

Inclusive Communication Observatories: A Model for Participatory Evaluation and Age-Friendly Governance

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Abstract

The twin green and digital transition is reshaping municipal governance through increasingly complex communication environments that mediate access to public services, policy interpretation, and citizen participation. The existing research on digital governance, age-friendly cities, accessibility, and participatory governance has made significant advances in understanding the challenges older adults face in digitized institutional contexts. However, municipal communication remains insufficiently conceptualized as an object of participatory evaluation. This article develops a theoretical framework, grounded in a critical review, to examine communicative exclusion as a specific form of institutional inequality that affects older adults in contexts of accelerated socio-technical transformation. The analysis argues that communication exclusion cannot be reduced to individual deficits in digital skills; rather, it must also be understood in relation to how municipalities design and organize their communication systems, information architectures, and digital infrastructures. Drawing on the literature on citizen observatories and participatory governance, this article sets forth the model of inclusive communication observatories as a participatory evaluation infrastructure through which older adults can contribute to the co-definition, auditing, interpretation, and institutional review of municipal communication processes. The work shifts communication from a secondary administrative function to a procedural requirement that determines the intelligibility and accessibility of, and participation in, public policies. The article conceptualizes inclusive communication observatories as an infrastructure for shared governance and participatory evaluation. This contribution expands the conversation on procedural justice, digital ageism, age-friendly governance, and democratic inclusion within the context of the twin green and digital transition.

Keywords

age-friendly governance; citizen observatories; communication exclusion; municipal communication; participatory governance; twin green and digital transition

1. Introduction

The twin green and digital transition entails the interdependent transformation of municipalities as territories to create more sustainable, inclusive, and resilient cities and communities, as outlined in SDG 11 of the 2030 Agenda (UN, 2015) and the Plan for the Decade of Healthy Aging 2020–2030 (WHO, 2020). From this perspective, in building inclusive cities based on urban development that prioritizes equity and social justice, digitalization can serve as a tool to enhance urban planning, optimize resources, reduce environmental impacts, and strengthen the resilience of communities. However, this digitalization will only be consistent with a sustainable city if it is designed with accessibility, equality, and social inclusion in mind. The expansion of digital infrastructure has created fragmented information environments and increased cognitive demands, leading to information overload and user disorientation (Bawden & Robinson, 2009). Similar dynamics are also observed in environmental policy contexts, where, despite the incorporation of digitalization, data's increasing complexity makes it difficult to translate it into actionable knowledge for urban sustainability (Grainger et al., 2021).

By digitizing access to public services, local governments promote sustainable behavioral changes, deploy smart infrastructure, and develop structured public policy agendas in areas such as mobility, energy efficiency, health, and social services, among others (Dedović & Cromptvoets, 2026; European Commission, 2021). This issue is often analyzed in terms of technological innovation, administrative capacity, or policy effectiveness. However, little attention has been paid to the resulting communication processes, which are especially relevant considering that the effectiveness of public management hinges on citizens' ability to navigate complex policy environments mediated by digital and integrated communication systems (Bannister & Connolly, 2012). Furthermore, this situation is also reflected in discussions about the environmental transition within citizen observatories, which, through data collection and systematization, help identify the socio-technical implications of the digital infrastructures involved in these processes, as well as in the design and implementation of policies (Erbaugh et al., 2024).

Previous research in European contexts shows that older people are frequently identified as technologically deficient or vulnerable users, which significantly shapes the implementation of public policies and their communication (Kolotouchkina et al., 2023; Llorente-Barroso et al., 2023; Ménard et al., 2025). This reality has direct implications for the design of communication infrastructures, service delivery procedures, and expectations regarding digital literacy (Xu & Larsson, 2021), as the ability to access public services and complete digital administrative procedures requires users with profiles characterized by consistent connectivity, familiarity with administrative processes, and a high degree of individual initiative.

As a result, when local institutions overlook diverse aging experiences shaped by accumulated inequalities, ageism emerges in public communication regarding services and administrative procedures. In municipal communication systems and on e-government platforms, citizens may struggle to find relevant information, understand procedures and complete essential tasks (Molina Rodríguez-Navas et al., 2021; Nouri et al.,

2020; Seifert, 2020). These challenges became particularly evident during the Covid-19 pandemic, when digitalization emerged as a top priority and exposed significant gaps between the designs of administrative structures and users' digital skills.

At the local level, access to public administration is facilitated by digital infrastructures, integrated communication environments (offline and online), and complex information systems (Campillo-Alhama & Martínez-Sala, 2017). When unclear language, fragmented structures, or unrealistic overestimations of users' capabilities are employed, forms of exclusion arise that extend beyond the content of communication infrastructures and the possibilities for accessing them (Laenens et al., 2018). Citizens may formally have digital access, yet still face significant barriers and difficulties identifying relevant information, interpreting procedures, or participating effectively in public processes. This reality is identified in this study under the concept of communicative exclusion, understood as the systematic disadvantage associated with accessibility, intelligibility, and usability in the structure, design, and organization of municipal communication. This disadvantage impacts citizens' ability to know, understand, interact, and engage in the effective development of local public policies.

With the twin green and digital transition, the issues highlighted take on particular relevance, as policies related to the ecological and digital transformation entail high levels of technical complexity, behavioral adaptation, and changes in the conditions for accessing public services. Their implementation hinges not only on physical and technological infrastructure, but also on citizens being informed and able to understand what is changing, why it matters, and how they can act accordingly. In this regard, research on community learning shows that citizen engagement depends not only on access to information, but also on its interpretability within specific social contexts (Groulx et al., 2021).

