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Foreword

As governments worldwide confront increasingly complex challenges, the effective use of emerging technologies has become central to fostering more inclusive, transparent, and participatory democratic processes. This study exemplifies the OECD's commitment to advancing knowledge on how innovation ecosystems can catalyse the development and adoption of technologies that enhance citizen participation.

Focusing on Portugal, Spain, and the Netherlands, this study provides an in-depth assessment of these nations' innovation ecosystems. These ecosystems encompass a network of actors—including public administrations, private sector entities, academia, and civil society organisations—that collaborate to develop technological solutions aimed at achieving shared goals. In the context of this study, these goals revolve around empowering citizens and enhancing participatory governance through technology.

The main purpose of this study is to enable public administrations to better understand innovation ecosystems and their role in catalysing the development and use of emerging technologies to improve citizen participation.

The research uses a systemic mapping methodology to examine the dynamics, challenges, and opportunities within these ecosystems. By doing so, it provides insights that can help policymakers and stakeholders better understand the intricate web of relationships and interactions that drive innovation in this space. The findings presented here serve as a resource not only for public administrations but also for all members of the innovation ecosystem, offering actionable recommendations to address shared barriers and seize opportunities for improvement.

While each country's innovation ecosystem has distinct characteristics, the research highlights the critical role of local governments as drivers of demand, experimentation, and innovation in all three. It also underscores the importance of national and international networks in sharing knowledge and scaling initiatives. Yet, challenges persist, including the need for strategic national direction, the promotion of digital inclusion, and the development of public sector capacities to manage participatory technologies effectively. This study provides practical recommendations to address these challenges.

By shedding light on the strengths and weaknesses of these innovation ecosystems, this study equips governments and stakeholders with the tools to foster environments where emerging technologies can thrive. In doing so, it contributes to a shared vision of more inclusive, participatory, and responsive governance across OECD Member countries and beyond.

This study forms part of the broader work programme of the Organisation for Economic Co-operation and Development (OECD) to support innovation in public governance.

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This is a deliverable for the project "Improving civic participation with emerging technologies" that Portugal, the Netherlands and Spain lead with the support from the European Commission under the Technical Support Instrument (TSI). The beneficiaries of the project are AMA – Agencia para a Modernização Administrativa, I.P., (LabX – Center for Public Sector Innovation) in Portugal, INAP – Instituto Nacional de Administración Pública in Spain, and Digicampus in the Netherlands. The project was funded by the European Union via the Technical Support Instrument, and implemented by the OECD, in cooperation with the European Commission.

The project is led by Bruno Monteiro, Policy Analyst, Innovation Lead in Public Services (INDIGO), who supervised the processes and activities leading to its outputs. The lead author of the draft version was Jack Orlik (INDIGO) with Paulina Boéchat (INDIGO) leading the review process and consolidating the definitive version. Mauricio Mejia Galvan (INDIGO), Simone Parazzoli (INDIGO), Bruno Monteiro (INDIGO), Gulin Ozcan (INDIGO) and João Lopes (INDIGO) contributed to shape the draft and the revision of the definitive version. This document was based on research and initial analysis conducted by Corné Snoeij (Netherlands), Fernando Andrés, Raúl Oliván and Jorge Calvo Peralo, Hexagonal (Spain), and Beatriz Lopes, Ana Rita Matias, and Sofia Carvalho, With Company (Portugal).

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Executive summary

This study provides an assessment of how the “innovation ecosystems” in Portugal, Spain, and the Netherlands support the use of emerging technologies for citizen participation. These innovation ecosystems consist of the network of actors that work together to develop new technologies, products, or services to achieve common shared goals, in this case to enhance citizen participation.

This study highlights specific features of these three national ecosystems, identifying their strengths and weaknesses:

- In Portugal, public sector actors, particularly municipalities, are pivotal in creating demand and incentives for emerging technologies in participatory processes. However, the use of such technologies remains relatively limited.
- In Spain, a segmented ecosystem sees local governments and civil society organisations playing leading roles in fostering technology-enabled participation, often tailored to specific regional or sectoral needs.
- In the Netherlands, close-knit relationships among public, private, academic, and civil society actors underpin a collaborative ecosystem where the private sector often leads the development and implementation of participatory technologies, with municipalities acting as key promoters and supporters.

The analysis also provides insights into the functioning of these innovation ecosystems in general:

- National and regional government bodies provide an enabling environment for the development, adoption, and use of emerging technologies for citizen participation through policy guidance, regulatory frameworks (e.g. experimentation enablers) and incentive mechanisms. However, actors working on citizen participation and emerging technologies in all three countries point out that national governments could provide more support for technology development for citizen participation.
- Local governments, particularly municipalities, are key drivers in the ecosystem across all three countries given their proximity with citizen needs and demands for participation. They channel demand, funding, and opportunities to experiment with new approaches for citizen participation, regularly collaborating with actors from the private, civil society and academic sectors.
- National and international networks nurture such ecosystems by enabling the exchange of new ideas and approaches to develop new technologies for citizen participation. Portugal's Network for Participative Municipalities (RAP) and the Association of Dutch Municipalities (VNG) in the Netherlands promote and support such knowledge exchanges. At the international level, networks such the International Observatory on Participatory Democracy (IOPD) and the Open Government Partnership (OGP), raise the profile of technology-enabled participatory approaches and provide frameworks for action.

However, the actors in the ecosystems in the three countries identified common challenges such as the need to formulate a strategic direction for the adoption of emerging technologies for participation at the

national level; concerns over digital inclusion; and limited public sector capacities for managing technological participatory processes. To address these issues:

- National governments can offer clearer strategic direction, define shared standards, and provide sustainable funding support for the ecosystem. The creation of co-ordination bodies to connect actors at different levels and ensure coherence could help strengthen the ecosystem.
- Local governments can draw on the support of network organisations to drive innovation, share knowledge and experiences to enable the replication and scaling-up of good practices. Experimentation labs and other safe spaces for innovation (e.g. hubs) can enhance public sector capabilities to facilitate, develop and implement new technological initiatives for participation.
- The ecosystem can capitalize on networks for multi-sectoral collaboration at the intra- and international level to foster knowledge-sharing and scale up existing initiatives. Technology for citizen participation should be developed following ethical guidelines and with guardrails in place to ensure inclusion and accessibility.

This systemic mapping identifies the main actors and the web of relationships and connections among the innovation ecosystems in Portugal, Spain, and the Netherlands. Its value lies in drawing out these relationships and respective characteristics, highlighting barriers and enablers, and providing key insights to help governments harness their innovation ecosystem in using emerging technologies for citizen participation.

1 What are innovation ecosystems and why are they relevant to promote the use of emerging technologies for citizen participation?

This chapter introduces the concept of innovation ecosystems as essential frameworks for promoting the use of emerging technologies in citizen participation. It outlines the objectives of the study, emphasizing the importance of mapping these ecosystems to support public administrations in fostering inclusive and effective participatory practices. The chapter also explains the relevance of innovation ecosystems for addressing governance challenges and identifies the benefits of leveraging cross-sector collaboration. It concludes with an overview of the methodology used for the systemic mapping approach applied in this study.

As governments grapple with declining public trust and new demands for citizens to have a say in the decisions that affect their lives, actors from across the public sector and broader society are working together to develop new approaches to engage the public in the design of the policies and services that affect them. The OECD Trust Survey identified that the highest trust gaps originate from the perception of citizens' lack of say in their government actions, where among those who feel they have a voice in government matters, 69% reported trusting their government, while only 22% reported the same from those who felt they did not have a voice (OECD, 2024[1]). In the OECD's *Exploring New Frontiers of Citizen Participation in the Policy Cycle*, recommended actions for meaningful participation are embedding citizen participation in policymaking, lowering the barriers to citizen participation, and raising administrative capacity (OECD, 2024[2]). The recent Monitoring Report of the OECD Reinforcing Democracy Initiative (RDI) invites countries to make use of emerging technologies to promote more inclusive participation, build public service capacities, and lower barriers to participation for citizens (OECD, 2024[3]). Recent work has further clarified the role emerging technologies can play in improving citizen participation, presenting replicable solutions to reduce barriers to participation, increase government capacities and ensure accountability (OECD, 2025[4]).

Public administrations provide the demand and legitimacy for citizen participation, yet successful participation initiatives which use digital technologies are the results of the contribution of expertise, relationships and motivations coming from a broad array of actors (OECD, 2023[5]) (Randma-Liiv, 2022[6]).

The OECD Action Plan on Transforming Public Governance for Digital Democracy suggests that leveraging the ecosystem of emerging technologies for citizen participation can provide a useful toolbox for governments to respond to opportunities and challenges of digitalisation for democracies (OECD, 2024[3]).

This study offers an illustrative example of the role played by innovation ecosystems in promoting the use of digital technologies for citizens participation. Through applying a systemic mapping approach to three distinct national contexts, the study draws out the web of relationships between actors engaged in the development, adaptation, and use of emerging technologies and citizen participation. This web of connections is known as the innovation ecosystem of emerging technologies for citizen participation. An innovation ecosystem is comprised of networks of actors which share a common goal (OECD, 2022[7]) – in this case the enhancement of citizen participation through emerging technologies. The actors of the ecosystem are classified along the 'Quadruple Helix' for innovation, as either public sector, private sector, academia, or civil society organisations (Curley and Salmelin, 2013[8]).

Innovation ecosystems emerge and are shaped in response to external and internal factors and see different actors performing distinct roles. The ecosystem performance is dependent on the way in which participating actors can coordinate their resources, capabilities, and expertise to establish and sustain an environment in which technology-enabled citizen participation can flourish. In the case of citizen participation, it is also shaped by the legal, regulatory, political, and institutional arrangements of public institutions in which they take place. Understanding what each actor can contribute and identifying enablers and challenges for effective action and collaboration can enable ecosystem actors (including the public administration) to create beneficial links and address frictions that impede innovation and implementation.

Regarding the specific scope of this study, existing literature shows that identification of opportunities for citizen participation and pressure to take into consideration citizen input often comes from civil society actors (Steinbach, Sieweke and Süß, 2019[9]) that are able to lever a culture of innovation and experimentation in public administration (Medina-García, de la Fuente and Van den Broeck, 2021[10]). For the development of technological innovations for citizen participation, an open and co-creative approach can help to address institutional biases that may occur in the top-down development of technologies by the public sector (Skaržauskienė and Mačiulienė, 2020[11]) and ensure that citizen participation initiatives are inclusive and considered legitimate by participating citizens. Collaboration with private sector, academic and civil society actors can be crucial to help strengthen public sector capacities for technological

innovation, while other non-governmental organisations such as foundations are able to provide funding to develop and experiment with new approaches for citizen participation (Grobbink and Peach, 2020[12]).

1.1. Scope and objectives

This study is drafted under the project "Improving civic participation with emerging technologies" that Portugal, the Netherlands, and Spain lead with the support from the European Commission under the Technical Support Instrument (TSI). The project supports Portugal, the Netherlands and Spain in improving citizen participation through emerging technologies, fostering the ability of public administrations to explore the potential benefits of these technologies for citizen participation.

The main purpose for this study is to showcase how innovation ecosystems can be used to catalyse the development of emerging technologies to improve citizen participation. Through a systemic mapping applied to Portugal, Spain and the Netherlands, this study draws out the relationships between key stakeholders, highlights barriers and enablers, and gives insights on the opportunities and challenges that Governments must navigate to work with innovation ecosystem actors across the public, private, civil society and academic sectors. This study offers an illustrative example of a methodological approach that can be further refined and consolidated, while providing already a dedicated support to this project objectives.

This study adopted a mixed-methods research strategy that employed desk research, surveys (Systemic Mapping Survey), interviews and workshops in the three countries (see Annex A for an overview of the research objectives and methods), allowing for the comparative assessment of effective practices and common challenges in these contexts. The generation of networks maps, using a specific software, allows for the visualisation of relevant actors and connections in each country with a view of framing and sharpening the analysis of the innovation ecosystems. The actionable recommendations for governments are sustained on evidence-based insights from this systemic mapping approach.

1.2. Focus and structure

The focal points of this study are the ecosystems of actors with potential to contribute to the development of emerging technology for citizen participation in Portugal, Spain and the Netherlands. For that reason, the study is structured in the following manner:

- Chapter 1 answers the question ***What are innovation ecosystems and why are they relevant to promote the use of emerging technologies for citizen participation***? This introduction sets out the objectives for the study and explains why mapping innovation ecosystems is valuable for governments and ecosystem actors.
- Then, Chapter 2, titled ***Innovation ecosystems for citizen participation and emerging technology: insights from Portugal, Spain, and the Netherlands*****, features** deep dives into each country's ecosystem. This chapter explores each of the national ecosystems for citizen participation, providing detail on the context for citizen participation and emerging technology in each country, an overview of the configuration of the ecosystem, information on the roles played by different actors, and highlights leverage points for governments to enhance the development of citizen participation and emerging technologies.
- Finally, Chapter 3, ***What can governments do to improve the innovation ecosystem for citizen participation using emerging technology?*** provides a comparative assessment of the ecosystems in each country and identifies actions that public administrations can use to enhance innovation ecosystems for citizen participation using emerging technology that are of relevance more broadly. It concludes with potential future directions for this research.

