

Article

Nudges and cognitive processes in public administration:
a systematic review and research agendaAline Rossales Sengik^{1 *}Antônio Carlos Gastaud Maçada (*in memoriam*)¹

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Nudge-type interventions have become central to the discussion on innovation in public policy, contributing to the re-evaluation of traditional governance and public management instruments. However, the potential for applying these interventions to different processes — both internal and external — within public administration has not yet been fully explored. Accordingly, based on a hybrid systematic literature review, this study aims to identify and synthesize the main research themes, types of nudge interventions, organizational domains, and behavioral foundations associated with the application of nudges within the internal environment of public organizations. The analysis is based on a portfolio of 54 articles selected from the Scopus and Web of Science databases, of which 11 studies explicitly addressing the application of nudges in public organizational contexts comprise the subset subjected to qualitative analysis. Results indicate that, while interest in nudges in public administration is growing, their application within public organizational contexts remains limited, with a predominance of studies focused on citizen behavior. There is a prevalence of low-cognitive-cost interventions — such as defaults, reminders, feedback, and social norms — primarily concentrated in the domains of organizational performance, decision-making processes, communication, and internal prosocial behavior. Furthermore, the literature reveals gaps concerning the organizational integration of interventions, the alignment between cognitive mechanisms and types of nudges, and the limited generalizability of empirical results. Based on these findings, the study proposes a research agenda structured around three analytical axes, offering guidelines for future research to deepen the use of nudges as instruments to support management, decision-making, and public policy implementation.

Keywords: behavioral public administration, nudges, public organizations.

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Nudges e processos cognitivos na administração pública: revisão sistemática e agenda de pesquisa

As intervenções do tipo *nudge* tornaram-se centrais na discussão sobre inovação em políticas públicas, contribuindo para a reavaliação de instrumentos tradicionais de governança e de gestão pública. Entretanto, o potencial de aplicar essas intervenções a diferentes processos – internos ou externos – da administração pública ainda não foi plenamente explorado. Assim, com base em uma revisão sistemática híbrida da literatura, objetivou-se identificar e sintetizar os principais temas de pesquisa, os tipos de intervenções de *nudge*, os domínios organizacionais e os fundamentos comportamentais associados à aplicação de *nudges* no ambiente interno das organizações públicas. A análise baseia-se em um portfólio de 54 artigos selecionados nas bases de dados *Scopus* e *Web of Science*, dos quais 11 estudos que abordam explicitamente a aplicação de *nudges* no contexto organizacional público compõem o subconjunto submetido à análise qualitativa. Os resultados indicam que, embora o interesse por *nudges* na administração pública venha crescendo, sua aplicação no contexto organizacional público ainda é limitada, com predomínio de estudos voltados ao comportamento dos cidadãos. Observa-se a prevalência de intervenções de baixo custo cognitivo, como *defaults*, lembretes, feedbacks e normas sociais, concentradas principalmente nos domínios de desempenho organizacional, processos decisórios, comunicação e comportamento pró-social interno. Além disso, a literatura revela lacunas relacionadas à integração organizacional das intervenções, ao alinhamento entre mecanismos cognitivos e tipos de *nudge* e à limitada generalização dos resultados empíricos. Com base nesses achados, o estudo propõe uma agenda de pesquisa estruturada em três eixos analíticos, oferecendo diretrizes para investigações futuras que aprofundem o uso de *nudges* como instrumentos de apoio à gestão, à tomada de decisão e à implementação de políticas públicas.

Palavras-chave: administração pública comportamental, *nudges*, organizações públicas.

Nudges y procesos cognitivos en la administración pública: una revisión sistemática y agenda de investigación

Las intervenciones de tipo *nudge* se han vuelto centrales en el debate sobre la innovación en políticas públicas, contribuyendo a la reevaluación de los instrumentos tradicionales de gobernanza y gestión pública. Sin embargo, el potencial de aplicar estas intervenciones en distintos procesos —tanto internos como externos— de la administración pública aún no ha sido plenamente explorado. Por lo tanto, a partir de una revisión sistemática híbrida de la literatura, este estudio tuvo como objetivo identificar y sintetizar los principales temas de investigación, los tipos de intervenciones, los dominios organizacionales y los fundamentos conductuales asociados a la aplicación de *nudges* en el entorno interno de las organizaciones públicas. El análisis se basa en un portafolio de 54 artículos seleccionados de las bases de datos *Scopus* y *Web of Science*, de los cuales 11 estudios que abordan explícitamente la aplicación de *nudges* en el contexto organizacional público conforman el subconjunto sometido al análisis cualitativo. Los resultados indican que, si bien el interés por los nudges en la administración pública está en aumento, su aplicación en el ámbito organizacional público sigue siendo limitada, con un predominio de estudios centrados en el comportamiento ciudadano. Se observa la prevalencia de intervenciones de bajo costo cognitivo —como valores predeterminados (*defaults*), recordatorios, retroalimentación y normas sociales—, concentradas principalmente en los ámbitos del desempeño organizacional, procesos decisivos, comunicación y comportamiento prosocial interno. Además, la literatura revela brechas relacionadas con la integración organizacional de las intervenciones, la alineación entre los mecanismos cognitivos y los tipos de *nudge*, así como la limitada generalización de los resultados empíricos. Con base en estos hallazgos, el estudio propone una agenda de investigación estructurada en tres ejes analíticos, ofreciendo directrices para investigaciones futuras que profundicen en el uso de los *nudges* como herramientas de apoyo a la gestión, la toma de decisiones y la implementación de políticas públicas.

Palabras clave: administración pública conductual, *nudges*, organizaciones públicas.

1. INTRODUCTION

Over the past few decades, behavioral public administration (BPA) has incorporated insights from behavioral economics and cognitive psychology to better understand and influence decision-making in the public sector (Bhanot & Linos, 2020; Grimmelikhuijsen et al., 2017). This approach assumes that citizens, civil servants, and managers make decisions under bounded rationality, shaped by cognitive biases, heuristics, and contextual factors that influence judgment and behavior (Grimmelikhuijsen et al., 2017; Kasdan, 2020).

In this context, nudge interventions have emerged as an innovative and effective strategy, widely used to guide citizen behavior across domains such as taxation, healthcare, environmental sustainability, social security, and energy consumption (Bammert et al., 2020; Beshears & Kosowsky, 2020; Moreira et al., 2023; Sunstein et al., 2019). Given their diverse forms, these interventions can be integrated into any organizational area involving human behavior, including practices, processes, managerial techniques, and organizational structures (Hall-Ellis, 2015).

The concept of a “nudge” entails the use of simple, low-cost, and easily implemented interventions designed to steer individuals toward optimal decisions without restricting freedom of choice, thereby aiming to improve individual and collective outcomes (Moreira et al., 2023; Thaler & Sunstein, 2008). Over time, nudge interventions have moved to the forefront of the debate on public policy innovation, contributing to the reappraisal of traditional instruments of governance and public management (Ewert et al., 2021; Moreira et al., 2023).