Older citizens are particularly affected by these dynamics, as reflected by WHO in the Age-Friendly Cities and Communities program, which builds on the Vancouver Protocol (WHO, 2007). Its goal is to encourage and support cities and communities worldwide in creating environments that promote healthy, sustainable, and active aging (WHO Regional Office for Europe, 2018). The program's development is based on eight areas of friendliness that help identify the needs and demands of older adults, enabling the creation of public policies on key issues that affect them as a group (Rodríguez-Rodríguez et al., 2024; van Hoof & Marston, 2021): (1) outdoor spaces and buildings, (2) transportation, (3) housing, (4) social participation, (5) respect and social inclusion, (6) civic participation, (7) communication and information, and (8) community support and health services.

Municipal communication and information, as a management area, is not seen as a mere administrative function, but rather as a cross-cutting tool that can help strengthen citizen engagement in civic participation processes (Kolotouchkina et al., 2023; Molina Rodríguez-Navas et al., 2021). Through the connection between communication and information, on the one hand, and civic participation, on the other, older people are no longer seen solely as recipients of public policies but as active participants in assessment, deliberation, and decision-making processes (Ansell & Torfing, 2021). This shared governance approach goes beyond traditional hierarchical models of local government by fostering horizontal cooperation and collective efforts to identify community needs, priorities, and solutions.

Inequalities in later life reflect cumulative trajectories linked to education, health, socioeconomic status, and prior exposure to institutions (Maj-Waśniowska & Jedynak, 2020). Therefore, communicative exclusion cannot be reduced to individual skills; rather, it must be understood in relation to how institutions design their communication infrastructures and identify users' digital skills and competencies. Likewise, older adults occupy a distinctive epistemic position: their situated experience allows them to identify barriers related to the accessibility and usability of digital communication infrastructures, which may be less apparent in technical evaluations. This provides relevant experiential knowledge for evaluating communication effectiveness (Krick, 2022).

In the literature reviewed, the communicative and informational dimension of local public action appears highly fragmented (Sánchez-González et al., 2020). This gap justifies the analytical shift undertaken in this study, which adopts a problematizing perspective (Alvesson & Sandberg, 2020) that allows for an analysis of the limitations in conceptualizing municipal communication as an object of evaluation. This article examines municipal communication as an object of participatory evaluation in the context of the twin green and digital transition. It addresses the following research question: How can municipal communication be conceptualized and evaluated as a participatory governance infrastructure capable of reducing communicative exclusion among older adults? To answer this question, the article develops a problematizing review across seven adjacent fields of research and proposes the inclusive communication observatory (ICO) model as a framework for the participatory evaluation of municipal communication. The contribution advances existing debates on age-friendly governance, participatory governance, procedural justice, and digital ageism by conceptualizing communication not as a secondary administrative function but as an evaluable governance infrastructure.

2. Methodological Approach: Problematizing Review and Theoretical Construction

The article presents a conceptual contribution as an alternative to an empirical study or a systematic review of existing literature. From a middle-range theory perspective (Merton, 2002), and in line with approaches focused on the analytical and cumulative construction of social knowledge (Hedström & Udehn, 2009), the study aims to build progressive and cumulative knowledge about a social phenomenon: the communicative exclusion of older people as a consequence of a transformative context of a twin green and digital transition based on sustainability and digitalization. Building this conceptual framework, based on a problematizing review (Alvesson & Sandberg, 2020), allows us to examine this phenomenon from an integrated analytical perspective.

Unlike integrative reviews, which synthesize and consolidate existing knowledge, problematizing reviews identify and critically examine the assumptions underlying established fields of research. Questioning these assumptions creates room for theoretical reorientation and conceptual development in public policy evaluation by connecting theoretical concepts with operational dimensions.

This approach is particularly suitable in contexts where relevant knowledge is scattered across adjacent but weakly connected fields, and where the absence of a shared analytical approach limits the cumulative development of knowledge. In this regard, middle-range conceptualizations allow for the articulation of analytical relationships between problems, mechanisms, and institutional processes, fostering the progressive development of theoretical frameworks that can be empirically refined and subsequently tested

(Hedström & Udehn, 2009; Whetten, 1989). Likewise, this type of approach is particularly relevant in fields marked by conceptual and methodological fragmentation, where analytical integration across knowledge domains is a necessary condition for moving toward more consistent and cumulative explanations.

The review follows a selective approach focused on a theoretical corpus, aiming to identify specific areas related to communicative exclusion. Rather than aiming for representativeness, priority is given to research that focuses on the seven main dimensions of the problem at hand.

Each of these seven approaches offers partial insights into how citizens communicate with public institutions. However, none of them systematically address an analysis of municipal communication as the subject of participatory evaluation, but rather as the dissemination of public policies (Bannister & Connolly, 2012). In all of them, communication is treated as a secondary dimension, which limits the capacity to explain how communication systems and processes can facilitate citizen engagement in collaborative participation processes (Zou et al., 2026).

Municipal communication remains insufficiently conceptualized as an integrated infrastructure subject to systematic evaluation. This limitation is not only empirical but also conceptual. And it reflects the lack of mechanisms through which communicative effectiveness can be defined, evaluated, and reviewed jointly by older adults and public and local institutions. To bridge this gap, we must move beyond viewing communication as an inherent part of municipal activity and instead conceptualize it as a subject for participatory evaluation. Recognizing this limitation allows us to move forward and propose infrastructures that structure municipal communication from an inclusive perspective. In the context of the twin green and digital transition, where citizen engagement increasingly hinges on accessible and understandable communication, this circumstance takes on significant relevance.

