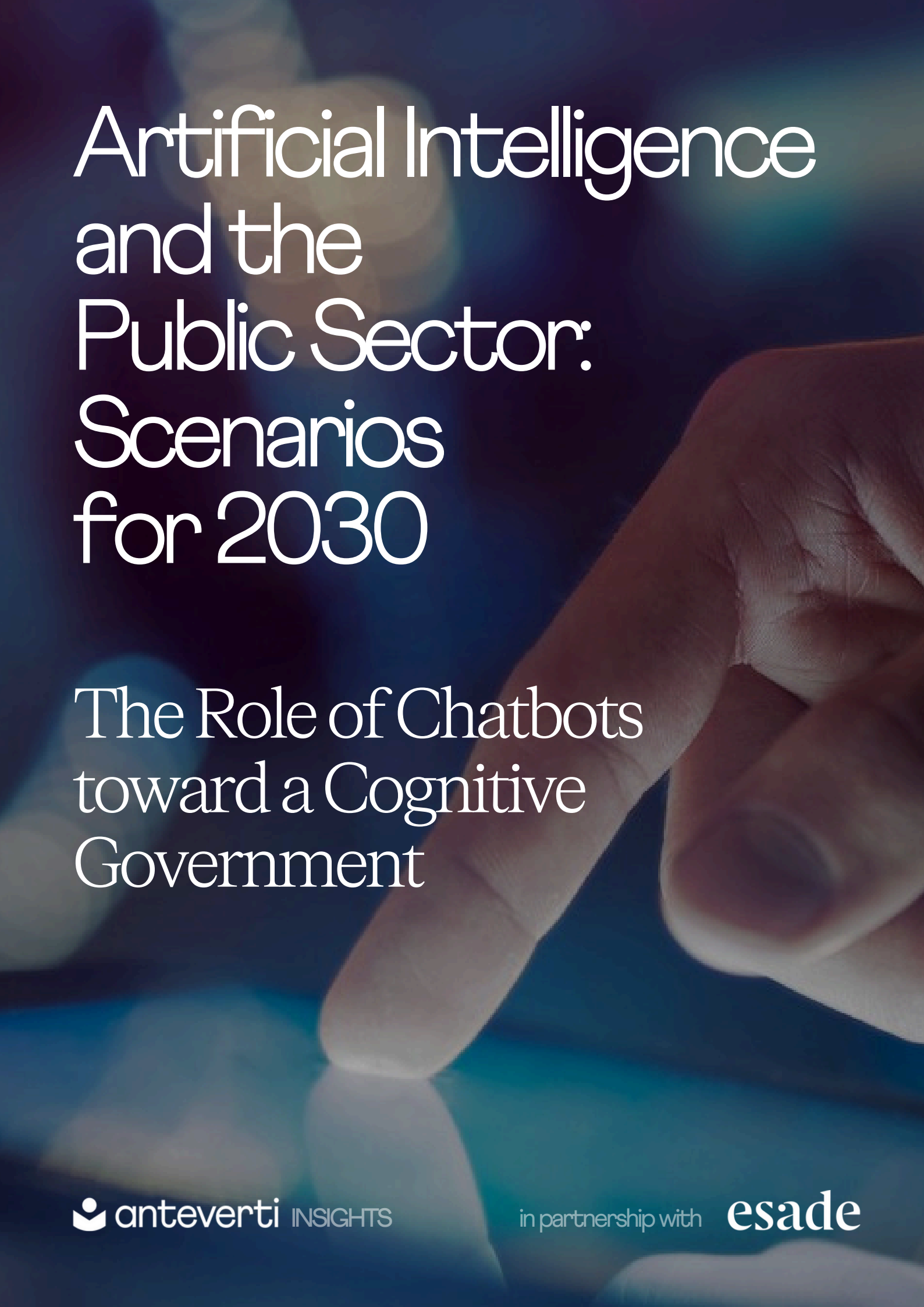
Artificial Intelligence and the Public Sector: Scenarios for 2030

The Role of Chatbots toward a Cognitive Government



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About this Insight

This insight, developed by Anteverti in partnership with Esade, arises from the urgency generated by the rise of artificial intelligence as a vector of transformation. The leap to mass adoption achieved by some tools led by major industry players has accelerated the need to understand how we can use AI in the best possible way. Practically every economic and social sector is now facing this debate. The preparation of this study responds to the interest in contributing with analytical elements for the incorporation of artificial intelligence into the public sector, with a particular focus on chatbots as one of the main entry points for this kind of solution in public services. The analysis is based on the identification of cases from different parts of the world, in order to determine typologies and experiences that, in a context of rapid adoption (and equally rapid abandonment), often become obsolete as new technologies and uses emerge. This document aims to be propositional, inviting the exploration of the opportunities that arise within the broader context of public administration action.

More information about the authors and supporting organizations can be found on page 47.

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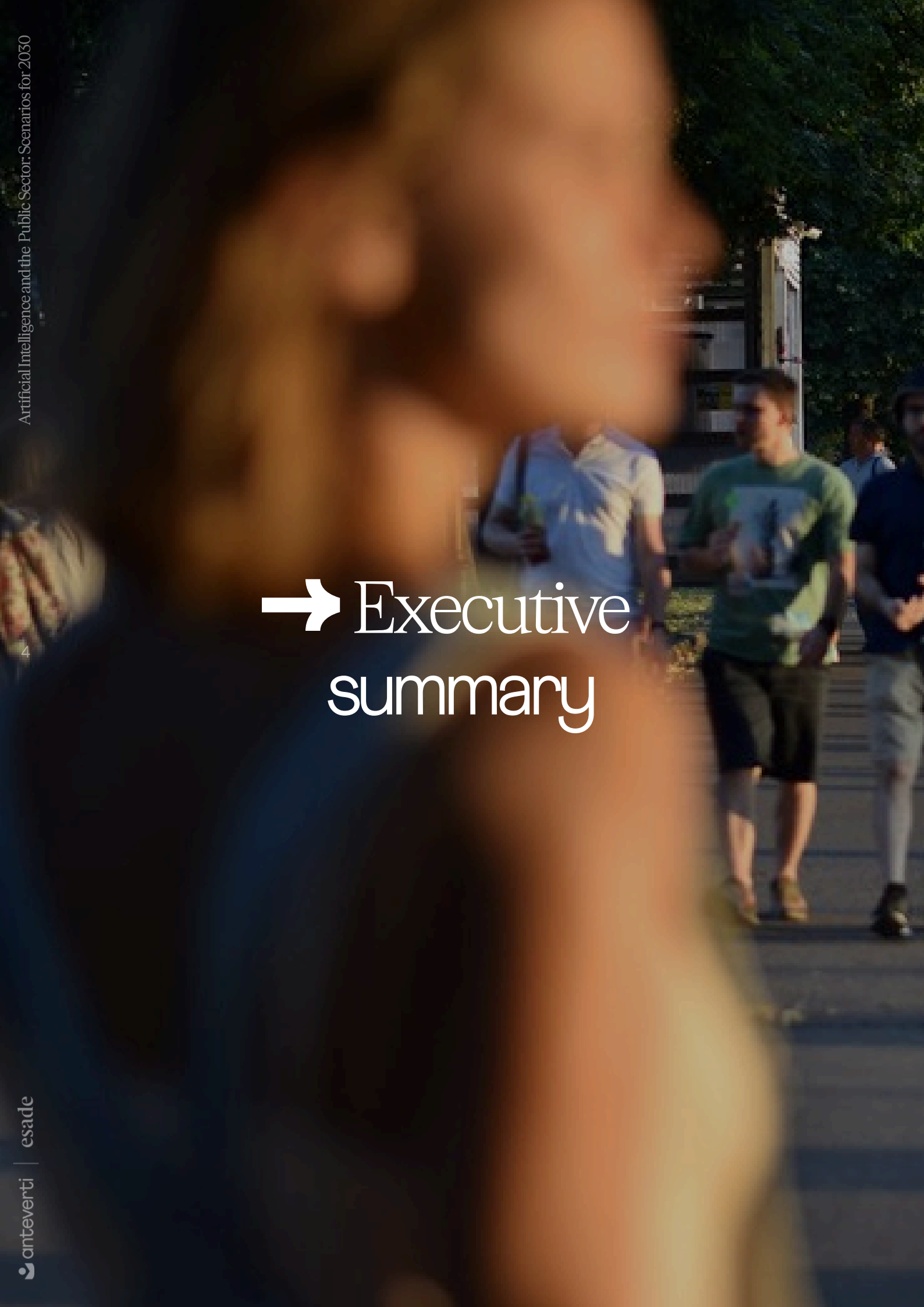


Executive summary

Artificial Intelligence and the Public Sector: Scenarios for 2030

FROM DIGITALIZATION to cognitive infrastructures

The emergence of generative artificial intelligence (AI) is redefining the foundations of public administration. We are no longer talking merely about digitizing processes or improving interfaces, but about a transition toward **interconnected cognitive infrastructures** capable of personalizing interactions, bridging administrative gaps, and acting proactively. This change is not technological in the narrow sense—it is structural, organizational, and cultural.

THE mirror hypotesis

The analysis of international cases—from the Bürokratt platform in Estonia to the conversational ecosystems of Shenzhen or Seoul—reveals that the key to success lies not only in the capacity of AI models, but in the **symmetry between technological capabilities and organizational architectures**. This is the essence of the mirror hypothesis: organizations can only realize the potential of the technologies they adopt if they reconfigure themselves to reflect their possibilities. An administration that maintains rigid hierarchies, linear processes, and inherited metrics will exploit only a fraction of what generative AI can offer.

FROM SERVICE DELIVERY to cognitive government

The strategic opportunity is immense. Generative AI and intelligent agents can transform public administration into a **platform for value creation**—not merely a provider of services, but an enabler of social and economic innovation.
In a conservative scenario, informational chatbots reduce friction and improve service delivery; in a disruptive scenario, autonomous agents execute transactions and decisions in real time; and in a systemic scenario, a **networked cognitive government** emerges, where the public, private, and open-source sectors co-create interoperable solutions.