Although nudges are often framed as low-cost, high-impact tools, their use in the public sector has faced criticism, particularly regarding ethical dilemmas, the potential for behavioral manipulation, and the issue of public trust (Schmidt & Engelen, 2020; Sunstein et al., 2019). According to Correa et al. (2022), adopting nudges in the public sector requires strict adherence to transparency, accountability, and alignment with public values; otherwise, the legitimacy of such interventions may be compromised.

Building on this conceptual and normative understanding, recent studies have shown that nudge interventions are equally applicable within the internal organizational environment. For instance, comparative feedback, choice simplification, and decision defaults can positively influence productivity, adherence to routines, and the quality of managerial decisions (Ebert & Freibichler, 2017; Renz et al., 2023; Stieler & Henike, 2022). More recently, research by Nuijten et al. (2025) involving internal auditors showed that nudges based on descriptive social norms can help auditors influence managers to terminate problematic information systems projects, highlighting the role of nudging in internal organizational decision-making.

Furthermore, Kuroki and Sasaki (2025) demonstrated, through experiments with local government budget officials in Japan, that behavioral framing can increase resource allocation to undervalued policies, indicating that nudges can influence public-sector budgetary decisions. These findings reinforce the notion that the application of nudges in organizational settings is not limited to the private sector but also has direct implications for contemporary public management.

Despite the growing popularity of nudge literature as an emerging research topic, scholars acknowledge that applications remain fragmented, concentrated in a few organizational domains, and lacking the analytical systematization needed for use within public organizations (Battaglio et al., 2019; Beshears & Gino, 2015; Chapman et al., 2021; Müller et al., 2023). Most empirical studies focus on the behavior of individuals as citizens or service users, rather than on the behavior of internal organizational actors in the public sector (Battaglio et al., 2019; Ewert et al., 2021; Iwasa & Almeida, 2021).

This gap is particularly significant given that the decisions of civil servants and managers, who operate under bounded rationality and cognitive biases, are central to policy implementation, organizational performance, and the quality of public services (Battaglio et al., 2019; Beshears & Gino, 2015; Beshears & Kosowsky, 2020). Consequently, there is a clear gap in the literature: the absence of an integrative framework that systematizes how, where, and for what purposes nudge interventions are used within the internal environment of public organizations.

To address this theoretical gap, the following research questions (RQs) were formulated:

- **RQ₁:** How is the body of literature regarding the application of nudges in public organizations characterized in terms of research themes, types of nudge interventions, and underlying cognitive processes, with a focus on decision-making?
- **RQ₂:** What are the potential areas and future directions for research on nudges within public organizations?

Accordingly, this study conducts a hybrid systematic literature review of nudge interventions in public organizations. The objective is to identify and synthesize core research themes, types of nudges, organizational domains, and the behavioral foundations of nudging within public organizations' internal environments.

It is noteworthy that while existing systematic reviews on nudges exist, they target specific contexts distinct from the focus of this study. For example, Valta et al. (2022) provided an overview of digital nudging to assist researchers and practitioners in information systems design. In contrast, the present study offers a comprehensive panorama of nudge applications with a focus on administration, specifically within the internal organizational environment.

By providing a holistic, structured view of the literature and identifying promising directions for a structured future research agenda, this study contributes to advancing BPA. It shifts the focus from interventions directed exclusively at citizens to the internal operations of organizations, highlighting the potential of nudges as tools for management support, decision-making, and evidence-based optimization in the public sector.

The article is structured as follows: Section 2 provides a brief theoretical foundation for the concepts and identifies the literature gap regarding nudges in public administration; Section 3 details the methodological procedures used in the systematic review; Section 4 presents the main findings that address the research questions; and Section 5 offers the concluding remarks.

2. THEORETICAL FOUNDATION

The following subsections of this theoretical foundation briefly review behavioral public administration (BPA), cognitive processes, and nudge interventions, and identify the theoretical gap regarding nudges in public administration.

2.1 Cognitive processes BPA

BPA is defined as: “an approach that is characterized by the interdisciplinary analysis of public administration from the perspective of individual behavior and attitudes by drawing on insights and theories about the underlying psychology and behavior of individuals” (Grimmelikhuijsen et al., 2017, p. 52). Unlike traditional approaches that assume fully rational agents, BPA recognizes that decision-makers operate under bounded rationality. Decision-makers rely on cognitive processes, such as heuristics and biases, which, while functional in many contexts, can lead to systematic deviations in judgment and choice (Battaglio et al., 2019; Grimmelikhuijsen et al., 2017; Kahneman, 2011; Simon, 1947).

A central contribution to understanding decision-making processes was proposed by Kahneman (2011), who described two distinct systems of thought that guide individual action. System 1 is characterized by fast, automatic, intuitive, and often emotional processes that operate with little or no cognitive effort. Conversely, System 2 involves slow, deliberative, analytical, and logically structured processes that require greater attention and conscious effort (Kahneman, 2011). Although System 2 is responsible for complex reasoning and the regulation of automatic responses, a large portion of daily decisions are made at a subconscious level associated with System 1 (Evans & Stanovich, 2013; Kahneman, 2011).

In public administration, these limitations are especially relevant, as managerial, administrative, and operational decisions are made in complex environments under pressure from deadlines, information overload, and competing objectives (Grimmelikhuijsen et al., 2017; Moseley & Thomann, 2021; Simon, 1947). Under these conditions, public managers and civil servants tend to rely more on System 1, making them more susceptible to cognitive biases such as *status quo* bias, loss aversion, the availability heuristic, and cognitive overload (Battaglio et al., 2019; Grimmelikhuijsen et al., 2017; Kahneman, 2011; Münscher et al., 2016). These biases can compromise decision quality, even in formally structured and regulated organizational environments (Battaglio et al., 2019).

2.2 Nudge interventions and cognitive processes

Behavioral interventions known as nudges are situated within the scenario described above. The nudge concept gained prominence following the seminal work of Thaler and Sunstein (2008), who define it as any aspect of choice architecture that alters people's behavior in a predictable way without restricting options or significantly changing economic incentives. From a cognitive perspective, nudges predominantly target System 1, leveraging automatic patterns of judgment and decision-making while reducing the need for continuous System 2 activation (Kahneman, 2011; Münscher et al., 2016; Thaler & Sunstein, 2008).

One of the most comprehensive classifications of nudge techniques is proposed by Münscher et al. (2016), who organize them into three main categories: (i) decision information, which improves the presentation of available information, reduces cognitive load, and facilitates decision processing (e.g., comparative messaging); (ii) decision structure, which modifies the decision environment, such as setting default options or ordering alternatives to influence automatic choices; and (iii) decision assistance, which provides additional support, such as reminders and feedback, to help individuals align their choices with their stated intentions. These techniques operate primarily through underlying cognitive processes associated with automatic judgment and decision-making, thereby bypassing the need for constant deliberative engagement (Münscher et al., 2016).