In this methodological process, the approaches identified in Table 1 are not treated as parallel contributions, but rather as a structured analysis centered around three problematizing questions implicit in municipal communication. This allows for a cross-sectional analysis of the seven approaches outlined: (a) How is municipal communication analyzed in debates on the twin green and digital transition and age-friendly governance? (b) To what extent do existing frameworks recognize citizens, particularly older adults, as evaluators of communicative effectiveness rather than merely passive recipients of information? (c) What conceptual shift is needed to expand the citizen observatory model to the realm of participatory observatories for auditing municipal communication?

Table 1. Addressing communicative exclusion through a problematizing review approach.

Analytical approaches	Priority contributions	Limitations of the approaches
(1) A twin green and digital transition in a public policy context where communication demands are intensifying	Bannister and Connolly (2012) Dedović and Cromptvoets (2026) Erbaugh et al. (2024) European Commission (2021)	Communication is primarily viewed as a functional tool for implementing digital and sustainable policies, rather than being analyzed as an institutional infrastructure that shapes citizens' access, understanding, and engagement

Table 1. (Cont.) Addressing communicative exclusion through a problematizing review approach.

Analytical approaches	Priority contributions	Limitations of the approaches
(2) Age-friendly cities that emphasize civic participation and highlight communication as an implicit condition, without presenting it as a cross-cutting evaluation criterion	Fitzgerald and Caro (2014) Kong et al. (2025) Llorente-Barroso et al. (2023) Maj-Waśniowska and Jedynak (2020) WHO (2007) Zou et al. (2026)	Limited focus on communication as a cross-cutting area subject to ongoing evaluation within local governance processes
(3) The digital divide or inequalities stemming from the individual capabilities of older adults versus the efficient design of institutional communication infrastructures	Bannister and Connolly (2012) Nouri et al. (2020) Olsson and Viscovi (2023) Seifert (2020) van Dijk (2020)	Limited ability to explain how institutional communication systems and processes themselves produce, reproduce, or amplify dynamics of communicative exclusion
(4) Digital ageism and communication barriers related to accessibility, usability, intelligibility, and navigation in institutional digital environments	Bawden and Robinson (2009) Chu et al. (2022) Kolotouchkina et al. (2023) Laenens et al. (2018) Levy and Macdonald (2016) Molina Rodríguez-Navas et al. (2021) Rosales et al. (2023)	Approaches that focus on the technical or functional correction of communication systems predominate, with little consideration given to the interpretive experiences of citizens in their evaluation
(5) Institutional ageism and the representation of older adults in communication and deliberative processes stemming from municipal action	Higgs and Gilleard (2020) Kolotouchkina et al. (2023) Ménard et al. (2025) Olsson and Viscovi (2023)	There is a lack of analytical and evaluative tools that connect institutional and representational biases to the effective transformation of municipal communication practices
(6) Participatory governance and citizen engagement in public policy processes	Emerson et al. (2012) Fung (2015) Krick (2022) Laenens et al. (2018) Nabatchi and Leighninger (2015)	There is a lack of structured mechanisms to evaluate municipal communication as a procedural requirement that enables collaborative participation
(7) Citizen observatories as a participatory infrastructure for the distributed production of knowledge in public policy	Liu et al. (2014) Soacha-Godoy et al. (2025) Wehn and Evers (2015) Wehn et al. (2026)	Limited transferability to symbolic, intangible, and procedural areas related to public communication and the evaluation of communication processes

This article does not aim to summarize existing knowledge about communication exclusion by local institutions; rather, it approaches the topic through the lens of participatory evaluation of municipal communication. By aligning with the most relevant theoretical contributions, a new, limited model is developed. This framework establishes the relationships between municipal communication in the context of a twin green and digital transition and age-friendliness, the conceptualization of its evaluation process derived from citizen observatories, and the design of a shared governance model that can be implemented in local contexts with varying social, digitalization, and sustainability conditions.

3. Municipal Communication in the Context of the Twin Green and Digital Transition

At the local level, the twin green and digital transition requires municipalities to coordinate socio-technical processes that shape policy design and access to public services. These processes not only involve deploying digital infrastructure and implementing sustainability policies but also require deep reflection on how the twin green and digital transition can create structural situations of ageism. Municipal institutions must address these to prevent communicative exclusion (Dedović & Cromptvoets, 2026; European Commission, 2021).

In this context, access to public services is increasingly mediated by digital infrastructures (websites and e-government portals), integrated communication systems (offline and online), and information environments that are procedurally dense (Campillo-Alhama & Martínez-Sala, 2017). Administrative demands not only require citizens to interpret a variety of administrative requirements, but also to respond to the implementation of digitization-based communication policies that contribute to environmental sustainability and condition access to information, benefits, and the management of administrative procedures.

Empirical research on e-government highlights these limitations, revealing that managing public services and digital procedures often requires a high level of administrative literacy and procedural familiarity, which gives rise to significant barriers for older adults in processes such as applying for financial benefits, handling healthcare procedures (Nouri et al., 2020; Seifert, 2020; van Dijk, 2020), and managing social services (Olsson & Viscovi, 2023). Evidence from municipal communication also indicates that fragmented information architectures within complex communication infrastructures make it difficult to access services and procedures, especially for older adults who need coherent and well-structured environments (Molina Rodríguez-Navas et al., 2021). On a broader scale, the increase in information density in content aimed at older adults carries a significant risk of cognitive overload and a reduced ability to process and act on relevant information (Bawden & Robinson, 2009). When digital infrastructures are difficult to access, understand, and use, they can also limit older citizens' involvement and participation in shaping public policy (Bannister & Connolly, 2012).