CRITICAL FRICTIONS and conditions for success

However, the leap from incremental to transformative change faces critical frictions: structural inertia, asymmetry of internal capabilities, and the challenge of building citizen trust in systems that act and decide. Addressing these issues requires **progressive roadmaps**, sustained investment in interoperability and open standards, and a multilevel governance framework that fosters inter-municipal and international collaboration—redefining it in the process.

2030 VISION: A windowless administration

The 2030 vision that emerges is one of **administrations without windows or websites**, replaced by conversational, multimodal interactions that adapt to and anticipate citizens' needs—where prevention and anticipation outweigh reaction, and where the administration is no longer a "building" that citizens must visit, but a network of agents that accompany them throughout their lives.

THE STRATEGIC CHALLENGE: redesigning the administration

The strategic challenge of this decade is not whether to adopt generative AI, but **how far we are willing to redesign public administration so that its structure leverages technological opportunities**. Cities and governments that achieve this symmetry will position themselves at the forefront of 21st-century governance; those that do not will see innovation pass them by.

This insight envisions a 2030 in which administrations have no service windows or websites, replaced by conversational, multimodal interactions that adapt to and anticipate citizens' needs.

The administration ceases to be a building that citizens must visit and becomes a network of agents accompanying them throughout their lives.

1

➜ The Disruption of Generative AI: a Turning Point

Generative AI emerges as a general-purpose technology in the broadest sense: any intelligent behavior falls within its potential domain.

Few would now dispute that **generative artificial intelligence (AI) has unleashed an unprecedented global disruption.** Since the public debut of ChatGPT in November 2022, we have entered an **accelerated cycle of technological and social change that not only transforms our daily lives but also redefines the way we work, organize, and conceive the functioning of society.** In just two years, this process has evolved from early experimentation to mass adoption, drawing historical parallels with the emergence of technologies like electricity or the Internet—but with a speed and reach that far surpass them.

The arrival of intelligent assistants—with models like GPT-5, reaching a level comparable to that of a PhD across multiple disciplines—**marks a genuine inflection point in human history**. For the first time, tasks that were long considered the exclusive domain of human intelligence—complex reasoning, original idea generation, strategic design—can now be performed, and sometimes surpassed, by artificial systems. Earlier generations of AI focused on narrower functions: prediction, classification, pattern recognition, translation—processes that now seem basic. Generative AI, by contrast, stands as a **general-purpose technology** in the broadest sense: any intelligent behavior falls within its potential domain.

For the first time, tasks once considered the exclusive domain of human intelligence can now be performed—and sometimes surpassed—by artificial systems.

Adoption: a social phenomenon before a technological one

The availability of a technology does not guarantee its immediate integration into organizations. Adoption is not a purely technical process—it is a social one. It requires cultural change, aligned incentives, a clear perception of benefits, and often a competitive pressure that drives integration. Among the key factors determining adoption are: ease of use, cost, learning curve, impact on productivity, and the competitive intensity of the sector.

The result is a **significant disparity in the pace and depth of adoption**. While individual use has spread rapidly—especially among students who have integrated these models into their academic routines—corporate adoption is more uneven.

In **multinational firms**, adoption often comes from the top. Examples such as McKinsey, or Cuatrecasas in Spain, show how by 2023 companies were already developing internal adaptations of OpenAI models trained on proprietary data. The results have been remarkable: productivity gains of up to 30%, quality improvements of 20%, and in some cases staff reductions of up to 10%, through reorganizations focused on higher-value tasks.

In the **technology sector**, penetration is nearly total. In programming and computing systems, working without copilots has become almost unthinkable. Tools like Cursor have evolved from curiosities for developers to startups generating $500 million in annual recurring revenue. The pattern of enterprise adoption follows fairly clear phases.

In the urban context, generative AI promises to redefine the relationship between administrations and citizens, eliminating time restrictions and reducing bureaucracy.

Typical phases of business integration

1. **Individual use**: professionals employ AI to draft texts, prepare reports, or even assist in defining strategies for clients and investors.
2. **Partial workflow automation**: chaining tasks—from drafting to layout and translation into multiple languages. Key areas include compliance, market research, and tailored business proposal preparation.
3. **Customer service assistants**: internal and external bots managed by call centers and integrated with corporate databases and procedures, adding functions such as cross-selling, recommendations, and best practices.
4. **Frontier use cases**: on finance, product design, research, or development—applications difficult to standardize but redefining areas like financial analysis and cutting-edge research.

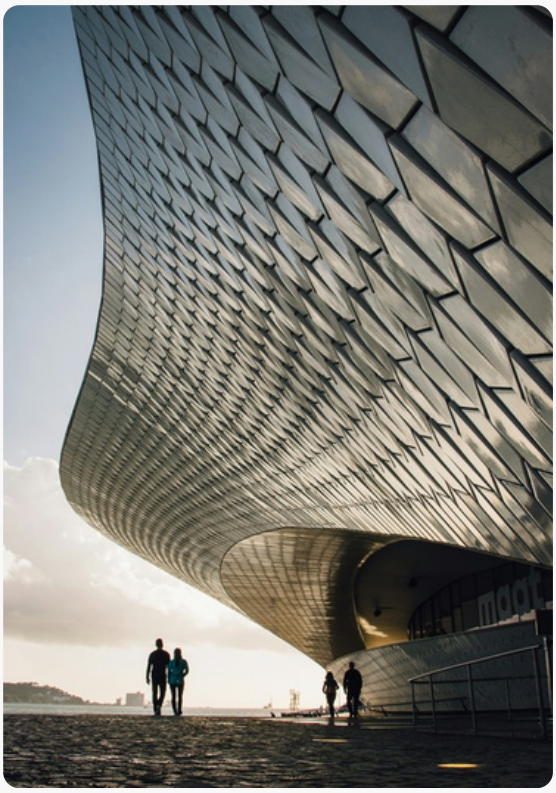
This progression, beginning with enhancing individual capabilities, moves toward increasing task automation. Yet it is neither linear nor without challenges. It requires reconfiguring skills, redesigning key performance indicators (KPIs), and modifying organizational structures. It demands agility, adaptability, and a willingness to take risks—conditions not always present.

The organizations of the future

All signs point toward smaller, more efficient, and agile organizations, where human and AI agents collaborate closely, and many processes are managed entirely by autonomous systems. This will represent a profound shift from current structures, with operational, ethical, legal, and cultural implications.

The public sector

In the public sector, adoption faces additional barriers: limited agility, rigid structures, misaligned incentives, and generally lower adaptive capacity. However, there are **notable exceptions**: the Chinese public sector, which, following the emergence of DeepSeek, has accelerated its transformation, and the U.S. military and aerospace sectors, undergoing deep change not only in how they plan and execute operations but also in their own structure—increasingly relying on startups and innovation ecosystems rather than the traditional military–industrial complex.



AI and cities: the role of chatbots

In the urban context, generative AI opens an especially promising chapter. **Chatbots** embody the potential to redefine the relationship between administrations and citizens, eliminating time restrictions (24×7×365 service), reducing bureaucratic gaps, and providing accessible guidance for navigating complex local regulations. We have identified three levels of deployment:

1. **Internal assistants** for administrative staff—streamlining support and processing tasks while helping navigate often confusing regulations.
2. **Public informational assistants** for citizens and tourists—offering data and non-binding guidance, though some are already incorporating transactional functions.
3. **A new interaction channel**—chatbots replacing websites and physical offices as the single point of contact with the administration. This remains more an explicitly declared goal than a widespread reality today.

If deployed with ambition and strategic vision, these systems could become a **turning point in public administration**, enhancing citizen trust and institutional efficiency.

Beyond chatbots: other urban disruptions

Generative AI joins other innovations that are reshaping cities:

- **On-demand autonomous mobility** and robotaxis, already transforming pioneering urban areas.
- **Humanoid robots** for logistics, maintenance, and caregiving tasks.
- **Virtual and augmented reality** in tourism and education, offering immersive, "augmented city" experiences.
- **New construction and housing models**, such as flex-living, redefining habitability and urban density.

All these disruptions share a critical feature: **there are no well-established best practices** refined over decades that can simply be copied and replicated. Generative AI and other urban innovations remain in an exploratory, adaptive phase, creating a unique opportunity for early-acting cities to become global reference points.

Cities that aspire to be **pioneers** will not only **capture the benefits** of these disruptions earlier but they will also actively **shape** their evolution—helping to establish standards, regulatory frameworks, and operational models. This capacity for **co-innovation**—to create jointly with businesses, universities, civil society, and startups—will mark the divide between cities that lead and cities that follow. Yet co-innovation requires accepting a fundamental principle: to **experiment, succeed, and fail**. Failure is not a sign of weakness but an inevitable part of discovery and adjustment. **Organizational agility and an experimental mindset** are not optional—they are the core of competitiveness in this new landscape.

Conversely, cities that fail to take this path will be forced to **adopt models designed, tested, and optimized elsewhere**, placing them in a position of dependency and limiting their ability to adapt or tailor solutions to their own social, economic, and cultural contexts. They will become receivers, not creators, in a world where model creation is the true source of power and influence.

Cities as living laboratories of innovation

Historically, cities have been spaces for social, economic and technological experimentation. From the Greek polis to today's smart cities, they have served as **real-world testing grounds** for new forms of organization and coexistence. Generative AI is no exception: it turns cities into environments where human and digital interaction is reinvented, driving new models of innovation in the process.

This disruption demands dynamic capabilities such as **adaptive agility**—there are no established models to copy. The path forward is to develop e**xperimentation, evaluation, and continuous adjustment capacities**, transforming cities into **living laboratories** that integrate technology, urban design, and citizen participation—or risk adopting what others develop.

Here lies the historical opportunity: to use generative AI as a catalyst to reinvent not only services but also the structures and dynamics that sustain urban life.