A relevant conceptual nuance, especially when applying nudges in complex organizational contexts like the public sector, is the distinction between psychological mechanisms and the types of behavioral interventions. Psychological mechanisms refer to the underlying cognitive processes that explain why an intervention works, such as loss aversion or *status quo* bias (Kahneman, 2011). On the other hand, nudges are the practical strategies used to influence decisions, such as defaults, feedback, information simplification, or social norm messaging (Münscher et al., 2016; Thaler & Sunstein, 2008). This distinction is essential to avoid analytical ambiguity and misinterpretations regarding the effects of behavioral interventions.

In this context, studies have linked different types of nudges to specific psychological mechanisms that explain their behavioral effects. As Jachimowicz et al. (2019) argue, the effects of interventions based on predefined patterns (defaults) do not stem from a single psychological mechanism but rather from a combination of *status quo* bias, reduced cognitive effort, and the perception of the default as a legitimate recommendation. These effects are heavily dependent on the decision-making context.

Evidence from public policy field experiments reinforces this perspective by showing that variations in intervention design elicit different behavioral responses, such as social norms and salience, with varying effects on individual compliance (Hallsworth et al., 2017). Furthermore, recent approaches in behavioral design emphasize that nudge effectiveness depends on aligning the chosen techniques with the psychological mechanisms mobilized in specific contexts, underscoring the need for context-sensitive analysis (Akker, 2025).

2.3 Theoretical gap regarding nudges in public administration

In public administration, nudge interventions have been widely used in public policies targeting citizen behavior, particularly in health, sustainability, and taxation (Hallsworth et al., 2017; Organisation for Economic Co-operation and Development, 2017). Despite their widespread use, nudges in the public sector have been subject to significant normative criticism. Some in the literature argue that while nudges do not formally eliminate freedom of choice, their application raises ethical dilemmas concerning transparency, power asymmetries, and the democratic legitimacy of policies that incorporate them (Correa et al., 2022; Schmidt & Engelen, 2020).

Concurrently, the literature on nudges in organizational contexts has advanced. Recent studies indicate that nudge interventions can influence the quality of managerial decisions, administrative processes, leadership practices, and organizational behavior through strategies such as choice simplification, structured feedback, and default settings (Cahenzli et al., 2021; Renz et al., 2023; Stieler & Henike, 2022). In these settings, nudges can help mitigate recurring cognitive biases and improve decision-making quality (Jachimowicz et al., 2019; Thaler & Sunstein, 2008). However, this evidence is largely concentrated in private organizations or hybrid contexts, with limited systematic application in the public sector (De Ridder et al., 2024; Mills & Whittle, 2024).

Despite the growth of the nudge and BPA literature, a significant gap remains in applying nudges within the internal environment of public organizations, particularly regarding the relationship between cognitive processes and intervention types. The organizational specificities of the public sector, such as formal hierarchies, rigid legal frameworks, control mechanisms, and the multiplicity of public objectives, make the application of nudges particularly sensitive and complex.

Consequently, there is no integrated perspective that systematizes the themes, intervention types, and organizational domains in which these strategies have been investigated. This gap justifies a systematic literature review to consolidate current knowledge and guide future research agendas on the use of nudges within the internal environment of public organizations.

3. METHOD

The exploratory research was developed using the methodological principles of a hybrid systematic review, which integrates bibliometric and structured literature review methods (Paul & Criado, 2020). This analytical search strategy enables the analysis and synthesis of current knowledge and future

requirements within a given research field, making it useful and impactful for other scholars seeking information on a specific topic (Paul & Menzies, 2023; Tranfield et al., 2003). This study followed the procedures suggested by Moher et al. (2009), which guide researchers in adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and organizing the review process into four stages: identification, screening, eligibility, and inclusion. These guidelines were adapted to reflect the hybrid nature of the review.

3.1 Identification stage

To meet the primary objective of identifying and synthesizing core research themes, types of nudge interventions, organizational domains, and the behavioral foundations associated with their application, a systematic literature review was conducted, guided by the research questions presented in Table 1. The review collected and synthesized relevant studies that met the established eligibility criteria, ensuring the results provided a comprehensive overview of the literature on this theme.

TABLE 1 RESEARCH QUESTIONS

Question	Goal
RQ₁ : How is the body of literature regarding the application of nudges in public organizations characterized in terms of research themes, types of nudge interventions, and underlying cognitive processes, with a focus on decision-making?	To systematize the body of literature on the application of nudge interventions within the public organizational environment, identifying research themes, intervention types, and cognitive processes associated with decision-making.
RQ₂ : What are the potential areas and future directions for research on nudges within public organizations?	To present potential pathways for conducting research on the application of nudge interventions within the public organizational environment.

Source: Elaborated by the authors.

Subsequently, the search strategy was defined to identify potential records across the research sources, as illustrated in Table 2. Additionally, eligibility filters were applied to journal articles published in English, Spanish, and Portuguese, with no time limit on publication date.

TABLE 2 INFORMATION SOURCES AND SEARCH STRATEGIES

Database	Search fields	String	Number of retrieved documents
Scopus	Title, Keywords, and abstract	<i>((TITLE-ABS-KEY(nudg*) AND TITLE-ABS-KEY("public sector") OR TITLE-ABS-KEY("public university") OR TITLE-ABS-KEY("public organization") OR TITLE-ABS-KEY("public institution") OR TITLE-ABS-KEY("public administration")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Spanish") OR LIMIT-TO (LANGUAGE, "Portuguese")))</i>	86
Web of Science	Theme	<i>nudg* (Theme) AND ("public sector" or "public university" or "public organization" or "public institution" or "public administration") (Theme) and Article (Types of documents) and English or Spanish or Portuguese (Languages)</i>	61

Source: Elaborated by the authors.

Data collection was completed in early January 2026, using the Scopus and Web of Science databases as sources. These databases were selected to ensure the inclusion of only high-quality studies (Dwivedi et al., 2021). The search yielded 147 documents. Information from these articles was organized in a spreadsheet to facilitate filtering in the subsequent stage of the review.

3.2 Screening stage

The initial search in the Scopus and Web of Science databases retrieved 147 documents. In the first screening stage, a check was performed to identify duplicate documents across the databases; 51 duplicates were identified and removed, following the exclusion criterion EC1 – article appears in both consulted databases.

Next, two researchers independently conducted a second screening of the remaining documents. At this stage, titles and abstracts were reviewed and categorized by focus area based on an analysis of the study objectives. Thirty-four articles were excluded, primarily because of exclusion criterion EC2 – the study's focus area diverged from the central theme of this review. For example, some articles focused on individual behavior related to healthy eating (Franchini et al., 2023) or environmental sustainability (Ghesla et al., 2020), among other topics that did not align with the focus of nudge applications in public administration.

