ESPON

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FINAL REPORT //

Digital maturity of local and regional governments, 2024

Key observations from LORDIMAS results

Report // December 2024

LORDIMAS

LIVING-IN.EU



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This document is a final report.

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1 Introduction

The digital transformation in the European public sector organisations is well under way and picking up speed. It is changing the ways in which governments operate, services are provided, and knowledge and value are generated. The public sector is inevitably being required to address the growing complexity of challenges and the increasing demands of citizens, who expect more empathetic, flexible, agile and innovative services that respond to their specific needs and wishes.

At the same time, there are growing constrains to the budgets and capacities of the local and regional governments - shrinking working age population, tax base and budgets, competition for skills and labour, addressing climate change and economic instability, to name a few. Furthermore, our public sector organisations are shaped by their history, local context and legacies of isolated and siloed 'brick and mortar' administrations.

The EU provides significant support and funding for public sector digitalization through various mechanisms. Key initiatives include the Digital Europe Programme[1], which allocates substantial funding for projects that enhance digital infrastructure, cybersecurity, and advanced digital skills. The Recovery and Resilience Facility[2] also provides significant financial support for member states to implement digital transformation initiatives as part of their national recovery plans. Additionally, the EU funds research and innovation in digital technologies through programs like Horizon Europe[3], fostering the development of cutting-edge solutions for public sector challenges. These initiatives aim to equip public administrations with the necessary resources and expertise to effectively navigate the digital transition and deliver better services to citizens. It is important to ensure that these investments have the potential to deliver the best possible value to all citizens.

The landscape where these EU policies and initiatives will have to have an impact on is fragmented, complex and diverse. There are approximately 90 000 local and 250 regional governments in the EU and EFTA countries, each tasked to provide similar services and support to their citizens, with its own, largely duplicated digital infrastructure and processes. Hence, digital transformation necessitates strong cooperation between public administrations to achieve scalability, interoperability, and cost-effectiveness. Collaboration is essential for optimizing resource utilization, facilitating knowledge and best practice sharing, and promoting the seamless exchange of digital infrastructure and services. By working together, public administrations can avoid the inefficiencies and costs associated with duplicating efforts or reinventing solutions that already exist elsewhere.

To understand the complexity behind the interplays between EU policy objectives and the realities and the context on the ground, we need data. However, there are very few harmonised and comparable indicators being collected or produced that cover the local level across the bloc. Much of the current monitoring of digital transformation is carried out only at regional or national level only. For instance, the level and progress of Europe's digital performance is measured regularly, but only at the Member State level[4]. A strategic and targeted approach to monitor and measure what is happening at local and regional levels, is still largely missing.

This report seeks to partially address this knowledge gap by utilising LORDIMAS data to provide insight into the state of digital maturity of subnational public administrations. 2024 marks the first full year of LORDIMAS data collection, encompassing data from approximately one hundred local, metropolitan, and regional governments.

It's important to note that the LORDIMAS 2024 sample predominantly comprises mid-sized and larger cities, which are often more actively engaged in international projects and networks related to digital transition. Hence, there is a certain level of self-selection bias built into the sample. Additionally, participation rate varied across countries and is not geographically balanced. These factors should be considered when interpreting the findings of this report.

[1] https://digital-strategy.ec.europa.eu/en/activities/digital-programme

[2] https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/digital.html

[3] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

[4] https://digital-decade-desi.digital-strategy.ec.europa.eu/

LORDIMAS

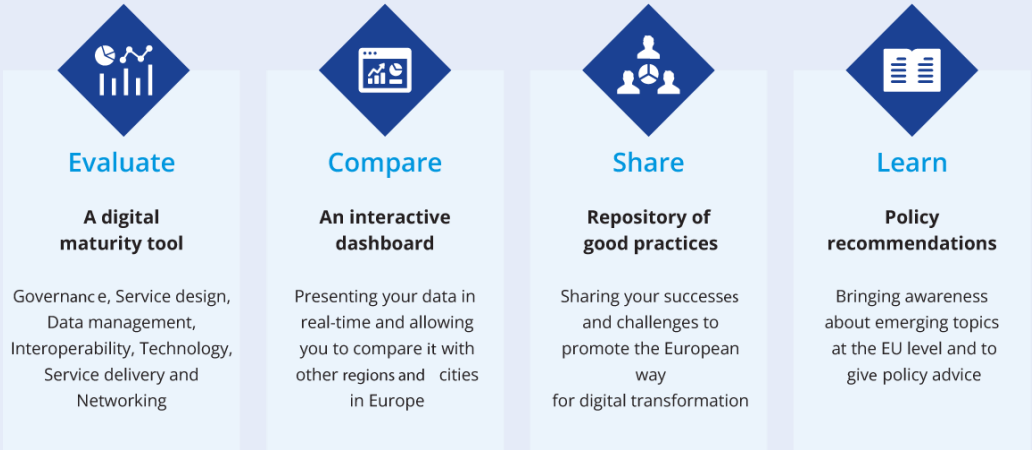
Digital Maturity Assessment for Local and Regional Governments