This is the goal of this work: to help cities adopt, integrate, and lead the generative AI revolution, leveraging their unique role as engines of innovation and social change.

There are no models to copy: the disruption of generative AI compels cities to develop experimentation, evaluation, and continuous improvement capabilities—or resign themselves to adopting what others will create.

2

→ The Strategic Opportunity

Despite structural obstacles and organizational barriers, generative AI offers the public sector a possibility as real as it is urgent:
to reimagine administration
and its interaction with citizens.

Change in the public sector is, by nature, a complex operation. It **requires not only political will and technical capacity**, but also **careful management of the internal balances** that sustain institutions. Yet such change becomes **inevitable** when, as is the case today, a global disruption reshapes the very foundations of the economy, society, and technology. At such moments, not changing is equivalent to falling behind.

Change management in the public sector is confronted with a **well-known challenge: the complexity of restructuring organizations** where personnel, whether civil servants or not, are difficult to release, and the integration of new profiles cannot be implemented quickly. The recruitment process is designed to ensure equality, impartiality and transparency. A series of tests and requirements are in place to ensure this, and while these are fundamental to safeguarding democratic principles, they do **limit the responsiveness of organizations**. Depending on the country and its legal framework, the **rigidity of civil service systems varies**. In some cases, civil service systems are characterized by the strictest measures, while in others, agencies operate more like non-profit organizations. In such cases, while **agencies may be active in the market, they are not as flexible as private companies** competing openly.

This context creates what can be described as an **organizational or social deadlock**: a state of paralysis in which **individual incentives and group interests are aligned not with change**, but with the maintenance of the statu quo. The result is that **internal change**—that is, change that originates within the organization—becomes **virtually impossible**. Even well-designed reforms are unlikely to be successful if they do not directly impact the incentives of those within the organization.

The only way to unlock this inertia is by **modifying those incentives**—both individual and collective (KPIs)—aligning key performance indicators with the social or political objectives being pursued. Yet this strategy almost always encounters deep, well-organized resistance: groups and individuals who, even while recognizing the need for change, **perceive it as leading to an irreversible loss of their acquired advantages**.

In practice, **major transformations in public administration tend to be driven from the outside**. Sometimes this occurs through a long process of social pressure that raises citizens' expectations until the public sector is compelled to match private-sector standards. In other cases, **it is a social or political disruption—often traumatic—**that forces change. Transformation can also arise through integration into broader supranational organizations, such as the European Union, the European Central Bank, or NATO, which impose new regulatory and operational frameworks. Finally—and increasingly—it is technological change of great magnitude that compels organizations to **reinvent themselves**, introducing dynamics and capabilities that were previously out of reach.

Today, most of **Europe's public administration finds itself trapped in a difficult triangle**: an aging workforce and a population increasingly reluctant to enter public service; growing and more complex social demands, and limited or declining financial resources. All this takes place within a **highly protective regulatory environment**, with requirements for transparency and citizen participation that, though essential, add layers of complexity to daily operations. To this challenge is added **a rising public expectation** that public services operate with the same speed and efficiency as the digital applications we use every day.

Generative AI as a lever for structural change

It is precisely in this context that generative AI emerges as a potential **solution of historic scope**. Its capacity to radically transform processes, **enhance citizen interaction, and multiply efficiency** offers possibilities that are difficult to ignore. In many cases, it may be the only viable path toward a truly agile administration, capable of adapting to change and **responding with the speed that contemporary society demands**. These opportunities for structural transformation can be summarized in three dimensions:

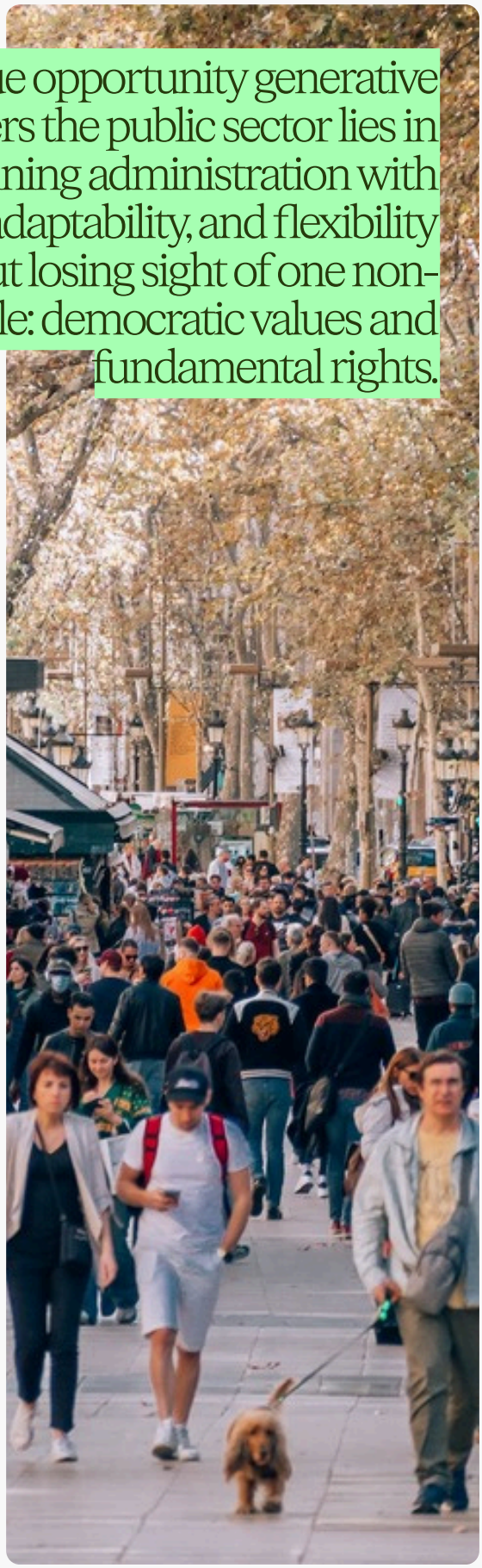
Change in the public sector is inevitable in the face of disruptions like generative AI, yet it must overcome deep structural rigidities and organizational deadlocks. Added to this is an increasingly strong citizen expectation: that public services operate with the speed and efficiency of the apps we use every day

1 / Organizational change
In the public sector, transforming ways of working is particularly challenging—not only because of cultural resistance. However, digital technology—and even more so, AI—allows tasks and procedures to be encapsulated in code, automating operations that once required significant time and effort.
This form of encapsulation creates large, scalable productivity multipliers, freeing human resources for tasks of higher strategic value. At a time when a significant portion of the civil service is nearing retirement, this window of opportunity is especially valuable: it allows process redesign without the political cost of altering a consolidated workforce.

2 / A Shift in expectations, now irreversible. For citizens today, it is incomprehensible that while they can transfer money instantly, receive a delivery within hours, or complete a banking transaction in minutes, they must wait days, weeks, or even months to finalize an administrative procedure that is no more complex than many private-sector processes. Generative AI can encapsulate extensive, confusing, and even contradictory regulations within models capable of providing instant, precise responses—with processing times measured in seconds and accuracy levels previously impossible. This capacity sets the public sector on a performance standard comparable to modern digital applications.

3 / Cost optimization.
Building and deploying intelligent agents based on large language models is inexpensive, scalable, and has very low barriers to entry. The impact of this advantage is enormous: it is not just about saving money, but about freeing resources to allocate them to critical areas currently postponed due to limited operational capacity or budget.

> The true opportunity generative AI offers the public sector lies in reimagining administration with agility, adaptability, and flexibility —without losing sight of one non-negotiable: democratic values and fundamental rights.



Beyond efficiency: accessibility, equity and ethics

Focusing solely on efficiency would be a mistake. **The true opportunity lies in reimagining administration**, endowing it with dynamic capabilities such as agility, adaptability, flexibility, and capacity for change—without losing sight of the values that sustain it: accessibility, equity, and strong ethical standards.

Regarding **accessibility**, **generative AI opens unprecedented possibilities**. Its 24/7 availability and its ability to adapt language, tone, and level of detail to each interlocutor's profile remove many of the barriers that currently hinder interaction with public administration. Large language models can translate complex procedures into clear, personalized explanations, **closing the bureaucratic gap** that so often frustrates citizens.

Equity is another reinforced aspect. With these tools, treatment no longer depends on a citizen's cultural level, gender, or intellectual ability—the technology adapts to the person, not the other way around. Even voice interaction expands access for people who struggle with written or digital environments.

In the **ethics** field, here, the issues of data sovereignty and privacy are central. Most major AI models today are developed in the United States or China, and their data are hosted in those countries. While some providers operate from Europe, strict compliance with EU data protection and AI regulations must be non-negotiable. As these regulations enter into force, it will be essential to assess not only technical capacity but also how each solution fits within a governance framework that **preserves democratic values and fundamental rights**.

Speed, data and innovation for competitive cities

The strategic opportunity generative AI brings to **cities** goes far beyond improving service efficiency. **It enables a reimagining of the relationship between administration and citizens**—and a redesign of administration itself—as an active player in value creation.

Cities have always been centers of innovation. In today's context, this role becomes even more crucial: **the ability to experiment, adapt, generate ideas, and validate them quickly** determines who leads change and who merely follows it. Technological disruption is giving rise to smaller, more agile organizations, where AI agents work alongside humans in coordination, analysis, and decision-making roles.

If history is any guide, we know that major social, economic, and political transformations—from the Industrial Revolution to the rise of the digital economy—have all had their epicenter in cities. This compels us to rethink their design: **it is not enough for cities to be livable; they must be environments conducive to innovation**.

To achieve this, one factor is essential: the **absence of friction**. A slow, bureaucratic administration acts as a direct brake on creativity and entrepreneurship. **Innovative cities are agile**: projects are evaluated and executed with agility, and if they fail, it is due to lack of market fit—not bureaucratic inertia.