All these patterns point to a form of communicative exclusion that cannot be reduced solely to users' low skill levels from a strict digital divide perspective. After analyzing the literature, a clear shift is identified from a focus on individual capabilities to the efficient configuration of communication infrastructures, along with the necessary involvement of institutions to facilitate civic participation (Laenens et al., 2018).

Communicative exclusion, a direct consequence of the deficiencies inherent in municipal communication systems and processes, is addressed through two interrelated dimensions: digital ageism and institutional ageism (Kolotouchkina et al., 2023).

The first dimension pertains to digital ageism, defined as the lack of cognitive and linguistic accessibility in communication from public institutions. These institutions often use bureaucratic terminology, unintelligible formats, and poorly structured environments that fall short of accessibility standards and clear language (Silva & Carvalho Pazin Vitoriano, 2021). This dimension significantly hampers the ability to translate formal access to information into effective understanding of the content, which requires considerable interpretive effort (Levy & Macdonald, 2016). In this context, older adults are identified as marginal or disadvantaged users (Ménard et al., 2025).

Digital ageism manifests itself through four fundamental aspects: cognitive accessibility, digital waste, communicative noise, and the targeting of topics for older people. Cognitive accessibility is a fundamental requirement for digital infrastructures. It involves making content easier to understand through clear language, a hierarchical organization of information, and predictable navigation—key aspects for digital autonomy and effective access to public services. Digital waste refers to repetitive content, outdated documentation, broken links, and overly complex structures that increase cognitive effort and impede users from quickly finding relevant information (Czaja et al., 2006; Sayago et al., 2011). Communication noise arises from fragmented information across various institutional systems or channels, as well as inconsistent terminology and structure (Bawden & Robinson, 2009). Finally, tailoring content to older adults necessitates establishing, within the municipal communication architecture, the visibility of content related to the design of public policies and specific programs derived from them. This is based on the fundamental premise that inclusion does not depend solely on technical accessibility criteria or the absence of digital and communication noise, but also on institutional decisions regarding communication priorities that ensure the needs and expectations of older adults are met as a diverse and plural age group (Phillipson & Buffel, 2020; Torku et al., 2021; WHO, 2007).

The second dimension pertains to institutional ageism, which is evident in both organizational routines and municipal communication practices. While communication on social policies promotes active aging, it addresses the topic symbolically and fails to consider the existing structural barriers to accessing information that shape participation processes. Older people are often treated as a homogeneous group of dependent individuals, which leads to significant dysfunctions in their participatory representation in policy design as legitimate stakeholders in local governance (Xu & Larsson, 2021).

Traditional models of citizen participation in local public processes have typically been structured around formalized entities (such as the Older Adults Council, sectoral councils, and neighborhood committees) that can, in some cases, exclude certain vulnerable population groups who lack access. Consultation mechanisms such as surveys, public hearings, or deliberative forums primarily focus on gathering citizens' preferences regarding the content of public policies, without examining the communicative conditions of access that make them operational (Fung, 2015; Nabatchi & Leighninger, 2015; Quick & Feldman, 2011). As a result, municipal communication remains an intrinsic condition of the participation processes themselves, rather than an object of evaluation in its own right. This limitation, which affects the evaluation of communication, is particularly relevant in contexts where engagement depends not only on formal opportunities but also on citizens' ability to interpret information about sectoral public policies in unstructured communication environments (Bannister & Connolly, 2012).

Through municipal communication, citizens interpret policies, assess their relevance, and engage with institutions. In contexts of rapid transformation, the ability to understand shifting rules and identify meaningful courses of action becomes a prerequisite for equitable participation. This is because difficulties in understanding lead to reduced involvement and limited capacity for action. In this regard, social inclusion in later stages of life depends not only on access to technologies, but also on how communication systems are designed and experienced in everyday contexts (Llorente-Barroso et al., 2023; Ménard et al., 2025).

Addressing communication exclusion as an institutional phenomenon within the context of the twin green and digital transition, therefore, requires a shift in analytical perspective. The central question is not just how

older citizens adapt to digitized environments that contribute to environmental sustainability, but also how municipalities can become much more sustainable from a social perspective by designing integrated communication systems and processes (both offline and online) that facilitate civic participation by older adults as a diverse and pluralistic group.

4. From Citizen Observatories to ICOs

From an analytical standpoint, citizen observatories are identified as participatory infrastructures that enable forms of observation in contexts where problems cannot be fully grasped through conventional administrative procedures, while also facilitating interaction between experiential, expert, and institutional knowledge. Research on citizen science and open data also shows that these infrastructures are not neutral; rather, they are shaped by power dynamics that influence who defines, controls, and benefits from the production of knowledge (Cooper et al., 2021).

In the institutional context, they emerge to address issues marked by high complexity and a limited capacity to observe or interpret constantly evolving policy environments. They enable citizens to contribute to the production, interpretation, and dissemination of knowledge relevant to public policy (Liu et al., 2014; Wehn & Evers, 2015), serving as participatory infrastructures that connect knowledge production with decision-making processes (Soacha-Godoy et al., 2025).

These observatories have primarily been applied to material, spatial, or environmental phenomena such as urban sustainability and environmental risk management. However, they are less focused on areas that are less directly observable, more interpretative in nature, and closely linked to how citizens access and interpret public action to understand how policy development affects them as a group (Habibi et al., 2025). In this regard, municipal communication represents a specific analytical subject that can be addressed within the framework of these participatory infrastructures. As an object of analysis, communication exhibits characteristics that justify the applicability of mechanisms based on traditional citizen observatories. These include the existence of distributed knowledge, marked asymmetries between institutional and citizen perspectives, and the need for the ongoing evaluation of communication systems and processes aimed at older adults.