Subsequently, a third screening was conducted to identify documents that used a systematic literature review as their method. Two such documents were identified and excluded according to criterion EC3 – systematic literature review articles.

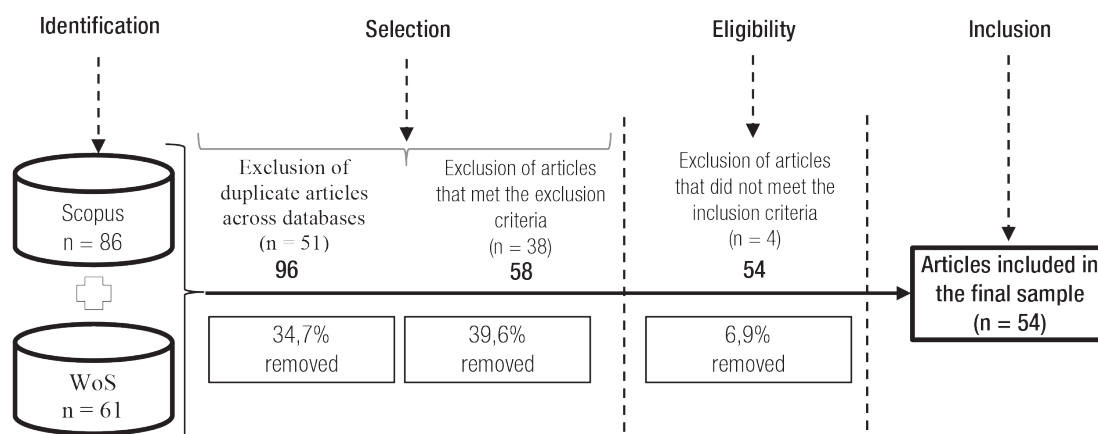
Finally, the last screening sought access to the full texts of the documents to enable the next stage of the review. It was found that two articles were unavailable and were therefore excluded according

to criterion EC4 – the full text of the article is not available or was not located. As a result, a sample of 58 documents was obtained for analysis in the next stage.

3.3 Eligibility stage

At the eligibility stage, the 54 selected articles underwent full reading, evaluation, and filtering against the inclusion criterion IC1—publications that, in some way, addressed the focus of this review, namely the application of nudge interventions in the public organizational context or within BPA. At this stage, four articles were excluded because they did not meet the inclusion criteria. For instance, some studies did not focus specifically on nudge-type interventions (Friedberg et al., 2024) or addressed distinct contexts, such as the legal field (Zeilstra, 2024). Upon completion of this process, a final sample of 54 valid articles was obtained, as described in the process flow (Figure 1).

FIGURE 1 STAGES OF THE FLOW PROCESS CONDUCTED IN THE SEARCH ACCORDING TO THE PRISMA DIAGRAM



Source: Elaborated by the authors.

3.4 Inclusion Stage

In the inclusion stage, the remaining 54 scientific articles were initially considered; they constitute the final sample of the bibliographic study and served as the basis for both quantitative and qualitative analyses. The research questions defined in the study were addressed through an analysis that began with VOSviewer software to identify how the body of literature on the application of nudge interventions in the public context has developed over the years.

It should be noted that the Xploredados tool was used to merge the Scopus and Web of Science databases. Subsequently, it was found that 11 articles in the bibliographic sample (20.4%) explicitly

focused on the application of nudge interventions within the public organizational environment, which was the primary focus of this review.

Based on this subset of documents, a coding spreadsheet was developed to extract metadata from the articles, including title, authors, the type of nudge intervention investigated, concrete examples of the interventions used, and the organizational domain. The researchers then qualitatively analyzed these data to identify and systematize the nudge interventions applied within the public organizational environment.

The adopted classification followed an inductive-deductive analytical strategy, combining established categories from the behavioral economics literature with empirical evidence from the reviewed studies. In this way, the study aimed not only to identify the organizational domains and types of interventions employed but also to infer, based on their characteristics, which behavioral mechanisms were predominantly triggered in each context, thereby addressing the first research question.

The second research question, aimed at identifying future directions and research agendas for the application of nudge interventions in public organizations, was addressed through a critical review of the literature. This included both the subset of studies that explicitly applied nudges in public organizations and the core articles identified within each bibliometric cluster. The results of the quantitative and content analyses are presented in the following section.

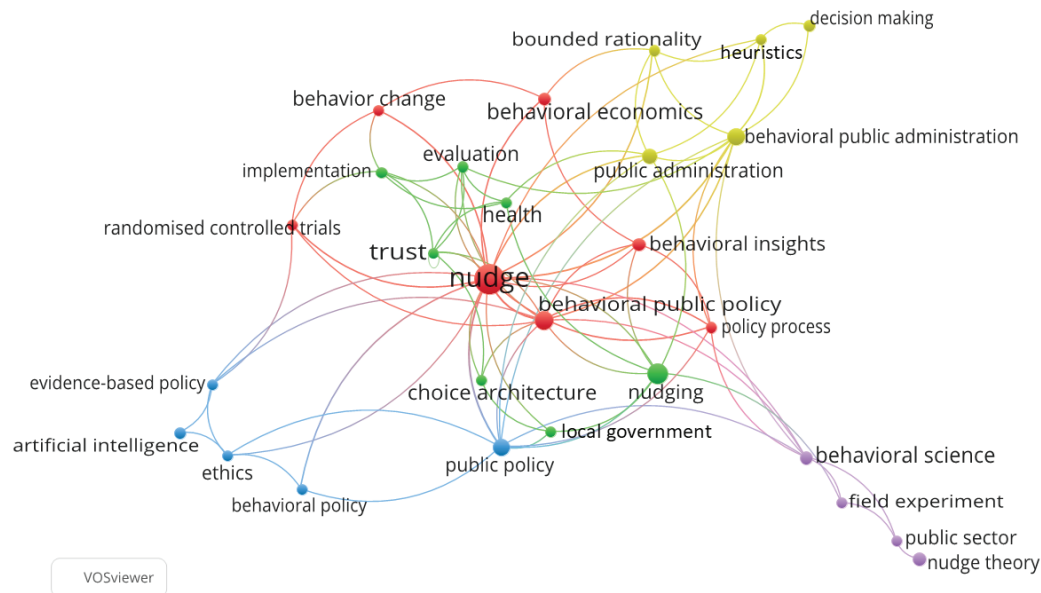
4. RESULTS AND DISCUSSION

This section provides comprehensive insights into the research questions, based on the analysis of the selected studies. To this end, the section is subdivided into two topics: the first presents the general aspects of the articles in the bibliographic sample to address the first research question. The second topic presents a proposed research agenda thereby addressing the second research question.

