Study paper

Europe's Digital Future

How Can GovTech Bring Public Administrations
Faster, Smarter, and Closer to the People?
Lessons from France, Germany, Portugal, the Netherlands.

Björn Niehaves, Luca T. Bauer

Imprint

Publisher

Friedrich Naumann Foundation
for Freedom Europe
Rue d'Idalie 11–13
1050 Brussels
Belgium

🌐 www.freiheit.org/european–union
⬤ fnf.europe
✕ fnfeurope

Authors

Prof. Dr. Dr. Björn Niehaves
Luca T. Bauer

Editor

Odilia Abreu
Jana Moritz

Date

November 2025

Contact

Notes on using this publication

Look at big tech — they pour huge amounts into R&D. That's not our role in the public sector, and we shouldn't try to compete. But we can and should contribute more to the GovTech ecosystem.
Let us be a bit more daring.
Let us be a bit more innovative.

Table of Contents

Management Summary

Across Europe, governments are under growing pressure to modernize public administration while maintaining legitimacy and sovereignty. This study examines how European public administrations collaborate with **GovTech** start-ups—young, innovation-driven companies that design technology solutions for the public sector. By analyzing 22 in-depth interviews with public officials across Germany, France, the Netherlands, Portugal, and the EU level, and drawing on 106 founder interviews from prior research, the study identifies the motivations, success factors, barriers, and systemic requirements shaping GovTech adoption in Europe.

Building on an Entrepreneurial Ecosystem Framework, the study views GovTech not as isolated digital procurement but as an emerging ecosystem shaped by seven interdependent domains: policy, culture, finance, markets, human capital, support structures, and technology. It adopts a third-level definition of GovTech—focusing on start-ups that develop and provide digital solutions for public administrations—to capture the distinct challenges and opportunities of this innovation segment. From this we generated the following key findings:

1   **Motivations:** Public administrations engage GovTechs primarily for their agility, citizen-centric design, and innovative capacity, rather than

cost-saving or strategic autonomy alone. Officials value start-ups as "translators" between bureaucratic and entrepreneurial cultures.

2 **Complementary Roles:** GovTechs, BigTech, and public IT providers form a layered ecosystem—GovTechs for innovation, BigTech for scale, and public IT for sovereignty and continuity. Success depends on orchestrating these actors rather than choosing between them.

3 **Success Factors:** Effective collaboration relies on innovation-friendly procurement frameworks, strong leadership sponsorship, digital skills, open data sharing, and trust-based cultures that legitimize experimentation.

4 **Barriers:** The most persistent obstacles are procurement rigidity, fragmented regulations, limited human capital, and legacy IT systems. Many pilots fail to scale due to slow funding cycles, unclear ownership, and lack of institutional support.

5 **Ecosystem Organization:** Sustainable GovTech requires partnership-based ecosystems—linking administrations, start-ups, academia, and industry—supported by EU-wide interoperability, shared standards, and local anchoring.

6 **Cultural Renewal:** GovTech is not only technological but cultural change. Exposure to agile and design-thinking methods can modernize administrative practices and attract new talent into public service.

GovTech has become a strategic lever of Europe's digital sovereignty agenda. Yet, EU instruments such as the Digital Europe Programme and the Recovery and Resilience Facility remain underused at local and regional levels, where most GovTech experimentation occurs. National initiatives like GovTech Campus Germany, LabX (Portugal), and the Start-up in Residence (Netherlands) bridge this gap but remain fragmented. The challenge is to align funding, standards, and procurement mechanisms so that successful pilots can scale across borders.

Five priority areas emerge for policymakers:

1 **Flexible and Risk-Accepting Funding:** Establish GovTech innovation funds within EU and national programs, simplifying access for municipalities and SMEs.

2 **Institutional Support Infrastructures:** Build a permanent European network of GovTech labs and competence centres offering legal guidance, matchmaking, and shared learning.

3 **Interoperability and Open Standards:** Mandate reusable components and open-source models in all EU-funded GovTech projects to enable cross-border scaling.

4   **Cultural Readiness and Human Capital:** Launch a European GovTech Academy to train civil servants in agile delivery, product management, and digital procurement.

5   **Partnership and Market Access Frameworks:** Create a European GovTech Marketplace to connect start-ups with public buyers and promote outcome-based, challenge-driven procurement.

GovTech represents both a promise and a paradox: it injects innovation and citizen-centricity into the public sector yet remains constrained by structural inertia. To unlock its full potential, the European Union and its member states should treat the public sector as a market-shaping partner—one that can accelerate modernization while nurturing start-ups to become global champions. Moving from pilots to platforms will require coherent European frameworks, flexible funding, and deliberate ecosystem orchestration.

In essence, GovTech is major opportunity for the European economic zone to prove that democratic states can innovate at scale—delivering efficiency, sovereignty, and trust in equal measure
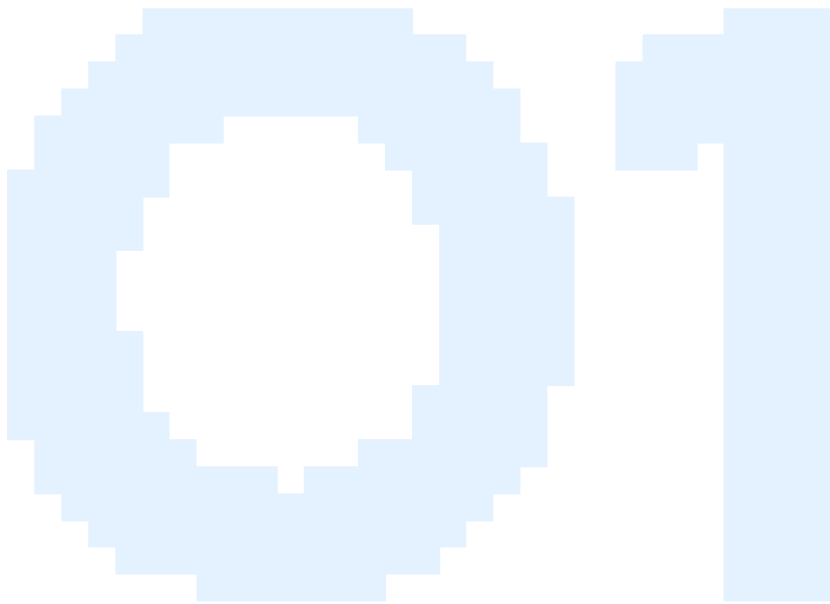
1. Introduction

Across Europe, governments are under increasing pressure to modernize public administration through digital innovation. Policymakers face the difficult task of balancing efficiency gains with the preservation of legitimacy and sovereignty in core functions (*An24*; *Ni24*). In this context, GovTech—the umbrella term for start-up providers of innovative technology for public administrations and governments—has emerged as a promising vehicle to connect private-sector innovation capacity with the specific needs of the public sector (*Bh22*; *EU24*).

Although interest in GovTech has grown rapidly among policymakers, researchers, and practitioners, the field remains fragmented. Systematic knowledge is still limited when it comes to understanding the conditions for success and the barriers that prevent scaling across different jurisdictions and over national borders (*Ho23*; *Ni25*). The existing body of research highlights both opportunities and persistent obstacles. On the opportunity side, GovTech initiatives are often praised for their agility, citizen-centric design, and potential cost efficiency. On the obstacle side, administrations frequently encounter regulatory fragmentation, entrenched procurement path dependencies, and cultural resistance to new approaches (*Ba25*; *Dß25*; *Ni24*; *Ni14*).

Against this backdrop, the present study seeks to advance our understanding of how European governments and public administrations collaborate with GovTech solution providers. This includes examining the role of key institutional actors such as national agencies, government innovation units, and public IT service providers, ranging from

LabX, over Venture Client GovTecHH to initiatives led by units like the France's DINUM in shaping how startups are sourced, supported, and integrated into public sector *innovation processes*. The focus is on identifying the conditions that enable or hinder collaboration and on understanding why some initiatives succeed while others stall. Building on the Entrepreneurial Ecosystem Framework employed in a previous Joint Research Center of the European Commission study by *Niehaves & Klassen* (*2024*) and drawing from empirical insights gained through semi-structured interviews across four European country cases, this study explores the motivations, success factors, barriers, and structural requirements for GovTech in Europe. In doing so, it provides both analytical perspectives and practical insights for policymakers and practitioners tasked with designing the institutional and regulatory environments in which GovTech can thrive.

2. Background

2.1 Political, Economic and Societal Frame of GovTech

Politically, GovTech is situated within the European Union's broader digital sovereignty and unified digital market agenda. Central initiatives such as the Digital Decade, the Interoperable Europe Act, and the proposed 28th Regime reflect the EU's ambition to create a coherent framework for digital governance while safeguarding strategic independence (*EU24*; *EU25*; *JU25*). Far from being a purely technical development, GovTech is inherently shaped by multi-level governance structures, regulatory choices, and procurement regimes that can either foster or hinder innovation (*Bh22*; *Ni24*). In this sense, the political environment sets the stage for whether GovTech remains a niche experiment or develops into a mainstream instrument of public sector modernization.

Economically, GovTech has emerged as a rapidly growing market segment. Startups and SMEs are increasingly offering specialized solutions tailored to the needs of public administrations (*We25*). Yet, these smaller firms frequently face asymmetries when competing with incumbent (public) IT providers and BigTech companies, which often dominate large-scale contracts due to their established reputations and extensive resources (*De24*). The promise of GovTech lies in its potential to deliver more agile, cost-effective, and citizen-centric solutions - ranging from digital identity systems and automated permit processing to AI-supported welfare and mobility services - while simultaneously fostering new market opportunities for startups within local and regional

innovation ecosystems, particularly in domains such as civic engagement, health, and urban infrastructure (*Ni25*). At the same time, the GovTech economy is strongly dependent on public budgets, procurement cycles, and shifting political priorities, which makes start-ups particularly vulnerable to changes in policy direction or administrative leadership (*Ku22*; *Me22*; *Ni24*).

From a societal perspective, GovTech resonates with broader expectations of transparency, trust, inclusivity, and democratic accountability in digital government (*Bh24*; *Dß252*). Citizens, especially with an aging populus (*Ni14*), increasingly demand public services that are user-friendly, interoperable, and secure (*Bh22*). These demands place legitimacy pressures on administrations while also opening opportunities to experiment with new forms of collaboration with GovTech actors. Thus, GovTech is not only about efficiency gains but also about meeting citizens' normative expectations of how digital states should operate.

Taken together, the political, economic, and societal dimensions reveal the dual nature of GovTech. On the one hand, it may serve as an enabler of public sector innovation and modernization; on the other, it represents a contested arena where questions of governance, power, and sovereignty are negotiated. Understanding this duality is essential for designing frameworks that can translate GovTech's potential into sustainable and trustworthy digital transformation.

2.2 GovTech in Europe at a Glimpse

In recent years, the European Union has positioned GovTech as a cornerstone of its digital transformation agenda (*Ku22*; *Me22*; *Ni24*). GovTech has been explicitly linked to overarching goals such as interoperability, digital sovereignty, and innovation-driven public sector modernization, underscoring its strategic importance for the future of European governance (*EU24*). Here, several major regulatory initiatives aim to create the enabling conditions for GovTech to flourish. The *Interoperable Europe Act*, the *Digital Services Act*, the *AI Act*, and the *Data Governance Act* are all designed to harmonize digital governance frameworks and reduce fragmentation across Member States (*EU22*; *EU24, Ba252*). Together, these initiatives provide a common regulatory backbone that may or may not support the scaling of GovTech solutions beyond national borders. Complementing these regulatory efforts, large-scale funding instruments such as the *Digital Europe Programme* and the *Recovery and Resilience Facility* provide unprecedented opportunities to strengthen digital infrastructures and incentivize innovation-oriented procurement practices (*EU-DigitalEurope, 2025*; *EU-RRF, 2025*). For examples of wide spanning regulation affecting GovTech, see Table 1.

European regulation	Relevance concerning GovTech
General Data Protection Regulation (2016)	The GDPR lays down strict rules for the processing of personal data, requiring GovTech providers to prioritize data protection and data security. In particular, it affects identity verification technologies, data analytics and digital administrative services.
Data Governance Act (2022)	The DGA creates a framework for sharing and reusing data in the public sector, which opens up new opportunities for GovTech solutions to develop data-driven innovations. GovTech providers benefit from improved data access mechanisms and standardized fiduciary models.
Digital Services Act (2022)	The DSA regulates digital platforms and ensures online service transparency and security, which is important for GovTech providers that provide digital administration platforms or citizen services. It defines liability rules and obligations to combat illegal content.
Digital Markets Act (2022)	The DMA limits the market power of large platforms as gatekeepers and promotes competition, giving GovTech providers opportunities to place solutions in the public sector. It also prevents lock-in effects and facilitates the integration of interoperable solutions.
Data Act (2023)	The DA promotes fair access to non-personal data and facilitates the exchange of data between public authorities and private providers. GovTech providers may benefit from new opportunities to use public and industrial data.
Artificial Intelligence Act (2024)	The AIA regulates the use of AI systems according to risk classes and particularly affects GovTech providers that use AI for administrative automation, decision-making or citizen services. Strict requirements for high-risk AI applications pose compliance challenges.
Interoperable Europe Act (2024)	The IOPA promotes digital cooperation between EU authorities and commits public institutions to interoperability standards, allowing GovTech providers to develop solutions for cross-border administrative services. It aims to strengthen the efficiency and standardization of digital administrative processes.

Table 1 European Regulation Impacting GovTech

Despite these efforts, evidence suggests that many Member States have been slow to operationalize EU funding and regulatory instruments for GovTech (*Ni24*). For example, implementation of the Digital Europe Programme and Recovery and Resilience Facility—as framed by startup executives—has been strongest at the national level but has shown limited penetration into regional and municipal administrations, where most GovTech cooperations actually occur. As a result, several Member States have opted to develop their own national GovTech initiatives or innovation labs to bridge this gap.

On the national level, Member States have introduced their own national initiatives to complement and operationalize European policy goals (*Ku22, Ba252*). Flagship examples include among others the GovTech Campus Germany, Lab X, and the Start-up in Residence program in the Netherlands. These initiatives serve as incubators and testbeds, enabling start-ups and administrations to co-develop and pilot innovative solutions under real-world conditions (*Ku22; Me22*). By institutionalizing experimentation and partnership, they demonstrate the potential of GovTech to reshape the delivery of public services.