The data used in this report synthesises the annual inputs from LORDIMAS. LORDIMAS is a Digital Maturity Assessment tool for local, metropolitan, and regional governments. It is an interactive tool that helps governments understand where they are in their digital transformation journey. It facilitates annual monitoring and assists governments in making informed policy decisions to improve their digital transition. By participating, local, metropolitan, and regional governments provide national and EU-level policymakers with valuable information to design their policy support mechanisms and with more targeted funding.

LORDIMAS enables users to:

- **Evaluate** – Assess your own digital maturity
- **Compare** – Discover your results in real-time on an interactive dashboard, allowing you to compare the results with other cities and regions in Europe
- **Share** – Promote your success and challenges
- **Learn** – Get policy recommendations to bring awareness on emerging topics and policy advice

Figure 1.1
LORDIMAS core functionalities



ESPON develops LORDIMAS in cooperation with the European Committee of the Regions, European Commission, Living-in.EU supporters and signatories and the Go Li.EU consortium. It addresses all cities and communities in the EU 27 countries. It is connected to the Digital Europe Programme and other European funding programmes designed to assist public administrations in tackling challenges related to digital transition.

The assessment in the LORDIMAS is based on a questionnaire built around seven dimensions of digital transformation: 1) Governance, 2) Service Design, 3) Data Management, 4) Interoperability, 5) Service Delivery, 6) Technology, and 7) Networking. For each question and option, the user can choose between five predefined answers by selecting the one that best describes the situation in the city. Six maturity levels are distinguished, ranging from digitally nascent to digitally native. The final score is obtained by a simple unweighted average.

Explore LORDIMAS here: https://lordimas.espon.eu

2 Digital maturity assessment

2.1 Overall digital maturity

This section presents the analysis of digital maturity based on the LORDIMAS self-assessments conducted in 2024 by 99 local, metropolitan and regional authorities. The digital maturity scores of cities and regions utilizing the LORDIMAS tool range from 8 to 95, highlighting a significant degree of heterogeneity in digital maturity among LORDIMAS participants. This wide range encompasses all maturity levels on the LORDIMAS scale, from 'nascent' to 'native'.

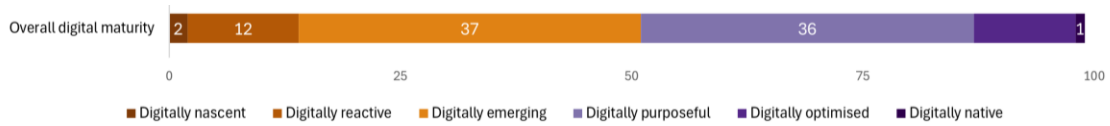
The median score of 49 aligns with the 'digitally emerging' maturity level, further emphasizing a normal distribution of LORDIMAS participants across all maturity levels. 'Digitally emerging' and 'digitally purposeful' categories are the largest and are made up from different size local, metropolitan and regional administrations across Europe. Notably, the most mature cities, categorized as 'digitally nascent' and 'optimized,' are predominantly national or regional capitals or situated within the immediate metropolitan areas of major cities – such as Rivas Vaciamadrid (Madrid), Sant Feliu de Llobregat (Barcelona), and Espoo (Helsinki).

Respondents categorized as 'digitally reactive' and 'digitally nascent' (with scores up to 30) primarily consist of smaller towns, with a few exceptions such as Grand Calais in France, Katerini in Greece, and Cosenza in Italy, which are larger municipalities.

These findings suggest a potential disparity in digital maturity between large urban centres and smaller towns located in more rural areas. However, certain cities, such as Arteixo, a mid-sized industrial town ranked among the top 10 most digitally mature respondents, and Brussels, a capital city classified as 'digitally emerging,' challenge this general observation.

The low number of respondents ranked as 'digitally nascent' is also potentially due to the self-selection bias – participating in the LORDIMAS digital maturity online self-assessment requires a minimum level of digital maturity per se, causing the least mature administrations to be less likely to participate in LORDIMAS.