4.1 General aspects of the bibliographic sample

Data from the articles in the bibliographic sample were exported to VOSviewer to analyze which keywords authors used most prominently. Initially, 155 keywords were identified; the analysis was restricted to keywords with at least two occurrences to facilitate analysis and map visualization, resulting in a co-occurrence network of 28 items (Figure 2). This set corresponds to the most frequent keywords and, according to the third law of bibliometrics, Zipf's Law, allows for a deeper understanding of the research themes in a specific field.

FIGURE 2 KEYWORD CO-OCCURRENCE IN THE SELECTED SAMPLE



Source: Elaborated by the authors based on research data using the VOSviewer software.

The analysis of the keyword co-occurrence network revealed that the closest items were grouped into five clusters, each highlighted by a distinct color, with a total of 82 links and 102 connections between items. By examining the terms grouped in each cluster, it is possible to identify probable research themes on nudge interventions in the public environment, as summarized in Table 3.

TABLE 3 CHARACTERIZATION OF THEMES ACCORDING TO KEYWORD CO-OCCURRENCE

Cluster	Terms	Themes
Red	(7 terms): behavior change, behavioral economics, behavioral insights, behavioral public policy, nudge, policy process, randomized controlled trials.	Characterized by the use of nudge-type interventions in public management and public policymaking, utilizing scientific methods such as randomized controlled trials.
Green	(7 terms): choice architecture, evaluation, health, implementation, local government, nudging, trust.	Characterized by the measurement and evaluation of interventions through choice architecture in local government policies, primarily in the area of public health.
Blue	(5 terms): artificial intelligence, behavioral policy, ethics, evidence-based policy, public policy.	Characterized by aspects that relate the use of artificial intelligence to ethics and the use of evidence in government policymaking.
Yellow	(5 terms): behavioral public administration, bounded rationality, decision-making, heuristics, public administration.	Characterized by a focus on how decisions are made in the public sector using heuristics and behavioral principles, with an emphasis on bounded rationality.
Purple	(4 terms): behavioral science, field experiment, Nudge Theory, public sector.	Characterized by the use of field experiments and Nudge Theory to implement interventions in the public sector.

Source: Elaborated by the authors.

Additionally, the dominant terms in each cluster were identified. Dominant items are those with the highest occurrence (O) frequency; that is, the larger the node, the more frequent the keyword and the greater the link strength (LS), which is the number of publications in which two keywords occur together. The main dominant items and their respective O and LS values are: (i) red cluster – nudge (O = 16; LS = 38); (ii) green cluster – nudging (O = 7; LS = 8); (iii) blue cluster – public policy (O = 5; LS = 14); (iv) yellow cluster – behavioral public administration (O = 5; LS = 14); (v) purple cluster – behavioral science (O = 3; LS = 7).

The set of descriptors in the clusters suggests predominant thematic groupings in the analyzed literature. The predominance of clusters associated with the applications and foundations of the behavioral approach, such as nudging, and with practical interventions (public policy, behavioral public administration, and behavioral science), shows that the literature focuses on the nudge concept, articulating the theoretical foundations of behavioral science with applications aimed at policy design and implementation.

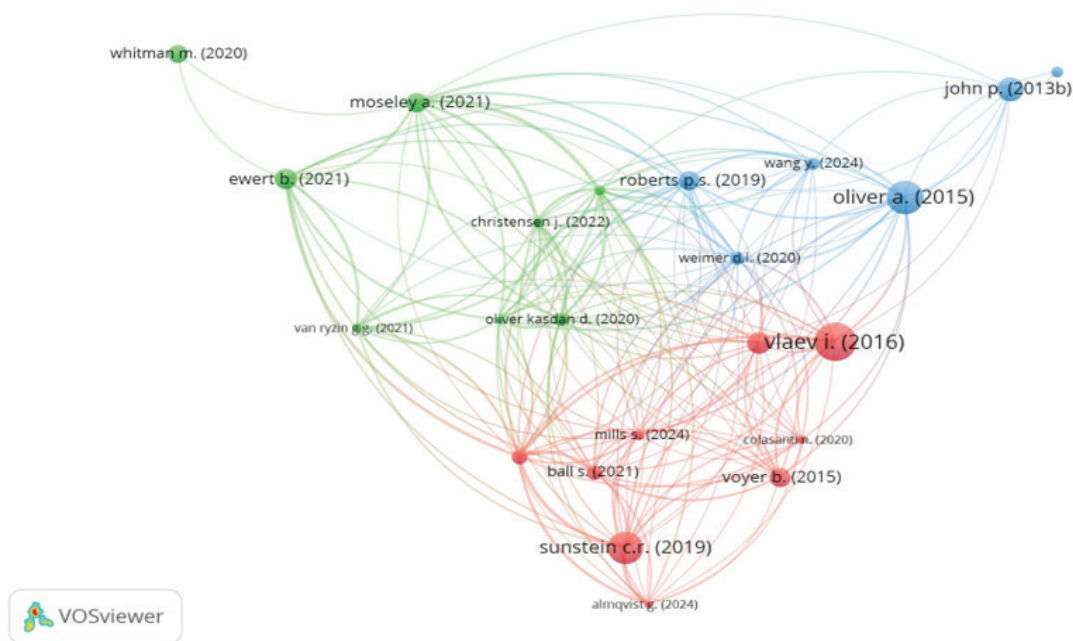
Furthermore, the presence of descriptors such as experimental trials and citizen-directed interventions indicates that, although the public policy field includes analyses of internal decision-

making processes, the literature on nudge interventions has focused predominantly on the behavior of citizens or public service users. This trend helps explain the limited attention paid to the internal decision-making processes of public organizations.

This pattern reveals a disconnect between the theoretical potential of nudges and their organizational application in the public sector. Consistent with Iwasa and Almeida (2021), literature reviews have primarily synthesized research on individual behavior as citizens and consumers, indicating that most nudge applications are concentrated within public policy.

The study also verified the final sample's bibliographic coupling to assess the frequency of shared citations. Bibliographic coupling occurs when two documents cite the same references, indicating a thematic connection. The greater the number of shared references, the stronger the coupling. The selection was limited to documents with at least five citations, yielding a network of 23 interconnected items (Figure 3).

FIGURE 3 BIBLIOGRAPHIC COUPLING OF DOCUMENTS



Source: Elaborated by the authors based on research data using the VOSviewer software.

Analysis of the bibliographic coupling network showed that the 23 documents with the highest Total Link Strength (TLS) were grouped into three clusters, revealing the thematic structure of the literature. Within each cluster, two documents stood out for their distinct attributes: Citation Count (CC) and TLS. The primary items in each cluster, based on the highest CC, are as follows: (i) Red cluster (9 items) – Vlaev et al. (2016), CC = 167 and TLS = 42; (ii) Green cluster (8 items) – Ewert et al. (2021), CC = 49 and TLS = 36; and (iii) Blue cluster (6 items) – Oliver (2015), CC = 127 and

TLS = 43. These results demonstrate the centrality and recognition of these studies in the field, as well as their relevance to the thematic articulation of the literature.