That speed, however, must be accompanied by **continuous evaluation**. This requires not only data, but also the capacity to analyze it—and for the results to be socially trusted. Today, most cities and governments lack independent institutions capable of evaluating policies with credibility and autonomy from political or economic power. Civil society, the press, and nonpartisan agencies play a critical role here.

Another crucial element of urban dynamism is the **collision of ideas and actors**. Not casual encounters, but deep, productive collisions that result in projects or the rapid adoption of best practices from elsewhere.

Historically, cities have been meeting points where ideas, people, and projects converge, generating hybridizations that drive real innovation. Today, this process unfolds in both physical and digital spaces, and its success depends on the existence of **shared projects, sustained collaboration, and collective learning**. The creation of such spaces—and their connection to global innovation hubs—is indispensable for boosting urban competitiveness and development in the new era.

Cities have always been the epicenter of great technological and industrial revolutions. Those that wish to remain relevant and competitive in the new age of generative AI must harness it to foster faster, more flexible, and more critical innovation.

5 The State of the Art: Chatbots in Local and Regional Administrations

Over the past decade, public chatbots have evolved from simple bots and dynamic FAQs to the adoption of generative AI. We examine the most prominent and ambitious cases worldwide.

In the last ten years, **public chatbots** have progressed **from basic bots and dynamic FAQs** to incorporating **generative AI**, becoming **sophisticated assistants** capable of understanding natural language, **consulting regulations** in context, and, in their most advanced forms, executing complete procedural steps on internal systems. This transition is not merely technological: it involves organizational, cultural, and social changes in the way administrations interact with citizens.

In **local and regional governments**, this change has first **appeared in highly regulated areas**, such as administrative procedures, licensing, taxation, urban mobility, and citizen participation. The deployment of generative AI opens a **new stage**, where **chatbots** no longer merely deliver information but **act as intelligent intermediaries capable of guiding, interpreting, and in some cases, resolving entire processes**. This document analyzes relevant cases, with a focus on Europe and Spain, and provides a conceptual framework to understand adoption levels and organizational and social value. While this is still an **emerging field**, with much yet to be developed, certain trends are already apparent and likely to shape the future of administration-citizen interaction.

Chatbots implemented by governments no longer simply deliver information to citizens: they act as intelligent intermediaries capable of guiding, interpreting, and even completing entire processes. Estonia, with its country platform Bürokratt, serves as the European reference

Most relevant cases

Europe

- **Estonia**[1]: is the European reference of country-platform with Bürokratt, an interoperable network of public assistants using large language models (LLMs) for cited responses and 24/7 service, envisioning a single-channel experience via voice in Estonian.

- **Vienna**[2] (WienBot): A municipal information standard since 2017, offering concise answers, voice interaction, and its own app; complements the website without requiring users to "browse results."

- **Heidelberg**[3] (Lumi): Represents the "first wave" of citizen assistants in Germany, guiding licensing, residency registration, and services, with a Made-in-Europe approach.

- **Spain**: Coexisting experiences range from informational to contextual guidance and initial transactional capabilities. Examples: Madrid[4] (Línea Madrid): 24/7 navigation and consultation assistant on the municipal portal. Clara: Supports citizen participation in Decide Madrid. Las Rozas (Miguel)[5]: Provides information on ~350 procedures, integrates WhatsApp, and serves as a "conversational municipal window." Ciudad Real[6] (Prado): Generative chatbot available in 80 languages, with a database of over 3,500 sources, and a roadmap toward WhatsApp and other channels. The Open Administration of Catalonia[7] implements a shared generative chatbot service with ethical guidelines and risk analysis, presented as a nationally leading solution.

Latin America

- **Buenos Aires** implemented Boti, a WhatsApp assistant enabling transactions, appointment bookings, and alerts.

- In **Colombia**, Bogotá has Chatico and Rebeca, focused on general inquiries and procedure information. Medellín: Flore, a digital citizen interaction channel.

- In **Mexico**, TEO, specialized in corruption complaints.

Asia

- In **Dubai**, Rammas, is in charge of managing payments and public service inquiries.

- **Singapore** has developed VICA, centralizing service from multiple agencies.

- **India** is experimenting with Jugalbandi, a generative assistant accessible via WhatsApp, designed for rural areas.

- **South Korea** and **Japan** have chatbots focused on citizen information and complaint management.

1. Kratid, buerokratt.ee
2. startseite.wien.gv.at, Smart City Wien, Apple
3. heidelberg.de
4. Madrid City Hall, Madrid 24 horas
5. lasrozas.es, esmartcity.es, sede.lasrozas.es)
6. Ayuntamiento de Ciudad Real, objetivocastillalamancha.es, Cadena SER
7. aoc.cat

Chatbots analyzed

The following table presents a comparative overview of **representative cases in Europe, Spain, and other regions**, detailing adoption level, channels, orientation, and key features.

The **four specified levels** correspond to the functions, complexities, and progression of the respective chatbots:

4 **Agents with data and action (agentic)**: The chatbot operates on behalf of the citizen, orchestrating multi-system steps with traceability and safeguards.

3 **Assisted transactional support**: Initiates or completes steps of a procedure.

2 **Contextual guidance (NLP/RAG)**: Understands intent and retrieves applicable regulations and documentation.

1 **Guided informational**: Reduces search friction and standardizes responses.

Assistant	Level	Channels	Internal / External	Operat.	Features
BÜROKRATT Estonia	Level 4 – Agents with data and action (agentic)	Web, instant messaging, voice	EXT	Yes	Citizen support, transactions, integration with state services
BOTI Buenos Aires, Argentina	Level 3 – Assisted transactional support	WhatsApp	EXT	Yes	Requests, appointments, complaints, information
TEO Mexico City, Mexico	Level 3 – Assisted transactional support	Web, app	EXT	Yes	Reception of corruption complaints and procedures
RAMMAS Dubai, UAE	Level 3 – Assisted transactional support	Web, app	EXT	Yes	Processes bill payments and public service inquiries
ONESERVICE CHATBOT South Korea	Level 3 – Assisted transactional support	App	EXT	Yes	Enables complaints and service reservations
CLARA Madrid, España	Level 2 – Contextual guidance (NLP/RAG)	Web, app	EXT	No	Municipal information, procedures, and services
NOA Île-de-France, Francia	Level 2 – Contextual guidance (NLP/RAG)	Web	EXT	No	Assistance with regional services
VIRTANEN Finland	Level 2 – Contextual guidance (NLP/RAG)	Web	EXT	No	General assistant for procedures and services

Assistant	Level	Channels	Internal / External	Operat.	Features
VICA Singapore	Level 2 – Contextual guidance (NLP/RAG)	Web, app	EXT	Yes	Assistance across multiple departments
TINA Argentina	Level 2 – Contextual guidance (NLP/RAG)	Web	EXT	No	National citizen information chatbot
CHATICO Bogotá, Colombia	Level 2 – Contextual guidance (NLP/RAG)	Web, instant messaging	EXT	No	Citizen support for procedures, services, campaigns, and participation
FLORE Medellín, Colombia	Level 2 – Contextual guidance (NLP/RAG)	Web, App	EXT	No	Support for municipal procedures and services
BONNY CHATBOT Hong Kong	Level 2 – Contextual guidance (NLP/RAG)	Web	EXT	No	General information on public services
LINEAMADRID Madrid, Spain	Level 1 – Guided informational	Web, app	EXT	No	General citizen support and municipal campaigns
VISITMADRIDGPT Madrid, Spain	Level 1 – Guided informational	Web	EXT	No	Tourist assistant providing personalized information
TMBBOT Barcelona, Spain	Level 1 – Guided informational	Web, app	EXT	No	Information on public transport
WIENBOT Viena, Austria	Level 1 – Guided informational	Web, app	EXT	No	Information on municipal procedures and services
BOBBI Berlin, Germany	Level 1 – Guided informational	Web	EXT	No	Information on municipal services
GOVBOT Japan	Level 1 – Guided informational	Web	EXT	No	Basic information and procedures
REBECA Bogotá, Colombia	Level 1 – Guided informational	Web	EXT	No	Information on procedures and services
DIVINHA Curitiba, Brazil	Level 1 – Guided informational	Web	EXT	No	Municipal chatbot providing general information
JUGALBANDI India	Level 1 – Guided informational	WhatsApp	EXT	No	Access to government services and procedures

Featured Case Studies

Bürokratt
Estonia

Bürokratt is a virtual assistant developed as a national interoperability platform.

Its goal is to allow any citizen to interact with public administration through a single channel, whether via web, voice, or messaging. Its modular architecture enables different agencies to integrate their services, and the system can initiate transactions on behalf of the user. It has been recognized as a pioneering case worldwide.

Línea Madrid
Spain

Línea Madrid is a multichannel citizen service that combines chatbots with human support.

It provides information on over 1,000 procedures and allows simple transactions to be completed. The use of AI and business rules ensures fast and consistent responses, while integration with the municipal website enhances the user experience.

Rammas
UAE

Rammas operates for the Dubai Electricity and Water Authority (DEWA).

It manages inquiries and bill payments in multiple languages, integrating with internal systems to provide real-time responses. It is considered an example of cognitive AI applied to an essential public service.

Boti
Argentina

Boti is the chatbot of the City of Buenos Aires, operating on WhatsApp with transactional capabilities.

It handles over 300,000 interactions per month, including appointment requests, complaints, and inquiries. Its success is partly due to integration with the municipal management system and the widespread adoption of WhatsApp as a communication channel.