Economically, GovTech has matured into a substantial global market. Current estimates place the worldwide GovTech market at over 9.8€ trillion, with Europe representing a growing share of around *400€ billion (Br25; Se24)*. This growth is driven by both the procurement needs of public administrations and the increasing number of specialized start-ups developing tailored digital solutions. However, the European market remains highly fragmented. More than 5,000 GovTech solutions have been identified across the continent, yet most remain confined to local or national contexts, struggling to achieve cross-border scalability due to regulatory diversity and procurement barriers (*Ni24; Se24*).

The demand for agile, citizen-centric, and trustworthy digital services is steadily increasing (*Ni24*). This tension highlights the dual nature of GovTech in Europe: on the one hand, it offers substantial opportunities for SMEs and start-ups to contribute to modernization; on the other, it presents policymakers and administrations with the challenge of designing governance frameworks that ensure accountability, interoperability, and inclusivity while still fostering innovation (*Bh24; Ni24*).

With first information available from previous studies focusing on GovTech targeting programs and looks into procurement for innovation practices (*Ku22; Me22*), in 2024 the European Commission contracted an extensive study on GovTech founders' perspectives (*Ni24*). Our goal is to contrast these with current debates being had and practices being discussed by policymakers and involved public administration officials.

2.3 GovTech Definitions and their Implications

Beyond the surface level, GovTech as a term is being used with different connotations and associated values attached. Thus, defining GovTech is not a purely technical

exercise but a political debate with associated advantages and drawbacks. On the one hand, a broad definition allows policymakers to rally diverse initiatives under a unifying label, strengthening visibility and legitimacy. On the other, excessive vagueness risks turning GovTech into a catch-all buzzword that can be co-opted by established incumbents and consultancy-driven agendas, diluting its transformative potential. Conceptual clarity therefore matters: without it, GovTech risks conflation with adjacent domains such as e-government, civic technology, or smart cities, making it difficult to assess outcomes and design supportive frameworks.

To address this challenge, we distinguish three levels of GovTech definitions:

→ **First-level definitions** describe GovTech as general technology in government in continuation of e-government and digitalization, encompassing all providers (public, private, startups, incumbents). While inclusive, this view tends to blur boundaries with traditional e-government and allows legacy actors to dominate under the GovTech label.

→ **Second-level definitions** narrow the scope by defining GovTech as technology in government, that is developed or provided including external partners. This strand mitigates the risk of rhetorical rebranding and emphasizes innovation-oriented procurement.

→ **Third-level definitions**—the most precise—restrict GovTech to technology in government, that is developed or provided by external partners, more specifically startups. Here, startups are understood as young firms (less than ten years), with limited size and revenues, but explicit innovation and growth ambitions. This level highlights their potential for rapid innovation cycles and their role as challengers to incumbent providers, while also recognizing the need for supportive ecosystems, regulatory sandboxes, and tailored procurement frameworks.

In this study, we adopt the **third-level definition**. Doing so ensures analytical precision and aligns our perspective with the growing body of research that identifies GovTech as the collaboration between public administrations and startups to co-develop innovative digital solutions. This approach allows us to focus on the specific opportunities and challenges of startup-driven public sector innovation, while situating GovTech within broader debates about digital sovereignty, interoperability, and the future of democratic governance.

2.4 Theoretical Background and Framework for Analysis

To analyse GovTech as a phenomenon, this study builds on the Entrepreneurial Ecosystem Framework applied by *Niehaves and Klassen* (*2024*), who identify a set of interdependent factors—culture, finance, policy, markets, human capital, support structures, and technology—as the primary drivers of the development of a GovTech ecosystem (*Ni24*). By framing GovTech within this perspective, the analysis

acknowledges that innovation does not occur in isolation but is shaped by the surrounding institutional, cultural, and economic environment.

In its GovTech context, the framework emphasizes the dominant and overarching role of policy. Unlike many other sectors, GovTech start-ups are particularly dependent on regulatory conditions and public procurement structures, which can act as both enablers and barriers to innovation (*Ni24*). This dependency makes the political and institutional dimension especially influential in shaping the opportunities for GovTech to scale.

For the purposes of this study, the framework serves as a guiding lens to structure empirical insights from country cases. It allows us to systematically identify both success factors and hindering conditions, as well as to assess the foundational requirements for scaling GovTech across Europe (see *Figure 1*).
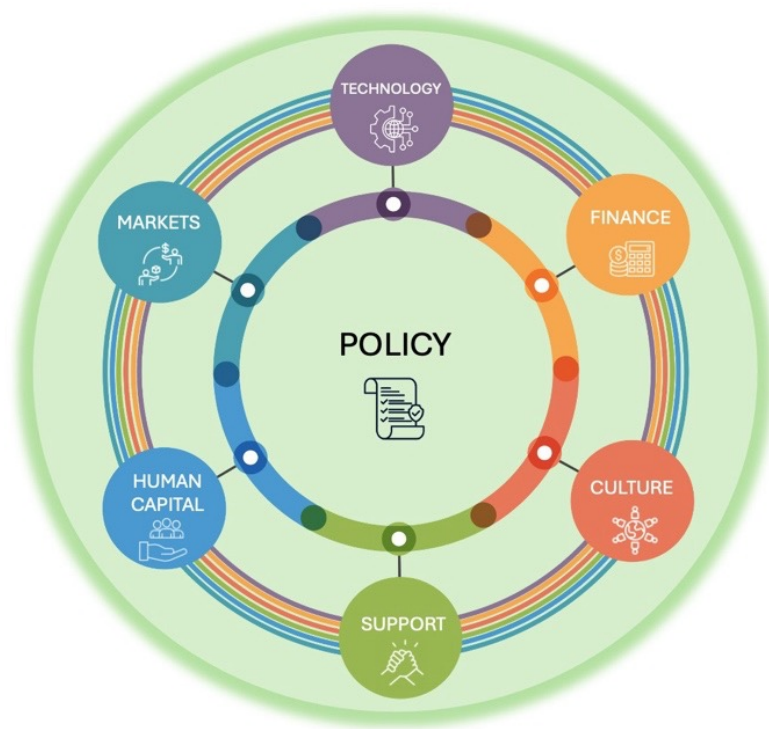

Figure 1 GovTech Ecosystem Framework (Ni24)

Guided by this framework, the study is oriented around four guiding questions:

→ **Motivation:** Why and under what conditions do public administrations decide to collaborate with GovTechs as providers of IT solutions?

→ **Critical success factors:** Which factors determine successful GovTech collaborations, and which barriers most commonly undermine them?

→ **GovTech ecosystem dynamics:** How should culture, finance, markets, human capital, support structures, and technology be structured to enable a European GovTech ecosystem?

→ **Policy recommendations:** Which top policy recommendations arise to further GovTech ecosystem development and impact digital government?

By situating GovTech within an ecosystem perspective, our analysis deliberately moves beyond single explanatory factors. Instead, it conceives GovTech as a complex interplay of governance, innovation, and institutional dynamics. This perspective enables a more holistic understanding of how different conditions must align to allow GovTech initiatives to deliver public value at scale.
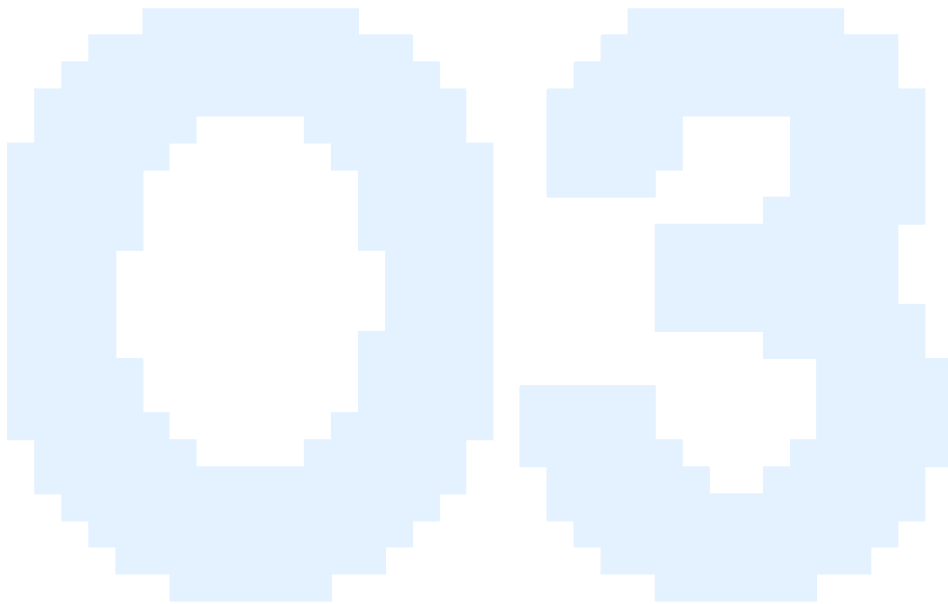
3. Methodology

3.1 Method and Data Sets

This study employs a qualitative multi-case study research design to examine the success factors, challenges, and conditions that shape GovTech adoption in Europe. The choice of a qualitative approach reflects the exploratory nature of the topic and the need to capture the perspectives of key stakeholders across diverse institutional and national contexts. Semi-structured expert interviews formed the central method, as they allow for both comparability across cases and flexibility to explore individual narratives in depth.

The primary dataset consists of 22 semi-structured interviews with public administration and policy officials conducted between Mai and September 2025. Participants were strategically selected to cover multiple governance levels, ranging from local and regional administrations to national ministries and European institutions, and to capture diverse perspectives on digital transformation and innovation management across different member states. The interviewees were assured of anonymity and confidentiality. Specifically, interviews were conducted with four officials from the European level, four from France, three from Portugal, four from the Netherlands, and seven from Germany, All interviews with a length between 35 and 80 minutes were recorded, transcribed, and subjected to three iterative rounds of coding. Intermediate

discussions among the authors were used to refine categories and interpretations, strengthening both reliability and validity. A dual coding strategy was applied: horizontal coding across all domains to identify commonalities and shared patterns, and vertical coding within thematic clusters to highlight specificities and divergences.

To complement the primary material, we also draw on a secondary dataset of 106 interviews with start-up representatives. These interviews stem from a previous study that we conducted, allowing us to integrate the supply-side perspective of GovTech entrepreneurs into the present analysis.

The analytical process was guided by a dual ambition: to contribute to academic understanding while simultaneously producing insights that are directly actionable for policymakers, administrators, and GovTech actors. The results presented in the following section therefore reflect an empirically grounded and systematically validated perspective on the motivations, barriers, and enabling conditions for GovTech in Europe as seen by public sector officials.

3.2 Case-Study Selection

Understanding GovTech in Europe is a challenging task, as it potentially involves 27 different national ecosystems, each shaped by its own political structures, legal frameworks, and market conditions. To make the analysis both representative and manageable, this study focuses on four central European countries: Germany, the Netherlands, France, and Portugal. These cases serve as a lens through which broader patterns of European GovTech dynamics can be observed and abstracted.

The selection of these four countries is deliberate and reflects variation in administrative organization within comparable European governance contexts. All operate across multiple levels (national, regional, and local) but differ in constitutional structure: Germany follows a federal model with shared competences across levels; France and Portugal are centralized unitary states with strong central coordination; and the Netherlands represents a decentralized unitary state granting significant discretion to municipalities. This institutional diversity allows for examining how GovTech adoption unfolds under differing coordination regimes, while their similar stage of digital maturity—advanced but not pioneering—ensures analytical comparability.

Each country is home to significant GovTech initiatives and companies that illustrate the diversity of approaches within Europe. **France** has invested heavily in open data platforms, **Germany** has established the GovTech Campus, **the Netherlands** has developed novel digital identity infrastructures, and **Portugal** has leveraged EU modernization programs to accelerate the adoption of innovative IT solutions. Together, these cases represent Europe's "intermediate block," combining large public sectors with strong digital industries, thereby creating the critical scale necessary for GovTech solutions to be relevant at both national and European levels.

At the same time, a limitation of this comparative approach lies in the strong alignment observed across interviews. Rather than revealing sharply divergent national trajectories, the evidence points toward shared European patterns of motivation, success factors, and barriers. This suggests that while country-specific differences exist, the structural challenges and opportunities in GovTech are widely comparable across Europe.

Looking ahead, the results are presented in three steps. First, we align the motivations for engaging with GovTech from the perspective of public officials with those of GovTech founders and policymakers. This is done to create a more on the ground perspective based on the lived experience of public officials instead of political narratives. With this we thrive to set the tone of an objective analysis that extends previous research. Secondly, we analyse the enabling and hindering factors of collaboration, organized along the dimensions of the Entrepreneurial Ecosystem Framework (*Ni24*). The previously presented political, economic and societal frame makes it clear that the GovTech opportunity can't be ignored. We thus see it as central in advancing discourse to enable targeted initiatives that can build on what works and what does not. Finally, we provide a generalized outlook on ecosystem organization, highlighting implications for Europe-wide GovTech policy. We do this separately to individual success factors, as we see them as flexibly useable on European, national, but most importantly regional and even municipal project levels. The overall orchestration though, should be approached as an ecosystem spanning collaborative effort, that involves all parties concerned. For all steps we present percentages of interviews that represent the topic with a cut-off at a threshold of 15% representation.

4. Findings

4.1 General Findings

This section synthesizes the cross–cutting insights from 22 interviews with public officials across Germany, France, the Netherlands, and Portugal and sets the stage for the detailed analyses that follow. It highlights patterns that recur regardless of country or administrative level and points to a small set of contextual differences that shape how GovTech collaborations emerge and scale.

To make country patterns transparent, Table *2* reports the relative frequency of all major success factor codes (policy, culture, human capital, finance, markets, support, technology, and total).

Together, these sections translate the general picture captured in *Table 2* into detailed, actionable insights—first by clarifying motivations, then by analyzing conditions for success and failure, and finally by outlining potential implications to draw upon for delivering GovTech at scale.

	EU	FR	NL	PT	GER	Total
Policy	17	10	13	14	16	124
Culture	12	12	16	13	27	133
Human Capital	9	5	10	5	21	79
Finance	22	9	10	10	23	125
Markets	12	7	10	13	25	109
Support	11	6	10	7	17	85
Technology	4	13	5	7	26	84
Total	87	62	74	69	155	739

Table 2 Overview of Success Factor Mentions in Interviews

4.2 Public Officials Motivations to Work with GovTechs

The European Commission has framed GovTech as a key driver of innovation, digital sovereignty, and as an essential building block of a single European digital market. In parallel, GovTech founders tend to stress their mission-driven orientation, emphasizing their commitment to advancing public sector digitalization as a way of contributing to society more broadly. Yet, it remains an open question whether these official and founder narratives fully align with what public officials themselves expect GovTech to deliver in practice.