- The **Annexes** of the study include a brief description of the **methodology** adopted for these systemic mappings (3Annex A), with the expectation that these field explorations in three countries can provide a demonstrative example of their value and lay the ground for the further refinement and consolidation of this approach to innovation ecosystems. It also includes a **glimpse of the cross-national ecosystem at the European level** (3Annex B) that presents an overview of challenges and opportunities for the development and improvement of participatory technologies, as identified in the collaborative session organized with international actors to explore and translate the realities of cross-border initiatives.
- A **Glossary** is featured at the end of this publication to define key terms and concepts used.

2 Innovation ecosystems for citizen participation leveraging emerging technologies: Insights from Portugal, Spain and the Netherlands

Chapter 2 provides an overview of the innovation ecosystems of emerging technologies for citizen participation in Portugal, Spain, and the Netherlands. It contextualises each country's technological landscape and tradition of citizen participation, followed by a visual mapping of their respective innovation ecosystem of emerging technologies for citizen participation. It then examines these ecosystems through the lens of the quadruple helix framework – public sector, private sector, civil society organisations, and academia – highlighting key actors, their roles, and contributions to the ecosystem. The chapter concludes by identifying opportunities for public authorities within each ecosystem to strengthen the use of emerging technologies in enhancing citizen participation.

This chapter presents the results of an exploration into the innovation ecosystems of emerging technologies for citizen participation in Portugal, Spain, and the Netherlands. For each country, the analysis is structured as follows:

- **First, a section on background and context to** provide an overview of the historical, administrative, legal, social, and cultural context for citizen participation and how technology can enhance it.
- **Second, the section on the configuration of the ecosystem** illustrates the key components of the ecosystem, highlighting key initiatives, actors and networks promoting innovation, governance and norms stimulating collaboration, and degree of technology adoption.
- **Third, the study deep dive on key actors' specific roles**[1] **and experiences** in supporting design and adoption of emerging technologies for citizen participation.
- **Finally, the study identifies some leverage points** (Meadows, 1999[13]) indicating possible actions that governments can take to intervene upon each ecosystem.

2.1. Portugal

The role of citizen participation in Portugal has been well established since the 1974 Carnation Revolution (Falanga, 2018[14]). Civic freedoms which enable participation are enshrined in the Portuguese Constitution (OECD, 2023[15]). The Administrative Modernisation Agency (AMA) plays a key role promoting and supporting citizen participation and innovation across the public sector. In 2017, Portugal joined the Open Government Partnership, and in 2021, launched the Guiding Principles for a Human Rights Based Approach on Public Services (hereafter the Guiding Principles). These provide guidance for policymakers to engage citizens in the development of public services (OECD, 2023[15]).

Portugal is a forerunner in innovative approaches to sustain citizen participation, employing dedicated digital platforms and undertaking the world's first nationwide participatory budget in 2017 (Falanga and Ferrão, 2021[16]). Lisbon's participatory budget model, established in 2007, has been widely adopted across municipalities. Citizens can participate online through a dedicated digital platform established by the city; in person through Participatory Assemblies, a participation mechanism to discuss proposals involving citizens, allowing for collective reflexion and debate; and since 2013, by SMS (Allegretti and Antunes, 2014; Falanga, 2018). The National Participatory Budget (NPB) invited citizens to propose and vote on projects, allowing to allocate resources of the public budget in its first two editions. However, the NPB was suspended in 2019 (Falanga, 2023[17]). The open source participa.gov platform, launched in 2021 and managed by AMA, provides a central tool to enable citizen participation initiatives and is exploring the use of Blockchain as a trust-preserving technology. Recently, the OECD mapped four deliberative processes in Portugal, in particular, the Lisbon Citizens' Council, a permanent Assembly that has provided recommendations on climate change and urban adaptation (OECD, 2023[15]).

Efforts to digitise processes in the public administration, including citizen participation, face the challenge of low levels of digital skills among citizens. While programmes such as INCoDe have sought to enhance digital development and skills through a series of integrated policies (OECD, 2023[15]), the digital divide was raised as a concern by many interviewees. Only 41% of the total population in Portugal used online public services in 2021 (Eurostat, 2023[18]), with only 56% of the total population having basic or above basic digital skills (Eurostat, 2023[19]). Portugal ranks fifteenth out of 27 European Union (EU) member states in the 2022 edition of the Digital Economy and Society Index (DESI) and fifteenth in use of digital public services or e-government (European Commission, 2022[20]). Among other initiatives, the Government of Portugal has launched, in 2022, the project 'Eu Sou Digital' (I am digital) to promote digital literacy and inclusion.

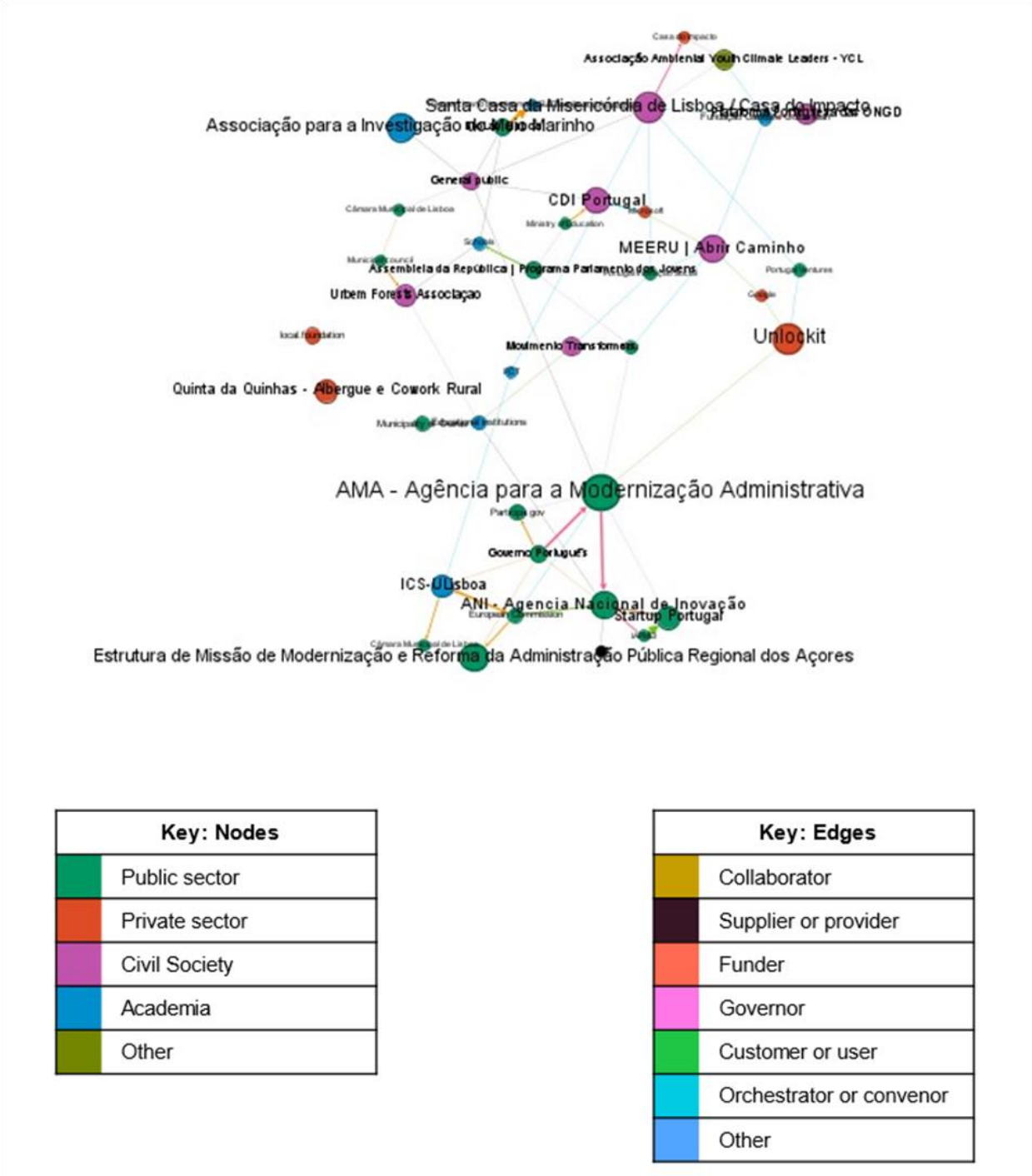
While an increase in voter turnout in Portugal is a positive democratic trend, polarising discourses and a lack of trust in government pose challenges for citizen participation. In 2023, 32% of Portuguese people reported high or moderately high trust in the central government, below the OECD average of 39% (OECD, 2024[21]). Interviewees in this research identified lack of trust as a key barrier for citizen participation in general and the use of emerging technology in citizen participation in particular.

Systemic Mapping Survey respondents, including public organisations, are exploring a range of technologies to enhance citizen participation. The technologies most respondents are actively using, developing or considering applications for are generative AI (39%), open source (36%) and privacy-preserving technology and cybersecurity (31%). Blockchain is identified in some interviews as a valuable technology to ensure trustworthy citizen participation processes, while AI is expected to help with the analysis of citizen proposals. In 2019, the Government of Portugal became a frontrunner in modernising public administration with the ethical use of AI, through the adoption of the AI Portugal 2030 strategy (Government of Portugal, 2019[22]).

2.1.1. Configuration of Portugal's innovation ecosystem of emerging technologies for citizen participation

Based on responses to the Systemic Mapping Survey, the following network visualization was generated to showcase the relative position (nodes) and the nature of the connections (edges) between actors across the innovation ecosystem of emerging technologies for citizen participation in Portugal.

Figure 2.1. Network visualization of Portugal's ecosystem for citizen participation and emerging technology



Note: This graph should be seen as a complement to other sources of evidence and analysis. It has been filtered to include only actors with 2 or more connections. Node size is proportional to number of connections identified. Respondents could appear more influential in the network graph by adding a large number of connections. Validation in the study was provided by asking respondents to highlight influential actors in each category of the quadruple helix. Original files can be accessed here.
Source: OECD based on responses to the survey.

Despite high levels of activity and support for citizen participation, initiatives are fragmented and use of technology for citizen participation is limited. The majority of citizen participation initiatives are commissioned by municipalities and take place at the local level with civil society organisations (CSOs) providing support and acting as intermediaries between citizens and municipalities. While Portugal ranks 11th in the Digital Government Index, regarding the dimension of openness by default the country stands at 19th, below OECD average (OECD, 2024[23]). The Network for Participative Municipalities (Rede de Autarquias Participativas, hereafter RAP), which is coordinated by the non-profit NGO Oficina, facilitates knowledge sharing for citizen participation. It awards an annual prize to establish and evolve good standards in this field. Nonetheless, information about participation initiatives is fragmented, with a key interviewee suggesting that technologies for citizen participation may be counter-productive given current levels of citizens' trust in public institutions in Portugal.

Although citizen participation is a priority for public administration at the national level, initiatives to implement it, integrated with technology or not, are still fragmented and can be further consolidated. Examples of such initiatives include the National Participatory Budget and participa.gov, the national platform for participatory processes. In the private sector, networks led by organisations such as StartUp Portugal, 351 Portuguese Startup Association and Casa do Impacto (itself derived from third sector organisation Santa Casa da Misericórdia) play an important role in driving technological innovation for social impact, including citizen participation. However, they have resulted in very few startups exploring emerging technology for this purpose, echoing the findings of the GovTech Index 2020 that Portugal has 'significantly fewer tech startups generally, and GovTech startups specifically, than other top-ranking countries [for GovTech] such as Spain and Brazil' (CAF and Oxford Insights, 2020[24]).

While initiatives led by local government promote interaction across the innovation ecosystem, a lack of sustained government support results in a culture of competition, rather than collaboration among private sector and civil society organisations. Participatory initiatives at the municipal level promote collaboration between the private, public, academic, and civil society sectors. However, such projects are often not sustained, leading to uncertainty for private sector and civil society organisations operating in this field. According to some interviewees, this has led to a culture of competition for scarce resources that inhibits collaboration and innovation.