From this perspective, ICOs are designed based on citizen observatories as a structural equivalent, not an analogy, to address underlying issues related to municipal communication and the resulting consequences for older adults in the context of the twin green and digital transition.

This has two key implications: first, communication aimed at older adults is repositioned as an intangible, observable, and measurable object; second, this group transitions from being solely a data provider to becoming an analyst and evaluator. This repositioning is particularly relevant, as the life experiences of older adults can reveal mismatches between institutional proposals and their actual experiences as users of digitized benefits and services. This contribution of knowledge is necessary to complement, in an integrated manner, the strict technical evaluations conducted by local institutions (Krick, 2022; Schade et al., 2021).

Table 2 operationalizes the comparison between the two infrastructures by specifying how the logic of citizen observatories is reconfigured when applied to municipal communication as an object of study. This highlights substantial differences not only in the object of analysis, but also in the knowledge produced and its resulting implications.

Table 2. Analytical comparison of citizen observatories and ICOs.

Analytical Dimension	Citizen observatories	ICOs
Typical policy areas	Environment, urban sustainability, health, mobility, risk management, and service monitoring	Municipal public communication, age-friendly governance, digital service communication, twin green and digital transition policies
Primary object of observation	Material, environmental, spatial, behavioral, or service-related phenomena	Communicative systems, information environments, clarity, accessibility, navigability, and representational fairness
The core governance problem addressed	Information deficits, weak monitoring capacity, and limited citizen-generated evidence	Communicative exclusion, low policy intelligibility, and weak citizen influence over communication design
Main type of knowledge generated	Citizen-generated data, local observations, and distributed evidence	Participatory evidence on barriers to understanding, access, usability, and symbolic inclusion
Typical citizen role	Citizen scientist, monitor, reporter, contributor, and co-interpreter	Citizen expert, co-evaluator, co-designer, and deliberative participant
Institutional function	Supplement monitoring systems, improve accountability, and support evidence-informed policy	Improve communicative quality, strengthen procedural fairness, and enhance inclusive participation
Temporal logic	Often project-based or issue-specific, sometimes ongoing	Intended as a cyclical and embedded evaluative mechanism within municipal governance
Main sources of legitimacy	Data relevance, transparency, and participatory monitoring	Fairness of communication processes, responsiveness, and citizen-recognized communicative standards
Evidence base	Multiple empirical applications across policy sectors	Model that requires future empirical validation
Main implementation risk	Limited institutional uptake after the pilot phase	Symbolic adoption without substantive organizational change

Note: Prepared by the authors based on Habibi et al. (2025), Liu et al. (2014), Montargil and Santos (2017), and Wehn et al. (2026).

As Table 2 shows, the transition from citizen observatories to ICOs involves much more than simply extending participatory practices to a new area. Rather, it entails a reinterpretation of the observatory's logic in relation to an object that is less directly observable, more interpretative, and structurally integrated into the conditions that shape access to and involvement in public policies through communication. In this way, municipal communication is identified as something that citizens can evaluate based on its effectiveness and sustainability.

ICOs are conceived as institutional infrastructures through which communication conditions can be systematically examined via participatory processes. This expansion is based on the recognition that municipal communication can benefit from structured forms of collective evaluation that combine direct experiential and institutional knowledge (Liu et al., 2014; Soacha-Godoy et al., 2025).

This proposal is not intended to replace existing, established approaches, but rather to reconnect their contributions around a new object of study: the participatory diagnosis and evaluation of municipal communication. This approach is grounded in the recognition that communication systems and processes involve distributed knowledge, interpretative uncertainty, and asymmetries between institutional and citizen perspectives. These circumstances can be addressed through structured forms of collective evaluation (Liu et al., 2014; Soacha-Godoy et al., 2025; Wehn & Evers, 2015), as proposed in this study through the design of ICOs as a model of shared governance.

The shift in the analytical procedure of ICOs compared to citizen observatories is summarized in Figure 1, which depicts a dual movement across two dimensions: on the one hand, the object of evaluation shifts from a material and technical object of observation, in the case of citizen observatories, to a symbolic, intangible, and procedural object, in the case of ICOs; on the other, the role of citizens in evaluation processes shifts from a focus on co-production for the collection and production of material data, exclusively in the case of citizen observatories, to much more complex, comprehensive, and plural processes based on the co-production of analysis criteria that enable, in a second stage, evaluative co-production between municipal technicians and representatives of the elderly as a group.

