work on a long-term innovation strategy with a trial-and-error logic. “When I started working here, I was told that one of the logics we have to work with is not to be afraid to make mistakes, because that’s what innovation is all about” (Interview R6).

**Institutional: Regulatory Framework.** Respondents also faced barriers related to excessive regulatory burdens and slow administrative procedures, which may hinder the innovation process while promoting transparency. According to the entrepreneurship manager, hiring mentors for the startup incubator becomes a lengthy process due to the rigid controls required by public sector contracting laws. Consequently, they had to make a significant investment in red tape and administration. Also, the limited legislative capacity of city councils in Spain means that SLG A must deal with this constraint. However, they passed a local ordinance establishing an urban sandbox to create spaces where innovation prototypes currently in breach of regulations could be tested.

### *Internal Barriers*

**Lack of Leadership and Political Support.** Political support for the innovation strategy has been broad-based. As a result, leadership emerged at the political and managerial/technical levels. The mayor’s leadership was essential to give a major boost to innovation. In addition, distributed leadership among departments and areas was promoted so that the strategy did not depend on a single person or area. The innovation strategy was embedded throughout the organization, gaining the support of middle-management leaders.

**Employee Compensation and Promotion System; Lack of Staff and Skills.** In Spain, performance-based economic and professional incentives for public employees are uncommon. The aging civil service is undergoing renewal, and the recent incorporation of innovation services



Table 3. Comparison of means between soft and hard implementation

Descriptive statistics			ANOVA test	
Barriers	Mean	SD	F	Sig.
Electoral dynamic				
Soft	3.75	0.25	1.31	0.2545
Hard	3.35	0.24		
Regulatory framework				
Soft	4.09	0.23	0	0.9922
Hard	4.09	0.23		
Lack of political support				
Soft	4.11	0.24	17.58	0.0001
Hard	2.68	0.24		
Lack of leadership				
Soft	4.47	0.24	13.89	0.0003
Hard	3.21	0.24		
Fear of failure				
Soft	3.6	0.24	2.75	0.1004
Hard	3.05	0.23		
Employees' C&P system				
Soft	4.29	0.24	1.2	0.2755
Hard	4.67	0.24		
Lack of staff				
Soft	5.51	0.21	0.18	0.6724
Hard	5.63	0.2		
Lack of employees' skills				
Soft	4.6	0.22	0.68	0.4107
Hard	4.35	0.21		
Organization structure				
Soft	4.69	0.23	2.49	0.1175
Hard	4.19	0.22		
Technological infrastructure				
Soft	3.45	0.22	0.01	0.9126
Hard	3.42	0.21		
Lack of coordination				
Soft	5.38	0.19	1.34	0.2491
Hard	5.07	0.19		
Bureaucratic culture				
Soft	5.09	0.22	0.09	0.7678
Hard	5	0.22		

continued on following page

Table 3. Continued

Descriptive statistics			ANOVA test	
Barriers	Mean	SD	F	Sig.
Fear of innovation				
Soft	4.58	0.23	0.52	0.4714
Hard	4.35	0.22		
Resistance to change				
Soft	5.35	0.21	1.29	0.2592
Hard	5.02	0.2		
Barrier breadth				
Soft	7.45	0.49	2.96	0.0879
Hard	6.28	0.48		

Note. N = 112.

Table 4. Perceived innovation barriers of SLG A

Barrier	Likert score
Electoral dynamic	2
Regulatory framework	6
Lack of political support	1
Lack of leadership	1
Fear of failure	3
Employees' C&P system	6
Lack of staff	7
Lack of employees' skills	6
Organizational structure	7
Technological infrastructure	4
Lack of coordination	6
Bureaucratic culture	7
Fear of innovation	5
Resistance to change	7

at the local level has led to a lack of human resources and capabilities. Additionally, the municipal hiring process is not agile or flexible enough to meet innovation needs. The head of the smart city department highlighted that despite having funds, they cannot hire people promptly due to bureaucratic hurdles. Personnel insist on creating a job bank and preparing bases for competitive examinations, which significantly delays the process. By the time these steps are completed, the project might be over and the funds lost.