Interviews conducted for this study highlight a range of motivations that drive public administrations to engage with GovTechs, as visible in *Figure 2*.

First, officials view GovTech start-ups as important sources of innovation capacity and agility, capable of delivering fresh ideas and faster results compared to in-house IT units or traditional vendors. Second, there is a strong emphasis on citizen-centric solutions: officials repeatedly stressed the need for digital services that are more user-friendly, responsive, and transparent, aligning with rising expectations of accessibility and accountability.

Beyond these general drivers, more specific motivations were identified. Administrations value GovTechs for their ability to **solve unmet or niche needs**, often overlooked by

large vendors, and to **bridge gaps between bureaucratic processes and technological dynamics**, acting as "translators" between two different worlds – public administrations and the technology startup ecosystem. In this cultural difference often could not be more stark: whereas public administrations are bureaucratic monoliths striving for consistency and steadiness, startups inherently need to act fast and leverage their agility to innovate. A number of officials also underlined the importance of **strategic independence**, noting that working with GovTechs provides opportunities to reduce reliance on BigTech or dominant IT integrators, thereby retaining greater control over data, systems, and long-term resilience.

Practical considerations also play a role. GovTech collaborations are often perceived as more **efficient and cost-effective**, particularly for pilot projects where administrations can test solutions at lower risk before committing to expensive, large-scale procurements. Officials further emphasized the cultural dimension, framing GovTech engagement as a way to foster **organizational renewal**. Exposure to agile methods, design thinking, and iterative problem-solving can gradually modernize bureaucratic mindsets. Finally, many respondents highlighted the pursuit of **public value and visibility**, pointing out that GovTech collaborations often generate quick, tangible results that improve services for citizens, demonstrate responsiveness, and build public trust.

Critically, however, a gap exists between official narratives and the motivations expressed on the ground. While political discourse often emphasizes sovereignty, market independence, or cost-efficiency, interviewees placed stronger emphasis on agility, citizen-centricity, and cultural transformation as their primary drivers. In practice, the decision to work with GovTechs appears to be less about abstract strategic goals and more about addressing everyday challenges and making public administrations more adaptive and service oriented.
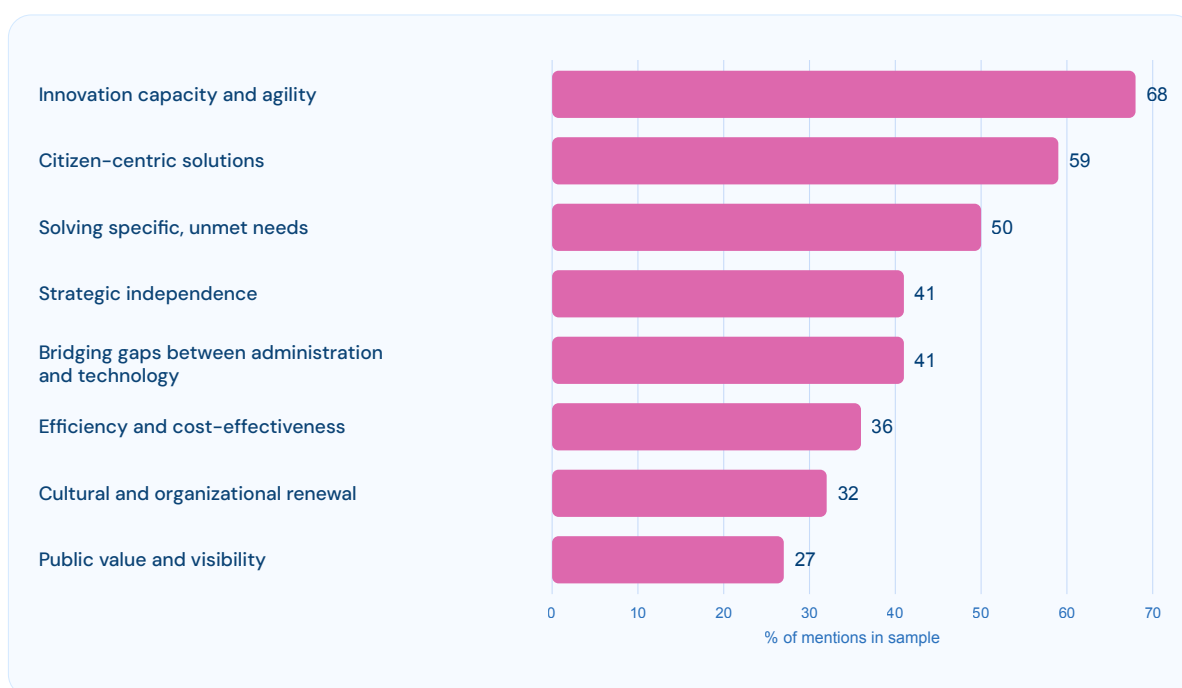

Motivation	% of mentions in sample
Innovation capacity and agility	68
Citizen-centric solutions	59
Solving specific, unmet needs	50
Strategic independence	41
Bridging gaps between administration and technology	41
Efficiency and cost-effectiveness	36
Cultural and organizational renewal	32
Public value and visibility	27

Figure 2 European Public Officials Motivations to Work with GovTechs (EU, FR, NL, PT, GER)

Anecdotes illustrate this perspective vividly. A Portuguese official described GovTechs as "translators between colliding worlds," linking bureaucratic routines with the mindset of tech entrepreneurs. Another argued that GovTech offers "a new approach to problems" rather than predefined solutions, highlighting the need for administrations to openly share their challenges with start-ups to generate value. Several respondents admitted that many public servants do not fully know what the technology world can provide; here, GovTechs are seen as essential partners in exposing administrations to new possibilities and working methods.

Overall, motivations to collaborate with GovTechs are therefore driven less by cost saving logic or higher transnational strategic alignment and more by the pursuit of agility, citizen-centricity, and innovation transfer. Officials increasingly see GovTechs not as replacements for existing public IT capacity, but as another supply of strategic partners that complement and enrich their ability to deliver modern, citizen-oriented public services.

4.3 Perspectives on Solution Providers Public IT Providers BigTech – GovTech

The preceding analysis of motivations demonstrates that public officials value GovTechs primarily for their agility, citizen-centricity, and cultural renewal. Yet officials also stressed that GovTechs are not a one-size-fits-all solution. Instead, decisions on whether to engage GovTechs, public IT providers, or BigTech firms depend on the type of problem at hand, the degree of sensitivity involved, and the organizational readiness of administrations. In practice, officials make deliberate distinctions between the three types of providers, and the evidence points to a layered ecosystem rather than mutually exclusive alternatives.

Public IT Providers: Governments frequently rely on in-house or publicly owned IT service providers when dealing with core infrastructure and highly sensitive systems. These include identity management, registries, taxation systems, or defence-related platforms, domains where sovereignty, compliance, and continuity remain paramount. Public IT providers are trusted to ensure long-term stability, safeguard essential data, and maintain democratic control over critical infrastructure. In some cases, they also act as intermediaries, collaborating with GovTechs to combine stability with innovation. As one interview partner from the France noted, "You need the public IT providers for the long-term, stable systems… they are the ones you trust with registries, taxation, or citizen identity".

BigTechs: Large international technology firms (e.g. Amazon, Meta, Alphabet, Microsoft, Apple) typically come into play when administrations require scalable and standardized solutions. Cloud infrastructure, cybersecurity, enterprise resource planning, and communication platforms are common examples. BigTech providers are said to offer reliability, rapid deployment capacity, and access to global best practices. Officials, like

one from the European level, acknowledged their importance particularly in areas where scale and resilience outweigh the need for customization: "We use Microsoft Teams across the Commission — it works, it's reliable, and that's why BigTech is necessary. But it doesn't bring new ideas".

GovTechs: By contrast, GovTech start-ups are prioritized in situations where administrations face highly specific or user-centric challenges, or when traditional providers fail to innovate quickly. GovTechs are particularly well positioned to pilot novel digital services, apply AI or data-driven tools to niche problems, and develop citizen-facing applications. Their strength lies in adaptability, experimentation, and tailoring solutions to public sector realities. Saying it from the perspective of a German public administration official "Start-ups are the ones that bring in new approaches we hadn't even thought of — they translate our bureaucratic challenges into something digital and usable".

Interviewees illustrated this nuanced outlook with vivid examples. One EU official summarized the division succinctly: "For basic infrastructure and off-the-shelf solutions, you go to the big ones. If you have the capacity to innovate, then you go for GovTechs." Another respondent highlighted the limits of large-scale providers, noting that while BigTech ensures step-by-step system evolution, "if you want to test a completely new infrastructure or new approaches, this won't happen with the larger companies." A Portuguese official added a cautionary note on outdated systems, pointing out that many public databases still run on legacy languages such as COBOL, which prevents smooth integration with modern GovTech solutions and often needs consortia of all three.

Several officials further emphasized the potential of consortia and partnerships—such as Portugal's Mobilizing Agendas—where GovTechs, public IT providers, and larger firms collaborate. These arrangements allow administrations to combine the stability and scale of established providers with the innovative capacity of start-ups, creating more resilient and future-ready ecosystems.

Overall, the findings suggest that success does not lie in choosing one category of provider, but in orchestrating all three. Public IT providers are still seen as safeguards of sovereignty and continuity, BigTech called to deliver backbone scalability, and GovTechs become part in introducing agile innovation and citizen-centric improvements. Rather than competitors, a large number of interviewees calls for these providers function as complementary pillars of a layered ecosystem. The art of digital procurement, therefore, lies in designing partnerships that integrate their respective strengths, ensuring that administrations can innovate while maintaining resilience and trust.

4.4 Success Factors for Working with GovTechs

<u>Policy</u>

Policy, taking a special place in analysis as in GovTech the client and regulator share roles, again emerged as one of the most decisive factors shaping the success or failure of GovTech collaborations. Given that start-ups are heavily dependent on public procurement and regulatory frameworks, the political and institutional environment either opens pathways for innovation or creates significant bottlenecks. The interviews consistently underscored that policy frameworks do not merely provide background conditions but actively determine whether GovTechs are able to enter, compete, and scale in public sector markets.
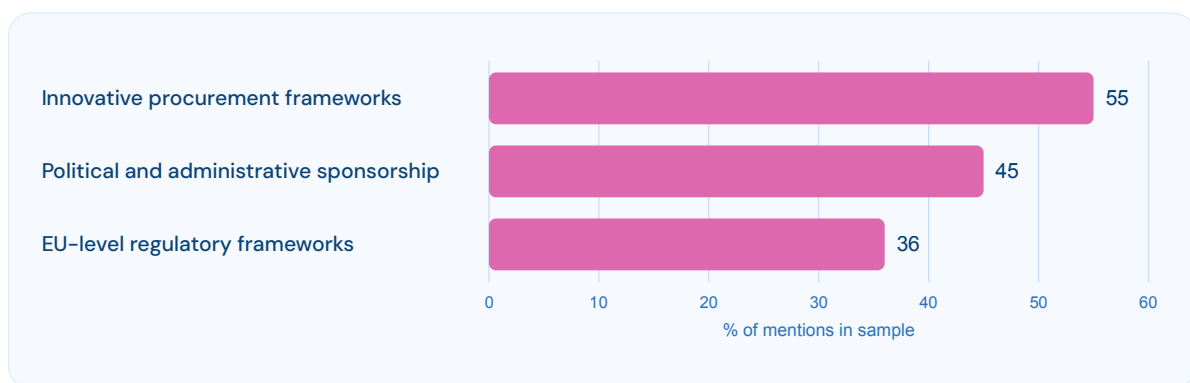

Figure 3 Success Factor Policy Positive

Several positive policy factors were highlighted, see *Figure 3*. First, **innovative procurement frameworks**—such as pre-commercial procurement, innovation partnerships, or design contests—enable GovTechs to compete on the basis of ideas and solutions rather than size or past performance. Second, the presence of **political and administrative sponsorship** is crucial. Champions at the ministry or agency level legitimize pilot projects and shield them from bureaucratic inertia, creating the space necessary for experimentation. Third, harmonized **EU-level regulatory frameworks**, including e. g. the Interoperable Europe Act, were seen as providing consistent conditions that can reduce fragmentation and facilitate GovTech adoption across Member States. At the same time, several negative factors constrain GovTech scaling, as visible in *Figure 4*. Foremost among them is **procurement rigidity and preferential practices**. Large-scale tenders are often designed for established providers, effectively excluding start-ups, while preferential treatment for domestic incumbents further undermines fair competition. Relatedly, **regulatory fragmentation across Member States**, particularly divergent interpretations of GDPR and national procurement laws, complicates efforts to scale solutions cross-border. Interviewees also emphasized the destabilizing effect of **short-term political cycles**: GovTech initiatives are frequently tied to specific governments or election periods, making them vulnerable to political turnover. Finally, **protectionism by national innovation agencies** was cited as a barrier, as agencies often promote exports of domestic GovTechs while creating hurdles for imports from abroad.
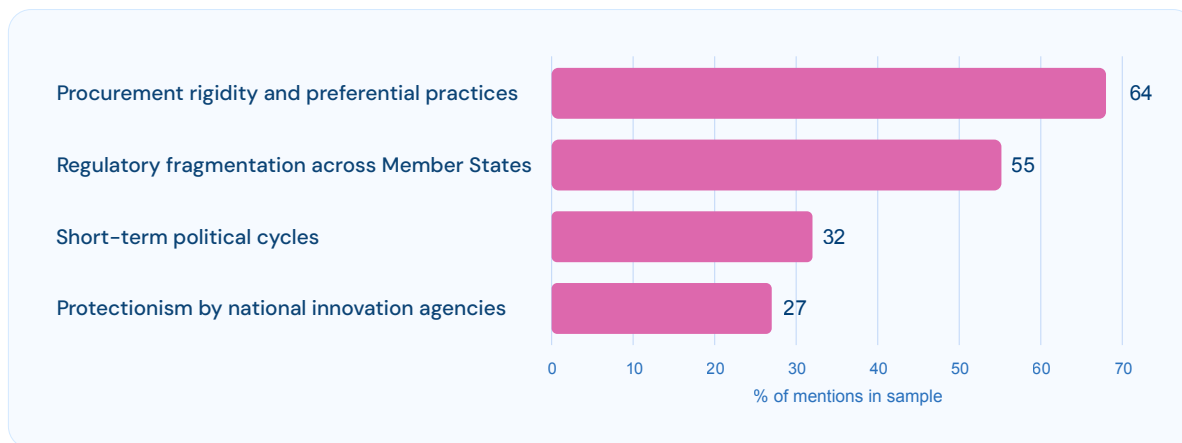
Figure 4 Success Factor Policy Negative

The interviews provide concrete illustrations of these dynamics. Multiple officials explained that policy frameworks allowing "risk-accepting budgets" were decisive, noting that start-ups rarely have extensive track records to prove stability. An EU Commission official criticized current procurement rules, observing that "you do a tender of a million, and this is definitely not for a GovTech start-up... the time and structure needed to answer is not affordable, and the risk to lose is very high." A German respondent highlighted the critical role of sponsorship by directors or ministers, arguing that "if there is someone up there who is okay with failing, then things happen. If not, then not." Similarly, a Dutch interviewee contrasted traditional procurement with challenge-based tenders, emphasizing that "GovTechs only get in through innovative procurement."