Current state overview

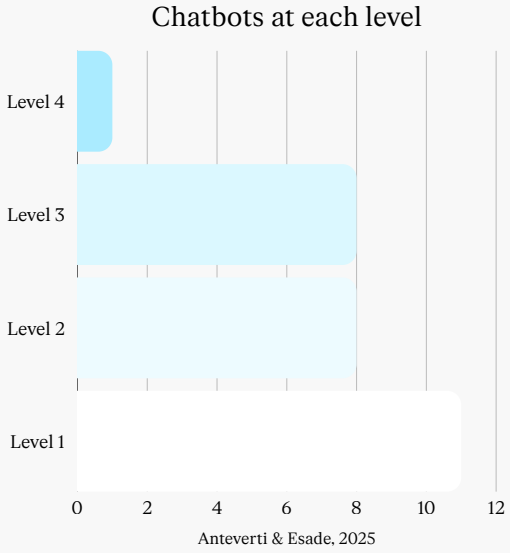
The current landscape of chatbots in local and regional administrations shows a rapidly evolving ecosystem, characterized by a coexistence of solutions with varying scope, technology, and maturity.

At the base level, we find **Level 1 - Guided Informational Assistants,** which constitute the majority of implementations. Their primary role is to reduce search friction and provide consistent responses. Examples such as Línea Madrid, WienBot, and Govbot represent this approach, typical of early deployments, designed to complement traditional channels without complex integrations.

At an intermediate level, **Level 2 – Contextual Guidance (NLP/RAG) assistants** have gained prominence thanks to their ability to understand user intent, retrieve relevant regulations, and deliver context-aware information. Chatbots like Clara, Noa, Virtanen, and Bonny demonstrate how the adoption of NLP and retrieval techniques enables a more personalized experience and reduces ambiguities in responses.

Level 3 – Assisted Transactional Support represents a qualitative leap: these chatbots not only provide guidance but also initiate or complete procedural steps, integrating with internal systems to act on behalf of the user. Boti in Buenos Aires, TEO in Mexico City, Rammas in Dubai, and OneService Chatbot in South Korea illustrate this advancement, delivering tangible value in terms of efficiency and time savings.

At the pinnacle, **Level 4 – Agentic (data and action) assistants** operate as true intelligent intermediaries, orchestrating multi-system processes with traceability and safeguards. Bürokratt in Estonia is the most advanced example of this level, functioning as a national interoperable platform connecting multiple agencies and providing a single point of citizen interaction.



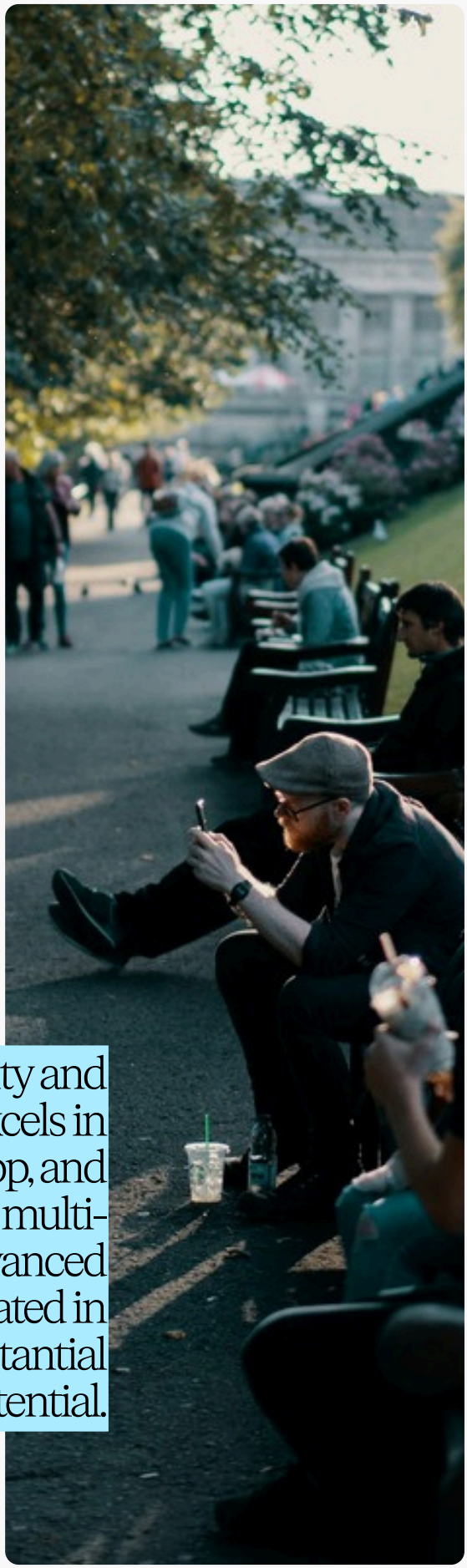
The evolution of public sector chatbots shows that technology can go beyond providing information: it enables understanding user intent, personalizing the experience, and acting directly on procedures, delivering efficiency, traceability, and a new level of citizen service.

Geographically, **Europe demonstrates notable diversity**, with reference cases in Estonia, Austria, Germany, Finland, France, and Spain, exploring both informational approaches and early generative and transactional capabilities.

Latin America stands out for high adoption via messaging channels such as WhatsApp, which is key to widespread penetration and usage. Meanwhile, **Asia highlights large-scale, multi-service projects**, such as VICA in Singapore and Rammas in Dubai.

It is particularly noteworthy that several of these chatbots already operate on WhatsApp, meeting citizens where they are instead of limiting interactions to local government websites.

Overall, the current state reflects a **transition from isolated and very basic implementations toward smarter**, more integrated conversational ecosystems capable of executing complex processes. However, the uneven distribution of adoption levels and the concentration of advanced cases in a few territories indicate that the deployment of more sophisticated capabilities is still in its early stages, with significant room for growth.



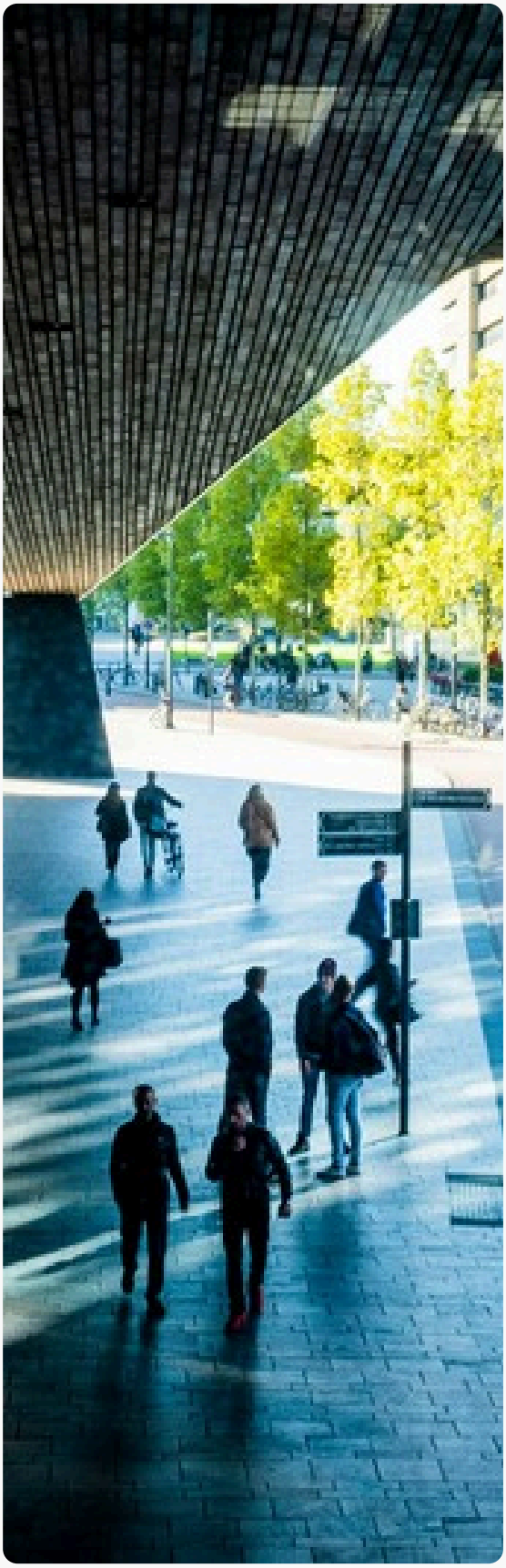
Europe leads in diversity and capabilities, Latin America excels in mass adoption via WhatsApp, and Asia drives large-scale multi-service projects. Even so, advanced adoption remains concentrated in a few territories, with substantial growth potential.

4 → Scenarios for Chatbot Implementation

In this chapter, we outline three possible scenarios – Conservative, Disruptive, and Systemic – applied to a single administration.
They should not be interpreted as mutually exclusive, but rather as stages or evolutionary paths that can overlap depending on the needs and capabilities of each territory.

The integration of chatbots in local and regional administrations is not merely a technological exercise, but a **strategic transformation with organizational, social, and political implications**. Depending on ambition, technological maturity, willingness to change, and long-term vision, administrations can pursue different adoption trajectories.

This chapter presents **three possible scenarios —Conservative, Disruptive, and Systemic—** applied to the same administration. These scenarios should not be seen as mutually exclusive, but rather as stages or evolutionary paths that can combine or overlap according to the needs and capabilities of each territory.



The three proposed scenarios —Conservative, Disruptive and Systemic— represent different visions of the role conversational AI can play. Choosing among them implies positioning in terms of institutional competitiveness, resilience, and innovation capacity.

SCENARIO 1 2 3

Conservative: Incremental Optimization of Current Processes

This scenario focuses on the **gradual improvement of existing services** through chatbots that act as information **facilitators** and **simple task** optimizers.

The main goal is to **reduce friction in citizen-administration interactions** without substantially altering organizational structures or back-office processes.

IMPACT

- **Organizational**: slight reduction of workload on traditional channels (phone, in-person counters).
- **Social**: improved accessibility to information 24/7, enhancing citizens' perception of administrative availability.
- **Limitations**: unable to complete end-to-end processes; citizens must finish procedures manually.

FUNCTIONAL SCOPE

In this scenario, the chatbot provides:

- **Guided information search.**
- **Consistent responses** to frequently asked questions.
- **Basic guidance** for initiating procedures.
- **Minimal integration with internal systems** (only for non-sensitive data queries).