Ecosystem actors in Portugal expressed a desire for government to play a stronger role in promoting citizen participation through national strategies, agendas and plans, improving funding, and establishing platforms for networking and collaboration. Longer-term strategies and funding are identified by interviewees as key opportunities to further strengthen collaboration between government and non-government bodies on emerging technologies for participation and ensuring sustainable progress in citizen participation innovation. Collaboration both within Portugal and internationally are highlighted as important opportunities to develop and scale up innovations.

Table 2.1. Ecosystem roles in Portugal

Role	Key actors and contributions
Strategic Leadership and Governance	• **AMA, the Agency for Administrative Modernisation,** is responsible for a wide range of initiatives involving citizen participation including the multi-stakeholder forum for the Open Government Partnership. • The majority of citizen participation initiatives occur at the local level, with **municipalities** setting objectives and criteria on a case-by-case basis. • **Funding** for citizen participation initiatives, programmes and tools is provided by the **public administrations** that commission and use them, as well as through **foundations** such as the Calouste Gulbenkian Foundation and Santa Casa da Misericórdia de Lisboa, as highlighted by survey respondents and workshop participants.
Operational Implementation	• The facilitation of participatory processes is largely undertaken by the **cities and municipalities** with the support of non-governmental and **civil society organisations** such as Oficina, In Loco and Forum dos Cidadãos.
Community Engagement and Representation	• A wide range **of interested parties in civil society**, such as the Centre of Digital Inclusion (CDI), ensure that communities are effectively engaged and that citizen participation initiatives are inclusive.
Technology Innovation and Provision	• The development and provision of participation tools that employ technology is limited, with the participa.gov and participa.pt platforms in the **public sector** managed by AMA and the General Secretariat of the Ministry of the Environment respectively. MyPolis, **a private sector provider** also provides tools.
Capacity Building and Knowledge Management	• Capacity building for citizen participation in the public sector is driven by **LabX** and the **RAP** through the creation of guidelines. INA, the National Institute of Administration, offers training to the public administration on participation. • Knowledge creation, encompassing the testing of approaches for citizen participation often occurs through initiatives that engage actors from across multiple sectors, **including research centres**. Within these, academic actors enable collaboration and conduct research to explore and assess the impacts of innovative approaches for citizen participation. Among these are University of Nova Information Management School (Nova IMS), Lisbon, and Portugal's Centre for Responsible AI, which brings together startups, research centres, lawyers and industry leaders to explore how artificial intelligence can be used ethically in a variety of applications.
Ecosystem Development and Strengthening	• Strengthening relations within the innovation ecosystem occurs **between municipalities through the RAP**, and **internationally through the International Observatory on Participatory Democracy** (IOPD). • **Start-ups and academia** build connections and share knowledge through **networks** such as 351 Portuguese Startup Association and Casa do Impacto, as well as research centres like the Centre for Responsible AI.

2.1.2. Ecosystem actors: roles, contributions and experiences

Public sector

Central government agencies are influential in the ecosystem of emerging technology for citizen participation, convening actors, establishing standards and contributing guidance, tools and expertise. AMA is identified by the most survey participants as an influential actor in the ecosystem of emerging technologies for citizen participation, leading key initiatives such as participa.gov, an online platform for citizen participation and the co-ordination of the multi-stakeholder forum for the Open Government Partnership. LabX, which sits within AMA, sets out guidelines, frameworks and tools to support public sector actors to undertake citizen participation initiatives and incorporate citizen input in their plans and activities. ANI, the national innovation agency of Portugal, is identified by the second greatest number of participants as influential actor. The organisation disseminates funding and publicises open calls, which may involve citizen participation aspects, such as the New European Bauhaus. INA, the National Institute of Administration, offers training to the public administration on participation.

Sectoral ministries and initiatives at the national level incorporate and promote citizen participation for specific topics or demographics. The Ministry of the Environment hosts its own citizen participation platform for consultations on planning, participa.pt. There has been a clear focus on youth participation, demonstrated in initiatives like Academia Participo!, operated by the Commission for Citizenship and Gender Equality (CIG) (Comissão para a Cidadania e a Igualdade de Género (CIG), 2021[25]), Participatory

Budgeting for Schools and Portuguese Youth Participatory Budgeting (Dias et al., 2021[26]). However, further opportunities exist to ensure sustained support, with both the Portuguese Youth Participatory Budgeting and the National Participatory Budget discontinued since 2019.

However, the majority of citizen participation initiatives are initiated at the municipal or local level. The Network for Participative Municipalities (RAP), established in 2014 as an outcome of the project "Portugal Participa: Caminhos para a Inovação Social", enables sharing of experiences and promotion of knowledge about participatory practices across more than 70 members. It gives an annual award for Good Participation Practices (Oficina, n.d.[27]).

Public sector actors identify a lack of public trust as the key barrier to citizen participation in Portugal with 73% of public sector respondents to the survey highlighting this. Other challenges include insufficient political support (64%), access to funding (64%), regulatory procedures (55%), and the ability to engage governments and officials (55%).

Public sector actors look to the wider ecosystem to engage with citizens, access to expertise and new ideas and perspectives. They express a preference for offline methods but are exploring and applying other technologies for specific circumstances, such as incorporating blockchain into participa.gov to eliminate vote fraud. Public sector highlights the need to reinforce digital training programs in rural areas to ensure more inclusive citizen participation. Nonetheless interviewees highlighted the importance of offline methods for citizen participation to ensure inclusion and effective deliberation.

Private sector

Private sector networks led by organisations such as 351 Portuguese Startup Association and Casa do Impacto play an important role in driving technological innovation for citizen participation. However, very few private sector organisations are active in developing new tools that can be used for citizen participation. Key actors include MyPolis, which develops tools for participatory democracy focused on young people, and eSolidar, a participation platform for companies and associations.

Private sector actors are motivated to collaborate with others in the ecosystem by new ideas and perspectives, support for co-operation with other stakeholders, access to citizens and access to information. However, according to interviewees, funding is a key challenge, with a perceived weak demand and lack of resources creating a culture of competition rather than collaboration and reducing access to talent. The small size of Portugal's market and lack of sustained initiatives limit scaling possibilities for private sector activity.

Private sector organisations are experimenting with AI, blockchain and augmented reality. AI is being explored to support with automatic translation, while Blockchain is seen to promote transparency and trust.

Academia

Academic actors provide expertise, promote collaboration and innovation and create knowledge through the evaluation of citizen participation initiatives. Examples include the Forum dos Cidadãos, established by academics associated with Universidade Nova de Lisboa and Instituto Gulbenkian de Ciência (Fórum dos Cidadãos, n.d.[28]), the University of Aveiro, which has tested participatory approaches to strategic planning (Wolf, Nogueira and Borges, 2021[29]) and "Portugal Participa: Caminhos para a Inovação Social", a partnership between an NGO, the Centre of Social Studies (CES University of Coimbra) and funded by the Calouste Gulbenkian Foundation, which was evaluated by Instituto de Ciências Sociais at the Universidade de Lisboa (Falanga and Ferrão, 2021[16]).

Academic actors explore the opportunities and impact of technology in civil society and for citizen participation. The AI, Communication & Democracy Lab at Nova IMS is exploring how AI can enhance citizen participation and improve government-citizen relationships (AI, Communication & Democracy Lab,

2024[30]). Within R&D research centres, such as the Centre for Responsible AI, academics are collaborating with private sector organisations to develop and test new technologies with relevance to citizen participation.

Academic actors acknowledged the benefits of cross-sector collaboration but highlight a lack of access to human resources as a key challenge. Collaboration with the private sector is seen as a driver of innovation and knowledge. More collaboration across Europe is considered necessary to scale up new applications of technology. The difficulty of academia to attract and retain human resources was identified as a key challenge as careers in academia are not considered competitive.

Civil society

CSOs play a key role in Portugal as trusted providers of support and services for citizens, often as intermediaries for the government. They cover a wide range of activities and are recognised as important partners in implementing initiatives like the Open Government Partnership. Municipalities routinely collaborate with them to engage citizens in citizen participation initiatives, such as neighbourhood regeneration in Porto (Falanga and Ferrão, 2021[16]).

CSOs promote inclusion, empower citizens and hold the government to account, playing a key role in monitoring the public administration's use of technology. They advocate for specific communities and speak out on relevant digital and participation issues ranging from digital inclusion and data privacy to civic engagement and capacity building. Organizations like the Centre of Digital Inclusion (CDI) implement projects promoting digital literacy and active citizenship, essential skills for participating and engaging with digital platforms.

CSOs provide support to the public administration for the design and implementation of citizen participation initiatives. Examples include In Loco's leading role in the PP project and Oficina's co-ordination of the RAP network and provision of tools and guidance to enhance citizen participation (Falanga and Ferrão, 2021[16]).

Specific organisations provide and disseminate funding for initiatives which promote active citizenship and citizen participation. For instance, the Calouste Gulbenkian Foundation provided funding for the Portugal Participa project between 2014-2016. It currently manages the Active Citizens Fund, with annual calls funded between 2018-2022 through a combination of EEA Grants and the Foundation's own resources.

Despite their importance, limited funding and administrative barriers create uncertainty that erodes CSOs' willingness to collaborate with the public sector on citizen participation. An additional issue identified by interviewees is the small size of Portugal's system for citizen participation, meaning that there are not many structured occasions and only limited resources to replicate and scale approaches. This echoes similar challenges experienced by private sector actors.

CSOs collaborate with others in the ecosystem to obtain improved recognition and public profile and new ideas and perspectives. For CSOs, the ecosystem is an important enabler of networking and access to "resources such as funding, knowledge and expertise from other organisations and sectors" (Interviewee 57, civil society organisation) as well as digital infrastructure.

Few CSOs are exploring or using emerging technologies, although some, like Coletivo Matéria, use AI tools. Most rely on conventional digital tools for communication and collaboration.

Box 2.1. Citizens' viewpoints: Portugal

This project engaged young people in Cascais (aged 18-28) through an in-person workshop to understand the drivers and barriers they experience for citizen participation. The participants underwent two rounds of issue framing as groups, first naming the main pain points of citizen participation they themselves experience to a common specification of the issue by means of a challenge canvas. The final phase involved using rapid prototyping techniques to generate potential solutions to these issues through tangible prototyping materials, such as building blocks.

Participants positively highlighted recent experiences of democratic engagement, where they were given clear information and communicated with via social media. In contrast, they identified poor communication with public administration and a lack of information about topics and opportunities for citizen participation as having a negative impact on participation.

2.1.3. Areas of opportunity for the public authorities to enhance the use of emerging technology for citizen participation

- **Adopt a strategic direction and clear goals:** Actors indicate a lack of strategic direction on adopting emerging technologies for citizen participation initiatives, leading to uncertainty and competition rather than collaboration. Portugal's Open Government Action Plans could be used to discuss and establish clear national objectives for citizen participation and emerging technology integration, gaining legitimacy from the multi-stakeholder forum.
- **Set rules and standards for technology use:** Building on the work of AMA (LabX), guidelines and standards for the implementation of citizen participation initiatives and the use of emerging technologies could set expectations and ensure that participation undertaken effectively. CSO participation can help to ensure that inclusion is a key priority. Leveraging the work of academic institutions, such as Universidade Nova and the Centre for Responsible AI, could help establish practical and ethical guidelines for the application of emerging technologies in this area.
- **Enhance information flows and feedback loops:** Poor communication and lack of information highlighted by citizens and CSOs can be addressed through improved communication about opportunities to participate and mechanisms to demonstrate influence and impact of citizen participation on decision-making. Broader communication and expansion of recognition initiatives, such as the RAP award for Good Participation Practices, could promote the adoption and innovation of citizen participation by both public administration and civil society.
- **Establish sustainable funding mechanisms:** Actors highlight that limited funding creates uncertainty and erodes willingness for collaboration among CSOs. Collaboration and innovation could be promoted through sustainable funding mechanisms for citizen participation initiatives and related technologies linked to clear national objectives.
- **Strengthen and expand the ecosystem structure:** Actors highlight that Portugal offers limited opportunities for scaling up approaches and technologies for citizen participation. Efforts to tap into global value chains can promote scaling and incentivise further activity. Successful local participatory initiatives in Portugal, such as participatory budgeting initiatives at the municipal level, could be further explored as a building block to scale participatory approaches to the national level or transversally apply its lessons learned to other participatory instruments.