SLG A launched an innovation center as a municipal foundation that allowed for greater flexibility in managing human resources, leading to more professionalization, standardization, and lean organizational structures, fostering distributed authority and participative leadership. Additionally, the city council introduced a horizontal career regulation to establish performance-based salary supplements. However, cultural implementation remains challenging. The interviewees also noted a

lack of staff and diverse professional profiles in the public sector, although the innovation center does have a multidisciplinary team, which is uncommon in other administrations. “I think we are precisely at risk of saturation. The staff is very tired. They are very committed, but also with the feeling that we have too many things on top of us” (Interview R6).

**Organizational Structure and Technological Infrastructure.** Interviewees agreed that the organizational structure hinders the crosscutting approach needed to implement the innovation strategy. Operating in silos results in poor communication, worsened by the coalition nature of the local government. The director of the innovation center explained how problematic it can be that innovation and entrepreneurship remain in different departments headed by different parties. “You realize that you need to break down the silos, you need to hack the organization so that it doesn't function vertically” (Interview R1).

Only the entrepreneurship manager stated the limitations of the current technological infrastructure. As a result, the innovation accelerator uses a free external tool that allows them to be much more agile and accessible.

**Lack of Coordination.** Division into silos complicates coordination, but the municipality-wide innovation strategy has improved alignment among different service areas. Citizen participation and the innovation center's action plan now focus on the climate innovation mission. SLG A created a mission team that meets biweekly and aims to establish mission ambassadors across the organization. Despite these efforts, understanding the ecosystem and fostering collaboration remain challenging. According to the director of the climate foundation, there is often counterproductive overlap among private companies and NGOs, suggesting the need for a forum to share experiences and improve the use of resources.

**Bureaucratic Culture and Fear of Innovation.** Despite all the work on innovation in the city council, especially since the inception of the service in 2016, it has been done rather more outwards than inwards. The head of innovation explained how complicated it is to change organizations as bureaucratized and not very agile as those in southern Europe: “That's difficult to change because you need quite a lot, it is quite a long cycle of years to change, but you must start doing it, setting a series of incentives, a series of cultural changes, creating teams to be able to do it and obviously doing a lot of training and exemplification of where we want to go” (Interview R1).

Also, some interviewees pointed out that there is now a commitment in the work teams to foster continuous improvement and innovation within their areas. However, there are major differences between the operation of the innovation center and the city council. For example, Agile work methodologies are mainly used by the innovation center. There are also difficulties in transferring prototypes tested at the innovation center to the rest of the city council. Therefore, some decoupling effects have emerged looking at both spheres, suggesting the need to overlap the innovation center with the bureaucratic structure of the organization.

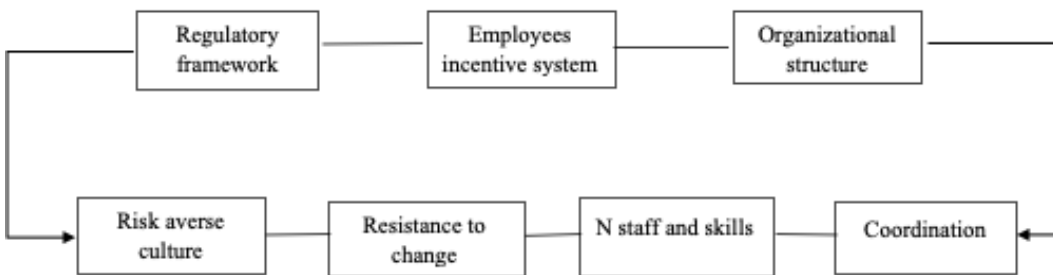
**Resistance to Change.** Our interviewees noted that developing new services requires mobilizing resources, which might spawn tensions. Cross-departmental work of the innovation team can be perceived as intrusive to the competencies of other services/areas. Initially, there was significant suspicion and concern about overstepping boundaries. However, this issue has been largely resolved as it became clear that the innovation efforts were intended to promote a culture of collaborative improvement instead of questioning departmental competences.

One of the most problematic aspects was access to certain municipal information, in particular, public data necessary for innovation development. Some interviewees referred to the struggles between the two parties of the coalition government as a cause of this resistance. “There are services that are more reluctant to share information. And, well, many times we don't know if it's due to technical or political issues. You don't know where it comes from, but you say, ‘I've asked you for this 17 times, why don't you give it to me?’ Data as basic as the consumption of a public building, why is it secret?” (Interview R3).