PREDOMINANT ADOPTION LEVEL

- **Level 1** – Guided Informational, and in specific cases, **Level 2** – Contextual Guidance (NLP/RAG)

ADVANTAGES

- **Low implementation cost.**
- **Lower organizational risk.**
- **Gentle learning curve for staff and citizens.**

DISADVANTAGES

- **Limited capacity for meaningful transformation.**
- **Risk of frustration if citizens expect more advanced interaction.**

REAL-WORLD EXAMPLES AND EXPERIENCES

- **LineaMadrid (Madrid, Spain)**: general citizen support and municipal campaigns, rule-based approach.
- **TMBbot (Barcelona, Spain):** public transport information with updated data but no transactional support.
- **WienBot (Vienna, Austria)** and **Bobbi (Berlin, Germany)**: European examples of informational bots with basic guidance.

SCENARIO 1 2 3

Disruptive: Autonomous Agents, Real-Time Transactions, and Mass Personalization

This scenario represents a **qualitative leap**: chatbots evolve from simple guides to **intelligent assistants** acting as **transactional operators**

They incorporate capabilities for **personalization**, **contextual** understanding, and **autonomous action** within regulatory frameworks.

IMPACT

- **Organizational**: drastic reduction in processing times; reallocation of staff to higher-value tasks.
- **Social**: perception of immediacy and modernization; reduction in travel and geographic barrier.
- **Risks**: greater technological dependency; need for robust data management and cybersecurity frameworks.

FUNCTIONAL SCOPE

The chatbot:

- **Understands the citizen's intent** and contextualizes its responses.
- **Initiates, completes, or guides** the user step by step through a procedure.
- **Interacts in real time** with multiple internal systems.
- **Personalizes interactions** based on user profiles and history.
- Manages documents, payments, and online identity verification.

PREDOMINANT ADOPTION LEVEL

- **Level 3** — Assisted Transactional Support, with early approaches to **Level 4** — Data-Driven and Action-Oriented Agents.

ADVANTAGES

- **Radical improvement in efficiency and citizen satisfaction.**
- **Ability to handle rising demand without proportionally increasing costs.**
- **Personalization enhances inclusion and adaptation to diverse user groups.**

DISADVANTAGES

- **Requires deep integration with internal systems.**
- **Demands clear frameworks for traceability, ethics, and data protection.**

REAL-WORLD EXAMPLES AND EXPERIENCES

- **Bürokratt (Estonia):** full integration with state services and advanced transactional capability.
- **Boti (Buenos Aires, Argentina):** requests, appointments, reports, and payments through WhatsApp.
- **Rammas (Dubai, UEA):** inquiries, payments, and service management through multichannel integration.

SCENARIO 1 2 3

Systemic: networked AI ecosystem, Citizen–Government–Market integration

This scenario represents the **most ambitious evolution**, where the chatbot is not an isolated access point but a component of a fully **interconnected ecosystem** linking the administration with **citizens, businesses, and community actors**.

Here, the **boundaries between** service **channels**, **platforms**, and **innovation spaces** becomes **blurred**.

IMPACT

- **Organizational**: complete reconfiguration of processes; elimination of departmental silos; government operates as a platform.
- **Social**: empowered citizens with hyper-personalized services accessible in any context.
- **Economic**: creation of shared data ecosystems that drive innovation and business development.

FUNCTIONAL SCOPE

- Full **interoperability** across departments and levels of government.
- **Integration with private services** (banking, logistics, healthcare) for unified experiences.
- **Proactive capabilities**: anticipates needs based on context (e.g., notifying about document renewals, suggesting available aid).
- Orchestration of multi-actor processes with traceability and ethical safeguards.
- Multichannel functionality including voice, text, video, and augmented reality..

PREDOMINANT ADOPTION LEVEL

- **Level 4** — Data-Driven and Action-Oriented Agents..

ADVANTAGES

- **Maximum efficiency and social relevance.**
- **Ability to respond to crises with integrated information and coordinated action.**
- **Continuous innovation through open data and public-private collaboration.**

DISADVANTAGES

- **High governance and coordination complexity.**
- **Risk of critical dependence on technological infrastructure.**
- **Requires an advanced and dynamic regulatory framework.**

REAL-WORLD EXAMPLES AND EXPERIENCES

- **Estonia:** global benchmark; not just chatbots, but a national interoperable system connecting government, businesses, and citizens in a single digital layer.
- **Singapur (VICA)**: multisector assistance integrated with data from multiple ministries.
- Pilot initiatives in **South Korea**: interdepartmental AI services for urban planning, healthcare, and mobility.

Scenario comparison

The introduction of chatbots in local and regional administrations is not simply a matter of modernizing a service channel; it constitutes a **strategic vector capable of redefining the relationship between government and citizens**. The three scenarios —Conservative, Disruptive, and Systemic— represent different visions of the role conversational AI can play, and the choice among them implies positioning in terms of institutional competitiveness, resilience, and innovation capacity.

1 | Conservative scenario

A conservative scenario can be a **conscious and legitimate decision in contexts with limited resources, low political pressure for change, or a need to minimize risk**. Its strategic value lies in serving as a platform for organizational learning, allowing civil servants and citizens to become familiar with digital interactions and laying the groundwork for future evolution. The strategy should focus on **consolidating quality standards, standardizing messages, and establishing a robust, if limited, technological base** that can scale later. The risk is that organizational inertia could entrench low ambition and forfeit the opportunity for qualitative leaps.

2 | Disruptive scenario

The disruptive scenario introduces substantial change in service delivery: **chatbots cease to be mere guides and become active operators in administrative processes**. Strategically, **this approach enhances the administration's responsiveness, makes it more attractive to citizens, and provides flexibility** to absorb demand spikes without proportionally increasing costs. However, it requires clear political leadership, significant investment in technological integration, and strong data governance. The strategic value lies in **delivering a visible leap in service quality**, reinforcing institutional legitimacy, and generating **political capital through tangible improvements for citizens**.

3 | Systemic scenario

The systemic scenario **represents the highest ambition and greatest complexity**. It involves moving from internal digitalization to a **networked ecosystem where the administration is just one node in a value network integrating the private sector, civil society, and other governments**. Strategically, this **transforms government into a platform**, innovation enabler, and coordinator of personalized, proactive services. **The impact can be massive: optimizing crisis management, driving local economic growth through shared data, and providing integrated services**. However, it also entails significant risks: dependence on critical infrastructure, exposure to cyber threats, and the need for an advanced regulatory framework balancing innovation, privacy, and equity.

Moving from one scenario to another is neither linear nor uniform. A single administration can operate conservatively in some areas and systemically in others. The challenge lies in capturing early wins and sustaining momentum toward deeper transformations.

	1 | Conservative Scenario	2 | Disruptive Scenario	3 | Systemic Scenario
Adoption Level	1–2	3–early 4	4
Functional Scope	Information and guidance	Transactions and personalization	Integrated ecosystem
Organizational Impact	Low	High	Complete transformation
Social Impact	Moderate	High	Very high
Technological Integration	Minimal	Medium–High	Total
Implementation Cost	Low	Medium–High	High
Operational Risk	Low	Medium	High
Real-World Examples	LineaMadrid, WienBot	Boti, Rammas, Bürokratt	Estonia, VICA

From a strategic standpoint, **transitioning from one scenario to another is neither linear nor uniform**. A single administration might operate conservatively in certain areas (e.g., cultural services) while advancing toward a disruptive or systemic model in others (e.g., mobility or public health). The challenge for policymakers and technical leaders is to design a portfolio of projects that **captures early wins**, maintains momentum, and **prepares the ground for deeper transformations**.

Moreover, the strategic value of chatbots goes beyond operational efficiency. Their impact extends to key dimensions such as **citizen trust, transparency, universal accessibility**, and social innovation capacity. In contexts of political disengagement, a well-designed, reliable, and ethically responsible chatbot can become a digital ambassador for the administration, projecting an image of proximity and modernity.

Finally, the **geopolitical and competitive dimension of technology** should not be underestimated. In a global scenario where countries like Estonia, Singapore, or the UAE set the pace, administrations that fail to advance to higher levels of adoption risk falling behind—not only in internal efficiency but also in their ability to attract talent, investment, and international trust. Therefore, the strategy cannot be purely technological; it must be a comprehensive roadmap combining political vision, organizational change, continuous innovation, and citizen participation.

5

→ Roadmap toward a Cognitive Government

We outline a four-stage roadmap, starting from tactical, low-risk implementations and progressing to a stage where AI, advanced analytics, and multi-actor data integration create a collaborative environment with high social and economic impact.

The rise of **chatbots** and virtual assistants in public administrations marks a **turning point in the relationship between institutions and citizens**. Initially conceived as tools to reduce the operational load on service centers and standardize responses, **their potential expands toward a more ambitious model: a cognitive government capable of learning, anticipating, coordinating, and acting proactively** on citizen needs and territorial dynamics.

This **roadmap describes a path that begins with tactical, low-risk implementations**—so-called quick wins—and progresses to a stage where artificial intelligence, advanced analytics, and multi-actor data integration create a collaborative ecosystem with significant social and economic impact.

Transforming chatbots into a cognitive government involves strategic decisions regarding interoperability, data, organizational culture, and governance. Success depends on balancing innovation, efficiency, and citizen trust, beyond mere technology deployment.

Stages of the roadmap toward cognitive government

1

Stage 1: Quick wins: Informational chatbots

The typical starting point for many administrations is **Level 1 informational chatbots, which provide fast, consistent answers to frequently asked questions**, reduce friction in information searches, and filter requests before they reach in-person or phone channels.

These systems operate **through guided menus, predefined rules, or basic models** and are typically deployed on municipal websites, mobile apps, and increasingly, instant messaging platforms.

Strategic value

- Visibility and public familiarity with AI in public services.
- Immediate reduction in workload for citizen service centers.
- Improved coherence and consistency of disseminated information.