2.2. Spain

Since Spain's transition to democracy, the country has had a strong history of participatory governance driven by civil society at the local level. The 1978 Constitution solidified efforts to involve citizens in the democratic process. During the 1980s, tools and mechanisms for formalized participation were established under pressure from neighbourhood organizations (Brugé, Font and Gomà, 2003[31]). Key legislation, including the 1985 Law of Bases of Local Regime and the 2003 Law of Measures for the Modernisation of Local Government, established frameworks for citizen participation and urged local entities to adapt their regulations. Spain's EU accession in 1986 further aligned participatory practices with European standards. Nationally, initiatives like the Open Government Partnership (joined in 2011) and the Open Government Forum (established in 2018) have fostered collaboration between administration and civil society, to set objectives, share experiences and promote good practices on citizen participation, including through digital participation platforms and innovation laboratories. OECD reports on Open Government and the promotion of deliberative democracy in Spain highlight a strong culture of innovation at the subnational level (OECD, 2024[32]; OECD, 2019[33]). For example, the OECD mapped 15 deliberative processes in Spain, including the recent Citizen Assemblies in the Basque Country dealing with mental health and climate change (OECD, 2024[32]).

Social movements using digital technologies, spurred innovation, and adoption of citizen participation in the 2010s. These called for greater transparency, accountability, and citizen participation in governance. Collaborations between actors involved in these movements and the public administration led to the development of new approaches for citizen participation, particularly at city and municipal levels, with innovations such as Decidim and Consul Democracy sprouting at the local level. The participation of citizens in municipal politics has become more diverse and innovations have flourished in recent years, including participatory budgets, deliberative surveys, citizen assemblies and local councils or forums (Hernandez, 2018[34]). Echoing a consolidated openness, Spain's ranked 7th at the OECD level in the dimension Open by default, while positioned as 15th in the overall Digital Government Index (OECD, 2024[23]).

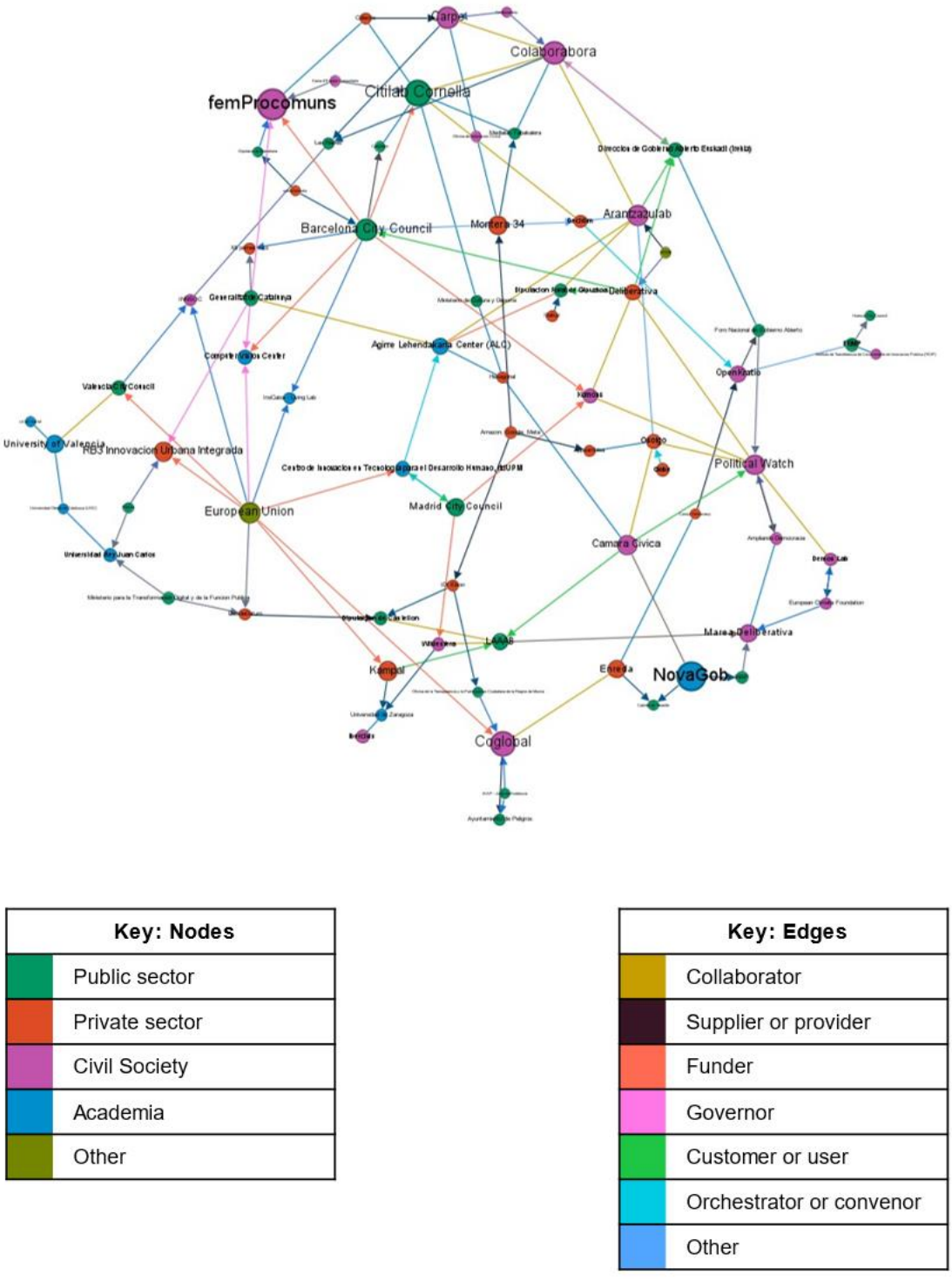
Spain has a high level of digitalisation, digital public services, and connectivity, establishing a strong foundation for the development and implementation of new technologies for citizen participation. Spain ranks 7th out of 27 European Union (EU) member states in the 2022 edition of the Digital Economy and Society Index (DESI) and ranks among the top European countries in terms of connectivity (3rd) and use of digital public services or e-government (5th) (European Commission, 2022[35])

Success stories of using technologies for citizen participation are anchored in local contexts, which harbour technological ecosystems with dynamic interactions between actors. The country's ability to foster innovative tools for citizen participation is evident in the emergence of two initiatives for digital democracy: Consul, developed in Madrid and Decidim in Barcelona, with the aim of providing digital platforms for participation and offering face-to-face channels for interaction. These tools have been replicated in many countries and levels of government, including the European Union (Generalitat de Catalunya and Political Watch, 2022[36]). Spain is the top-ranked country in the Ibero-American region in the GovTech Index 2020 (CAF and Oxford Insights, 2020[24]). According to this study, Spain has high indicators in the three pillars analysed: the supply of startups, government demand for this type of technologies and the legal framework.

2.2.1. Configuration of Spain's innovation ecosystem of emerging technologies for citizen participation

From the responses to the Systemic Mapping Survey, the following network visualization was generated to showcase the configuration of the innovation ecosystem of emerging technologies for citizen participation in Spain.

Figure 2.2. Network visualization of Spain's ecosystem for citizen participation and emerging technology



Note: This graph should be seen as a complement to other sources of evidence and analysis. It has been filtered to include only actors with 2 or more connections. Node size is proportional to number of connections identified. Respondents could appear more influential in the network graph by adding a large number of connections. Validation in the study was provided by asking respondents to highlight influential actors in each category of the quadruple helix. Original files can be accessed here. Source: OECD based on responses to the survey.

The ecosystem of actors working on emerging technologies for citizen participation in Spain is dynamic but segmented. Actors across the ecosystem share similar goals of improving citizen participation and democracy through innovation and are open to collaborating to gain 'new ideas and perspectives'. However, opportunities exist to strengthen co-ordination on the implementation of emerging technologies for participation at the national level. Currently, smaller networks based around individual actors or initiatives encourage collaboration on specific topics, inside particular regions, or within certain sectors. These include the NovaGob Network, which organises one of the most important congresses on public sector innovation in Spain, the Decidim community, which connects users and developers of Decidim around the world, and the Network of Local Entities for Transparency and Citizen Participation of the FEMP (Red de Entidades Locales por la Transparencia y la Participación Ciudadana de la FEMP), which plays an important role in the co-ordination and dissemination of citizen participation and open government initiatives. Despite Portugal, the Netherlands and Spain all being members of the Open Government Partnership, its influence was uniquely recognised by actors in Spain. Interviewees highlighted the Open Government Forum, consisting of members from civil society and the public administration, as having potential to further enhance national cross-sectoral collaboration on citizen participation. Spain has attempted to address co-ordination challenges in participation through its Draft V Plan on Open Government (2024-2028).

Civil society actors and municipalities are connected most frequently on average with actors across all sectors, demonstrating their transversal role and influence in the Spanish ecosystem. Academic institutions show strong interaction with CSOs, reflecting a collaborative effort in research and policy advocacy. An example of this relationship is the Open Manifesto Project, developed between Political Watch and the University of Valencia (Chair of Civic Technology and Empowerment), a virtual platform that allows consulting the electoral proposals of political parties through a virtual assistant. Government entities, especially at municipal level, also have significant interactions with civil society organisations, highlighting the importance of civil society in the local governance processes. Examples include the strong collaborative relationship that the Regional Federation of Neighbourhood Associations of Madrid (FRAVM) maintains with the Madrid City Council. Ensuring inclusivity and representativeness of participation are highly relevant for both CSOs and the public sector, as shared by workshop participants.

Collaboration among actors is supported by shared standards and informal norms. Ecosystem actors express a strong willingness to collaborate and work openly, both through networks and specific projects. Open source is identified as a key standard given the use of public funds. Interviewees also identified a shared belief that technologies for citizen participation must be deployed in line with democratic principles.

Open source is a shared standard for actors working on citizen participation, with many exploring applications for Generative AI and Blockchain. Open source has a widespread use with 34.7% of organizations actively using or developing it, and 26.7% considering its applications. Open source is a standard for some organisations working on citizen participation, such as Decidim, who does not integrate proprietary technologies. Generative AI and cloud computing are also being actively used or considered by many actors, with the private sector most likely to be exploring technologies in general. Regarding the potential uses of these emerging technologies in participatory processes, interviewees mentioned that (i) blockchain is primarily to ensure the integrity of electronic voting processes and the transparent management of public data; (ii) artificial intelligence (AI), which facilitates the analysis of large volumes of data, to moderate citizen proposals automatically, match community needs with relevant research and detect 'spam' users; and (iii) open data platforms to improve transparency and encourage citizen participation through the availability of public data and the accessibility of the processes.

Most non-government actors expressed that government could do more to promote technological innovation in citizen participation through the development of national strategies and the provision of sustainable funding. Interviewees pointed to the need for stronger central government co-ordination of innovative practices, as well a clearer public communication on strategic directions as important preconditions to the sustainability of the innovation ecosystem. Ad-hoc public funding, compared to

sustained sources of funding, represents long-term uncertainty for open-source technologies. Limitations in funding were also identified as a source of competition between ecosystem actors, preventing effective collaboration. To address these challenges, survey respondents called on the government to develop national strategies, agendas and plans, increase funding and grants for business R&D and innovation and establish networking and collaborative platforms.

Table 2.2. Ecosystem roles in Spain

Role	Key actors and contributions
Strategic Leadership and Governance	• **Upper levels of government administration** establish strategic direction and regulation for citizen participation. Such entities include the Council of Transparency and Good Governance of Spain, the Directorate-General for Data of the Ministry of Digital Transformation of Spain. At the regional level, they include, for example, the Directorate-General for Citizen Participation of the Government of Catalonia or the Regional Government of the Basque Country. • The **Open Government Forum**, whose 64 members are drawn equally from civil society and public administration, plays a key role in developing Spain's Open Government Action Plans, of which participation is a key pillar. • Roles, rules and expectations for citizen participation initiatives are **mostly set at the local levels, such as city councils**. • Civil society plays a key role in monitoring **transparency, accountability and integrity** through organisations such as Political Watch. • **Funding** for citizen participation initiatives, programmes and tools **is provided by cities and regions** that commission and use them. The EU is also identified as a funder by a variety of actors in Spain.
Operational Implementation	• Citizen participation initiatives **are largely implemented by cities and regions**, who are the end-users of citizen input. • Participatory processes are often supported by **participation consultants**, who may come from the private or civil society sectors and help public administration to design and manage participation initiatives. • **Tool providers** can also provide broader guidance on participatory processes. **Technical implementation may be provided by private, civil society and public actors** that are independent from the tool provider they deploy.
Community Engagement and Representation	• **Citizen engagement is undertaken by cities and regions** and is supported by a wide range of **interest groups in civil society**, such as neighbourhood associations, youth associations and groups based on specific identities.
Technology Innovation and Provision	• Technology development is **dominated by civil society offerings** Decidim and Consul, while private sector organisations develop new and specific innovations. Start-up accelerators such as Gobe, and innovation labs such as Arantzazulab are critical in promoting innovation in this field.
Capacity Building and Knowledge Management	• **Public sector entities**, such as HazLab, Laboratory of Public Innovation in the National Institute of Public Administration (LIP/INAP) and LAAAB provide capacity building for citizen participation and promote innovation in the public sector. • Knowledge creation, encompassing the exploration and testing of new technologies and approaches for citizen participation often occurs through **initiatives that engage actors from across multiple sectors**. Within these, **academic actors enable collaboration** and conduct innovative research.
Ecosystem Development	• The **Network of Local Entities for Transparency and Citizen Participation of the FEMP**, plays an important role in the co-ordination and dissemination of citizen participation and open government initiatives. • The **Open Government Forum** has established communities of practice to share experiences and good practices on citizen participation, participation platforms, participatory processes, and innovation laboratories. HazLab plays a role to promote knowledge sharing and a culture of citizen participation in the public administration.