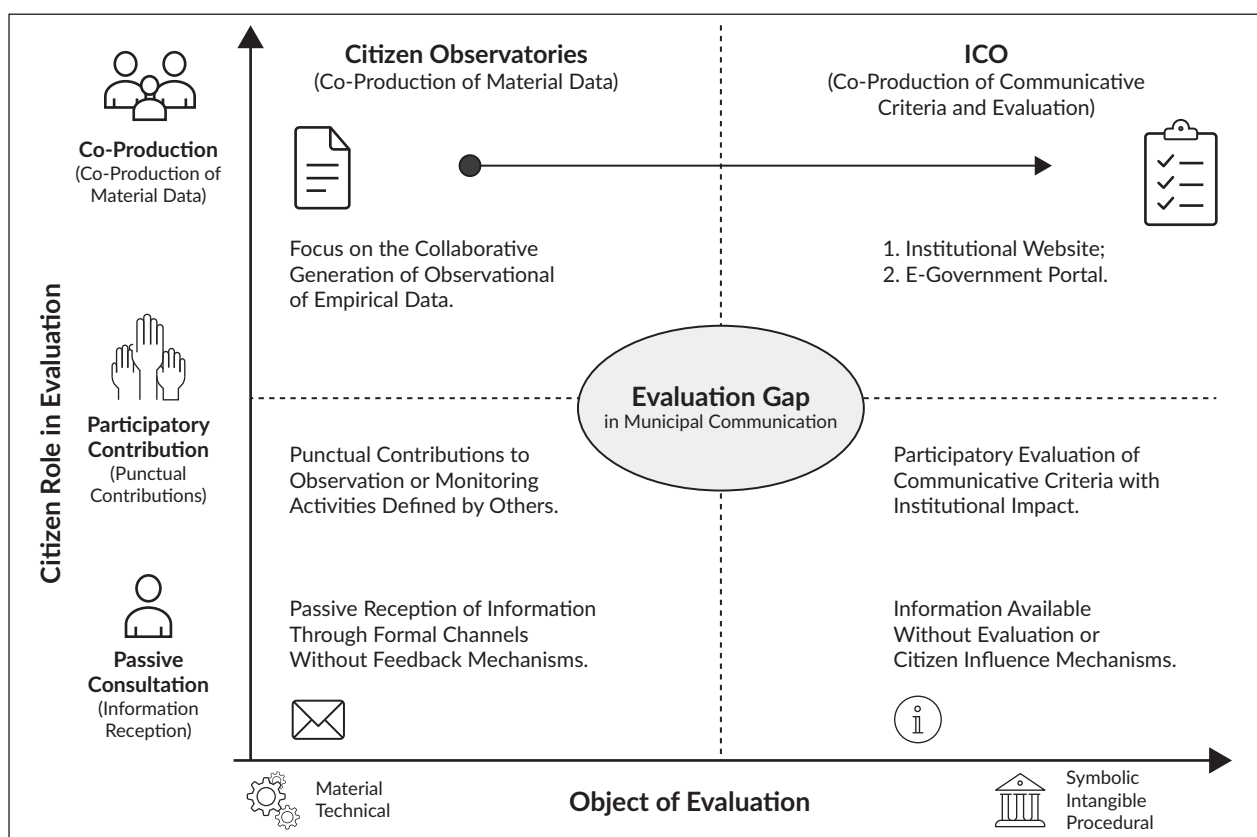


Figure 1. Conceptual extension and analytical displacement from citizen observatories to ICOs.

Based on these two dimensions, a gap is identified: the absence of standardized mechanisms for systematically evaluating communication systems and processes through civic participation at the municipal level. In the case of ICOs, observation processes are redefined for the participatory evaluation of communication aimed at older

adults. This involves assessing variables such as clear language, accessibility, usability, and content relevance, among others.

5. The ICO Model as a Sustainable Infrastructure for Shared Governance

Building on the analytical reinterpretation outlined in the previous section, a theoretical framework is presented that formalizes participatory evaluation within a shared governance process. The ICO is a general model based on civic participation. Its purpose is to combat the communicative exclusion of older people by helping to avert ageism (both digital and institutional). Involving citizens as evaluators helps identify barriers and shortcomings that can remain somewhat hidden in strictly institutional or technical assessments, particularly in settings where administrative communication is highly fragmented and information overload is common (Bannister & Connolly, 2012; Bawden & Robinson, 2009).

Figure 2 depicts a recursive process for the participatory evaluation of municipal communication. Its logic should not be interpreted as a linear technical sequence, but rather as a governance infrastructure aimed at transforming the communicative conditions that mediate the relationship between citizens and local institutions. The ICO model is based on a central premise: communicative exclusion stems not only from individual digital skills deficits, but also from how governments design, organize, and structure their public communication systems (Bannister & Connolly, 2012; Laenens et al., 2018). From this perspective, municipal communication is a procedural condition for participation, not a secondary administrative function (Emerson et al., 2012).