Taken together, these insights confirm that policy design acts as both gatekeeper and accelerator of GovTech adoption. Where innovative procurement instruments, strong political sponsorship, and harmonized regulations are in place, GovTechs can flourish. Conversely, rigid procurement rules, fragmented regulations, and politically fragile programs continue to confine most GovTech initiatives to small-scale pilots. Strengthening innovation-oriented procurement and ensuring regulatory coherence at both national and European levels therefore appear as central levers for enabling GovTech to scale sustainably.

Culture

Beyond policy and regulation, culture emerged as a critical success factor shaping the trajectory of GovTech collaborations. Drawing on the adopted entrepreneurial ecosystem framework, culture refers to the shared values, norms, and attitudes that influence how actors perceive risk, failure, collaboration, and innovation. In the context of public administration, this translates into organizational mindsets toward experimentation, openness to external partners, and tolerance for iterative learning. Cultural attitudes determine whether administrations are willing to pilot untested ideas, adopt agile working methods, and build trustful relationships with start-ups. While policy can create the formal conditions for collaboration, it is ultimately the cultural environment within administrations that determines whether GovTech initiatives are legitimized, protected,

and allowed to mature. Interviews revealed that administrations with strong cultures of learning, openness, and mission-driven innovation provide fertile ground for GovTech engagement, whereas risk aversion, hierarchical rigidity, and proceduralism can stifle promising initiatives before they take root.
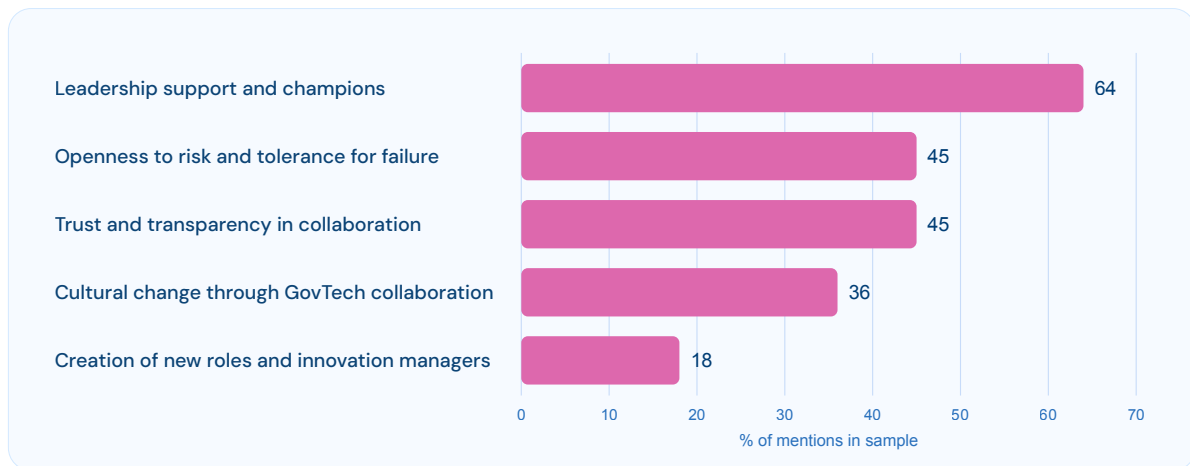

Figure 5 Success Factor Culture Positive

On the enabling side, several elements stood out, see *Figure 5*. Strong **leadership support and champions**—particularly senior leaders or directors—were identified as decisive in legitimizing experimentation and shielding projects from bureaucratic resistance. Equally important is an **openness to risk and tolerance for failure**: officials emphasized that innovation requires courage to test new approaches, and that openly acknowledging and learning from failure builds a healthier innovation culture. **Trust and transparency in collaboration** were also highlighted, with early communication, open data sharing, and treating GovTechs as partners rather than mere vendors fostering more productive relationships. Some respondents went further, describing GovTech not just as a technical tool but as an **instrument of cultural renewal**, bringing agility and entrepreneurial spirit into otherwise rigid administrations.

Finally, the **creation of new roles**—such as "innovation managers" or "digital policy managers"—was seen as a way to institutionalize cultural change and provide champions who can carry new practices forward.

At the same time, officials pointed to several cultural barriers, as visible in *Figure 6*. Widespread **risk aversion and fear of failure**, often tied to reputational concerns or audit scrutiny, continues to discourage experimentation, that is essential for working with GovTechs. **Cultural inertia and resistance to change** also remain strong, with administrations frequently defaulting to established vendors and processes. Respondents noted a **lack of trust and credibility concerns**, as startups are still often-times viewed as too small, unstable, or risky compared to "safe" BigTech alternatives. Additionally, **national and local biases** shape procurement, with administrations often favouring domestic providers due to familiarity, language, or perceived loyalty. Finally, **language and communication barriers** were mentioned as obstacles to trust-building across borders, particularly in multinational or EU-level projects.
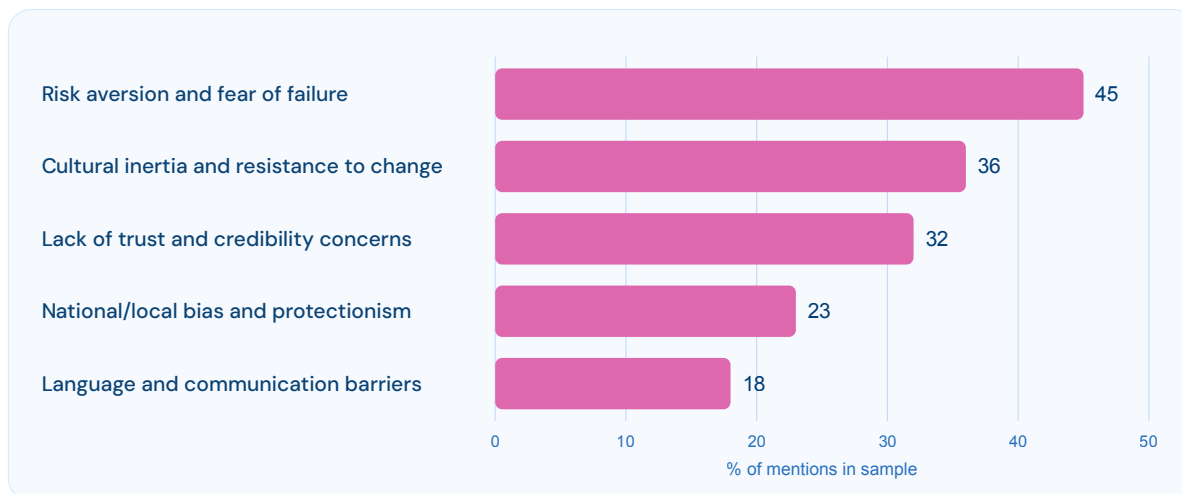
Figure 6 Success Factor Culture Negative

The anecdotes illustrate how these dynamics play out in practice. One participant noted how working with start-ups transformed public officials' practices: "Public sector learns while working closely to start-ups… they learn to be more agile, more flexible… seeing the tasks differently, cutting parts of bureaucracy." Yet, cultural tensions remain. A German interview partner cautioned: "If GovTechs become too intertwined with public administrations, I fear that they will also adopt their culture and thus lose all elements of cultural change that they are supposed to carry into the public sector." In another case, a Portuguese policymaker explained that while "public–private partnerships" carried negative associations, reframing collaboration under the GovTech label made it politically and publicly acceptable.

Taken together, the findings underscore that culture is both an enabler and a barrier to GovTech adoption. Where openness, trust, and leadership sponsorship are present, GovTech can act as a catalyst for cultural renewal inside administrations. Conversely, entrenched risk aversion, credibility concerns, and protectionist attitudes can undermine even the most promising pilots. The challenge, therefore, lies in cultivating cultures of experimentation and trust that allow GovTech collaborations not only to emerge but also to scale sustainably.

Human Capital

Human capital emerged as one of the most decisive yet constraining factors for GovTech adoption. While policy frameworks and cultural conditions set the stage, the skills, competencies, and capacities of public officials ultimately determine whether GovTech projects can succeed in practice. Across interviews, respondents repeatedly emphasized that without digitally literate staff, administrations are unable to act as competent partners, often becoming dependent on vendors or missing opportunities to embed innovation into their organizations. In this sense, human capital is both a bottleneck and a lever: its absence undermines GovTech collaboration, while its presence accelerates adoption and scaling.

Several enabling conditions were identified, see *Figure 7*. First, **digital literacy and agile skills among civil servants** are critical. GovTech projects succeed when officials can act as competent "clients," engaging in iterative collaboration rather than relying on rigid, top-down project management.
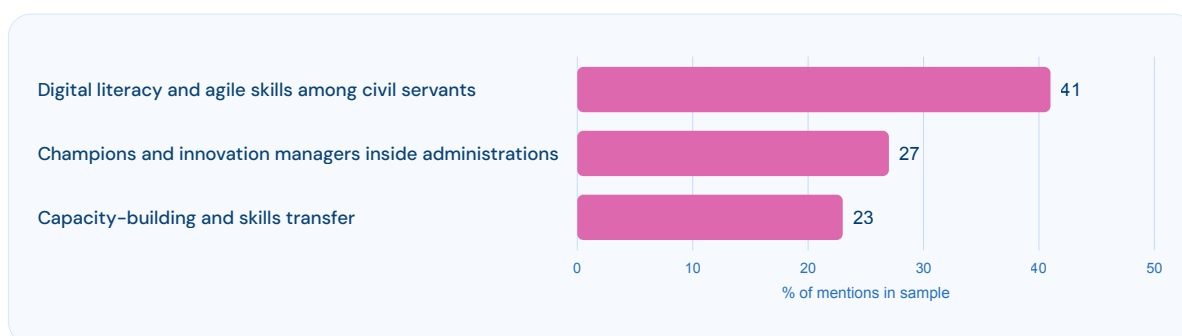

Figure 7 Success Factor Human Capital Positive

Second, the creation of **champions and innovation managers inside administrations** helps bridge bureaucratic structures with start-up practices, ensuring that new ways of working gain organizational legitimacy. In this context, champions are individuals—often mid-level civil servants or policy entrepreneurs—who advocate for experimentation, mobilize internal and external support, and navigate institutional barriers to innovation. Innovation managers, in turn, are formally designated roles or units responsible for coordinating innovation projects, translating agile and user-centric methods into administrative routines, and maintaining alignment with legal and accountability requirements. Both act as boundary spanners who translate between the procedural world of bureaucracy and the iterative, risk-tolerant approach of start-ups.
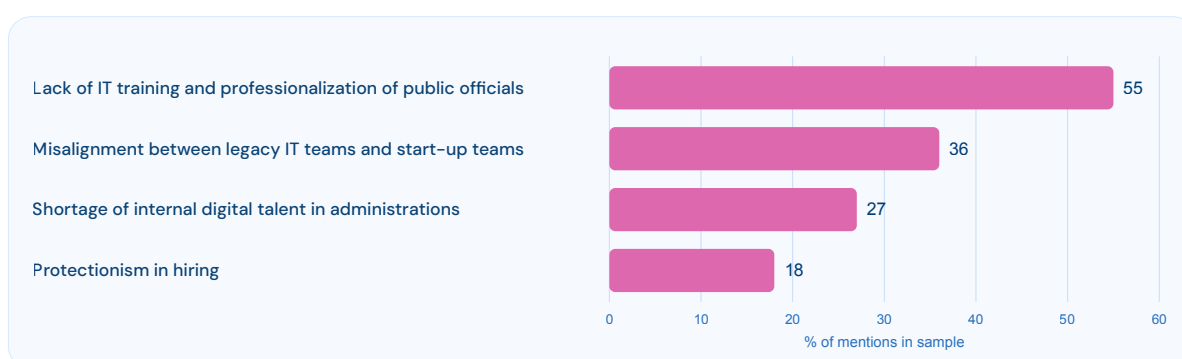

Figure 8 Success Factor Human Capital Negative

However, officials also pointed to shortcomings, as visible in *Figure 8*. Representing the other side of the coin, widespread **lack of IT training and professionalization** leaves many public administrations ill-equipped to manage GovTech solutions effectively, fostering dependency on external vendors. **Misalignment between legacy IT teams and start-up teams** often complicates collaboration, as differences in working styles and expectations create friction. Furthermore, a severe **shortage of internal digital**

talent, exacerbated by rigid public HR structures, limits administrations' ability to attract and retain skilled employees. Finally, **protectionism in hiring practices**, rooted in national employment laws, restricts cross-border recruitment and reduces access to diverse European skill pools.

The interviews illustrated these dynamics vividly. Almost all officials agreed that human capital is the essential constraining factor, yet also the one that could most effectively accelerate GovTech adoption. A German respondent explained: "It depends very much on the capacity of the public administration side to take advantage of this... the EU roadmap emphasizes the need for building the competencies." A Portuguese official stressed the importance of recruiting staff with private-sector scaling experience, citing the creation of a team that brought growth-marketing logic—that is, a data-driven, experimental approach focused on rapid testing, feedback loops, and iterative improvement—into government programs.

 In summary, human capital constitutes a critical hinge for GovTech success. Where administrations have digitally literate staff, empowered champions, and mechanisms for skills transfer, GovTech collaborations can take root and scale. Where skills gaps, talent shortages, and rigid employment structures prevail, even well-designed pilots are unlikely to translate into sustainable transformation. Strengthening human capital is therefore not only a prerequisite for effective GovTech adoption but also a strategic investment in the long-term resilience and modernization of public administrations.

Finance

Funding not only determines internal capacity building but is also a major factor noted in any public sector digitalization initiative. Accordingly, financial arrangements and procurement design were visible as central determinants of GovTech success. While innovative start-ups bring flexibility and creativity, their survival hinges on the availability of funding streams and on procurement rules that allow them to compete fairly with larger, established providers. For public administrations, the question is not only how much money is allocated, but also how financial instruments are structured and whether they create room for experimentation or reinforce existing market asymmetries.