2.2.2. Ecosystem actors: roles, contributions and experiences

Public sector

Public entities, largely at the municipality level, are decisive sponsors, end-users and decision-makers regarding the input gathered through citizen participation initiatives. These actors are an important source of demand for citizen participation processes. They establish requirements for innovation and create opportunities for experimentation in the field to make the most effective use of civic input. Frontrunners include Madrid City Council and Barcelona City Council. Across municipalities, the Network of Local

Entities for Transparency and Citizen Participation, part of the Spanish Federation of Municipalities and Provinces (FEMP), promotes transparency and citizen participation among local governments. Further, the Basque Country in Spain has recently led innovative approaches to citizen participation, including the establishment of a permanent citizen assembly at the city level in Tolosa and at the Basque level (OECD, 2024[32]).

At the national and regional levels, public entities set guidelines and standards for participation. They encourage and support the implementation of participatory processes, produce guidelines, and action plans, and stimulate the development of new solutions through objective setting and project leadership. Key actors include the Ministry of Finance and the Civil Service, responsible for the participation pillar in Spain's IV Open Government Action Plan, and the Directorate-General for Data of the Ministry of Digital Transformation and the Civil Service. The Directorate-General for Citizen Participation of the Government of Catalonia, and the Department of Governance, Digital Administration and Self-Government in the Basque Country are examples of entities that, at the regional level, aim to encourage and facilitate the participation of citizens in decision-making and public affairs.

Teams and entities within the public administration provide support and information to promote innovation in citizen participation. These include HazLab and the Laboratory of Public Innovation in the National Institute of Public Administration (LIP/INAP), and regional entities like LAAAB Laboratorio de Aragón Gobierno Abierto, and Aranzazulab in the Basque Country.

Key challenges in the public sector include lack of a transversal co-ordination, limited awareness and capabilities for citizen participation, and lack of public trust. Public sector organizations lag in adopting and exploring emerging technologies, despite their role in providing opportunities for innovation. They recognise the value of new technologies such as AI to help process and categorise citizen input, but state that they must be used carefully and evaluated.

Private sector

Private sector technology developers and implementers provide software for different participatory processes, enabling technology-supported citizen participation. Three types of actors can be identified in this role: (i) developers that provide a wide set of services, such as e-Agora; (ii) developers that provide software as a service for a specific process (for example a consultation or an online voting process), such as OsOigo, Kuorum and Appsamblea; and finally (iii) companies that implement the open-source platforms Decidim and Consul. These companies offer implementation, customization, technical support and training services, ensuring that participatory platforms are adapted to the specific needs of each community or city council (e.g. Democrateam, Enreda, PokeCode or Colectic).

Many companies across the ecosystem provide consulting services for the implementation of citizen participation processes, addressing and complementing public sector needs and capabilities. These include Deliberativa, Ibatuz, PR4, EIDOS, Novadays.

Start-up accelerators play a crucial role in promoting innovation in citizen participation by supporting tech startups for citizen engagement and open government. Gobe, an innovation studio specializing in Govtech, puts its focus on public-private collaboration to drive digital transformation in the public sector.

Private sector actors identify, in the Systemic Mapping Survey, access to sustainable funds (53%) and public contracts, level of public awareness of the field (53%), rules and procedures dictated by regulation (47%), and level of political support (44%) as key challenges to their work. Public procurement processes often hinder small companies' participation.

Private sector organisations are most active in using, developing, and considering new technologies, playing a key role in exploring how they can be applied. Three quarters of private sector respondents of the survey are actively using, developing, or considering open source, while over half are actively using, developing or considering generative AI and cloud computing.

Academia

Academic actors conduct research, provide expert advice for participation, and play a key role to bridge research and practice in citizen participation. They identify gaps, challenges, and opportunities within the ecosystem and play a key role in Spain's Open Government Forum. Key actors include public research institutes like the Institute of Government and Public Policy (IGOP) and independent groups like GIGAPP and the NovaGob Foundation.

Academia provides services, such as training, solution development and implementation support. For example, the National University of Distance Education (UNED) delivers courses for public servants, while the Centre of Innovation in Technology for Human Development at UPM collaborates on participation methodologies.

For academic actors, collaborating with others in the ecosystem stimulates new ideas and perspectives (76%), provides access to expertise (61%), and enables the development of key connections with government officials (61%), as expressed in the Systemic mapping Survey. Key barriers include access to funding (63%) and regulatory procedures (55%). Interviews revealed challenges such as low public motivation to participate and resistance to citizen participation within the public administration.

Academic actors actively develop new technological applications, with Generative AI and natural language processing being most explored (38%). They acknowledge the transformative impact of digital platforms on citizen participation but note a shift from technological optimism to apprehension in the field. Key actors exploring emerging technologies include the Internet Interdisciplinary Institute (IN3).

Civil society

Civil society organisations provide key technological tools and support. Organisations such as Consul and Decidim, originating in Madrid and Barcelona respectively, develop and provide open-source technology for participatory processes under non-profit organisation schemes. They face challenges in sustainable funding and governance due to their open-source, free-to-use model.

Civil society organisations provide citizen-centric consultancy and support for citizen participation. They include actors such as Deliberativa, a non-profit association that specializes in the design and facilitation of participatory and deliberative processes, and Platoniq Lab, which offers tools that facilitate collaboration between social actors and combine creativity and technology to solve community problems.

Civil society organisations play a key role in promoting innovation in citizen participation and open government. Organisations such as Political Watch, and Civio promote transparency and accountability in Spain and undertake monitoring and analysis of public sector activity, providing tools that enable citizens to access and assess public information. Actors such as Arantzazulab and Red CIMAS convene and support actors to explore new approaches for collaborative governance and strengthen capacities for citizen participation. The Open Government Forum, consisting of members from civil society and the public administration, has established communities of practice to share good practices for citizen participation. Cotec Foundation provides research and advice to public and private sector entities to promote technological innovation.

Specific citizen associations are represented by dedicated civil society organisations, empowering them and acting as mediators with the public administration. They include neighbourhood associations, youth associations and groups based on specific identities. They are often convened by larger confederations, such as the CEAV (State Confederation of Neighbourhood Associations).

Key challenges for civil society are funding (69%), access to data (54%) and rules and procedures dictated by regulation (54%), according to their answers to the Systemic Mapping Survey. Interviews reveal additional concerns with organisational culture and capabilities in the public sector, a lack of political support and challenges resulting from a lack of co-ordination.

About half of CSOs surveyed are using or considering AI and open-source technologies. They approach new technologies cautiously, emphasising democratic and transparent implementation.

Box 2.2. Citizens' viewpoints: Spain

This project engaged young people in Madrid (aged 18-29) through an in-person workshop to understand the drivers and barriers they experience with citizen participation. These citizens explained that they find that digital tools for citizen participation make democratic engagement easier.

However, they shared experiences of poorly run citizen participation processes which damage trust in government and motivation to contribute. Limited information about citizen participation processes, goals, and how their input will be used, causes them to feel sceptical that their contributions will lead to genuine outcomes.

2.2.3. Areas of opportunity for public authorities to enhance the use of emerging technology for citizen participation

- **Adopt a strategic direction and clear goals:** Actors indicate that while there are many initiatives, the ecosystem driving emerging technologies for citizen participation is segmented and lacks a cohesive direction. Spain's V Open Government Action Plans could be leveraged to promote national level goals with an enhanced focus on innovation for citizen participation.
- **Set rules and standards for technology use:** CSOs can help governments to set guidelines which ensure that citizen participation is undertaken in alignment with democratic principles and designed in an inclusive and citizen-centric manner.
- **Enhance information flows and feedback loops:** Declining trust in government institutions and low participation rates could be addressed by enhancing transparency and feedback mechanisms to demonstrate how citizen input influences decision-making.
- **Build capacities and mindsets in the public administration:** Actors identify a lack of capabilities and support in the public administration as barriers to innovation in citizen participation. Government entities like HazLab, LAAB and LIP/INAP have the potential to build capacities and a culture of citizen engagement through knowledge sharing and support.
- **Establish sustainable funding mechanisms:** Critical platforms for the use of technology in citizen participation face uncertainty in funding. Commitment to funding or support to establish sustainable funding models could secure these important shared infrastructures.
- **Strengthen and expand the ecosystem structure:** Collaboration and co-ordination across silos in the public administration and the wider ecosystem could be supported by strengthening the roles of the Open Government Forum in coordinating and evolving citizen participation initiatives across different levels of government.

2.3. The Netherlands

The Netherlands has a strong culture of collaboration and consensus building, but trust in institutions has been decreasing and polarisation is a concern for many. The 'polder model', a collaborative approach for consensus building deriving from the historical necessity of managing polders (land reclaimed from the sea) is an important foundation of Dutch politics and society. Despite this collaborative culture, most Dutch people are concerned about political polarisation, with three quarters of Dutch citizens believing that it is increasing (SCP, 2022[37]). In 2023 44% of Dutch people in 2023 reported high or moderately high trust in

the national government, representing a 5% decrease since 2021 (OECD, 2024[38]). A key issue contributing to this distrust are past experiences where citizens feel their input has been solicited but not genuinely considered in decision-making processes.

The government of the Netherlands has been taking steps to enhance participation. Recent laws like The Environment and Planning Act and The Strengthening Participation at the Decentralized Level Act set new expectations for citizen participation. The Kenniscentrum voor Beleid en Regelgeving (Knowledge Centre for Policy and Regulations) shares information about how to start a participation process for government organizations, based on the work of the Kennisknooppunt Participatie (Knowledge Hub for Participation), established by The Ministry of Infrastructure and Water Management (I&W). In 2021, citizenship education was added to school curricula, promoting democratic values and participation skills (Government of the Netherlands, 2021[39]). In addition, the OECD mapped 22 deliberative processes in the Netherlands, including an ongoing National Citizen Assembly on climate change (OECD, 2023[15]).