Figure 1. Political barriers framework



Figure 2. Institutional barriers framework



### Relationships Among Barriers

This study also focused on the relationships among the barriers studied in public organizations. This aspect considers innovation barriers as enduring practices that structure organization processes. Regarding RQ2, the qualitative analysis of SLG A indicates that barriers to innovation commenced with political and institutional factors. The electoral cycle and all that it entails can provoke a fear of failure that damages political support and, therefore, innovative leadership (see Fig. 1). SLG A managed this barrier through consensual approval of the innovation strategy by the government and opposition alike, guaranteeing political commitment to a long-term strategy.

In our case study, institutional barriers seemed to be more difficult to overcome, since SLG do not have legislative capacity to endorse administrative laws fostering administrative transformation. In addition, institutional barriers, whether formal or informal, are routinized in the habits and attitudes of organizational members encountering path dependency dynamics. Fig. 2 represents a framework for analyzing institutional barriers. The underlying causes are the regulatory system, the organizational structure, and the system of employee incentives through compensation and retribution. These factors lead to a risk-averse bureaucratic culture due to rigid established procedures and disincentives for innovative behavior. Local public employees who are not exclusively dedicated to innovation may consider innovation tasks as additional workload to be borne without short-term benefits.

Therefore, resistance to change can emerge from different sources. On the one hand, support for the status quo may derive from strong professional identities that are threatened by innovation efforts (Jenhaug, 2020). On the other hand, this process might be nurtured by power struggles among departments and even within departments (Schultz Larsen, 2015). An organizational structure in silos hampers transversal work and the feeling of belonging to the organization. As a result, there is often little communication among units and sectoral identification. References to this issue were frequent in the interviews, represented by the phrase “you’re interfering with my competencies.”

Finally, regulations affecting public employees led to a lack of flexibility in hiring, politicization of senior civil servants, and little variety in professional profiles. Moreover, although local governments can implement performance evaluations and other mechanisms to incentivize innovative behavior, their effectiveness is limited in a context where clientelist and nontransparent practices have been established over the years (Villoria et al., 2014).

## DISCUSSION

This exploratory study employs a mixed-method approach to analyze PSI barriers at the local level of government in Spain. Specifically, it is based on the triangulation of different sources of information (documents, original survey, and semi-structured interviews) and on the study of SLG with more than 50,000 inhabitants, as well as on a case study. Our quantitative findings support previous studies underlining the critical role of organizational factors as impediments for the adoption of innovation in the public sector (Cinar et al., 2021). The qualitative findings align with previous studies suggesting that public employees who understand barriers to innovation can use their knowledge and experience to diminish those barriers (Demircioglu & Audretsch, 2017). We also find evidence of the existence of underlying mechanisms that hinder the adoption and implementation of innovation processes (Piening, 2011; Schultz Larsen, 2015).

The most important barrier among the SLG surveyed is lack of staff, followed by lack of coordination, resistance to change, and bureaucratic culture. PSI literature frequently mentions the risk-averse organizational culture and the incompatibility of innovation with organizational values and norms (Criado et al., 2023). Scholars have also noted the effects that a siloed organizational structure has on coordination (Touati et al., 2019). However, our results suggest that coordination problems may exceed organizational structures. The value of lack of coordination is the second highest, and interviewees noted additional reasons for the lack of knowledge sharing, such as political parties' conflicts. The lack of human resources is often pointed out in studies on the Spanish context (Brusca et al., 2019), although not exclusively in this national case (Guimarães et al., 2011). Resistance to change and power struggles are barriers commonly reported in different contexts, such as the case of Italy (Cinar et al., 2021). In our case study, crosscutting work in innovation is perceived as intrusive, as it challenges established power structures (Jenhaug, 2020).

Through our quantitative analysis we tested the hypothesis confirmed by other studies suggesting that innovation barriers and innovation development are positively related (Demircioglu, 2018; Torugsa & Arundel, 2016). In this study, the city councils that are more advanced in terms of innovation are not more aware of barriers. In contrast, there are two barriers whose perception differs significantly between the two groups: lack of political support and lack of leadership. SLG with a soft implementation approach, i.e., lower levels of innovation, perceived these barriers as preventing the initiation of innovations while at the same time being aware of the rest of the barriers to innovation. According to the typology of D'Este et al. (2012), lack of political support and lack of leadership constitute deterring barriers, while remaining factors constitute revealed barriers delaying innovation activities.