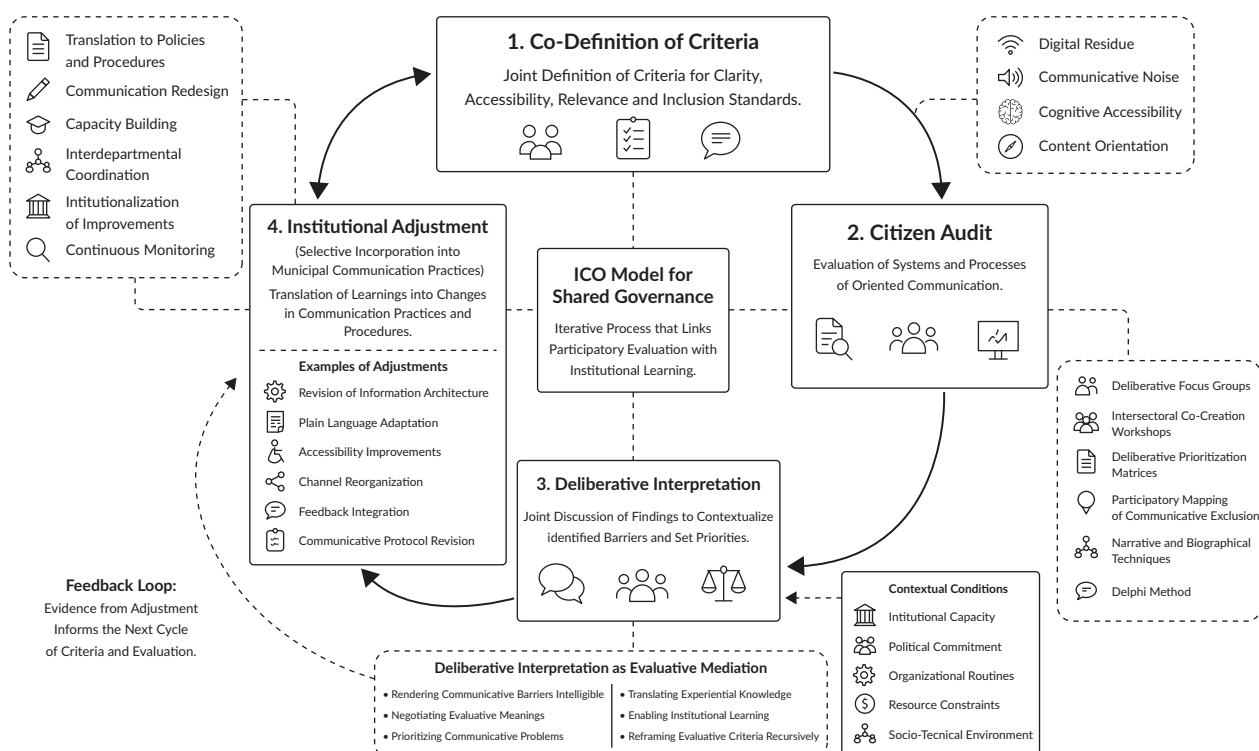


Figure 2. ICO model.

The process begins with the co-definition of criteria. This first phase forms the normative and epistemological core of the model, as it shifts the definition of communication quality from purely technical approaches to processes of shared construction between citizens and local institutions. Clarity, cognitive accessibility, information relevance, and inclusion are no longer attributes defined unilaterally by administrative departments or communication specialists. Instead, they are negotiated based on the situated experience of users, especially older adults. The goal is not just to create technical standards, but to develop evaluation criteria that are socially understandable and tied to the actual conditions under which municipal communication is used. This approach aligns with recent co-creation and participatory governance frameworks that underscore the need to integrate experiential and institutional knowledge into public evaluation processes (Fung, 2015).

This initial phase also brings together some of the structural issues identified in the literature and depicted in the upper right of the figure: digital waste, communication noise, cognitive accessibility barriers, and content orientation. These elements serve as problematic indicators that guide the definition of the evaluation criteria. The model is based on the idea that many municipal systems accumulate outdated information, have fragmented channels, redundancies, cognitive overload, or navigation architectures that are difficult to understand, which makes it challenging for citizens to identify relevant information and act on it (Bawden & Robinson, 2009; Molina Rodríguez-Navas et al., 2021). The literature on accessibility and plain language has clearly shown that the intelligibility of public information depends not only on the availability of content, but also on how it is structured, contextualized, and translated for different citizen profiles (Silva & Carvalho Pazin Vitoriano, 2021).

Based on the jointly defined criteria, the process moves forward toward a citizen audit. This second phase transforms the communicative evaluation into a systematic practice of observing and analyzing municipal communication systems. Citizens transition from passive recipients of messages to actively evaluating websites, administrative procedures, digital platforms, documents, navigation paths, and service channels. The audit goes beyond simply verifying formal compliance with technical standards; rather, it examines how communication actually functions in real-world contexts of institutional interaction. In this regard, the ICO model aligns with the logic of citizen observatories, which are participatory infrastructures for generating and evaluating distributed knowledge in complex governance contexts (Liu et al., 2014; Wehn & Evers, 2015).

The citizen audit also incorporates specific deliberative and participatory methodologies: deliberative focus groups, cross-sectoral co-creation workshops, deliberative prioritization matrices, participatory mapping of communication exclusion, narrative and biographical techniques, and Delphi methods. These tools make it possible to capture experiential dimensions that typically remain unseen in conventional technical evaluations. As a result, the evaluation shifts its focus away from solely instrumental variables and begins to consider how individuals interpret, navigate, and experience communication barriers in their day-to-day interactions with public administrations. This dimension is particularly relevant for older adults, whose life journeys and experiences with institutions help reveal gaps between the organizational assumptions of digital systems and their actual conditions of use (Krick, 2022).

The audit results do not automatically lead to institutional changes. Therefore, the model includes a third phase of deliberative interpretation, which serves as an evaluative mediation mechanism between citizen

evidence and institutional learning. At this stage, the findings are discussed collectively to contextualize identified barriers, negotiate evaluative meanings, and establish priorities for action. Deliberation plays a key role because it avoids two common reductionist approaches: on the one hand, interpreting communication problems solely as technical failures; on the other, treating them as purely subjective experiences with no potential for institutional translation. From the perspective of deliberative governance, communication is not merely a channel for transmitting information but a space for the shared construction of meaning and institutional legitimacy (Erbaugh et al., 2024).

Deliberative interpretation makes communication barriers intelligible, translates experiential knowledge into organizational knowledge, and facilitates institutional learning processes. The model assumes that municipal communication is a complex relational and cognitive infrastructure, shaped by administrative routines, organizational constraints, and institutional cultures. Therefore, communication issues require shared interpretation processes that connect citizen experiences with administrative and organizational logics. This deliberative component is particularly relevant in contexts of digital and environmental transition, which are characterized by high levels of technical complexity and social uncertainty.

The fourth phase involves institutional adjustment. Here, the knowledge generated through participatory evaluation is selectively integrated into municipal practices, procedures, and organizational structures. The figure shows that this adjustment can take place across multiple dimensions: reviewing information architectures, adapting to clear language, improving accessibility, reorganizing channels, incorporating feedback mechanisms, and revising communication protocols. From this perspective, the ICO goes beyond simply identifying barriers, introducing institutional capacities for organizational learning and continuous communicative adaptation (Schade et al., 2021).