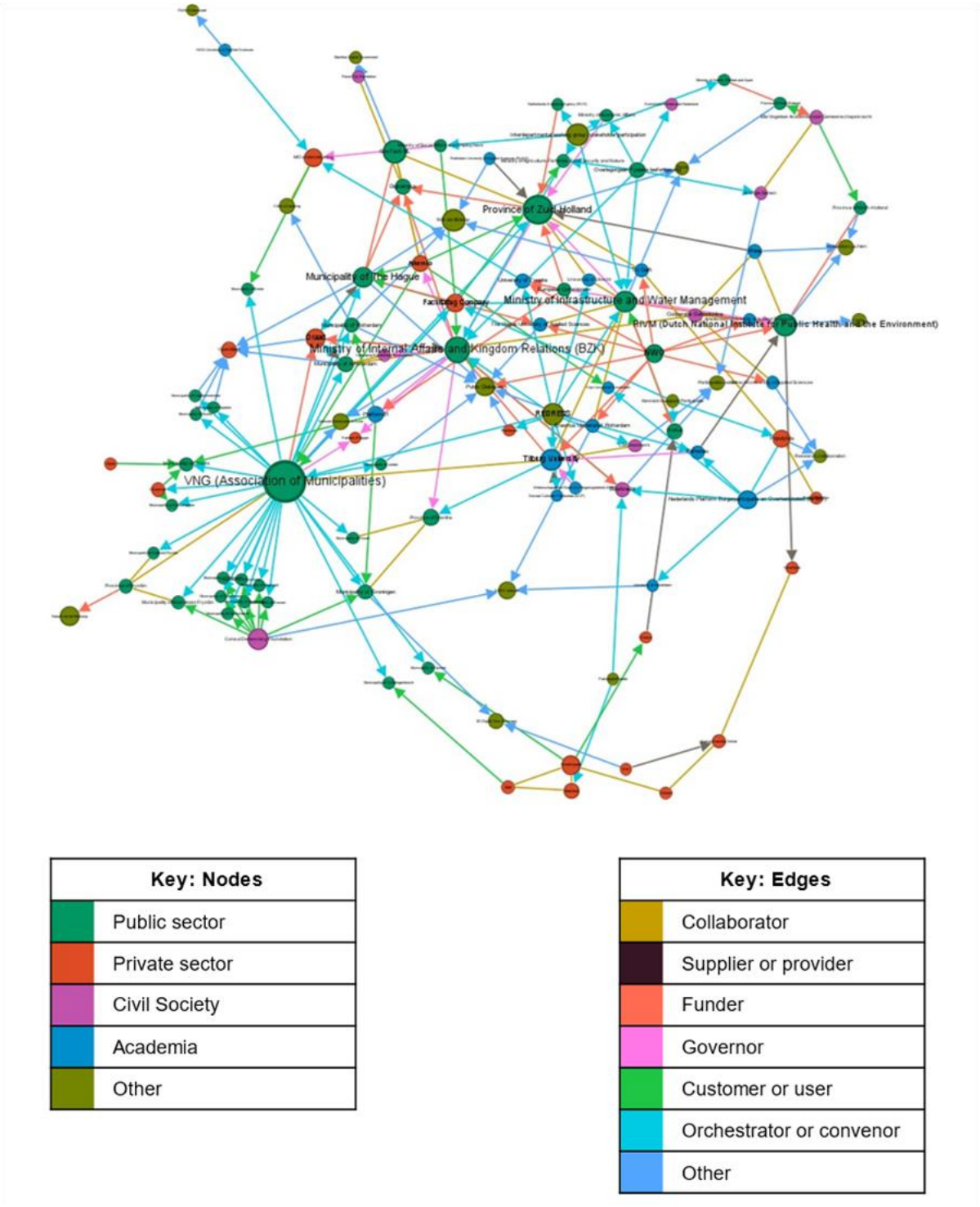
The Netherlands supports a high level of technological innovation and digitalisation, including in citizen participation. The Netherlands ranks third on the Digital Economy and Society Index, and fourth in use of digital public services or e-government (European Commission, 2022[40]), reflecting the country's digital infrastructure, level of digital skills, and the quality of digital services provided by the government. This technological foundation supports innovation in citizen participation. Strengthening citizen participation with digital tools' is a commitment in the most recent Open Government Action Plan. To achieve this, the Ministry of the Interior and Kingdom Relations (BZK) is committed to developing the tool Pol.is for national use (Ministry of the Interior and Kingdom Relations, 2023[41]). A wide range of other tools and techniques for citizen participation are available, including platforms like OpenStad and Consul.

Nonetheless, citizens in the Netherlands have concerns about the development of new technologies and their application by government. Trust in the government's handling of personal data has significantly declined, dropping from 32% in 2018 to 19% in 2023 (KPMG, 2023[42]). A key factor in this erosion of trust is the child benefits affair, where thousands of parents were wrongfully accused of fraud based on algorithms, resulting in severe financial and social consequences. Additionally, 52% of Dutch citizens express concerns about the rise of AI and algorithms, particularly regarding privacy (KPMG, 2023[42]). In this sense, the Netherlands performance in terms of open data and openness by default ranks at 16th, just below OECD average, occupying the 22nd position on overall Digital Government Index (OECD, 2024[23]).

2.3.1. Configuration of the Netherlands' innovation ecosystem of emerging technologies for citizen participation

From responses to the Systemic Mapping Survey, the following network visualization was generated to showcase the relative position of actors and their specific relationships across the innovation ecosystem of emerging technologies for citizen participation in the Netherlands.

Figure 2.3. Network visualization of the Netherlands' ecosystem for citizen participation and emerging technology



Note: This graph should be seen as a complement to other sources of evidence and analysis. It has been filtered to include only actors with 2 or more connections. Node size is proportional to number of connections identified. Respondents could appear more influential in the network graph by adding a large number of connections. Validation in the study was provided by asking respondents to highlight influential actors in each category of the quadruple helix. Original files can be accessed here.
Source: OECD based on responses to the survey.

The ecosystem for citizen participation and emerging technology citizen participation in the Netherlands is dynamic and involves actors from across the public, private, academic and civil society sectors. Public-sector led initiatives such as Kennisknooppunt Participatie, OpenStad, the Pol.is pilot, and academic projects such as the REDRESS consortium effectively connect diverse actors, stimulate collaboration, and drive the ecosystem forward through activities such as networking events, (citizen driven) research projects, and the development of participatory tools. Private-sector initiatives, such as Populytics, features tools widely accepted by the community and used by the government. Key requirements for their success include funding, commonly shared sense of direction, and the effective integration of technology within well-organised participatory processes.

Co-operation among actors across the ecosystem is supported by shared aims, standards, and norms. Actors across the ecosystem share similar aims, with most survey respondents providing mission statements for their organisations that align with goals to improve citizen participation. Actors throughout the ecosystem identify open source as a norm; this is also government policy: “Software that the government develops (or has developed) must be open source as much as possible” (Ministry of the Interior and Kingdom Relations., 2020[43]). Many actors in the ecosystem prioritise the citizen perspective on the implementation of new technologies, rather than a top-down technological push. There is a strong concern for inclusivity within the ecosystem, with aims to prevent gaps in knowledge and risks associated with technology uses and practices that could be discriminatory. Many are committed to expanding the ecosystem, welcoming anyone interested in participating. This is illustrated by a quote from a public sector representative: "*We just have to ensure that it creates enthusiasm and that we inspire people to do more*."

Nonetheless, there is no dedicated national network to orchestrate all ecosystem actors around citizen participation. The closest to a national entity is the Kennisknooppunt Participatie, an initiative of the Ministry of Infrastructure and Water Management (I&W). Despite having a broad knowledge agenda for 2024 and an extensive network of partners, several interviewees note that this Knowledge Hub focuses mainly on initiatives that do not rely on digital technologies. Consequently, the relevance of the Kennisknooppunt Participatie varies across different actors in the ecosystem. Another example, Network Democracy in Action, engages the Ministry of the Interior and Kingdom Relations (BZK), the Association of Dutch Municipalities (VNG), the professional associations of local government leaders and professionals (council members, provincial councillors, clerks, aldermen, municipal secretaries, and mayors) to innovate and strengthen local and provincial democracy.

Most digital participation platforms and tools in the Netherlands have developed their own specific communities. These include Alkemio, Go Vocal, OpenStad, Polis, Smart Citizen, and Smarticipatie. These communities typically organise on their platforms or through tools like Slack to exchange ideas, share knowledge, and provide technical support. Interaction between these specific communities is relatively limited because most users, except larger municipalities with more budget, typically use only a single platform.

Only a minority of the Systemic Mapping Survey respondents are actively using, developing or considering the applications of emerging technologies. The most frequently used technological standard is open source, with 24% of organizations actively using or developing it, and 19% considering its applications.

The second, third, and fourth positions for used technologies are all AI-related, indicating strong interest and activity in AI applications among organizations. Interviews highlight AI's specific uses, such as analysing feedback, assisting in policymaking by creating personas for citizens to participate virtually, and simplifying texts so that they are easier to understand. Commonly used tools include ChatGPT and platforms from companies like Go Vocal, Alkemio, and Dembrane. Digital Twins, AR, and VR are identified as supporting participation regarding the physical environment.

Actors across the ecosystem feel that the government could promote innovation in citizen participation through clearer direction and sustainable funding. 41% of survey respondents identified the development of national agendas, strategies, and plans as a key priority for government to stimulate the ecosystem for

citizen participation and emerging technology. Clearer direction on what constitutes high quality participation (for example through a quality mark from the Ministry of Interior and Kingdom Relations (BZK) or the Association of Municipalities (VNG) could set standards and promote innovation. Sustainable funding for open-source initiatives and framework agreements detailing the roles of different organisations in the maintenance of long-standing initiatives like OpenStad are also identified as missing elements of the governance of citizen participation in the Netherlands.

Table 2.3. Ecosystem roles in the Netherlands

Role	Key actors and contributions
Strategic Leadership and Governance	• The **Ministry of the Interior and Kingdom Relations (BZK)** is responsible for policy on democracy and citizenship in the Netherlands, wielding significant influence through its control over legislation and grants. **The Ministry of Infrastructure and Water Management (I&W)** also plays a strong role in setting standards and expectations for citizen participation. • **Funding** for citizen participation initiatives, programmes and tools is provided by **public actors** at the upper levels as well as cities and regions that commission and undertake citizen participation initiatives.
Operational Implementation	• **Provinces and municipalities**, which are the end-users of citizen input, are responsible for the majority of operational implementation. • The Government often procures a wide selection of **participation consultants to support participatory processes**, who may come from the private or civil society sectors and support public administration to design and manage participation initiatives. Tool providers can also provide broader insights on participatory processes. • **Technical implementation** may be provided by private, civil society and public actors that are independent from the provider of the tool they deploy.
Community Engagement and Representation	• Citizen engagement is undertaken by **civil interest groups in civil society**. Civic organizations, such as Waag Futurelab and LSA citizens, support with inclusion.
Technology Innovation and Provision	• Citizen participation tools employing technology are developed and provided by **private sector actors** such as Populytics, Go Vocal, Mett, and Maptionnaire, **civil society organisations** like Consul, and by the **public sector** in the form of OpenStad.
Capacity Building and Knowledge Management	• Academic contributions to collaboration and experimentation come from universities in Delft, Tilburg, and Rotterdam (EUR), with Tilburg University notably leading the **REDRESS consortium**. • **Kennisknooppunt Participatie** has been established to share knowledge and experience on citizen participation. • **Digicampus** and **GovTech NL**, initiatives that combine academia, private and public sector, serve as capacity builders uniting different sectors' approaches with a focus on co-creating solutions.
Ecosystem Development	• Ecosystem Development in the Netherlands is performed by actors across sectors, with **VNG** and the **Kennisknooppunt Participatie** leading in the public sector, while platforms and tools maintain their own communities that can have international reach. • **GovTech NL**, the civic innovation lab focusing on developing a professional community for innovation of civic government, acts as key network point for the civic innovation community.

2.3.2. Ecosystem actors: roles, contributions and experiences

Public sector

Ministries play a crucial role as funders and regulators of citizen participation processes. The Ministry of the Interior and Kingdom Relations (BZK) is responsible for policy on democracy and citizenship, hosting a dedicated Directorate of Democracy and Governance (DenB) and overseeing the Netherlands' Open Government Partnership Action Plans (Open Government Partnership, 2022[44]), which include commitments for digital democracy, open source development and the professionalisation of participation. The Ministry of Infrastructure and Water Management (I&W) has a dedicated directorate for participation and is developing a knowledge hub (Kennisknooppunt Participatie).

Municipalities are the most prominent initiators and 'end users' of input from citizen participation, providing opportunities and funding for innovative approaches. The municipalities of The Hague and Amsterdam are

forerunners in citizen participation. Amsterdam pioneered the development of OpenStad, a digital participation platform in 2016, which was adopted by The Hague in 2019. The South Holland Municipality envisaged four scenarios for the future on the integration of citizen participation and emerging technologies, such as AI, reflecting on the potential of the use of digital platforms for citizen participation. In general, municipalities employ one of four approaches to apply digital technologies to citizen participation:

1. Using all-in-one closed platforms managed by companies like Go Vocal (formerly known as CitizenLab).
2. Developing their own closed tools, such as Rotterdam and Eindhoven.
3. Developing or using open-source platforms like OpenStad or Consul
4. Primarily using an open-source tool but occasionally integrating specific or proprietary tools and techniques like Populytics or Swipocratie.

The Association of Dutch Municipalities (VNG) plays a crucial connecting role, gathering knowledge, sharing information, and managing complex aspects of digital participation technologies.

Key barriers in the public sector include lack of strategic direction, continuity, skills and capacities, and commitment to participatory practices. In accordance with Systemic Mapping Survey respondents, public sector organisations face barriers to developing and implementing emerging technology for citizen participation such as security of data and privacy protection (79%), regulatory rules (64%), administrative capabilities (36%), and levels of public trust (36%). Respondents pointed that public administration could further prioritise meaningful participation, which was often perceived to be curbed by efficiency reasons. Initiatives like OpenStad struggled to establish sustainable governance and funding models.

Public sector organisations lag behind others in their adoption and exploration of emerging technologies. Respondents from public sector organisations are the least likely to state that they are actively using and or developing or considering applications of the technologies polled (13% on average versus 18% across all sectors). The most frequently used are Open Source, Generative AI, Machine Learning, Digital Twins, Cloud computing and Internet of Things.

Private sector

Private sector platform and technology providers play a key role developing, implementing and testing new digital solutions for citizen participation. They create specialised tools and platforms, often combining them with consultancy services. Populytics stands out as a significant actor, operating the Wevaluate platform based on research from TU Delft. Other key providers include Mett, Go Vocal, and Alkemio. Other private sector organisations contribute to the development and implementation of citizen participation initiatives but are not central to the ecosystem. These include big tech companies, engineering firms, and design agencies.