On the other hand, qualitative analysis of a successful case provides insights into the strategies to overcome innovation barriers. Political barriers (see Fig. 1) are managed in SLG A through the approval of the innovation strategy by the city council's plenary session, including different political parties. This strategy ensures political support and leadership in case of political changes (Meijer, 2015). Institutional barriers (see Fig. 2) are more difficult to overcome (Schedler et al., 2019). Even if regulations are implemented to encourage innovation, changing the functioning of the city council implies a transitional change of years or even decades. The approval of the first innovation mission within the innovation strategy has encouraged joint work, breaking with silo processes (Bartelt et al., 2020). The innovation center, as a municipal foundation, offers greater agility and flexibility, especially in staff recruitment (Lane, 2018). However, this strength is becoming a weakness, as the high demand of its multidisciplinary team leads to saturation and heavy workload and an independent foundation leads to decoupling from other areas of the city council. As noted by Schuurman and Tönurist (2017), the paradox of these spaces is that their main strengths are also their main weaknesses. They are fragile units due to their limited resources, uncertain budgets, and/or weak connection with core management departments of the city council. To put it differently, although they offer ways to

navigate cultural and structural barriers, users may encounter these same barriers or tensions when attempting to deploy innovations within their organizations (Favoreu et al., 2024).

Regarding the relationship among barriers, we observed the existence of two types of relationships, one of a political and the other of an institutional nature. The former refers to how the electoral dynamic can produce fear of failure that may slow down political support and innovative leadership, while the latter shows the institutional mechanisms that may produce a culture of risk aversion or coordination of problems, among others. Our findings are in line with scholars noting the relevance of political actors in the development of innovation, particularly in the Spanish case (Labrador & Olmo, 2019). Therefore, this fact points out the significant influence of the institutional context on innovators' room to maneuver (Meijer & De Jong, 2020).

## **CONCLUSION**

Our research contributes to the literature on the barriers to PSI, a research area requiring further attention (Cinar et al., 2019). This article shows the most prevalent barriers to public innovation and the differences between two groups of city councils according to the state of development of innovation. We contribute to the literature measuring impediments preventing or deterring innovation (Torugsa & Arundel, 2017) by identifying two barriers (lack of political support and lack of leadership) perceived as relevant only by SLG with the lowest levels of innovation or the softest implementation approaches. Conversely to empirical evidence from previous studies (Demircioglu, 2018), the rest of the barriers presented in the survey are perceived similarly between both groups. Public managers who are less experienced with innovation are as aware and knowledgeable about the factors limiting innovation as more experienced public managers. These results may be explained because these factors not only limit the development of innovation but are also an impediment to other policies as well as to the effective functioning of the local public administration.

Also, our research reveals the strategies implemented to overcome innovation barriers and the interrelationships among these barriers. Even if local governments can manage the political barriers, our research demonstrates the difficulties in institutionalizing innovation in governments within the southern European Napoleonic administrative tradition (Yuan & Gasco-Hernandez, 2019). Since innovation is not considered an obligation of local governments, very scarce resources are allocated to innovation and employees end up seeing innovative practices as extra work. In addition, public managers with top positions are intensely opposed to innovative changes that could lessen their influence in the organization. As Piening (2011) shows, overcoming initial resistance and supporting collaboration require extensive preparation through routines such as weekly interprofessional training sessions. However, overcoming institutional barriers entails institutional changes. Here, the creation of new structures beyond traditional administrative boundaries, i.e., in the form of innovation labs or innovation centers, does not seem to provide a long-term solution to the lack of deeply innovative changes in Spanish local administrations, whereas it might help to open these processes and engage with external stakeholders.

This study also has practical implications and is of interest to both private and public organizations working on innovation. From a political point of view, we recommend reaching a consensus on the innovation strategy and setting long-term objectives. Because of its proximity to the territory, municipal politics facilitates the achievement of common objectives for more direct benefit of the citizenry. At the organizational level, the abandonment of clientelist practices and the preservation of power by some individuals in the organization is of the utmost importance. Nor should it be forgotten that transforming public organizations requires cultural and institutional change. Developments in public innovation cannot rely solely on personal sacrifices of employees. Hence, we encourage the creation of new employee positions and incentive systems for continuous improvement and innovation. Thus, this article points out critical aspects for the reform of local administrations, including lack of personnel and job flexibility, for example, in hiring processes. These aspects related to human

resource management have already been pointed out on many occasions as an endemic problem of the Spanish local public sector (Ramió, 2022).