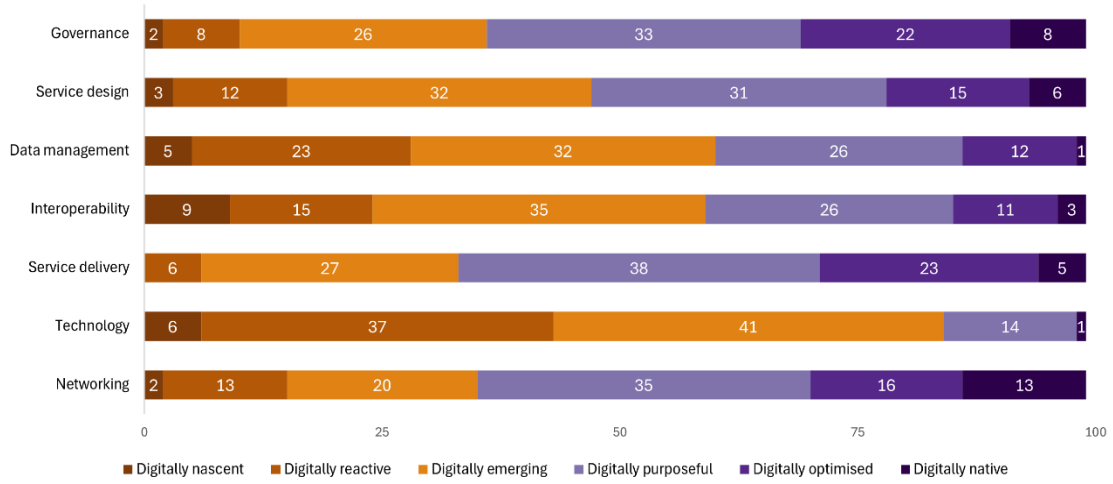
Figure 2.1
Distribution of overall digital maturity levels, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

Respondents generally demonstrate higher maturity levels in Governance, Service Delivery, and Networking. Approximately one-third are classified as 'digitally optimized,' and another third fall within the 'digitally optimized' or 'digitally nascent' categories in these areas. This suggests a strong focus among many respondents on organizational transformations, digital inclusion, user-centered services, and participation in national and international networks. Service design follows closely behind, indicating a growing emphasis on co-creation approaches. Conversely, Data Management and Interoperability present greater challenges, with over half of respondents classified as 'digitally emerging,' 'reactive,' or 'nascent.' This highlights the persistent obstacles of legacy systems, data silos, incompatible standards, inadequate data governance, and insufficient interoperable infrastructure. The adoption of Emerging Technologies, such as robots, AI and Blockchain, poses the most significant challenge, with the lowest overall maturity scores. Only around 15% of local, metropolitan, or regional administrations achieve a 'digitally purposeful' or higher level in this area.

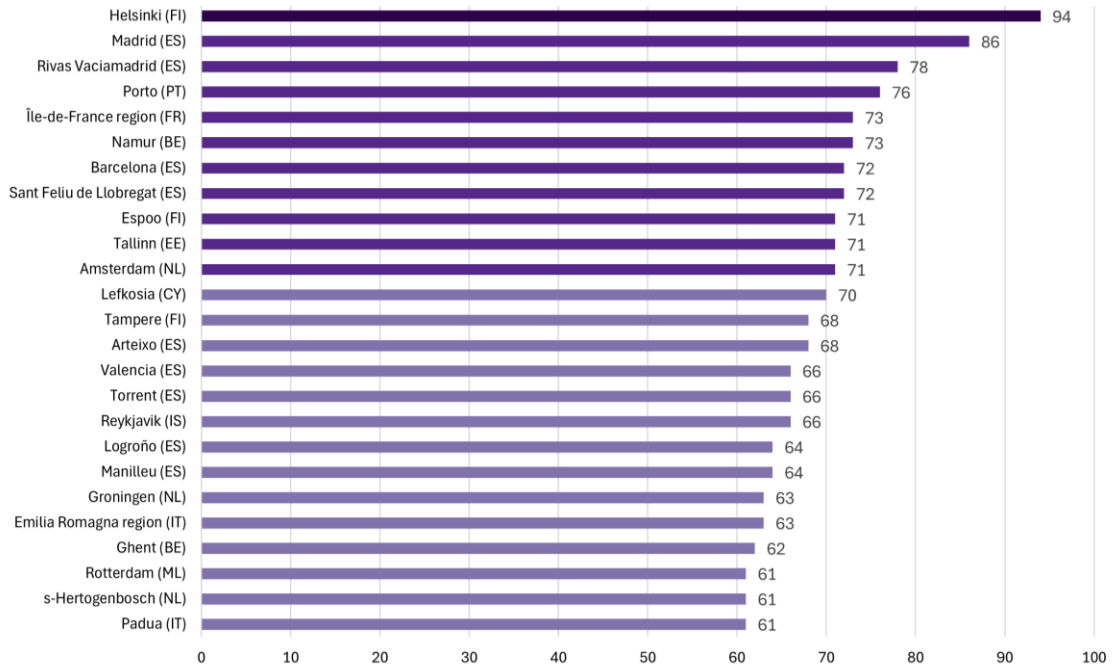
Figure 2.2
Distribution of overall digital maturity levels across LORDIMAS dimensions, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