However, the model explicitly emphasizes that this incorporation is neither automatic nor deterministic. The results hinge on contextual conditions: institutional capacity, political commitment, organizational routines, resource availability, and the socio-technological environment. These variables determine the extent to which evaluation evidence can be translated into effective organizational transformations. The literature on public innovation and participation has consistently shown that many participatory processes fail when organizations lack structures capable of consistently incorporating externally generated knowledge (Quick & Feldman, 2011; Soacha-Godoy et al., 2025). Therefore, the ICO does not assume that every evaluation necessarily leads to improvements; rather, it views participatory evaluation as a potential mechanism for institutional learning that is shaped by specific contexts.

6. Conclusions and Implications

The twin green and digital transition is reshaping how citizens engage with local institutions. Much of the research on digital governance, urban sustainability, and citizen participation has tended to view municipal communication as a functional support for public policies, rather than as an institutional infrastructure that shapes the practical intelligibility of those policies. This article offers a conceptual contribution aimed at addressing the communicative exclusion of older adults as a procedural issue tied to conditions of access, comprehension, usability, and participation in contexts of increasing communicative complexity.

The dynamics of communicative exclusion cannot be reduced solely to individual deficits in digital skills. The difficulties many older adults face when interacting with public administrations also stem from the design of the municipal communication infrastructures themselves: fragmented information architectures, cognitive overload, bureaucratic language, inconsistent terminology, digital environments that are difficult to navigate, and a lack of content tailored to this age group. From this perspective, communication exclusion represents a specific form of institutional inequality that impacts citizens' actual ability to understand procedures, identify resources, use public services, and participate in local governance processes (Bannister & Connolly, 2012; Molina Rodríguez-Navas et al., 2021).

This article proposes repositioning municipal communication as an object of participatory evaluation focused on older adults. Rather than approaches that focus solely on disseminating information or deploying technology, this article proposes conceptualizing communication as a procedural condition for participation. This reformulation entails shifting the focus from individual capacities for digital adaptation to the structural conditions through which institutions produce intelligibility, guidance, and communicative accessibility. In this regard, the article links the issue of municipal communication to broader discussions on procedural justice, collaborative governance, and institutional ageism (Fung, 2015).

Based on this analytical shift, the concept of ICOs is developed as a participatory infrastructure for evaluating municipal communication. The proposal goes beyond simply applying the logic of traditional citizen observatories to a new field; rather, it proposes a structural reinterpretation of these infrastructures to address less visible, more interpretative aspects closely tied to the intangible symbolic and procedural dimensions of public action. This conceptual shift allows municipal communication to become an object that can be observed, evaluated, and used for institutional learning.

The ICO model also incorporates a second contribution: redefining the role of older adults in local governance processes. Traditionally, this group has been portrayed as a passive recipient of services, an object of protection, or a vulnerable population that must adapt to digitalized environments. The ICO model introduces a significant epistemological shift: older people are now recognized as legitimate evaluators of municipal public communication. Their situated experiences become valuable as expert knowledge for identifying barriers that are often overlooked by conventional technical audits, particularly in matters related to navigability, procedural clarity, content orientation, and representational adequacy (Krick, 2022).

From this perspective, ICOs also help to challenge forms of digital and institutional ageism that often remain normalized within municipal communication systems and processes. Administrative complexity, fragmented channels, and cognitive overload are often viewed as secondary issues or difficulties stemming from individual digital literacy deficits. However, the model proposed shifts this interpretation and views these barriers as organizational outcomes stemming from institutional decisions regarding information architecture, communicative priorities, and procedural design. As a result, exclusion is no longer analyzed solely as a problem of older adults adapting to technology; rather, it is now conceptualized as a consequence of how institutions create conditions for accessibility, intelligibility, and communicative guidance (Chu et al., 2022; Rosales et al., 2023).

Older citizens participate not only by providing opinions on existing public policies, but also by influencing the communication conditions that make it possible to understand, utilize, and engage with them. Thus,

inclusion is no longer seen solely as formal access to information, but is linked to the actual ability to interpret and act within complex institutional environments (Emerson et al., 2012). At the same time, participatory evaluation helps identify symbolic forms of exclusion linked to the invisibility of older adults within municipal communication priorities, especially in areas related to sustainability, urban innovation, and digital transformation (Kong et al., 2025; Phillipson & Buffel, 2020).

However, the article demarcates the scope of its claims. The proposal developed is a theoretical construction model and has not been empirically validated to date. The ICO is presented as an analytical conceptualization aimed at identifying potential mechanisms for participatory evaluation and institutional learning. Its functioning depends on contingent factors such as organizational capacity, political commitment, and the degree to which participatory processes are institutionalized (Quick & Feldman, 2011; Soacha-Godoy et al., 2025). Likewise, the model has limitations stemming from the contextual and interpretative nature of municipal communication. Communication barriers and the institutional integration of evaluation results can vary significantly depending on the organizational, territorial, and social conditions of each municipality.

Given these limitations, the research sets a future agenda focused on empirical, comparative, and longitudinal analysis of how ICOs function in different municipal contexts, especially to examine the conditions under which participatory evaluation helps improve the intelligibility of municipal communication and the institutional capacity to respond (Groulx et al., 2021). Future research should advance the methodological operationalization of indicators related to cognitive accessibility, digital waste, communication noise, and content orientation, as well as the development of participatory auditing tools applicable to integrated municipal communication systems (both offline and online). It would also be relevant to explore the transferability of the ICO model to other groups affected by communication exclusion dynamics and to specific sectoral areas related to health, social services, urban sustainability, and e-government.

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Conflict of Interests

The authors declare no conflict of interests.

LLMs Disclosure

The authors used ChatGPT (OpenAI) as a large language model (LLM) based writing support tool. The LLM was employed to assist with language editing, translation from Spanish into academic US English, stylistic refinement, and structural clarification of arguments. All conceptual development, theoretical framing,

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