Alongside these contributions, this study has limitations that suggest perspectives for future research. Since it focuses on Spain, uses self-reported data, and analyzes one case study, the generalizability of the results is limited. Future research could examine other contexts to confirm external validity and explore multiple case studies. Of particular interest are the institutional forces at work in countries with a Napoleonic tradition and how they can be transformed in favor of innovation. Although our study gathered quantitative and qualitative information, it analyzed perceptions of people employed in city councils working in innovation, which may involve some social desirability bias. Exclusion of smaller municipalities (those with fewer than 50,000 inhabitants) means that our study may not capture innovation barriers unique to those contexts. Therefore, more research is needed on other public organizations of different sizes and, eventually, levels of innovation and on the perspectives of other actors. Future studies could explore additional factors that might differentiate governments with varying levels of innovation based on size and other variables. This article does not examine how specific regulations and policies influence innovation barriers, so future research should analyze the impact of regulations on public sector procurement and incentives such as European Union funds. Lastly, it is worth noting that the results of this study are exploratory and that further research is needed on the dynamic nature of barriers to innovation in the public sector.

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## **CONFLICTS OF INTEREST**

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## APPENDIX A: LIST OF INTERVIEWS

- Head of Innovation Department (R1)
- Head of Sustainable Planning Department (R2)
- Head of Smart City Department (R3)
- Director of Innovation Center Foundation (R4)
- Director of Climate Foundation (R5)
- Technician of Social Innovation (R6)
- Entrepreneurship Manager (R7)
- Technician R+D (R8)

## APPENDIX B

Table 5. PSI index survey questions

Variable	Survey Question
Novelty	Indicate on a scale of 1 to 7 where you would place the origin of innovations in your municipality, where 1 means “Our innovations are largely a copy of other people’s solutions” and 7 means “My municipality is usually the first to develop and introduce innovations.”
Complexity	Please indicate which aspects are mainly affected by innovation in your municipality (please indicate all that apply): <ul style="list-style-type: none"> <li>- Management processes, practices, structures, or techniques</li> <li>- Services</li> <li>- Policies (rights and obligations of stakeholders)</li> <li>- Mission/vision of the organization</li> <li>- Alliances/partnerships (e.g., public–private partnership)</li> <li>- Forms of collaboration with citizens</li> </ul>
Breadth	Which services or sectorial policies have experienced innovation in your city council? (Please indicate all that apply.) <ul style="list-style-type: none"> <li>- Youth</li> <li>- Security</li> <li>- Emergencies</li> <li>- Tourism</li> <li>- Economic promotion</li> <li>- Urban planning</li> <li>- Equality</li> <li>- Environment</li> <li>- Social services</li> <li>- Mobility</li> <li>- Cleanliness</li> <li>- Education</li> <li>- Health</li> <li>- Citizen participation</li> <li>- Culture/libraries</li> <li>- Sports</li> <li>- Citizen services</li> </ul>
Value	In general, has innovation in your municipality resulted in or impacted an improvement in (please indicate all that apply): <ul style="list-style-type: none"> <li>- Workplace culture</li> <li>- Policy design</li> <li>- Quality of services</li> <li>- Efficiency (we offer more quality with similar costs and time)</li> <li>- Effectiveness (we achieve our objectives better)                             <ul style="list-style-type: none"> <li>- Skills and motivation of employees</li> <li>- Satisfaction of users</li> <li>- Collaboration</li> </ul> </li> <li>- Organizational reputation</li> <li>- Risk management</li> <li>- Security</li> <li>- Transparency and/or accountability</li> <li>- Compliance with policy and/or legislation</li> </ul>

## APPENDIX C

Table 6. Factor loading for PSI index

Indicators	Component 1
Novelty	0.70
Complexity	0.85
Breadth	0.80
Value	0.79
Explained variance	62%

*Note.* Extraction method: principal component analysis. One component extracted. Factor analysis performed in Stata. Reliability analysis (Cronbach's alpha): 0.71.

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