The top 25 best performers according to the LORDIMAS 2024 assessment are presented below. Leading this group are Helsinki, Madrid, Rivas-Vaciamadrid, Porto, Ile-de-France, Namur, Barcelona, Sant Feliu de Llobregat, Espoo, Tallinn, and Amsterdam, demonstrating the highest overall levels of digitalization. Notably, Helsinki is the only city categorized as 'digitally nascent' in 2024, while the remaining cities fall within the 'digitally optimized' category.

Figure 2.3
Overall digital maturity scores of the top 25 ranking participants

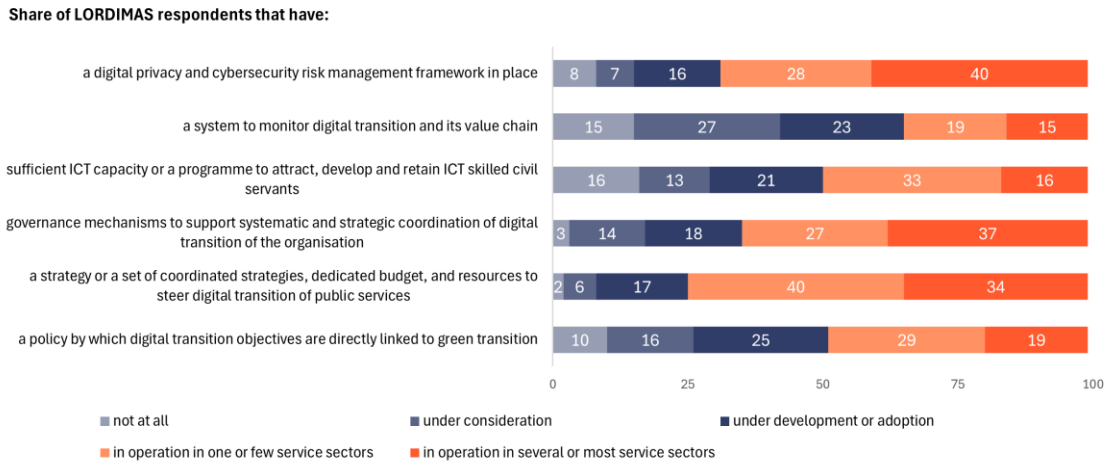


Source: LORDIMAS (Data extracted as of December 19, 2024).

2.2 Governance

The LORDIMAS Governance module focusses the digital maturity of governance in public administrations. It will give an insight to what degree digital transition is linked to other societal challenges as well as privacy and security concerns. In addition, it investigates how digital transition is coordinated across siloes in terms of governance mechanisms, structures, and strategies, whether there is capacity to implement it, and a system to monitor the progress.

Figure 2.4
Distribution of responses in the Governance dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

According to 2024 data, the majority of public administrations involved in the LORDIMAS project demonstrate a high level of maturity in integrating digital transformation into their governance frameworks. About half of public administrations report to have linked digital transition objectives to green transition. A significant proportion (74%) possess a defined strategy (or a collection of coordinated strategies) and dedicated funding to guide the digital evolution of their public services, with another 17% actively developing these elements. Additionally, 64% have established governance structures to facilitate the systematic and strategic coordination of digital transition within their administration. About two thirds of them have holistic reach and authority across the public administration and the rest have been established in specific service areas or departments. A prime example is the creation of Innovation Agency of the city of Helsinki – Forum Virium, which is playing a key role in developing and implementing the Smart City and Open City strategies. However, the focus on digital transformation is not uniform across all aspects. Notably, only 34% of cities actively monitor digital transition-related value chains, indicating a potential area for improvement. 68% of the respondents claim to have included in a digital privacy and cybersecurity risk management framework.

BEST PRACTICE EXAMPLE

Helsinki's innovation agency helps co-create urban futures

Forum Virium Helsinki (FVH) is the City of Helsinki innovation company. FVH co-creates urban futures with companies, universities, other public sector organizations and Helsinki residents with a mission is to make Helsinki the most functional smart city in the world.

FVH strengthens Helsinki's ability to utilize data, new technologies and digitalization as well as to secure funding from the EU sources to enable cities twin transition and scaling of good solutions and practices.