Challenges

- Risk of frustration if information coverage is limited.
- Dependence on manual updates to maintain relevance.

2

Stage 2: Contextual guidance and intelligent retrieval

In the second stage, chatbots evolve to Level 2, with the **ability to understand user intent, access regulatory and document databases, and provide context-specific responses.** These chatbots are powered by generative AI, with or without RAG (Retrieval-Augmented Generation) techniques to access proprietary data.

The administration no longer provides only static information; it can guide citizens through complex processes: identifying the required procedure, gathering relevant documents, validating requirements, and in some cases, pre-filling forms.

Strategic Value

- Advanced interaction adapting to the user through language models.
- Reduced errors and fewer unnecessary visits to physical offices.
- Creation of a technological foundation enabling subsequent stages.

Challenges

- Integration with internal information systems to contextualize responses.
- Need for document management and data quality control.

3

Stage 3: Assisted transactional support

The next step is Level 3, **where the chatbot not only guides but also executes specific actions within an administrative process**: scheduling appointments, initiating requests, registering complaints, or processing payments.

This stage **requires interoperability with transactional systems, clear definition of permissions, and operational traceability.** Multichannel access becomes consolidated, with strong emphasis on WhatsApp and mobile apps to ensure accessibility.

Strategic value

- Significant time savings for both citizens and administration.
- Bridges the bureaucratic gap in government services.
- Increased efficiency in processing procedures.
- Enhanced perception of modernization and service capacity.

Challenges

- Security and digital identity validation.
- Internal resistance due to fear of replacing human roles.

4

Stage 4: Cognitive Government: Data-Driven, Action-Oriented Agents

The culmination of the roadmap is Level 4, where **cognitive agents operate autonomously and in coordination** on behalf of the citizen, with access to data and the ability to orchestrate complex multi-system processes involving multiple actors.

At this stage, the chatbot ceases to be merely a service channel and becomes the primary interaction channel, encompassing **not just the administration but also businesses, civil organizations, and other governments.** Features include mass personalization, proactive engagement (e.g., notifying citizens of available benefits without their request), and real-time data-driven decision-making.

Strategic value

- Radical transformation of the government–citizen relationship toward a personalized, preventive model rather than reactive.
- Synergies with the private sector for integrated services (e.g., transport, banking, healthcare).

Challenges

- Data governance and digital sovereignty.
- Risks of algorithmic bias and erosion of public trust.
- Need for intergovernmental interoperability standards.

Strategic challenges and risks

As a public administrations progress from informational chatbots toward a Cognitive Government, the challenges shift from purely technical issues to strategic dilemmas involving decisions about institutional power, citizen trust, and models of engagement with the private sector.

The first major challenge is achieving real interoperability. Connecting systems is not enough; they must be properly governed. A sustainable roadmap requires defining common languages, API catalogs, versioning policies, and a data lifecycle that ensures end-to-end traceability. The temptation to "tie" each new use case to a one-off integration creates technical debt and fragments the user experience. The cost is not only economic: every inconsistency erodes the promise of a predictable public service.

The **second area of risk is data sovereignty and governance.** Advanced chatbots rely on context: relevant regulations, records, cases, usage metrics. But incorporating sensitive data raises the bar for security, privacy, and minimization. Ambitions for personalization and proactivity must be balanced against the imperative to limit data usage, audit access, and explain automated decisions. Without an explicit framework defining roles and responsibilities—who stores, processes, and supervises data—security incidents cease to be "technical failures" and become crises of legitimacy. This also raises the issue of technological dependency: the advantages of proprietary platforms must be balanced with clauses for portability, reversibility, and control over derived knowledge.

The **organizational and cultural factor is the third and often most underestimated challenge.** A chatbot that starts by answering questions eventually reconfigures everyday work: from drafting regulations to measuring service times or evaluating staff. If the organization cannot design conversational flows, curate knowledge, and implement quality metrics, the technology stalls. Role changes—less repetitive work, more oversight and design tasks—generate uncertainty. Success depends on training multidisciplinary teams (legal, operations, data, technology, communications) that treat the service as a living product. Metrics and KPIs must be adapted to reflect new realities throughout the transformation.

Equally important is the **ethical and regulatory framework.** Automation in the public sector cannot rely solely on warnings or disclaimers. Citizens have the right to know when a decision is assisted by AI, which sources were used, and under what limits. Bias evaluation is not a one-time task; it must be integrated into operations, alongside internal and external audits and mechanisms to contest outcomes. Balancing innovation and legal safeguards is never neutral: without clear communication of quality criteria and a continuous improvement plan, reputational risk becomes an ongoing issue, especially in politically sensitive contexts.

The **economic model** also shapes the trajectory. Efficiency gains do not materialize automatically. It is necessary to distinguish between accounting savings and actual capacity freed for higher-value public tasks. A mature roadmap links investment to measurable indicators: reduction of repeat contacts, time taken to complete tasks, satisfaction among vulnerable groups, decrease in litigation due to defective notifications. Without this anchoring, conversational projects are seen as additional costs, and budget continuity suffers. The real risk is not overspending but failing to capture the value created.

Finally, **systemic risks** accompany the leap to Cognitive Government. Orchestrating multi-actor processes requires operational resilience, contingency plans, and functional independence among critical components. In crises, an agent acting on behalf of a citizen multiplies its value—and its risk surface. If an authorization chain fails, what degrades first? How are exceptions recorded? Who has the final decision? These questions must be addressed in design, not improvised. Public communication is also essential: without a clear narrative on benefits, limits, and guarantees, technological progress lags behind citizen perception.

As a public administration progresses from informational chatbots toward a cognitive government, the challenges shift from being purely technical to strategic: they involve decisions regarding institutional power, citizen trust, and models of engagement with the private sector.

Public-private cooperation and inter-administration collaboration

An administration aiming to mature its conversational capabilities needs a **public product strategy**. This means treating the chatbot as a living service with a portfolio of functionalities, roadmap, metrics, and visible accountability. It is not about acquiring "a technology" but operating a capability. A unified editorial line, a repository of reusable flows, and legal and plain-language review processes are as technical as an API. This also requires a **conscious data model**: shared dictionaries, tagging policies, curation and publishing cycles, and access controls based on least privilege. When knowledge is properly organized, AI stops "guessing" and begins reasoning with verifiable context.

The private sector fits as a **technology and learning partner**, not as a substitute for public function. Value-based partnerships focus on measurable results: response quality, citation robustness, reduction of repeated contacts, accessibility for older adults or people with disabilities. Contracts should include independent evaluation clauses, access to metrics, and rights to improve conversational assets (prompts, flows, knowledge bases). A trusted provider is one that delivers measurable value and accepts scrutiny, not one promising algorithmic magic. Sustainability depends on avoiding lock-in: data and knowledge portability, standards compliance, and realistic exit paths.

Open-source and hybrid models should be considered valid alternatives, offering transparency in methods—a critical factor in public administration. Promoting the creation of such companies across Europe could open a new stage in administration, moving from digital to cognitive.

Cooperation between cities and government levels benefits from **economies of scale and shared purpose**. Certain patterns—tax explanations, registry updates, simple licenses, waste management, recurring notifications—are common across municipalities. Sharing flow libraries, quality tests, and standardized document corpora

reduces costs and accelerates learning. Political competition should not block **interoperability**: if one city improves the workflow for a registration and license of an outdoor terrace of a bar and shares its design, others can review, adapt, and audit it. Over time, this creates de facto standards. Public-private cooperation can be structured through consortia with clear rules on shared data, intellectual property, and accountability, balancing innovation with safeguards.

Evaluation systems are essential. Metrics do more than measure performance—they guide behavior. If quality is measured by "conversation volume," the system will pursue quantity. If measured by "first-contact resolution" and "time-to-complete" for priority procedures, AI and teams will optimize for true value creation. Transparency supports trust: publishing aggregated indicators, improvement plans, and examples of cited responses and audited processes strengthens credibility. Ethics is demonstrated with data and correction capacity, not just principles.

Finally, developing internal capabilities defines the trajectory. Administrations that fail to invest in clear-language writers, knowledge curators, conversational designers, data analysts, and evaluation leads will remain in perpetual pilot mode. These roles complement, not replace, traditional legal and technical staff. Smooth collaboration across content, law, technology, operations, and vulnerable groups is the most difficult asset for any external provider to replicate.

An administration seeking to mature its conversational capabilities should approach the challenge not as "buying a technology," but as a public product strategy: a living service with a portfolio, roadmap, metrics, and visible accountability.

→ 2030 Vision: Local Administration in the Age of Intelligent Agents

The transition toward a local administration based on intelligent agents and chatbots is not an information technology project, but a systemic transformation.

By 2030, local administrations will have undergone a profound transformation, leaving behind the reactive approach that has characterized them for decades. Citizens will no longer need to search for, interpret, and execute procedures through fragmented web portals, physical service counters, or overloaded phone lines. Instead, they will interact with an ecosystem of **interconnected intelligent agents**, accessible through any channel at any time, capable of anticipating needs and providing continuous support, even before a formal request or problem arises.

The "new administration" will not be a repository of isolated services but a platform designed to create the conditions for an innovative and prosperous society.

This "new administration" will not be a repository of isolated services but a **platform designed not only to provide services but also to create the conditions that foster an innovative and prosperous society**. It will be capable of coordinating information, processes, and decisions in real time. Citizens will not need to "learn" how to use it: the administration itself will learn, adapt, and act on their behalf, with full traceability and citizen control, thereby bridging the bureaucratic gap.

The primary interface will no longer be the web but **fluid conversations** conducted in natural language and adapted to context. These conversations may occur via voice, text, or even multimodal interactions combining images, geolocation, and real-time data. There will be no need to understand the internal structure of the administration or navigate between departments: a single centralized assistant will orchestrate interactions with multiple specialized agents to meet any need, from obtaining a building permit to enrolling in training programs, registering residency, or accessing benefits.