On the enabling side, interviewees emphasized three major success factors, see *Figure 9*. First, the availability of **dedicated budgets for experimentation** was seen as vital. Flexible budget lines that tolerate risk enable administrations to pilot projects with start-ups, testing
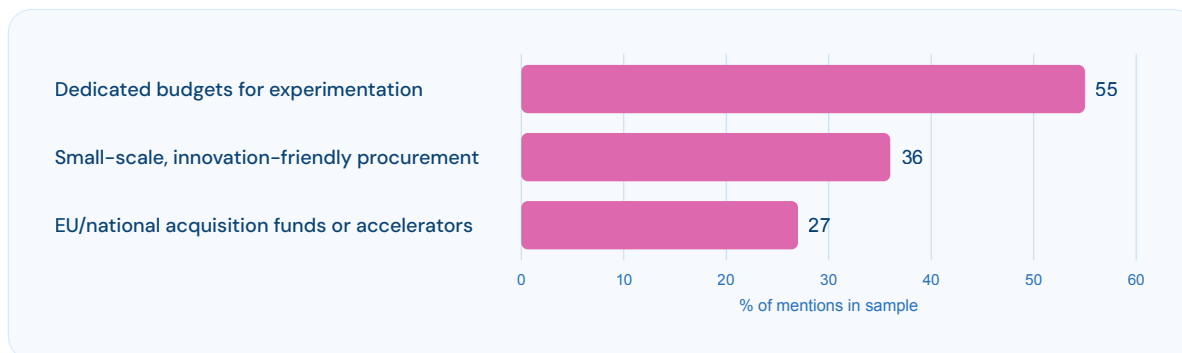
Figure 9 Success Factor Finance Positive

ideas before committing to large-scale deployment. Second, **small-scale, innovation-friendly procurement mechanisms**, such as pre-commercial procurement, design contests, or challenge-based tenders, were identified as important entry points that allow GovTechs to compete on the basis of ideas rather than resources. Third, officials saw **EU or national acquisition funds and accelerators** as decisive for supporting scaling beyond pilots, ensuring that promising solutions can transition into sustained adoption, as these partially destrain national limitations.
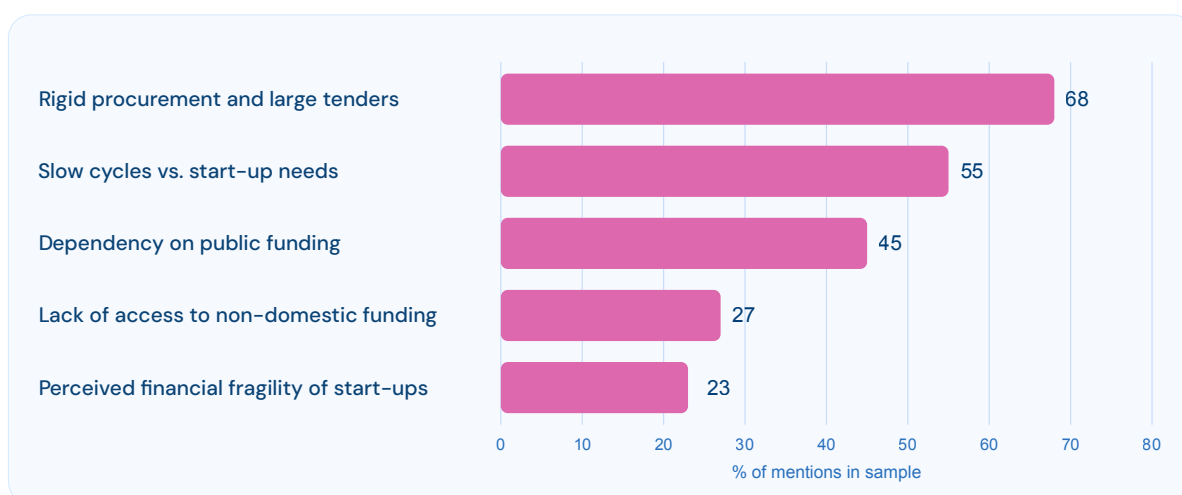

Figure 10 Success Factor Finance Negative

Several financial barriers were also highlighted, as visible in *Figure 10*. A recurring theme was the problem of **rigid procurement and large tenders**, as already mentioned earlier. Multi-million euro calls, particularly at the European Commission, effectively exclude start-ups that lack the administrative capacity to apply. **Slow procurement cycles** further exacerbate the challenge, as start-ups depend on

fast revenue streams, while public processes can take months or even years, creating liquidity risks. Many GovTechs also suffer from **dependency on public funding**, making them vulnerable to political shifts and budget reallocations. Moreover, **limited access to non-domestic funding** (European or transnational) hinders cross-border scaling, as different EU countries impose varying criteria and conditions. Finally, a persistent

concern is the **perceived financial fragility of start-ups**, with officials doubting whether small companies can guarantee long-term sustainability and service provision and other mechanisms for sustainability are not well developed.

The interviews provided concrete illustrations of these dynamics. A Dutch official described a successful GovTech pilot that succeeded because it was backed by both a director willing to take risks and a small, flexible procurement budget, enabling testing within months rather than years. From Portugal, one participant recalled how "budget lines that accept risk" helped integrate GovTech pilots in areas where legacy IT providers could not deliver. A German respondent emphasized the difficulty of scaling: "They are good in helping to get an initial idea and create a prototype. But where almost all of them fall short is that scaling thing." Others called for EU- or national-level acquisition funds to secure uptake beyond pilots. Another interviewee stressed the decisive role of tailored procurement instruments: "If the procurement is structured well — pre-commercial procurement, innovation partnership — GovTech start-ups have a lot of chances to win. In regular procurement, they have almost no chance." This distinction reflects the difference between tailored innovation-oriented instruments and traditional procurement processes. Regular public procurement typically emphasizes legal compliance, risk avoidance, and track records—criteria that favour large incumbents with established delivery histories. By contrast, instruments such as Pre-Commercial Procurement and Innovation Partnerships are explicitly designed to lower entry barriers for smaller firms and start-ups. Such allow to co-develop and test prototypes before committing to large-scale deployment, emphasize outcome-based specifications rather than prescriptive requirements, and distribute risk between public and private partners.

Taken together, the evidence highlights that finance is both an enabler and a constraint. Dedicated, flexible budgets and innovation-friendly procurement instruments provide critical entry points for GovTechs. At the same time, rigid procurement, slow cycles, and perceptions of financial fragility often confine GovTech solutions to pilot status without pathways to scale. Strengthening targeted financial mechanisms—particularly at the EU and national levels—will therefore be essential for turning GovTech prototypes into sustainable, long-term contributions to Europe's digital transformation.

Markets

Market dynamics represent another determinant of GovTech success. GovTech is more than a currently emerging market in the digital solution space. The high political relevance and global debates shift it toward a dilemma between public- and privateness. In this, unlike BigTech providers, which dominate large-scale infrastructure, or public IT providers, which ensure continuity of core systems, GovTechs typically enter the market through specialized niches. Their comparative advantage lies in delivering tailored, citizen-centric solutions that respond to unmet needs and that are often overlooked by larger players. At the same time, the capacity of GovTechs to scale depends heavily on their ability to gain visibility, access decision-makers, and navigate fragmented European markets.
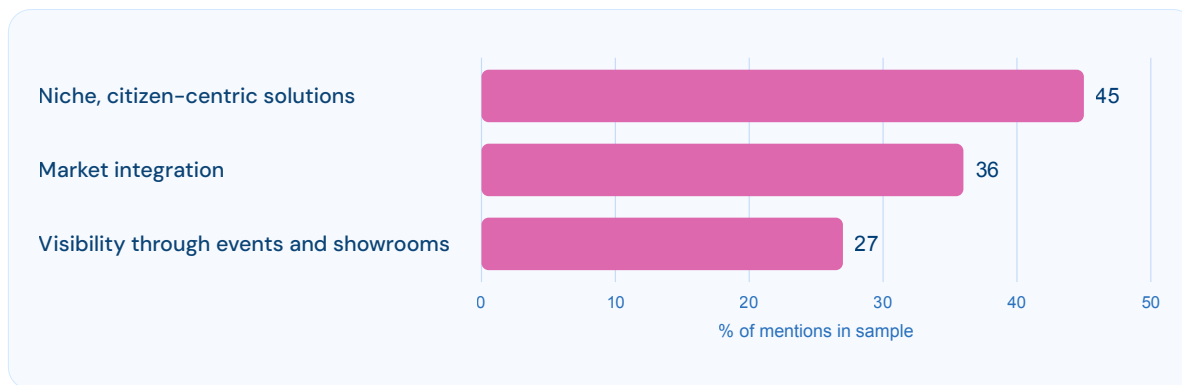
Figure 11 Success Factor Markets Positive

Positive factors identified by interviewees include the ability of GovTechs to provide **niche, citizen-centric solutions**, see *Figure 11*. One example of this can be (AI-) assisted permit application tools that guide citizens through complex administrative procedures (see e.g. GovTech4All), or digital participation platforms enabling residents to co-design local policies (see e.g. DeliberAIde)—solutions that would typically fall outside the focus or agility of large public IT providers or BigTech firms. Other cases involved modular identity verification services (see e.g. SPRIN-D Funke) or data dashboards for municipal transparency (see e.g. Vialytics), where GovTechs filled functional gaps left by incumbent providers, offering tailored, user-friendly tools designed specifically for local contexts. Another enabler is **market integration**: GovTechs succeed when they are embedded in broader consortia with universities, public IT providers, and established industry partners, which combine innovation with stability. Finally, **visibility through events and showrooms**, such as GovTech awards, demo days, and networking platforms, helps start-ups gain legitimacy, build trust with administrations, and open new opportunities for market entry.
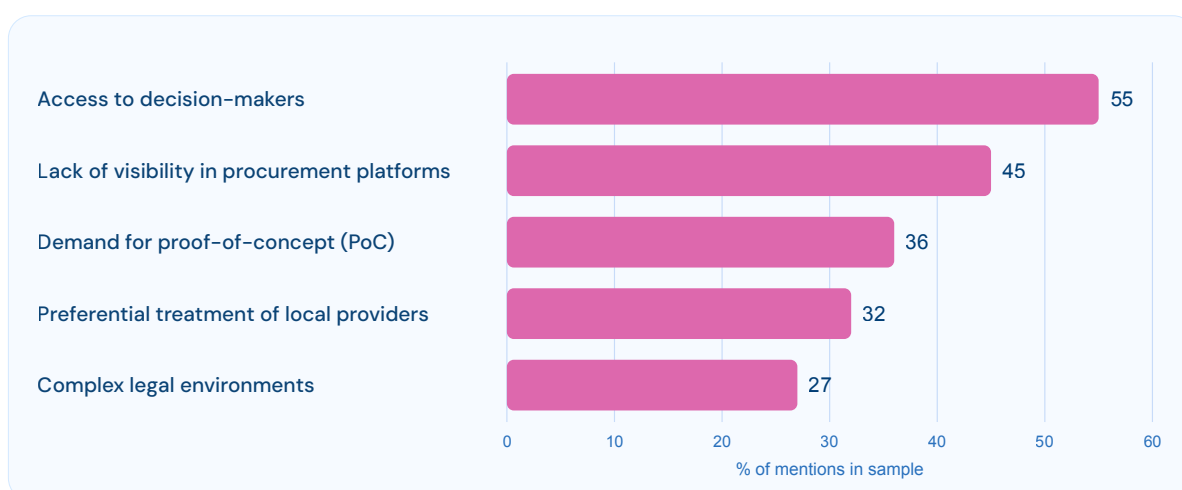

Figure 12 Success Factor Markets Negative

Several barriers were equally emphasized, as visible in *Figure 12*. A recurring theme was the difficulty of **accessing decision-makers**. Decision makers themselves see, that

many start-ups struggle to identify relevant contacts inside administrations, which delays or blocks market entry, while the public officials themselves advocating for GovTech often face similar challenges in making their case internally. Relatedly, GovTechs suffer from a **lack of visibility in procurement platforms**, limiting their ability to showcase solutions. Another systemic issue is the high **demand for proof of-concept (PoC)**: start-ups are often required to run repeated pilots, consuming resources without clear pathways to scaling, and ultimately costing administrations more than if scalable solutions were deployed directly. **Preferential treatment of local providers**, reinforced through subsidies and procurement preferences, further fragments the European market and disadvantages foreign entrants. Finally, **complex legal environments**, with varied national regulations, delay market entry and increase costs for small firms with limited resources.

The interviews provided illustrative examples. A Portuguese official described the complementarity between actors: "BigTech is very good for standard GenAI models… but if you want to co-create with citizens, like planning new urban areas, that came from a startup—more accurate and tailored than BigTech would provide." Pulling from the providers perspective there are also negative cases, where collaboration with large vendors limited GovTech impact. In one project, a GovTech start-up providing their solution was absorbed into a BigTech-led consortium. While this ensured compliance and delivery at scale, the start-up's innovative features were gradually deprioritized, illustrating how asymmetric partnerships can dilute innovation and restrict market visibility for smaller firms. Overall, markets are a central unavoidable pillar—only through them and their mechanisms do solutions diffuse from initial innovation into economically viable use. Their agility and capacity to tailor citizen-centric solutions make them indispensable partners for administrations. Yet barriers of visibility, access, and fragmentation keep most initiatives confined to pilots rather than scaled deployments. Building more open and integrated European markets, with mechanisms to connect GovTechs to decision-makers and embed them in consortia, will be key to unlocking their full potential.