The core studies identified in each cluster reflect distinct branches of the behavioral approach's development in public administration. Vlaev et al. (2016) present a theoretical and applied systematization of the nudge concept, linking the foundations of behavioral economics to empirical evidence, especially in the context of health policies. Ewert et al. (2021), in turn, propose incorporating institutional, participatory, and reflexive approaches, signaling a transition from the ad hoc use of behavioral interventions toward more comprehensive behavioral governance. Meanwhile, Oliver (2015) problematizes the normative and conceptual limits of behavioral interventions, distinguishing among nudging, shoving, and budging, and broadening the debate on the state's role in influencing individual choices.

Additionally, the items with the highest TLS within each group were analyzed to identify the dominant theme of each cluster. The core articles in the red cluster share a theoretical foundation centered on normative evaluation, governance, and the organizational legitimacy of behavioral interventions in the public sector. The fact that De Ridder et al. (2024) had the highest TLS (71) reinforces this interpretation.

These authors demonstrate that the effectiveness of nudges depends on contextual conditions, specific psychological mechanisms, and decisions regarding the design of the choice architecture, especially in complex contexts of public governance. Sunstein et al. (2019) found that acceptance of nudges correlates with trust in public organizations, highlighting the need to develop processes that make policies more transparent. Finally, Mills and Whittle (2024) proposed a framework to evaluate the efficacy of nudge interventions to help develop more effective interventions for the environment in question.

The core articles in the green cluster focus on the empirical application of behavioral interventions in organizational and administrative contexts, particularly within public administration. The centrality of Belle et al. (2024), with a TLS of 57, reinforces the predominance of studies that focus on the empirical analysis of public agents' behavior, organizational performance, and the implementation of behavioral instruments. Belle et al. (2024) found that managerial interventions, such as standardizing procedures and using structured criteria and decision-making mechanisms, can reduce decision noise and limit the impact of biases, even if they do not eliminate them entirely.

Moseley and Thomann (2021) proposed a behavioral model of heuristics and biases to explain how bounded rationality shapes decision-making and, consequently, the implementation and outcomes of public policies. Meanwhile, Kasdan (2020) proposed three propositions to stimulate further experimental investigations into the application of BPA theory, namely: (i) BPA is an alternative toolkit for optimizing policy implementation; (ii) BPA is ethically sound and preserves administrative values; (iii) BPA research is a unique stream of policy experimentation and methodology.

Finally, the core articles of the blue cluster focus on the analytical and cognitive foundations of decision-making in public policy. The centrality of Roberts and Wernstedt (2019), with a TLS of 52, indicates the predominance of studies on bounded rationality, policy formulation, and the analysis of decision-making processes. Roberts and Wernstedt (2019) proposed strategies to mitigate problems of rationality deviation that compromise the decision-making of public managers.

John (2013), in turn, proposed two propositions to analyze the informational focus of government tools, suggesting that when these propositions are met, governments should develop smarter information tools to achieve better policy results. These propositions are: (i) there is a distinction between the provision of a government tool and the way in which a citizen or organization receives information about that tool; (ii) more sophisticated interventions that employ psychological techniques produce better results (John, 2013).

Based on the discussion above, the results indicate a functional structure of the literature, in which the cognitive foundations of bounded rationality, the organizational applications of nudge-type interventions, and the normative debates on governance and legitimacy are articulated in a complementary manner. Table 4 synthesizes the dominant themes of each cluster.

TABLE 4 DOMINANT THEMES IN EACH CLUSTER

Cluster	TLS	Key references in the cluster	Dominant theoretical theme	Interpretation
Red	71	<i>De Ridder et al. (2024)</i> ; Sunstein et al. (2019); Ball & Head (2021); Vlaev et al. (2016); Mills & Whittle (2024)	Evaluation, organizational legitimacy, and governance of nudge-type intervention techniques.	Cluster oriented toward the delimitation of normative principles, organizational legitimacy criteria, and organizational conditions for the use of nudges in public policies.
Green	57	<i>Belle et al. (2024)</i> ; Moseley & Thomann (2021); Kasdan (2019, 2020); Christensen & James (2022)	Organizational and administrative applications of nudge-type intervention techniques.	Cluster centered on the analysis of empirical implementation and the effects of behavioral interventions on behavior, performance, and administrative processes.
Blue	52	<i>Roberts & Wernstedt (2019)</i> ; Weimer (2020); Oliver (2015); Wang & Zhang (2024); John (2013)	Cognitive foundations of bounded rationality and public policymaking.	Cluster provides the analytical and cognitive basis that supports both the empirical application and the normative evaluation of behavioral interventions.

Note: The clusters were interpreted based on the analysis of the five documents with the highest TLS, reflecting shared reference bases in the bibliographic coupling. References with the highest TLS are highlighted.

Source: Elaborated by the authors.

It is observed that although there are numerous academic debates concerning the application of nudge-type interventions in the field of BPA, the way these interventions have been applied to the organizational aspects of the public sector still lacks further systematization. In this sense, an analysis was conducted to identify the type of intervention employed, concrete examples of nudges and behavioral mechanisms, and the affected organizational domains, using content analysis.

The articles were analyzed for intervention type, using categories established in the literature, such as defaults, feedback, social norms, and interventions based on choice architecture (Sunstein, 2014; Thaler & Sunstein, 2008). The interventions were also categorized according to the typology proposed by Münscher et al. (2016), which is considered one of the most comprehensive classifications of choice architecture techniques because it encompasses a wide range of nudge-type interventions (Pinel et al., 2025).

As a result of this process, 11 studies were identified that explicitly address the application of nudge-type interventions in the public organizational context, as presented in Table 5, thereby allowing for greater analytical detail on the types of intervention, behavioral mechanisms, and organizational domains involved.