Private sector consultancies offer advice and support with the facilitation of participatory processes. These organisations, such as Smarticipatie and Facilitation Company, use a range of platforms and approaches to support the public sector.

For private sector organisations data security and privacy protection (74%) and rules and procedures dictated by regulation (67%) are primary barriers, as stated in responses to the Systemic Mapping Survey. The most significant enabler for them is the ability to engage with governments and officials (63%). A large majority of private sector actors engage with others in the ecosystem to access new ideas and perspectives (88%) and seek improved recognition and public profile for their work (59%), connections with government officials, contacts with customers and access to expertise (56%).

Private sector organisations are the most likely to be actively using and/or developing or considering applications of emerging technologies (23% on average versus 18% across all sectors). In this respect,

they play an important role in contributing practical knowledge for the application of new technologies to citizen participation.

Academia

Academic actors explore and develop new approaches and tools for citizen participation using emerging technology. TU Delft hosts influential researchers, with the Participative Value Evaluation (PVE) method having a significant impact. The Hague University of Applied Sciences focuses on emerging technologies for citizen participation, including VR. Additionally, HHS is developing the platform Public Dialogues, an online participation platform that enables residents to interact, exchange ideas, and discuss various topics.

Academic actors contribute evidence-based guidance for citizen participation initiatives. The Rathenau Institute produces research reports on improving democracy through technology. The REDRESS project, undertaken by a consortium of four universities (Tilburg University, Radboud University, Utrecht University, University Twente) and the Netherlands Institute of Social Research is investigating hybrid democratic innovations.

Alongside universities, think-tanks and research organisations contribute to the development and implementation of citizen participation. These include the Nederlands Platform Burgerparticipatie (NPBO) and Platform31.

Actors from academia primarily seek funding and new ideas and perspectives (79%) and connections with government officials (67%). Further results from the Systemic Mapping Survey show that access to funding is a significant barrier for academic actors (67%). Other barriers identified are rules and procedures dictated by regulation (67%) and security of data and privacy protection (56%).

Academic actors stand out as considering cutting edge technologies, exploring applications that are not yet confirmed in their effectiveness and marketability such as Digital Twins and VR or AR (44.4%). Like other sectors, actors in academia are likely to be using and exploring Open-Source standards and Generative AI, but they are unique in exploring Digital Twins and VR or AR with such high frequency and could provide expertise in this area.

Civil society

Civil society networks and advocacy actors help citizens to connect and build communities. Organizations like Buurkracht, National Collaboration of Active Citizens (LSA), and Collectieve Kracht support citizen initiatives and generate motivation for civic engagement. Interest groups based around specific topics, professions and localities are often invited to contribute to consultations on relevant government policy and activity.

CSOs support in technology development, deployment and maintenance. Waag explores technology's role in society, managing Code for NL and investigating how residents can use technology to take ownership of their environment and collaborate with the government. The Consul Democracy Foundation manages a community around the Consul open-source participation platform.

CSOs are more likely to be using or exploring privacy preserving technology and cybersecurity than actors in other sectors. While CSOs follow the trend of using and considering Open Source and Generative AI, they are unusual in their use of privacy preserving technology and cybersecurity, reflecting their concern for the preservation of citizen safety and rights.

CSOs seek to improve their access to information and connections with stakeholders, but they face relatively few barriers compared to other sectors. CSOs seek information and support for collaboration with other stakeholders (both 75%), as well as connections with government officials, access to funding, access to expertise, new ideas and perspectives (62.5%). Some technology projects such as Consul highlight

challenges in establishing sustainable funding and governance models for the maintenance of open-source software.

According to interviewees from CSOs, citizens often lack trust in technologies, hindering adoption and effectiveness in citizen participation. This mistrust stems from negative past experiences, such as COVID QR scanning and lack of digital literacy. However, new technologies like ChatGPT are being adopted by citizens to articulate opinions, write proposals and engage with public administration, often outpacing official implementation.

Multiple-helix actors are also present in the Dutch context. Initiatives such as Digicampus or GovTech NL are at the junction of the quadruple helix: they combine public, private, civil society and academic approaches to co-create innovative and inclusive solutions to societal issues, such as embedding citizen participation in government through technology.

Box 2.3. Citizens' viewpoints: The Netherlands

This project engaged university students through an in-person workshop in the Hague to understand the drivers and barriers they experience for citizen participation. Following the user-driven prototyping method from Digicampus, students were asked to identify the pain points of citizen participation and prototype a possible (digital) solution to solve the issue. Key issues highlighted were a lack of confidence to contribute on a topic due to lack of knowledge, the time commitment of participation, and a lack of awareness about participation opportunities.

2.3.3. Areas of opportunity for public authorities to enhance the use of emerging technology for citizen participation

- **Adopt a strategic direction and clear goals:** Actors indicate a lack of strategic direction and continuity on citizen participation within the public administration. National levels of administration, such as BZK, could address this by establishing clear national objectives for innovation in citizen participation and quality standards for citizen participation processes, in particular using emerging technologies.
- **Set rules and standards for technology use:** To address challenges concerning public trust in the use of technology by the administration, transparent guidelines and public education on the use of AI and algorithms in citizen participation processes, developed in partnership between the public administration and CSOs, could increase public awareness and acceptance on responsible and purpose-led technologies.
- **Enhance information flows and feedback loops:** A lack of information and feedback loops on opportunities for citizen participation and the impact it has on decision making can dissuade public engagement. Systems to evaluate and clearly communicate the outcomes and impacts of citizen participation initiatives to citizens could address this. A clear evaluation framework and examples of good practice in citizen participation can ensure that initiatives are effective and inclusive, using networks like VNG and Kennisknooppunt Participatie to disseminate knowledge.
- **Build capacities and mindsets in the public administration:** Actors identify a lack of capabilities on open collaboration, technology use and design of participation processes, and support in the public administration as barriers to innovation in citizen participation. Kennisknooppunt Participatie is intended to support the consolidation and sharing of knowledge and skills on participation.

- **Establish sustainable funding mechanisms and frameworks for collaboration:** Actors mention challenges in establishing sustainable governance and funding models for initiatives. Framework agreements for engaging suppliers and the long-term maintenance and development of citizen participation platforms can facilitate collaboration and development across the ecosystem.
- **Strengthen and expand the ecosystem structure:** Kennisknooppunt Participatie is developing a nation-wide network for knowledge sharing and could be supported to cover a broader range of citizen participation topics beyond the physical domain. GovTech NL is a collaborative initiative aiming to be the professional community for innovation of civic government and could prove an important hub to foster ecosystem's capabilities through its supportive platform, programs and facilities for innovation and development of civic technologies.

Notes

1 Comparison across the three countries reveals five common categories of roles within innovation ecosystems for public participation:

1. Strategic Leadership and Governance covers the high-level roles that shape the overall direction and rules and expectations for public participation. These include setting strategic direction, regulation, funding, and impact assessment.

2. Operational Implementation includes the hands-on roles involved in executing participatory processes and managing the associated data. These include the facilitation of participatory processes, technical implementation, and data management.

3. Community Engagement and Representation focuses on the roles that directly interact with and represent citizens and communities. These include citizen engagement, advocacy and representation and trust-building.

4. Innovation and Knowledge Management encompasses roles related to developing new tools and approaches, creating, and disseminating knowledge, and building capacity among stakeholders. These include tool provision and development, innovation and experimentation, knowledge creation and capacity building.

5. Ecosystem Development addresses roles that focus on building connections between actors, sharing knowledge and experiences and expanding successful initiatives. These include network building and scaling and replication.

3 What can governments do to improve innovation in citizen participation using emerging technology?

The chapter offers a concluding analysis of the innovation ecosystems in Portugal, Spain, and the Netherlands, highlighting key factors that support and challenge the use of emerging technologies for citizen participation. It examines the role of digital infrastructure, multi-stakeholder collaboration, and local government leadership in fostering innovation. It also identifies shared challenges, such as inconsistent funding, digital inclusion, and capacity gaps in the public sector. The chapter concludes with actionable recommendations for governments, drawing on lessons from the three countries, and proposes avenues for future research to further advance citizen participation using emerging technologies.

Innovation in citizen participation in Portugal, Spain and the Netherlands is supported by a strong digital infrastructure, multi-stakeholder collaboration, and extensive experimentation at the local level. All three countries have digital infrastructures, providing a foundation for technology-enabled citizen participation. Multi-stakeholder collaboration between the public sector, private sector, academia, and civil society in platforms, such as the Open Government Fora, and individual initiatives across all the countries is a vital enabler of innovation and knowledge generation in citizen participation, with each sector playing key roles to develop new approaches and ensure participation is inclusive and effective. Open-source standards in the development of technology, enabling transparency and community building around digital platforms, is a key principle in each country. Finally, in all the three countries, it is municipalities and local governments that are driving innovative initiatives in citizen participation.

In their innovation ecosystems for citizen participation, the three countries share common challenges including a lack of strategic direction, trust in government, sustainable funding, digital inclusion, and capacities in the public administration. All three countries face challenges in setting clear, sustained, national-level strategic direction and guidance for citizen participation initiatives. This results in disjointed efforts and inconsistent approaches across different levels of government. Declining trust in government institutions and the potential misuse of technology are shared concerns, potentially hampering the effectiveness of citizen participation efforts and innovation in the field. Inconsistent and unsustainable funding for open-source digital participation platforms and innovative methods creates uncertainty and inhibits collaboration and innovation. While the degree varies, all three countries face challenges in ensuring that digital participation tools are accessible and usable by all segments of the population. Finally, a lack of capabilities and capacities to design and facilitate citizen participation in the public administration means that initiatives are not always effective or well communicated and can result in negative experiences for participating citizens.

The countries differ in the actors initiating and promoting citizen participation initiatives, the structure of their ecosystems, their use of technology and levels of digital literacy. In Portugal and the Netherlands, the public sector, particularly at the municipal level, is the primary driver of citizen participation. In Portugal, central government entities, notably AMA, play a prominent role encouraging and supporting effective citizen participation and innovation in the field, and there are few private sector actors working on citizen participation. In Spain, civil society organisations play a more dominant role alongside local governments to stimulate innovation in citizen participation, with the Open Government Forum acting as an important coordinator between sectors at the national level. The ecosystem in the Netherlands has more consolidated practices in terms of exchanges across sectors, continuation and regularity of initiatives, and the intensity and proactiveness of private actors, with public sector institutions like Kennisknooppunt Participatie and initiatives like OpenStad providing anchors for collaboration.

Spain and the Netherlands have more widespread and consolidated use and development of digital participation tools than Portugal. This aligns with their higher rates of digital literacy and internet usage as well as the presence of more technology developers working in the field, particularly in the private sector and civil society. While actors in all three countries highlight sustainable funding as an issue, for Spain and the Netherlands it is specified as more of a challenge for established initiatives aiming to innovate in citizen participation, while in Portugal it is identified as an issue for start-ups and civil society organisations. Similarly, Portugal stands out among the countries as identifying the small size of its market as a barrier for scaling innovations and necessitating greater international collaboration.

Drawing on the experiences of Portugal, the Netherlands, and Spain, Table 3.1 identifies key lessons and proposes actions for governments to enhance innovation ecosystems for citizen participation and emerging technology. Proposed actions are often associated with concrete examples of good practices from the three countries under consideration.