Support Structure

Support structures play an essential role in determining whether GovTechs can move beyond isolated pilots and develop into sustainable, scalable solutions. While start-up providers often bring the ideas and agility, their success depends not only on them and their clients but also on the presence of intermediary organizations and platforms that reduce risk, facilitate connections, and provide continuity. Without such structures, administrations and GovTechs remain isolated actors, struggling to find each other, exchange experiences, or embed innovations into longer-term strategies.
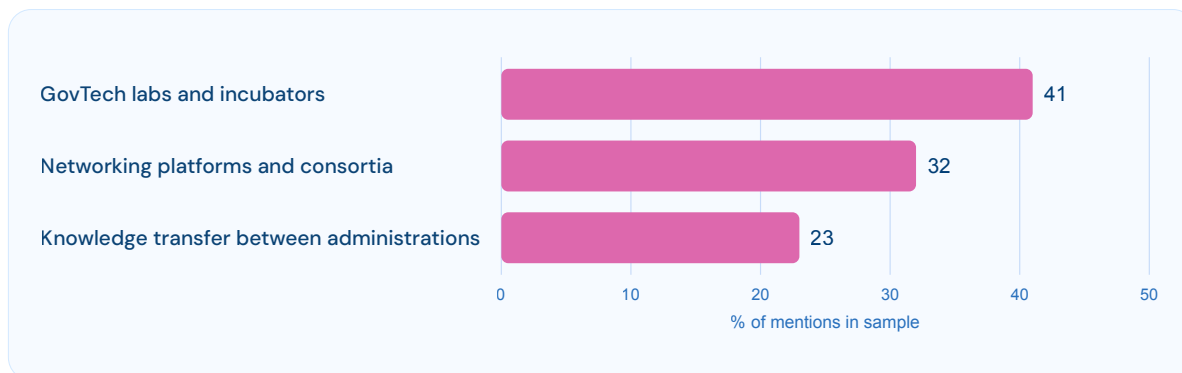
Figure 13 Success Factor Support Structure Positive

Several enabling mechanisms were highlighted, see *Figure 13*. **GovTech labs and incubators**—such as GovTech Lab Madrid or Start-up in Residence Netherlands—create safe spaces for administrations to test solutions, often assuming a risk-sharing role that lowers barriers to experimentation. Networking platforms and consortia provide structured environments for start-ups and administrations to meet, exchange practices, and jointly pursue larger projects. Furthermore, **knowledge transfer between administrations** emerged as an important enabler: larger municipalities or experienced agencies can share lessons learned with smaller administrations, creating collective know-how and reducing duplication of mistakes.
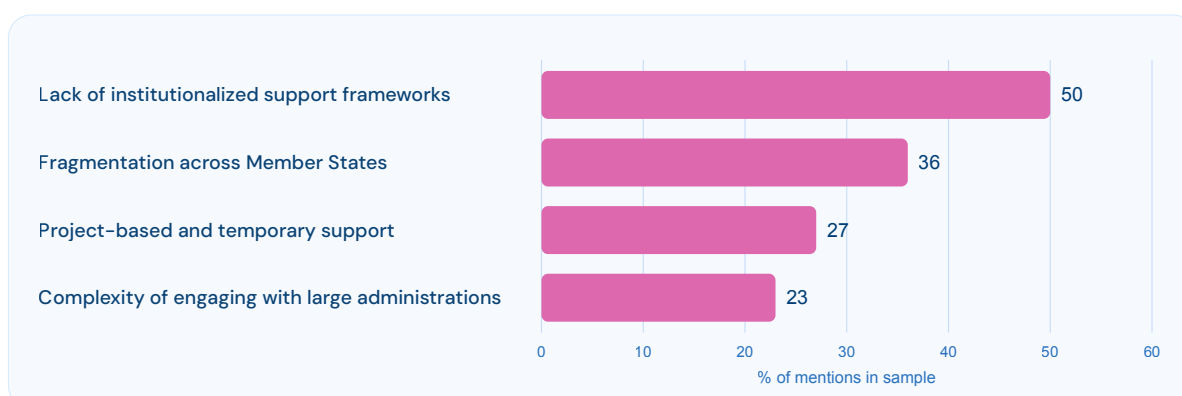

Figure 14 Success Factor Support Structure Negative

Conversely, the lack of institutionalized support structures remains a major barrier, as visible in *Figure 14*. Many administrations reported the absence of **dedicated frameworks for legal advice, financial guidance, or matchmaking**, leaving both officials and start-ups without the resources needed to collaborate effectively. **Fragmentation across Member States** further complicates scaling: while national ecosystems exist, they rarely connect across borders, preventing synergies and hindering European integration. In addition, many support mechanisms are **project-based and temporary**, ending once pilot projects conclude and thereby contributing to "pilot fatigue." Finally, the **complexity of engaging with large administrations**, with their bureaucratic hurdles and rigid procedures, makes navigation difficult for smaller firms.

Anecdotes illustrate both the potential and shortcomings of support structures. An EU Commission interviewee highlighted the role of "GovTech showrooms and events" in building credibility across borders, helping administrations overcome reluctance to work with small vendors. Another respondent explained that many start-ups survive only as "small providers in larger consortium projects," as direct procurement remains nearly impossible. Several interviewees stressed the importance of linking software GovTechs with hardware and industrial players to ensure more sustainable scaling, avoiding dependence on non-European infrastructure. One EU official pointed to the forthcoming *Applied AI* program, which aims to provide public administrations with shared computing resources, thereby making it feasible for GovTech start-ups to scale. Others emphasized the value of EU-level cross-border matching programs designed to link local administrations with innovative start-ups from elsewhere in Europe.

Taken together, the findings underscore that support structures are decisive for turning pilots into lasting solutions. Where incubators, consortia, and cross-border platforms exist, they reduce risks for administrations, enhance visibility for startups, and create pathways for scaling. Where they are absent, GovTech collaborations remain fragmented, temporary, and heavily dependent on individual champions. Strengthening institutionalized, European-level support structures thus appears essential for embedding GovTech into the broader digital transformation of the public sector.

Technology

Technology in the best case provides foundations for fast deployment. The absence of standards and interoperability on the other side is more than a nice to have to accelerate, but rather a huge bottleneck. Start-ups often enter the public sector market precisely because they can provide innovative, adaptable solutions that established vendors are too slow or unwilling to deliver. At the same time, GovTechs face significant barriers when their products must interact with outdated infrastructures, inconsistent standards, and divergent technological practices across Europe. Interviews revealed that while agility and open innovation create clear advantages, legacy systems and fragmentation frequently prevent promising pilots from becoming scalable solutions.
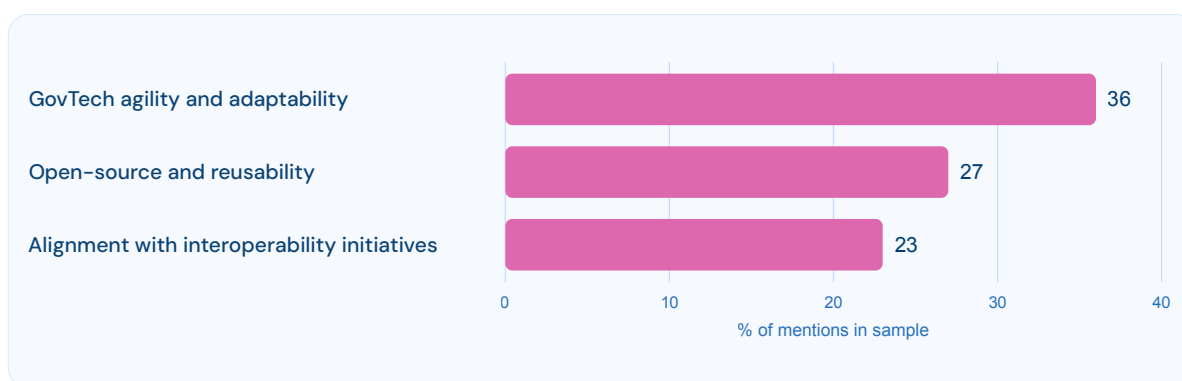

Figure 15 Success Factor Technology Positive

On the enabling side, three success factors stood out, see *Figure 15*. First, **GovTech agility and adaptability** allows start-ups to deliver tailored solutions that respond quickly to local needs, in contrast to the slower, standardized offerings of BigTech or legacy providers, which becomes especially visible in the faster and more lean integration of IT-systems. Second, the use of **open-source solutions and reusability** strengthens GovTech adoption, as shared source code and reusable components reduce duplication and allow administrations to build on each other's work. Third, **alignment with EU interoperability initiatives**, particularly through frameworks like the *Interoperable Europe Act*, provides common standards that facilitate the integration of GovTech solutions into existing public IT systems.
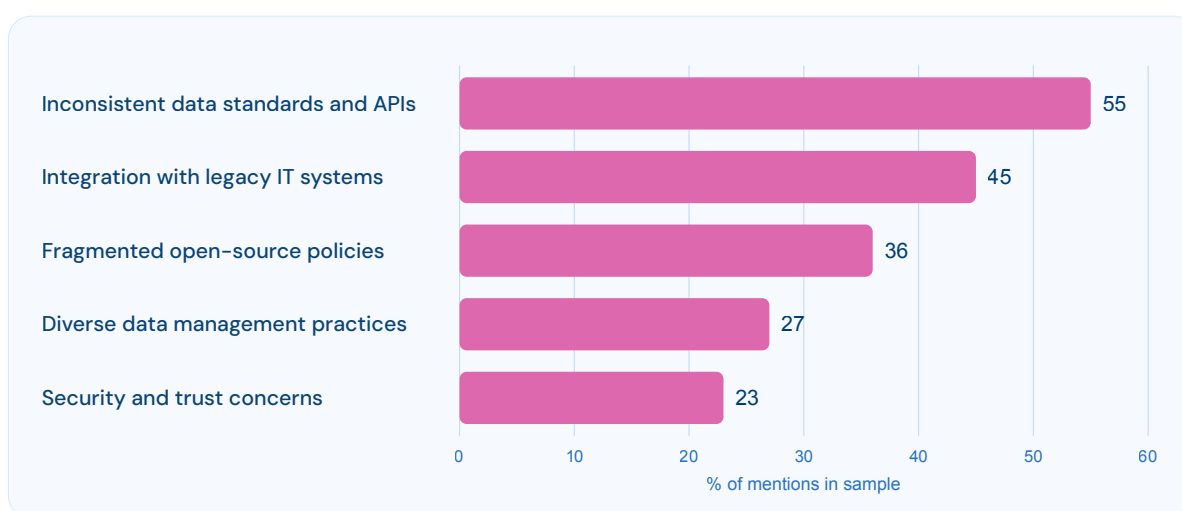

Figure 16 Success Factor Technology Negative

On the constraining side, officials emphasized several recurring issues, as visible in *Figure 16*. It becomes visible, that none of the technological problems are from the vendor side, rather they're all caused by public administrations. A key barrier is the prevalence of **inconsistent data standards and APIs**, which make cross border adoption slow and costly. **Integration with legacy IT systems** emerged as perhaps the single most pressing challenge: outdated infrastructures such as COBOL based databases often block or delay GovTech deployment. Relatedly, **fragmented open-source policies** across Member States reduce opportunities for collaboration and reuse. In addition, **diverse data management** across administrations complicate the deployment of start-up solutions. Finally, **security and trust concerns**, particularly around data protection and compliance, often make administrations reluctant to engage with small providers.

Anecdotes from the interviews illustrate these dynamics vividly. An EU-level official highlighted the weight of outdated infrastructures: "Legacy systems is the first barrier, because that costs in terms of money, resources, infrastructure." A Portuguese interviewee reflected on the dual role of open source: "We need to foster open source... it's a step toward reducing dependency on BigTech. But usually, administrations just want the product done. From open source, there is still an imple-mentation gap." A German

respondent pointed to the lack of consensus on cloud adoption: "Some admin-istrations proudly say we have everything on premises because we don't believe in clouds, while others proudly say we have everything in cloud... there are no guidelines and no public cloud across Member States." Similarly, a French official compared integration challenges to corporate mergers: "Giving the code base to another team is very difficult... a legacy team and a new team have very different ways of working." Another respondent highlighted the persistence of BigTech lock-in, noting that administrations often default to established incumbents rather than risk engaging with smaller players.

Overall, technology constitutes both the foundation and the friction of GovTech adoption. Agility, open-source practices, and interoperability frameworks demonstrate the potential of start-ups to accelerate digital transformation. Yet legacy systems, inconsistent standards, and security concerns continue to hold back scaling. Overcoming these challenges will require not only technical innovation by start-ups but also coordinated efforts by administrations and EU institutions to modernize infrastructures and harmonize standards across Europe.

4.5 European GovTech Ecosystem Organization

Partnerships for Sustainable, Future-Ready GovTech

Across all interviews, officials consistently emphasized that GovTech cannot succeed in isolation. Sustainable and future-ready GovTech requires strategic partnerships that bring together public administrations, start-ups, academia, industry, and citizens. Partnerships are perceived as mechanisms to overcome credibility gaps, pool resources, and create systemic impact that extends beyond isolated pilots. At the same time, the design and framing of such partnerships vary considerably across contexts, reflecting different political cultures and institutional settings.
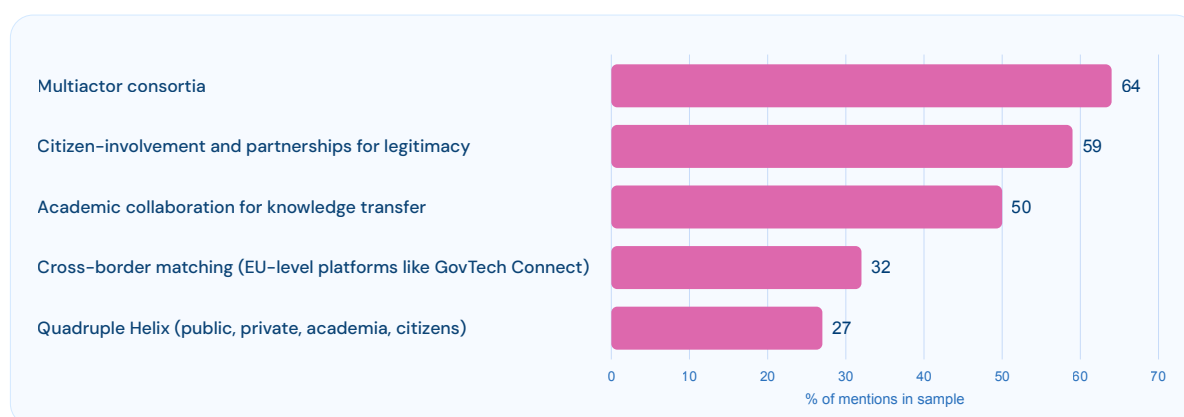

Figure 17 Overview on Essential Factors for Establishing Partnerships for Sustainable, Future-Ready GovTech

Several partnership models were identified as particularly promising, see *Figure 17*. First, **multiactor consortia** provide a structured way of pooling expertise and resources. In

Portugal, for instance, the Mobilizing Agendas program was cited as a novel initiative in which universities, businesses, and public institutions codevelop digital solutions for public administrations. This model shifts the narrative from traditional "public–private partnerships," which often carry negative connotations, toward ecosystem–oriented collaboration under the GovTech label. Second, **citizen involvement** is increasingly framed as a partnership dimension in its own right, ensuring that new solutions are both legitimate and aligned with societal needs. Third, **academic collaboration** has become an important channel for knowledge transfer: universities and research centres not only provide technical expertise but also add legitimacy to experimental projects. One official referred to the Quadruple Helix approach—integrating public sector, private firms, academia, and citizens—as a potential blueprint for GovTech ecosystems. Finally, **cross–border matching** facilitated by EU–level platforms such as GovTech Connect, the or the GovTech4All European Incubator was highlighted as essential for overcoming fragmentation and enabling start–ups to move beyond national silos.