TABLE 5 BEHAVIORAL INTERVENTIONS IN THE PUBLIC ORGANIZATIONAL CONTEXT: TYPE, EXAMPLE, AND APPLICATION DOMAINS (N = 11)

Reference	Type of intervention or instrument	Example of intervention used	Intervention category ¹	Behavioral mechanism	Organizational domain
Belle & Cantarelli (2024)	Social norms	Messages highlighting the pro-social behavior of colleagues	Decision information	Social norms and reciprocity	Internal pro-social behavior
Roberts & Wernstedt (2019)	Choice architecture ³	Reorganization of the presentation of decision-making information	Decision information	Reduction of cognitive biases	Decision-making
Shin (2025)	Choice architecture – communication	Phatic communication design in the workplace environment	Decision information	Facilitation of social interaction	Organizational communication
Haunstrup & Jensen (2024)	Behavioral reminders	Reminders sent at the moment of the managerial decision	Decision assistance	Attention and salience	Leadership
Afonso & Mohr (2024)	Choice architecture	Adjustments to the design of internal policies	Decision structure	Decision simplification	Policy implementation – budget
Crăciun et al. (2025)	Mixed intervention ²	Nudges integrated into organizational digital processes	Decision assistance – decision structure	Reduction of resistance to change	Digital transformation
Pelly & Doyle (2025)	Behavioral reminders	Messages and notices to increase attendance	Decision assistance	Salience and commitment	Attendance and performance
Christensen & James (2022)	Feedback	Comparative organizational performance reports	Decision information	Informational feedback	Performance evaluation

(Continua)

Reference	Type of intervention or instrument	Example of intervention used	Intervention category ¹	Behavioral mechanism	Organizational domain
De Ridder et al. (2024)	Defaults – implementation	Default options in administrative processes	Decision structure	<i>Status quo</i> bias	Organizational compliance
Castiello et al. (2025)	Feedback – social norms	Performance comparisons between units	Decision information	Social pressure and learning	Organizational performance
Belle et al. (2023)	Defaults – behavioral reminders	Default options and reminders about guidelines	Decision structure – decision assistance	Inertia and salience	Internal compliance

Notes: ¹Intervention categories according to Münscher et al. (2016). ²Mixed intervention refers to the combination of instruments or strategies integrated into broader organizational processes. ³Choice architecture is treated as a type of intervention referring to the deliberate modification of the organizational decision-making environment.

Source: Elaborated by the authors.

Finally, the synthesis presented in Table 5 indicates that interventions in the public organizational context predominantly focus on low-cognitive-cost strategies, such as reminders (three articles), feedback, defaults, and social norms (two articles each), mobilizing behavioral mechanisms such as salience, social norms, and informational feedback. A predominance of interventions focused on the “decision information” category (five articles) is also observed, especially in domains such as organizational performance, decision-making processes, communication, and internal prosocial behavior.

According to Münscher et al. (2016), interventions in the decision information category are approaches focused on presenting information relevant to the decision. In contrast, interventions aimed at a deeper reconfiguration of the choice structure or those systematically integrated into complex organizational processes are less frequent.

This evidence suggests that the use of nudge-type interventions within public organizations remains fragmented, as the literature favors ad hoc nudge interventions concentrated in a few organizational domains. As highlighted by Moreira et al. (2023), nudges can be considered a powerful tool to guide, in various ways, the behavior of users across different areas and activities of the organization, reinforcing the existence of a field that is still largely unexplored in the public organizational context. These findings provide the empirical basis for the discussion of the future research agenda presented in the following section.

4.2 Future Research Agenda

Based on the synthesis of the analyzed bibliographic sample, it is observed that despite the consistent growth of interest in nudge-type interventions in public administration and the evidence of positive effects on decision-making, administrative, and managerial processes, the literature still presents relevant gaps (theoretical, empirical, and methodological), both explicit and implicit, in the examined studies. Based on the critical reading of the reviewed literature, the following sections present the axes of the identified gaps, as well as guidelines to direct future research in this emerging field.

The literature recognizes that most applications of nudge-type interventions in the public sector remain ad hoc and isolated, applied to specific decisions without integration into broader organizational routines. Chapman et al. (2021) note that the use of nudges in organizations is still in its early stages and lacks systematization. Another relevant point is that although some reviewed studies identify positive effects of behavioral interventions (Belle et al., 2023; De Ridder et al., 2024), there remains a scarcity of research that systematically examines which cognitive processes are effectively triggered in public organizational contexts and under which contextual conditions these mechanisms lose efficacy.

Furthermore, the study's bibliographic sample indicates that most results are highly contextualized, reinforcing the need to broaden the generalizability of empirical findings. Corroborating this argument, Shin (2025) recognizes limitations in the generalizability of nudge-type interventions in organizational communication.

Viewing these discussions holistically, this study's research agenda focuses on three gap axes identified as priorities for future investigation: (i) the organizational integration of nudge-type interventions; (ii) the alignment between underlying cognitive processes and nudge-type interventions; and (iii) the generalization of results and consideration of contextual factors. The following subsections describe the main gaps in each axis.

4.2.1 Gap Axis 1: Organizational integration of nudge-type interventions

The first axis of the gap concerns the organizational integration of nudge-type interventions. Based on the sample analysis, three main implications were identified to guide future studies:

- Gap 1.1: Predominance of ad-hoc and short-term nudge-type interventions. The reviewed studies focus primarily on isolated nudge-type interventions applied to specific decisions, such as social norms, behavioral reminders, and defaults (Belle et al., 2023, 2024; De Ridder et al., 2024; Haunstrup & Jensen, 2024; Migchelbrink & Raymaekers, 2023; Pelly & Doyle, 2025). Therefore, there is a clear need to develop longitudinal studies that examine the integrated application of multiple nudge types across continuous and structural organizational processes in public organizations.
- Gap 1.2: Low attention to integration across organizational domains and hierarchical levels. The studies analyzed rarely consider that nudge-type interventions operate in a coordinated manner across organizational domains and hierarchical levels, which limits understanding of their systemic effects in public organizations (Belle & Cantarelli, 2024; Christensen & James, 2022; Haunstrup & Jensen, 2024). Multi-level research could contribute to understanding the systemic effects of nudge-type interventions across organizational levels.
- Gap 1.3: Concentration in a few organizational domains. Empirical applications of nudges in the public sector are concentrated in specific areas such as organizational performance, communication, and compliance, with a scarcity of studies in other relevant organizational domains (Belle & Cantarelli, 2024; Castiello et al., 2025; Christensen & James, 2022; Shin, 2025). Future investigations could broaden the empirical scope of the literature by exploring the application of nudge-type interventions across a broader range of public-sector organizational areas, such as strategic planning, human resources management, and internal coordination.

4.2.2 Gap Axis 2: Alignment between underlying cognitive processes and nudge-type interventions

The second gap axis concerns the alignment between underlying cognitive processes and nudge-type interventions. The following research gaps were identified along this axis to guide future studies:

- Gap 2.1: Limited identification of underlying cognitive mechanisms related to nudge-type interventions. Several studies recognize the lack of robust research explaining the effects observed in decision-making processes, including the need to identify how framing effects shape the decisions of bureaucrats and how these effects vary across decisions (Belle et al., 2024; Moseley & Thomann, 2021; Roberts & Wernstedt, 2019). Therefore, there is a need for studies that explicitly analyze which cognitive mechanisms are triggered by different nudge-type interventions in the decisions of civil servants and managers.
- Gap 2.2: Insufficient systematization between specific nudge-type interventions and cognitive mechanisms. The literature still shows little systematic articulation between specific types of nudge interventions and the cognitive processes mobilized across different organizational contexts. This limitation makes it difficult to understand why certain interventions work in some organizational contexts and not in others (Belle et al., 2023; Christensen & James, 2022; De Ridder et al., 2024). Future research could explore the fit between nudge types and specific decision-making contexts, considering the diversity of cognitive mechanisms involved.
- Gap 2.3: Little attention to the conditions regarding the loss of efficacy of nudge-type interventions. Few studies examine the circumstances under which nudge-type interventions fail to produce the expected effects or perform less effectively in public organizational contexts, especially in highly institutionally complex environments (Belle et al., 2024; De Ridder et al., 2024; Shin, 2025). Future research could investigate the contextual, organizational, and cognitive conditions associated with reduced efficacy in nudge-type interventions.