Table 3.1. Lessons and actions

Lessons	Proposed actions
1. Call for clear national strategic direction to unify current disjointed efforts to enhance citizen participation with emerging technology .	• Providing clear **goals**, such as through a dedicated national strategy, supported by **tools and guidance**, could help to improve alignment and support collaboration to enhance citizen participation with emerging technology. • Portugal's Guiding Principles and Spain's Open Government Action Plans provide a model for setting national objectives and guidance but could go further to establish a clear focus on technological innovation for citizen participation.
2. Innovation in citizen participation are largely driven by local governments	• **Network organisations** that provide support to public administrations at the local level can help them to drive innovation, share their knowledge and experiences and enable good practices to be replicated and scaled. • The Network of Participative Municipalities (RAP) in Portugal, supports knowledge sharing and gives an annual award for Good Participation Practices, while the VNG in the Netherlands manages aspects of digital participation technologies that are too complex for individual municipalities, such as maintaining the codebase for open-source tools
3. National ecosystem-wide bodies which coordinate actors and promote good practices can support innovation and successful implementation of citizen participation initiatives using emerging technologies	• **A co-ordination structure**, such as the Netherlands' Kennisknooppunt Participatie, presents a model that could be expanded or adapted to promote good practices, support co-ordination, and set shared frameworks for evaluation.
4. Innovation in citizen participation is inhibited by a lack of public sector capabilities to facilitate initiatives and implement new technologies	• **Experimentation labs** that conduct experiments, provide training and develop guidelines. can help to enhance public sector capabilities. Portugal's LabX and Spain's HazLab present promising models.
5. Inconsistent funding for citizen participation tools and initiatives creates uncertainty that inhibits collaboration and the exploration and development of innovations	• **Sustainable funding mechanisms** connected to clear strategic goals can ensure that innovative approaches continue to be supported, developed and iterated.
6. Shared standards and a commitment to open source enable effective collaboration and the adaptation of tools to different contexts.	• **Setting shared standards**, such as the Netherlands' commitment to open source, can facilitate collaboration, interoperability, and innovation. Spain's success with Decidim and Consul, which have been adopted internationally, further demonstrates the potential of open-source tools.
7. Innovation in citizen participation is enabled by multi-sectoral collaboration and exchanges	• **Establishing networks and initiatives** that promote cross-sectoral collaboration and knowledge exchange on citizen participation and emerging technologies enables new perspectives and ideas to be shared and acted upon.
8. Technology should be itself developed in an inclusive, responsible and participated way, with its applications to citizen participation subscribing to democratic values	• **Ethical guidelines and guardrails** for the use of AI, blockchain, and other emerging technologies in citizen participation developed in collaboration with CSOs can help to ensure that these initiatives are inclusive and aligned with democratic values. • **Focus on an inclusive approach** through ensuring accessibility of all citizens, engaging in diverse outreach strategies to communicate with diverse profiles (e.g. demographic), message tailoring to resonate to different cultural and social contexts, and partner with community leaders and organizations to connect with hard-to-reach groups. • The AI Portugal 2030 strategy, which aims to modernise the administration through the ethical use of AI (OECD, 2023[15]), presents an interesting approach

Lessons	Proposed actions
9. Citizens require reassurance about how their input is used in decision-making	• **Clear feedback mechanisms** that demonstrate how citizen input influences decision-making can give citizens the confidence and motivation to participate. • This need was highlighted by experiences across all countries where citizens feel their input isn't genuinely considered.
10. International collaboration provides opportunities for knowledge sharing, improvement and scaling.	• **International institutions** like the Open Government Partnership and IOPD have provided knowledge and direction for a wide range of actors working on citizen participation. For private sector actors, global engagement opens possibilities for scaling and incentivises continued development.

Looking forward, there are five immediate avenues for further exploration:

1. Investigating the **long-term impacts of different participatory approaches**, including those employing emerging technologies, on trust in government and civic engagement would provide valuable insights for policymakers and support the adaptation and scaling-up of good practices.
2. Exploring **how emerging technologies like AI and blockchain can be effectively and ethically integrated into citizen participation processes while ensuring inclusivity** is a critical area for future research.
3. Studying the **effectiveness of approaches to build capacity for managing and evaluating participatory processes and increase awareness of the value of citizen participation** in the public administration could help address the capability gap identified across the three countries.
4. Examining how **international collaboration and knowledge sharing can be further enhanced to accelerate innovation** in citizen participation methods and technologies presents an important opportunity for advancing the field.
5. **Fine-tuning and consolidating the use of systemic approaches** to understand innovation ecosystems, building on the methodology used in this study, can bring governments robust and relevant insights to design, implement and evaluate policies targeting the improvement of citizen participation with emerging technologies.
6. As emerging technologies transform society and the public administration, ongoing research and experimentation will be crucial to ensuring that participatory processes remain effective, inclusive, and aligned with democratic values. By learning from the experiences of Portugal, Spain, and the Netherlands, and continuing to explore new approaches, policymakers and practitioners can work towards creating more robust and responsive democratic systems that meaningfully engage citizens in the decision-making processes that shape society around them.

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Annex A. Methods

The research carried out in this study explores the innovation ecosystems of emerging technologies for citizen participation with three objectives:

1. Define the actors, resources, and enablers that are part of the ecosystems for citizen participation and emerging technologies in Portugal, Spain and the Netherlands.
2. Assess the processes and interactions within these innovation ecosystems in Portugal, Spain and the Netherlands with a view of understanding how they impact on the access, use, generation, and scaling up of emerging technologies for citizen participation.
3. Provide governments with actionable insights about opportunities to enhance innovation ecosystems for citizen participation and emerging technology in the three countries.

Using a mixed-methods research that employed desk research, surveys (Systemic Mapping Survey), interviews, and workshops, this study offer the opportunity for an in-depth analysis of the innovation ecosystems at the national level, while ensuring methodological consistency that enables a comparative assessment of effective practices and common challenges. This evidence based approach points out concrete actions that governments can take to boost the innovation and adoption of emerging technology for citizen participation.

The techniques and instruments combined in this methodological approach include:

- **Desk research** conducted in each country to initially identify actors, communities, and networks. It was used to explore the innovation, cultural, business, historical and civic context for technology-supported citizen participation in each country.
- **Digital survey (Systemic Mapping Survey)** of organisations, communities, and networks in each country gathered information about actors' practices, roles and resources; linkages between actors and the surrounding environment; the value chain; and the political, economic and innovation environment. The survey was drafted in English and translated into Portuguese, Spanish and Dutch for respondents to choose their language. It was open from May to July 2024. Responses to the survey were used to undertake social network analysis in order to generate an overview of interactions between actors (see Table A A.1)

Table A A.1. Survey respondents

	Public sector	Private sector	Civil society	Academia	Total
Portugal	11	11	11	2	35
Spain	23	36	13	13	85
Netherlands	14	27	8	9	58
Total	48	74	32	24	178

- **Research interviews with 20 key actors in each country** gathered their insights on the roles they play, their relationships with other actors, the value chain for innovation and implementation of citizen participation, and the political, economic and innovation environment and the social, cultural and historical context for citizen participation and emerging technology. Interviewees covered the ecosystem segments defined under the "Quadruple Helix" (see Table A A.2).

Table A A.2. Interviewees

	Public sector	Private sector	Civil society	Academia	Total
Portugal	5	7	6	2	20
Spain	5	5	5	5	20
Netherlands	8	7	2	3	20
Total	18	19	13	10	60

- **Validation workshops** in each country brought ecosystem actors together to validate draft ecosystem maps and participate in an exercise to simulate the interactions between actors. Two 2.5 hour workshops took place in each country, and were held in the Netherlands on 11th and 12th June 2024 at Digicampus in The Hague, in Spain on June 26th 2024 at INAP in Madrid, and in Portugal at AMA in Lisbon on 18th June 2024.
- **Citizen workshops** took place in each country, engaging citizens to share their experiences of citizen participation and co-create prototypes for enhancing citizen engagement in democracy. These followed the user-driven prototyping methodology developed at Digicampus. They were held in the Netherlands at Digicampus in The Hague on 11th June 2024 (7 university students), in Spain on June 27th 2024 at INAP in Madrid (10 participants, aged 18-29), in Portugal in Ibn Mucana Secondary School in Alcabideche on 19th June 2024 (16 participants, aged 18-28).
- **A virtual workshop with EU institutions and actors working internationally on citizen participation** explored the enablers and challenges for citizen participation across the European Union. This took place on 3rd July 2024. The workshop engaged representatives of leading European private sector actors, national public sector organisations, international organisations, civil society, and internationally recognised researchers and experts.
- **Network visualisations** were generated using a specific software (Gephi), allowing for the illustration of the position of relevant actors and their mutual connections in each country with a view of framing and sharpening the analysis of the innovation ecosystems. Original files can be accessed here.

Annex B. Glimpse of the cross-national ecosystem at the European level

While the project is anchored in Portugal, Spain and the Netherlands, networks for innovation in citizen participation extend across borders. Exploratory desk research was combined with an online workshop that engaged key actors working on citizen participation at the level of the European Union to start making sense of cross-border dynamics.

Organisations with international reach such as International Observatory on Participatory Democracy (IOPD), the Open Government Partnership and the JRC's Competence Centre on Participatory and Deliberative Democracy provide platforms for cross-border knowledge sharing and capacity building on citizen participation. International projects stimulate innovation and experimentation in citizen participation. For example, PHOENIX, a project funded by the EU's Horizon 2020 to test context-specific participatory methodologies for green transitions, convenes a multidisciplinary group of 15 partners, including Centre for Social Studies of the University of Coimbra, Oficina and Onesource in Portugal, Spanish National Research Council (CSIC), and University College Groningen in the Netherlands.

From the sources above, Table A B.1 summarises the main factors affecting the development and use of technology for participation at the European level and their impact on this cross-national ecosystem of actors.

Table A B.1. Factors identified by cross-border workshop participants

Factors	Impacts
Political will and openness from decision makers	Most participatory projects emerge from political will to set them up. Support from government is a huge enabler. However, engaging citizens implies, at least partially, delegating the choice to them, losing power; this is challenging to hierarchical, top-down policymaking processes.
Legislative requirements	A requirement and mandate to implement citizen participation (sometimes by regulation) has a profoundly positive impact on the demand for technology for citizen participation.
Successful examples	Demonstrating by example enhances demand for the use of technology in citizen participation.
Public sector capabilities	Public sector needs to build capacities to implement technological solutions.
Sustainability of citizen participation initiatives	Participation initiatives are often run as single shot, which means little opportunities for the supply to offer their services and improve them over iterations.
Funding and procurement	Running technologically enabled participatory projects is expensive and funding is often limited, leading to competition for resources. Public procurement contracts are often not adequate for cross-border collaborations, and they make it difficult for foreign actors to participate.
Digital infrastructure	High technical infrastructure and access in the EU minimises technical issues. However, many governments do not have the infrastructure to host participatory solutions.
Standards and interoperability	Tech standards make it easier to develop cross-border collaborations, simplifying alignment among the actors.
Professionalisation of the sector	Supply actors are more and more organised and institutionalised, making collaborations easier.
Competition for talent	Organisations developing technology for citizen participation cannot compete with big tech companies for talent in terms of salary.
Willingness to innovate	Testing and implementing novel tech for participation solutions is difficult because deliberative processes are often run with traditional methods and there is not always willingness to adopt novelties.
Democratic literacy among citizens	Citizens, especially young people, often lack a clear understanding of how democracy and participation work.

Factors	Impacts
Digital literacy among citizens	Low digital skills, especially of older people, means low incentives to set up tech participatory projects.
Culture of participation	Polities with a tradition of citizen participation are more prone to exploring the adoption of tech to engage with citizens.

Source: OECD based on inputs from the virtual workshop (3 July 2024).

Glossary

Citizen participation encompasses "all the ways in which stakeholders [including citizens] can be involved in the policy cycle and in service design and delivery". This definition encompasses three "levels" of participation, which correspond to the different forms of interactions between citizens and governments: information, consultation, and engagement (OECD, 2017[45]).

Civic Tech means "the use of digital technologies to reinforce democracy by enabling the public to be informed, participate in decision and policymaking, and increase governments' responsiveness and accountability" (OECD, Forthcoming[46]).

Digital Twins consist of digital models of existing or planned real-world places, products, or processes that "are used to model complex systems, often in urban planning, architectural design, manufacturing and training" (OECD, 2025[4]).

Emerging technologies are here defined using a multi-dimensional approach (OECD, 2025[4]) looking at five dimensions (legal, political, social and experiential, economic, and technical) to frame these technologies (instead of trying, for instance, to rely on a pre-defined list of technologies). This multi-dimensional approach encapsulates and responds to the diversity of actors involved in the life cycle of a digital technology, including the public sector, academia, private sector, and civil society. This definition is aligned with the systemic lens used in the present study.

Innovation ecosystems consist of "a network of actors from the private sector, the government and research institutions who work together to develop new technologies, products or services that address shared specific goals" (OECD, 2022[7]). For the purpose of this study, we also look at the significant role civil society organisations play as part of the innovation ecosystem of emerging technologies for citizen participation.

Network organisations are based on webs of relationships among (relatively) independent teams or actors with shared purposes and/or goals. These structures break away from hierarchical, strictly top-down, and/or centralised approaches in organisational governance, adopting instead team-based and distributed structures (Antivachis and Angelis, 2007[47]). An example is the Network of Participative Municipalities (RAP) in Portugal that consists of different municipalities working together in the field of citizen participation.

Open by default "measures openness beyond the release of open data, including efforts to foster the use of technologies and data to communicate and engage with different actors" (OECD, 2024[23]).

Proprietary Technology is one or any combination of processes, tools or systems that are the property of an individual or business, patented or otherwise, that require some form of permission from the owner to be used by third parties. An example of such technologies, include software where permission is granted through the purchase of a license.

OECD Public Governance Reviews

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