The interview material vividly illustrates these dynamics. As already noted earlier one official noted that while "public–private partnerships" carry negative associations, reframing collaboration under the GovTech label often times made it politically and publicly acceptable. A German respondent cautioned that partnerships often fail when start–ups are brought in too late in the process, stressing that sustainable ecosystems require their early involvement in design stages. EU officials, meanwhile, emphasized the importance of cross–border matching programs to connect local administrations with innovative start–ups from elsewhere in Europe.

Taken together, the evidence suggests that partnerships are the connective tissue of future–ready GovTech ecosystems. They work best when framed not as transactional contracts but as collaborative ecosystems that integrate academia, industry, administrations, and citizens. At the European level, structured networking platforms and cross–border incubators are particularly critical for moving beyond fragmented national practices. Ultimately, sustainable GovTech depends less on the efforts of individual start–ups and more on the quality, diversity, and legitimacy of the partnerships in which they are embedded.

Organizing GovTech as an Ecosystem

Interviewees and prior studies converge on the finding that GovTech cannot thrive as a collection of isolated start–ups or fragmented pilots. Instead, it requires ecosystem–level organization in which multiple actors (public administrations, start–ups, IT providers, BigTech, academia, NGOs, and citizens) are coordinated toward common goals. A GovTech ecosystem must be understood as both horizontal, cutting across countries and sectors, and vertical, spanning governance levels from municipalities to the European Union. Such complexity demands structures for trust, interoperability, and shared ownership to ensure that innovations are not only developed but also embedded and scaled.
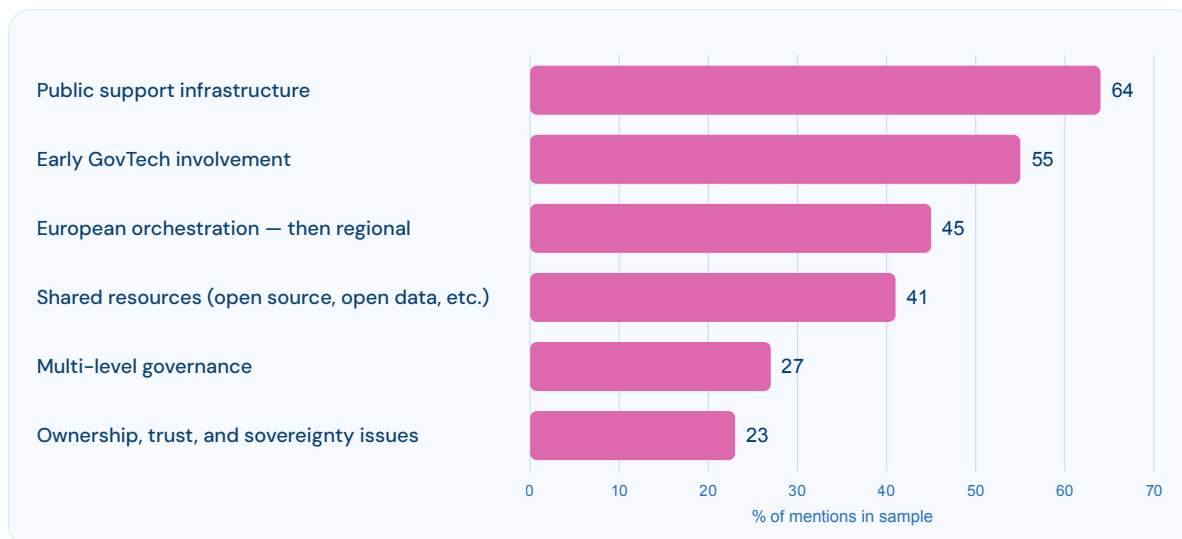
*Figure 18 Overview of Essential Factors for Organizing GovTech as an Ecosystem*

Several elements were identified as crucial for ecosystem organization, as visible in Figure *18*. First, the presence of a strong **public support infrastructure**, e. g. labs, incubators, accelerators, and legal guidance, was seen as essential to reduce risks for administrations and create predictable pathways for start-ups. Second, the importance of **early GovTech involvement** was repeatedly emphasized. Respondents described a recurring "hidden miss": start-ups were often brought in only at procurement stages, leading to frustration and wasted potential. As one participant argued: "If we want to do the ecosystem correctly, involve them at the start of the project… not just during procurement."

Third, the question of **European orchestration versus regional anchoring** was raised. While EU-level coordination is necessary to overcome fragmentation, many officials stressed that ecosystems must grow incrementally from local and national levels before scaling upward. Fourth, **shared resources**, such as open-source code bases, open data, and common platforms, were highlighted as key to ecosystem health. French officials, for example, stressed: "100% of our projects are shared on GitHub… we try to think about reusability", showing how they embedded the transparency and reuse into their development and partnership processes. Finally, interviewees underscored that effective ecosystems must address **ownership, trust, and sovereignty issues**. Questions around foreign venture capital involvement, start-ups with BigTech origins, and long-term digital dependency highlight that ecosystem organization is not only a technical matter but also one of democratic legitimacy and sovereignty.

The interviews provided vivid illustrations of these challenges. A Dutch official compared ecosystem building to a rollercoaster, highlighting the difficulty of aligning start-ups' revenue-driven urgency with the slower cycles of administrations, and stressing the need for continuous involvement and communication. Another respondent pointed to the eIDAS digital identity regulation as a concrete example of an ecosystem logic, where value arises not from single actors but from the interplay of issuers (data sharing instance), verifiers (data using instance), and holders (clients). German participants, in

turn, raised concerns about venture capital influence on GovTech ownership, questioning how ecosystem structures should safeguard European sovereignty.

Organizing GovTech as an ecosystem thus means moving beyond bilateral contracts toward **multi-actor, multi-level governance systems**. Effective ecosystems involve early start-up integration, robust support infrastructures, cross-border platforms, and open-source practices. At stake is not only the modernization of public administrations but also sovereignty and democratic legitimacy: who owns, governs, and sustains the digital infrastructures of tomorrow's state.
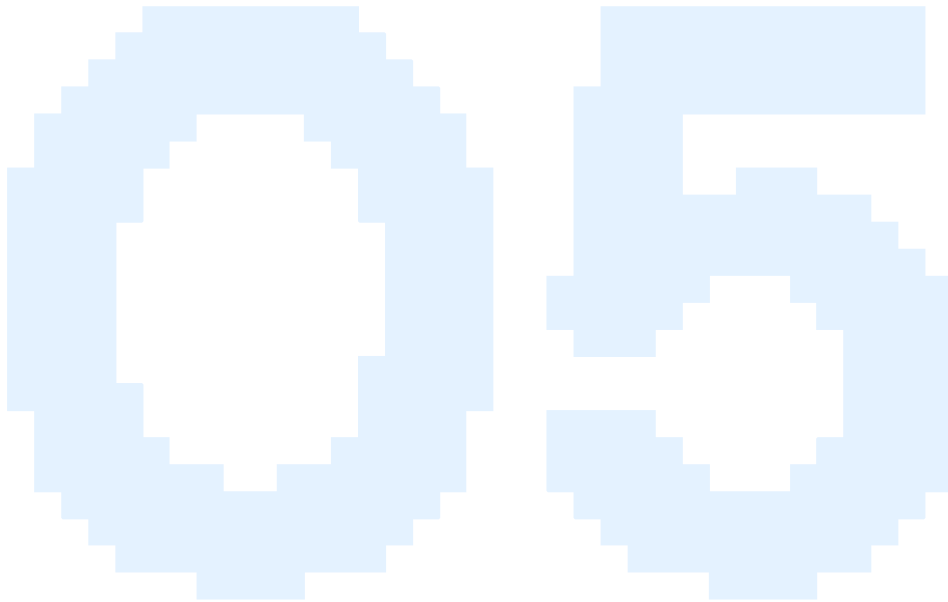
5. Synthesis

5.1 Key Results and Reflections

This study set out to explore how European public administrations perceive and engage with GovTechs, building on the conceptual ecosystem framework of Niehaves & Klassen (2024) but adding a new layer of empirical insights from semi-structured interviews with policymakers and officials across four Member States and the European Commission. From these 22 interviews we extracted over 70 distinct features and motivations. Prioritizing them against earlier studies, we find ten key results:

1 **GovTech is about agility and fresh idea:** Public officials consistently see GovTechs as sources of innovation capacity — small, fast-moving actors that bring in fresh solutions where BigTech and public IT providers are too slow or inflexible.

2 **GovTech means solving unmet needs:** Officials value GovTechs for addressing specific, overlooked problems, e.g. civic engagement and feedback platform or road maintenance. Unlike incumbents, GovTechs design around real administrative pain points and niche service areas that matter for citizens.

3 **GovTech are being used as cultural translators:** Beyond technology, GovTechs help bridge the gap between bureaucratic procedures and

digital dynamism. For many officials, this role of "translator" makes GovTech a driver of cultural renewal in the public sector.

4   **Citizen-centricity is the number one motivation:** GovTech collaborations are seen as a way to create more user-friendly, transparent, and responsive services, aligning with rising citizen expectations for digital government.

5   **Procurement rigidity remains the strongest barrier:** Large, risk-averse tenders systematically exclude start-ups. While the 2024 study flagged procurement as a barrier, our findings highlight it as the single most frequently mentioned constraint, directly tied to fairness and accessibility.

6   **Risk aversion and trust deficits persist:** Cultural resistance, fear of failure, and doubts about start-up stability undermine adoption.

7   **Legacy IT and fragmented standards block scaling:** Integration challenges with outdated infrastructures and inconsistent data standards continue to stall GovTech uptake.

8   **Leadership and flexible budgets are decisive enablers:** Projects succeed when political or managerial champions back them, and when risk-accepting budgets exist: leadership sponsorship and budget flexibility are seen as non-negotiables.

9   **GovTech is not a substitute but a complement:** Officials explicitly distinguished between providers: BigTech for infrastructure, public IT providers for sovereignty and continuity, GovTech for innovation and citizen-facing services.

10 **GovTech collaborations thrive on visibility and quick wins:** GovTechs often succeed when they can demonstrate tangible improvements fast, such as a smoother citizen interface, a chatbot that actually works, or a simple dashboard that helps officials make decisions. These visible successes are politically valuable because they allow administrations to show impact early, building trust among staff, citizens, and political leaders.

In sum, the results reveal both the promise and the paradox of GovTech in Europe. The promise lies in its ability to inject innovation and citizen-centricity into the public sector. The paradox is that systemic barriers keep it confined to pilots rather than enabling it to scale. This duality underscores the need for stronger collaboration, more robust support structures, and a shift toward data-driven, evidence-based policymaking that can move GovTech beyond narrative and rhetoric into a structural driver of digital sovereignty and democratic legitimacy in Europe.

5.2 Outlook

Ultimately, GovTech's contribution lies in **delivering public value at speed and scale**, but only if states deliberately design the ecosystems that allow small innovators to plug into sovereign, interoperable infrastructures. GovTech in Europe is no longer a peripheral experiment but an emerging cornerstone of how states modernize and sustain legitimacy in the digital age. The evidence from Germany, the Netherlands, France, and Portugal show that while contexts differ, the fundamental opportunities and challenges align: administrations are motivated by agility, citizen value, and strategic independence, yet constrained by rigid procurement, scaling bottlenecks, and capacity gaps.
GovTech cannot be understood in isolation but only as part of a **layered ecosystem**: public IT providers safeguard sovereignty, BigTech ensures backbone scale, and GovTech start-ups inject innovation and citizen-centricity. Success requires weaving these providers into complementary partnerships, supported by European policies that favour open competition, subsidiarity, and cross-border scale alignment. If the public sector is deliberately used as a market-shaping partner, it can accelerate administrative modernization while nurturing start-ups to become global champions. In doing so, Europe can reinforce digital sovereignty and openness at the same time.
The path forward lies in turning today's pilots into tomorrow's platforms: building procurement systems that reward innovation, aligning standards across borders, investing in human capital, and cultivating ecosystems where administrations, startups, academia, industry, and citizens co-create public value. In this way, GovTech can mature from a fragmented field into a truly European project, anchored in liberal values, delivering efficiency and trust at scale, and demonstrating that democratic states can be as agile and innovative as the societies they serve.

While our findings underline the clear motivations and opportunities for administrations to engage with GovTechs, they also expose persistent systemic barriers that limit their impact. To move from isolated pilots to sustainable transformation, Europe needs more than fragmented initiatives and political declarations, it requires structured collaboration across administrations, start-ups, academia, and industry. A stronger evidence base is critical: only through sustained research, shared data, and comparative evaluation can policymakers distinguish between anecdotal success stories and scalable practices. Enabling data-driven policymaking and fact-informed strategies would not only help administrations escape the trap of politically mandated narratives but also ensure that GovTech contributes meaningfully to democratic legitimacy, economic resilience, and citizen trust in digital government.

5.3 Policy Recommendations at a Glimpse

Scaling GovTechs from promising pilots to sustainable, cross-border solutions requires more than technical excellence. Interviews and reports converge on five foundational features:

1 **Funding mechanisms tailored to start-ups**, including flexible, risk-accepting budgets (*Ni24*).

2 **Institutional support infrastructures**, such as incubators, matchmaking, and legal guidance (*Me22*).

3 **Interoperability and standardization**, enabling solutions to be reused across borders (*EU24*).

4 **Cultural readiness and trust**, underpinned by leadership sponsorship and risk tolerance (*Ba25; Ku22*).

5 **Partnerships for market entry**, linking start-ups with anchor administrations, academia, and industry (*Ba25*).

Procurement modernization is widely seen as the pivotal lever: smaller lots, outcome-based specifications, and innovation-friendly instruments unlock entry for GovTechs (*Da25*). Interoperability and open standards convert isolated pilots into reusable, cross-border public goods. The decisive bottleneck is designing **scaling pathways beyond pilots**—budgeting, ownership, integration, and long-term maintenance. Building administrative capability (in product management, agile delivery, and data governance) is as important as sourcing external innovation (*Ni25*).