4.2.3 Gap Axis 3: Generalization of results and consideration of contextual factors

The third axis of gaps concerns the generalization of results and contextual factors. On this axis, the following gaps were identified:

- Gap 3.1: Limitations in the external validity of empirical results. A large share of the analyzed studies acknowledge limitations in generalizing the results, as they are conducted in specific organizational, sectoral, or institutional contexts, such as organizational communication, digital transformation, organizational performance, and public leadership (Castiello et al., 2025; Christensen & James, 2022; Crăciun et al., 2025; Haunstrup & Jensen, 2024; Shin, 2025). This highlights the need for comparative studies across different public organizations, sectors, and levels of government to broaden the external validity of the results.
- Gap 3.2: Limited exploration of institutional and cultural factors as moderators. Institutional and cultural aspects, such as organizational arrangements, regulatory frameworks, and informal norms, remain underexplored as moderators of the efficacy of nudge-type interventions in the public sector (De Ridder et al., 2024; Moseley & Thomann, 2021; Roberts & Wernstedt, 2019). Future research could incorporate institutional and cultural variables into research

designs, contributing to a more contextualized understanding of the effects of nudge-type interventions.

In summary, based on the identified gaps and their systematization, a diagram was developed to synthesize possible research directions on nudge-type interventions in public organizations (Figure 4).

FIGURE 4 DIAGRAM OF POTENTIAL DIRECTIONS FOR FUTURE RESEARCH ON NUDGE-TYPE INTERVENTIONS IN PUBLIC ORGANIZATIONS

Gap Axis 1: Organizational integration of nudge-type interventions

- Gap 1.1: Predominance of ad-hoc and short-term nudge-type interventions.
- Gap 1.2: Low attention to integration across organizational domains and hierarchical levels.
- Gap 1.3: Concentration in a few organizational domains.

Gap Axis 2: Alignment between underlying cognitive processes and nudge-type interventions

- Gap 2.1: Limited identification of underlying cognitive mechanisms related to nudge-type interventions.
- Gap 2.2: Insufficient systematization between specific nudge-type interventions and cognitive mechanisms.
- Gap 2.3: Little attention to conditions regarding the loss of efficacy of nudge-type interventions.

Gap Axis 3: Generalization of results and consideration of contextual factors

- Gap 3.1: Limitations in the external validity of empirical results.
- Gap 3.2: Little exploration of institutional and cultural factors as moderators.

Source: Elaborated by the authors.

It is concluded that advancing this research agenda requires shifting the literature's focus from ad hoc nudge-type interventions to a more integrated, organizational approach attuned to the specificities of public organizations. This shift is fundamental to consolidating nudge-type interventions not merely as short-term experimental tools but as structural instruments to support decision-making, management, and policy implementation in the public sector.

6. CONCLUDING REMARKS

This review aimed to explore studies on the use of behavioral science within public organizational contexts, identifying and synthesizing the main research themes, types of nudge interventions, organizational domains, and behavioral foundations associated with the application of nudges in the internal environment of public organizations. To this end, a hybrid systematic literature review was conducted, comprising 54 articles that formed the study's bibliographic sample.

The analysis of the bibliographic sample highlights that although interest in nudge-type interventions in public administration has been growing consistently, their application within the

internal environment of public organizations remains relatively limited compared with the number of studies on the widespread use of nudges to encourage citizen behavior.

Pinel et al. (2025) point out that many studies on behavioral economics focus on encouraging individuals to reflect on their roles as citizens and consumers. This finding corroborates other studies, which indicate that research on the use of nudges in public administration practices and processes is still recent and in its early stages in the academic field. Thus, it reveals a developing research field with ample opportunities for application in different organizational choice environments aimed at promoting more effective strategic decisions.

Regarding the research findings, the synthesis of the analyzed studies indicates that the thematic segments addressed in discussions of the use of nudge interventions in public administration management, aimed at assisting stakeholders toward more effective decisions, are concentrated in decision-making contexts such as organizational performance, decision-making processes, communication, and internal prosocial behavior.

Roberts and Wernstedt (2019) argue that comprehensively understanding and improving decision-making processes should be a priority in public administration. Furthermore, a predominance of nudge-type interventions classified under the decision information category was observed, especially those based on feedback and reminders, highlighting a still-limited exploration of the diversity of choice architecture strategies available in the literature. This result contributes to the development of questions regarding the effectiveness of using these nudge-type intervention techniques in individual decision-making.

Additionally, the synthesis of the bibliographic sample revealed three central analytical axes for developing a future research agenda on the application of nudge-type interventions in public organizations, namely: (i) the organizational integration of nudge-type interventions; (ii) the alignment of nudge-type interventions with underlying cognitive processes; and (iii) the generalization of results and consideration of contextual factors.

At the theoretical level, this study contributes to the behavioral public administration literature by advancing the systematization of nudge-type interventions in public organizations, a field that remains largely unexplored. The article also fills theoretical gaps by integrating, in a structured manner, types of behavioral interventions, their underlying cognitive processes, and organizational domains of application.

Moreover, the proposal of three analytical axes provides guidance for future research agendas that continue applying behavioral science in public administration, expand interactions between academia and government management, and contribute to the consolidation of intervention techniques as recurring practices.

In terms of practical contributions, the findings highlight the importance of integrating behavioral interventions into organizational routines, which promotes more consistent, transparent decisions that are less susceptible to cognitive biases. From a social-implications perspective, the use of nudge-type interventions in public organizations aimed at improving decision-making can generate broader positive impacts on the delivery of public services to society. Finally, it is recognized that the synthesis presented is not immune to the limitations inherent in any systematic review effort.

Among the main limitations of the study is the selection of the article sample, which may be related to the keywords used in the database searches, the focus on the public environment, the inclusion and exclusion criteria adopted, and the authors' decisions regarding the information monitored and

the classification of the primary studies. Nevertheless, it is believed that the sample used enabled a consistent synthesis of research published up to the time of this review's analysis, providing a more comprehensive view of an emerging concept from a modern, flexible approach – nudge theory – specifically concerning the use of nudge-type interventions in public administration.

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RESEARCH DATA AVAILABILITY

The entire data set supporting the results of this study has been published within the article itself.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ARTIFICIAL INTELLIGENCE USAGE

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