This architecture is made possible through the standardization of **public APIs, data models, and security protocols**, ensuring interoperability without compromising data control. In Estonia, the **Bürokratt** platform already explores this approach, allowing citizens to complete interactions with state and municipal services through a single assistant. Singapore, with its **VICA** project, is building a unified agent for all departments, drastically reducing friction and response times.

Public–private collaboration and open models

Transitioning to a local cognitive government cannot be an isolated project within each municipality. It requires an ecosystem where **public and private sectors work in coordination**, with **open-source** and open innovation playing a central role.

A mature collaboration framework should include:

- **Open platforms and common standards** that allow contributions from startups, universities, and local tech companies without disproportionate entry barriers.
- **Agent and microservice marketplaces** where different agencies or providers offer interoperable solutions, competing on quality, innovation, and cost.
- **Clear data governance and models** defining who can access, process, and reuse information, with ethical and legal safeguards.
- **Co-financing and co-creation mechanisms** so that public investment is multiplied by private contributions and technological development responds to real needs rather than the latest tech offerings.

A cognitive government requires public-private collaboration, open standards, and co-creation. Ecosystems like Singapore, Taiwan, and Shanghai show how this accelerates digital services and transforms administration.

Models like **Singapore's GovTech** have demonstrated that this cooperation accelerates adoption and improves the quality of digital services. In **Taiwan**, the Digital Ministry promotes hackathons and civic communities that develop reusable modules, many of which integrate into official platforms. China has invested in conversational ecosystems in cities like **Shanghai**, where the **Citizen Cloud** platform connects public and private services under a unified interaction layer.

The biggest challenge lies within the **administrative structure itself**, as incremental approaches rarely succeed. Re-imagining the administration is necessary. While this may seem impossible, even rigid structures like the U.S. military are transforming by incorporating startups, hackathons, and venture capital mechanisms. Significant structural transformations are also evident in large, decentralized administrations such as in China.

Inspiring international scenarios

Gibson said that "the future is already here, it's just not evenly distributed." Indeed, this holds true: we are witnessing **the beginning of a new generation of administrations reshaping themselves** based on the opportunities offered by current technology.

None of these cases is fully mature: generative AI is still in an early phase. But they indicate **the direction in which administrations are evolving.**

Europe

- **Tallinn and Tartu (Estonia)** have advanced with Bürokratt, a state agent capable of conducting procedures on behalf of citizens and interacting with health, education, and municipal systems. The Estonian model relies on mandatory system interoperability and a "once-only" data design, avoiding repeated citizen input.

- **Helsinki (Finland)** has implemented virtual assistants that not only answer questions but also recommend training courses or automatically refer users to employment services based on their history and skills.

- **Vienna (Austria)** maintains WienBot as an entry point for municipal information but is developing transactional modules connected to its smart city system for energy, transport, and emergency management.

Asia

- **Shenzhen (China)** combines municipal chatbots with super-app systems (integrated into WeChat) allowing tasks from paying fines to booking medical services. The agent not only responds but also alerts citizens when a potential infraction or pending procedure is detected.

- **Hangzhou (China)** has implemented a predictive system that, via intelligent agents, anticipates transport or social assistance demands, adapting supply before bottlenecks arise.

- **Seoul (South Korea)** integrates OneService Chatbot with a network of specialized agents in transport, urban planning, and public safety, enabling citizen reports to be automatically converted into prioritized work orders.

Strategic challenges and risks

Deploying this vision is not without challenges: **data sovereignty** becomes critical, especially when infrastructure is controlled by foreign tech giants. **Ethical risks** in the use of generative AI (biases, opaque decisions) require clear auditing and certification frameworks. Additionally, **technological dependency risks** increase without investment in internal capacities and specialized talent.

Arguably the greatest challenge is the **organizational change** required. The administrative structure reflects a granularity of technologies previously incapable of handling complex workflows or decision-making processes. This is a **complex process that goes far beyond technology and affects governance and power structures**.

The transition toward a local administration based on agents and chatbots is not an IT project but a systemic transformation. Key elements include:

- **Adopting a progressive roadmap** from quick wins with informational chatbots to a fully autonomous, interconnected agent ecosystem.
- **Investing in interoperability and open standards** to ensure the ecosystem is scalable and not dependent on a single provider.
- **Creating testing and experimentation environments** ("regulatory sandboxes" and "living labs") to validate new functions without legal or reputational risk.

The 2030 vision goes beyond improving service: it redefines the relationship between citizens and administration, transforming local government into a proactive, anticipatory, and collaborative actor in urban life.

The transition toward a local administration based on intelligent agents and chatbots is not an IT project but a systemic transformation.

7

→ In Conclusion

Only administrations that redesign their structures to be more decentralized, agile, and oriented toward continuous learning will be able to fully leverage generative AI as a driver of systemic transformation.

The mirror hypothesis posits that **organizational structures largely reflect the technological capabilities and limitations available at a given historical moment**. When technology changes substantially, as is the case with the emergence of generative AI, a **tension arises between the objective possibilities of innovation and the organization's** actual capacity to absorb, adapt, and transform its operational models. In public administrations, this tension is particularly acute due to their regulatory nature, hierarchical structures, and risk aversion.

Today, **generative AI and intelligent agents offer, for the first time, a real opportunity to redesign public administration** as an interconnected cognitive infrastructure. This goes beyond optimizing processes or digitizing existing procedures: it involves reconfiguring citizen–government interactions in terms of speed, personalization, and proactive capability. However, the mirror hypothesis reminds us that this opportunity will only materialize if organizational structures and governance frameworks adapt symmetrically to these technological capabilities.

In practice, this means that **an administration that maintains rigid structures and centralized**, linear decision-making processes will only exploit a fraction of the benefits of generative AI. Its organizational "reflection" will remain suited to the official **paperwork and public service counter era**, even if advanced technologies are deployed at the front end. The result is a superficial layer of modernity without meaningful improvements in responsiveness, coordination, or institutional resilience.

Conversely, **administrations that redesign their organizational architecture to mirror the technology**—through decentralized information, dynamic orchestration of resources, real-time responsiveness, and continuous learning—**can turn generative AI into a systemic transformation engine**. In this model, intelligent agents are not mere assistive tools but active nodes within a network connecting officials, systems, and citizens in orchestrated and traceable workflows.

However, **this transformation is not without resistance and strategic risks**. In the short term, the mirror hypothesis faces three major sources of friction:

1. **Structural inertia**: Public procurement processes, incentive structures, interoperability regulations, and centralized control cultures hinder agile adoption. Metrics that define governmental action and performance are particularly influential.
2. **Capacity asymmetry**: While some areas may adopt advanced autonomous agent models, others may lag due to insufficient data, talent, or infrastructure.
3. **Trust and legitimacy**: Deploying systems capable of making decisions or taking actions on behalf of citizens raises transparency, explainability, and technological sovereignty challenges.

Overcoming these frictions requires a deliberate approach combining **organizational redesign, capacity building, and regulatory reform.** Generative AI cannot merely be layered onto existing processes: **public services must be reconceived** to emphasize anticipation and prevention rather than mere reaction.

Progressing toward a cognitive government also requires a multi-level governance framework to enable interoperability across cities, regions, and national governments, as well as seamless integration with private-sector ecosystems and open-source solutions. This cooperation is not only a technological accelerator but a **strategic requirement**: in a world where data, algorithms, and computing capabilities are globally distributed, **isolated administrations risk adopting technology designed for other contexts and priorities**.

Ultimately, the mirror hypothesis presents both a warning and an opportunity. The **warning: if organizational structures do not transform in parallel with technological capabilities, the potential of generative AI will be curtailed**, and inefficiency, technological dependency, and loss of legitimacy will multiply. The **opportunity: if the organizational "mirror" faithfully reflects technological possibilities, administrations can transition toward a proactive, agile, citizen-centered model** capable of learning and adapting at the pace of change.

The **strategic challenge of the coming decade is not whether to adopt generative AI in government, but whether we can redesign ourselves sufficiently to harness its potential** for social and economic progress.

If organizational structures do not transform in parallel with the capabilities of generative AI, inefficiency and dependency will multiply.
If the organizational "mirror" faithfully reflects the possibilities of the technology, we can transition toward a proactive, agile, and citizen-centered model of administration.

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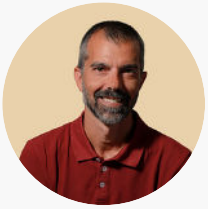

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About Anteverti
anteverti.com

Based in Barcelona, Anteverti helps cities, governments, and companies transform innovation, sustainability, and creativity into tangible impact and future opportunities.

Since 2011, it has operated in 24 countries across five continents, collaborating with organizations such as the United Nations, the World Bank, the Government of Argentina, and FC Barcelona. It has supported cities like Seoul, Barcelona, Santiago de Chile, Marrakech, and Madrid in finding innovative urban solutions.

Anteverti curates the Smart City Expo World Congress, a global reference event organized by Fira de Barcelona. Its multidisciplinary team combines expertise in urban innovation, sustainability, economic development, and international projection, offering strategic vision, operational support, and transformative ideas.

Believing that innovation arises from asking the right questions and connecting with the environment, in 2025 it launched its Knowledge area to generate insights and analysis in collaboration with key stakeholders. Since 2016, it also operates Citiestobe, a laboratory of ideas on cities and innovation.

About Esade
esade.edu

Esade is an academic institution with close ties to the business world, recognized for the quality of its education, its international reach, and its clear focus on the holistic development of individuals.

Esade, a business school that has been part of Ramon Llull University since 1995 and of the UNIJES network of Jesuit universities, was founded in collaboration with the Society of Jesus in 1958 with a commitment to doing things well and generating positive, meaningful change in business, entrepreneurship, and people.

The institution hosts the Center for Innovation in Cities, bringing together a group of academics with expertise in open innovation, new technologies, and public administration. Within the framework of Esade's Institute for Innovation and Knowledge Management, it focuses its research on analyzing, proposing, and inspiring solutions to improve city governance.


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