At the European level, structured partnerships and cross-border platforms are critical. A European partnership policy could position the public market as a **launchpad for start-ups**, helping them grow into global champions while reinforcing Europe's digital sovereignty. EU instruments—funding, standards, and platforms—should not only support national pilots but also enforce scale alignment across Member States, ensuring seamless expansion (*EU25*). Shared APIs, reference architectures, and open data are the shortest route to scale, though the impact of the *Interoperable Europe Act* remains limited so far (*Ni24*). Power asymmetries between incumbents and start-ups call for anti-lock-in guardrails, transparency, and modularity, as envisioned in the Digital Markets Act (*EU24*).

Because our case comparison revealed strong alignment across countries, policy lessons should emphasize **common European enablers** rather than country-specific fixes. A "GovTech playbook for scale" could combine technical measures (standards, catalogues, open-source solutions) with institutional instruments (framework contracts, capability academies, outcome-based KPIs). For more details, see Table *3* on the next page, which has been jointly developed with the internal team at the Friedrich Naumann Foundation for Freedom.

| Funding mechanisms tailored to start-ups			
Challenge statement	**Generalized policy approach**	**Immediate actions**	**Stakeholders**
GovTechs face chronic underfunding due to rigid budget rules and slow procurement cycles. Over 70% of interviewees cited limited access to flexible budgets as the main bottleneck preventing pilot projects from scaling. Without financial tolerance for experimentation, administrations default to low-risk incumbents, constraining innovation and wasting early-stage potential.	Introduce dedicated GovTech funding windows within existing EU and national programs—modelled on venture-style mechanisms—to allow small-scale experimentation and iterative development. By combining pre-commercial procurement with risk-accepting budget lines, administrations can co-develop and test innovations without breaching fiscal responsibility. The innovative element is embedding experimentation tolerance directly into public budgeting logic.	→ Strengthen fenced GovTech innovation funds under e.g. the Digital Europe Programme and Recovery and Resilience Facility, accessible to sub-national administrations. → Simplify co-financing and reporting procedures for small entities. → Pilot a "GovTech Venture Fund" managed by the European Innovation Council to co-finance high-potential start-ups addressing public challenges. → Encourage Member States to adopt risk-tolerant budget clauses within their public finance laws, enabling low-value, high-impact experimentation.	European Commission (DG CONNECT, DG DIGIT), European Investment Bank, national finance ministries, (national) digital agencies, regional authorities, innovation labs, and start-up accelerators.

Institutional support infrastructures

Challenge statement	Generalized policy approach	Immediate actions	Stakeholders
Many administrations and start-ups operate in isolation, lacking the intermediary support, legal guidance, and matchmaking mechanisms needed to sustain collaboration. The study found that over half of successful pilots were linked to dedicated intermediaries such as labs or incubators, while projects without them tended to fade after initial funding.	Establish European network of GovTech hubs and competence centres that connect local administrations, start-ups, and research actors, including preexisting national best-practices. These centres should offer shared legal templates, sandbox environments, and advisory services, lowering transaction costs for both sides. The innovation lies in turning fragmented national initiatives into an integrated European support architecture.	→ Expand programs such as GovTech Connect and GovTech4All into permanent EU-funded infrastructures. → Develop standardized legal toolkits (model contracts, IP frameworks, data-sharing agreements). → Promote inter-administrative learning platforms where cities and regions share best practices. → Ensure each member state designates a GovTech national contact point to connect domestic actors with EU-level opportunities.	European Commission (DG CONNECT), Member State digital agencies, regional governments, innovation labs (e.g. LabX, GovTech Campus, Digicampus), academia, and SME associations.

Interoperability and standardization

Challenge statement	Generalized policy approach	Immediate actions	Stakeholders
Despite the Interoperable Europe Acts (2024) endeavors, inconsistent data standards and legacy infrastructures remain major barriers to scaling GovTech solutions. Over 60% of respondents cited technical fragmentation and lack of common APIs as key reasons why pilots remain local. Without interoperability, even successful innovations cannot be reused or scaled across borders.	Mandate open technical standards and reusable components across EU-funded (and national) GovTech projects. Treat interoperability not as an afterthought but as a precondition for funding. By aligning procurement and standardization policies, the EU can transform local pilots into scalable European public goods.	→ Require EU-funded digital public services to publish open APIs and documentation or open data and open source. → Establish a European Catalogue of Reusable GovTech Solutions (linked to the Interoperable Europe Portal). → Incentivize adoption of open-source licensing models and shared reference architectures. → Align Member State standards through coordinated governance under the Interoperable Europe Board.	European Commission (Interoperable Europe Board), national standardization bodies, public IT providers, GovTech associations, open-source communities.

Challenge statement	Generalized policy approach	Immediate actions	Stakeholders
Cultural inertia and skill shortages within administrations are among the most persistent barriers to GovTech adoption. Many officials lack agile and digital competencies, and risk-averse cultures discourage experimentation. Without targeted capacity building, even well-funded initiatives struggle to scale.	Develop a European GovTech capability framework that integrates leadership training, agile methods, and innovation management into civil service development. Such an approach links technical competence with cultural transformation, empowering officials to act as competent partners for start-ups. Its novelty lies in institutionalizing innovation 'and' tech literacy as a core competencies in public employment systems.	→ Create a GovTech Academy as part of the EU School of Administration, offering certified training in agile delivery, product management, and digital procurement. → Introduce exchange programs between administrations and start-ups to foster mutual learning. → Support innovation manager roles within public organizations through national funding schemes. → Include digital skills targets for civil servants in the EU's Digital Decade objectives.	European Commission (DG HR, DG CONNECT), national schools and universities of public administration, local governments, start-up associations, training providers.

Partnerships for market entry

Challenge statement	Generalized policy approach	Immediate actions	Stakeholders
GovTechs struggle to access decision-makers and navigate fragmented markets. Current procurement regimes and consortia structures often privilege incumbents, resulting in repeated pilots without pathways to scale. The lack of transparent matchmaking mechanisms weakens both innovation diffusion and competition.	Establish a GovTech partnership networks to connect start-ups with anchor administrations, academia, and industry partners. This framework should combine open matchmaking platforms with outcome-based procurement instruments. Thus integrating ecosystem orchestration into procurement design, enables public demand to drive growth.	→ Develop a GovTech Marketplace under the Digital Europe Programme to match start-ups with public buyers. → Promote multi-actor consortia models (quadruple helix) in EU and national calls. → Introduce European reference contracts to simplify cross-border tendering. → Support challenge-based competitions and GovTech awards that reward scalable impact.	European Commission (DG GROW, DG CONNECT), Member State ministries, municipalities, universities, industry associations, and GovTech start-ups.

Table 3 Top Policy Implications (Detailed)
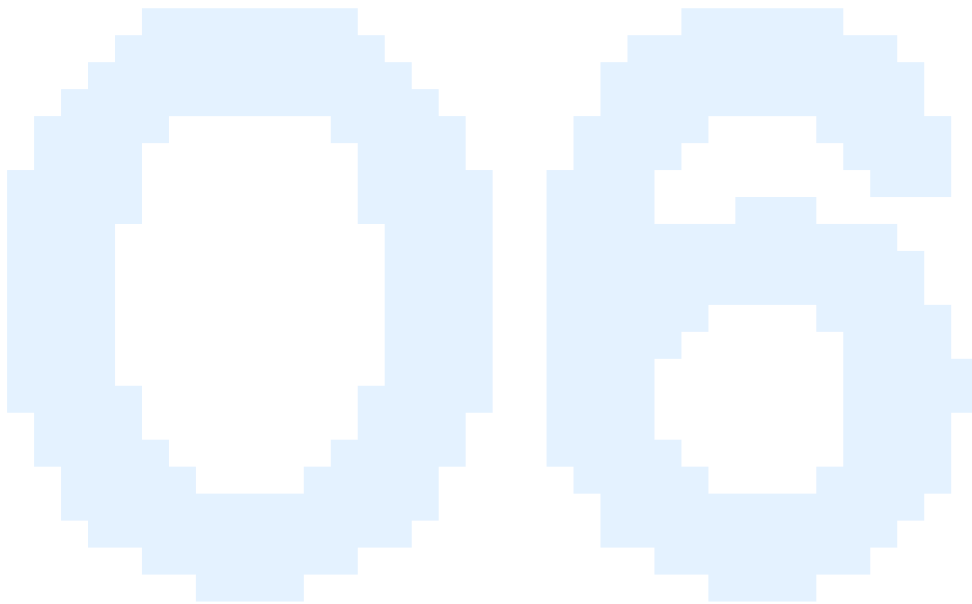
6. Bibliography

[An24]   Anand, S., Abhista, A., Nieuwenhius, L.J.M. (2024). Understanding digital sovereignty: A textual analysis of eu understanding digital sovereignty: A textual analysis of eu policy documents. *Ecis 2024 treos. 8* (p. 1–3). Association for Information Systems.

[Ba25]   Bauer, L.T., Wyszynski, M., Niehaves, B. (2025). Diversity in govtech – who's represented in innovative technology supplied to public administration? *International conference on digital government research (dg.o 2025)* (Vol. 1, p. 1–13).

[Ba252]   Bauer, L. T., Westermann, J., Degen, K., Niehaves B. (2025). European Sociotechnical Imaginaries of Government Technology between Value Proposition and Tangible Policymaking. CEUR ongoing proceedings. *egoc-cedem-epart 2025* (Vol. 1, p. 1–12).]

[Bh22]   Bharosa, N. (2022, 7). The rise of govtech: Trojan horse or blessing in disguise? a research agenda. *Government Information Quarterly, 39*, 101692.

[Bh24]   Bharosa, N., & Janowski, T. (2024). The govtech challenge – govtech and public value creation. *Proceedings of the 25th annual international conference on digital government research* (p. 1043–1045). ACM.

[Br25]   Brende, B., Richter, M., Ezzat, A. (2025). The global public impact of govtech: A 9.8 trillion dollar opportunity (Tech. Rep.). Germany: World Economic Forum.

[EU22]   Commission of the European Union (2022). Regulation (eu) 2022/1925 of the european parliament and of the council of 14 september 2022 on contestable and fair markets in the digital sector and amending directives (eu) 2019/1937 and (eu) 2020/1828 (digital markets act). Official Journal of the European Union.

[EU24]   Commission of the European Union (2024). Regulation (eu) 2024/1689 of the european parliament and of the council of 13 june 2024 laying down harmonised rules on artificial intelligence and amending regulations (ai act). Official Journal of the European Union.

[EU242]   Commission of the European Union (2024). Regulation (eu) 2024/903 of the european parliament and of the council of 13 march 2024 laying down measures for a high level of public sector interoperability across the union (interoperable europe act). Retrieved from https://eur-lex.europa.eu/eli/reg/2024/903/oj

[EU25]   Commission of the European Union (2025). *Europe's digital decade: Digital targets 2030.*

[JU25]   Committee on Legal Affairs (JURI), E.P. (2025). *The 28th regime: a new legal framework for innovative companies.* Workshop, with the support of the Policy Department for Justice, Civil Liberties and Institutional Affairs. Retrieved from https://www.europarl.europa.eu/committees/de/product/productdetails/20250603WKS06401 (Accessed: 2025-09)

[Da25]   Davies, N., McBride, K., Kleinaltenkamp, M. (2025). Move fast and break things? barriers to govtech procurement in the united kingdom. *International conference on digital government research (dg.o 2025)* (Vol. 1, p. 1–15).

[Dß25]   Daßler, L., Hein, A., Krcmar, H. (2025). Govtech incubators: Bridging the gap between prototypes and long-term implementation. I. Lindgren et al. (Eds.), *Electronic government. egov 2025* (p. 164–179). Lecture Notes in Computer Science, vol 15944. Springer, Cham.

[Dß252]   Daßler, L., Ruckstuhl, T., Hein, A., Krcmar, H. (2025). From complexity to clarity – a taxonomy of govtech startup business models for public sector innovation. *International conference on digital government research (dg.o 2025)* (Vol. 1, p. 1–15).

[De25]   Degen, K., & Teubner, T. (2024). Wallet wars or digital public infrastructure? orchestrating a digital identity data ecosystem from a government perspective. *Electronic Markets*, *34*, 50.

[DE25]   *Digital europe programme* (Tech. Rep.). (2025). Belgium: European Commission, Funding & Tenders / EU funding programmes. (Programme duration 2021–2027;

total budget 7.59 billion Euro; lead DG: Communications Networks, Content and Technology; relevant regulation: Regulation (EU) 2021/694)

[Ho23] Hoekstra, M., Veenstra, A.F.V., Bharosa, N. (2023). Success factors and barriers of govtech ecosystems: A case study of govtech ecosystems in the netherlands and lithuania. *Proceedings of the 24th annual international conference on digital government research* (p. 280–288). ACM.

[Ku22] Kuziemski, M., Mergel, I., Ulrich, P., Martinez, A. (2022). *Govtech practices in the eu* (Tech. Rep.). Luxembourg: Publications Office of the European Union.

[Me22] Mergel, I., Ulrich, P., Kuziemski, M., Martinez, A. (2022). *Scoping govtech dynamics in the eu* (Tech. Rep.). Luxembourg: Publications Office of the European Union.

[Ni25] Niehaves, B., Bauer, L.T., Klassen, G. (2025). Forschungsagenda govtech. *Nationales E-Government Kompetenzzentrum*, 1–27,

[Ni24] Niehaves, B., & Klassen, G. (2024). *Govtech in europe: influencing factors, common requirements and recommendations* (Tech. Rep.). Luxembourg: Publications Office of the European Union.

[Ni14] Niehaves, B., & Plattfaut, R. (2014). Internet adoption by the elderly: employing IS technology acceptance theories for understanding the age-related digital divide. *European Journal of Information Systems*, 23(6), p. 708–726.

[Po20] Pohle, J., & Thiel, T. (2020). Digital sovereignty. *Internet Policy Review, 9.*

[RR25] *Recovery and resilience facility* (Tech. Rep.). (2025). Belgium: European Commission, Business & Economy – Economic Recovery. (Part of NextGenerationEU; financing reforms and investments in EU Member States; entering into force 19 February 2021; budget approx. 650 billion Euro (grants & loans).

[Se24] Selke, D., Kilian, M., Jonge, R.D. (2024). *Govtech in europe – the govtech opportunity.*

[We25] Westermann, J., Klassen, G., Bauer, L.T., Fritzsche, R. (2025). Breaking tech monopolies: The role of public procurement in fostering sme-led innovation in europe. *International conference on digital government research (dg.o 2025)* (Vol. 1, p. 1–15).