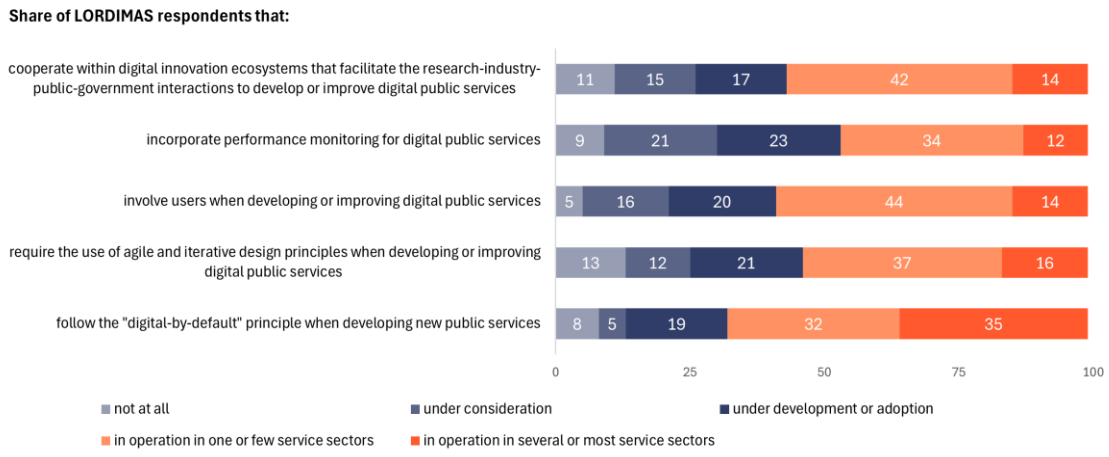
Furthermore, it helps companies to utilize Helsinki as test bed, by offering them a platform and open ecosystem to pilot products and services, co-creation model, expertise, and funding opportunities. FVH encourages co-creation and citizen engagement through citizen innovator pool called the "Trial Troops" ("Kokeilujoukot"). The "Trial Troops" can, for example, attend co-creation workshops, test and provide feedback for companies about new solutions, give feedback on smart solutions and innovations and influence further development of city services.

Explore the solution: https://forumvirium.fi/en/

2.3 Service design

The LORDIMAS Service Design module assesses the maturity of the digital service design processes. It will give an insight to what degree the users and the whole digital innovation ecosystem is engaged in co-creating, prototyping, and developing services. In addition, it investigates how service delivery and design are driven by data.

Figure 2.5
Distribution of responses in the Service Design dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

The 2024 results show that LORDIMAS participants generally exhibit higher maturity levels in Service Design, with most respondents achieving high scores in this dimension. Notably, a significant majority (67%) of

respondents adhere to the "digital-by-default" principle when creating new public services, signifying a substantial shift towards digital service delivery across most municipalities. Half of them apply the principle across mot departments. Furthermore, when developing or enhancing digital services, a considerable portion of administrations (58%) actively involve users and (53%) employ agile and iterative design methodologies. A prime example is the municipality of Terrassa, Italy, which has successfully implemented an online platform called "Participa a Terrassa." This platform empowers citizens and organizations to actively participate in city planning by engaging in decision-making processes and collaborating directly with the City Council. Digital innovation ecosystems as well as their role in public sector's service design processes are also on the rise. 56% of the respondents report cooperating within digital innovation ecosystems. Monitoring the performance of the services to improve them is not widely adopted. Only 46% of the respondents claim to do so.



BEST PRACTICE EXAMPLE

Terrassa creates a more open, transparent and collaborative city through citizen participation

"Participa a Terrassa" (participa.terrassa.cat) is the online tool for citizen participation that Terrassa City Council has made available to citizens and organisations so that they can participate and get involved in the joint construction of the city, in an open, transparent, and collaborative way. "Participa a Terrassa" aims to promote citizen deliberation and debate, transparency, and traceability of participation (in no case of users), and the generation of spaces for face-to-face and digital participation.

It promotes the improvement of the democratic quality of life in the city as a whole, the definition and design of public policies and municipal actions, as well as the assessment, information, discussion, prioritisation and decision on public policies and actions.

The platform aims to promote citizen participation and direct, deliberative, and participatory democracy in the city through the different processes, spaces and participation bodies, generating forms of direct and open interaction between the City Council, the citizens and the different social agents of the city. Participants can access and browse the platform freely and anonymously. Only when they want to carry out an action that involves creating, supporting, or commenting on a proposal or participating in a debate will they need to register beforehand.

Explore the solution: https://participa.terrassa.cat/

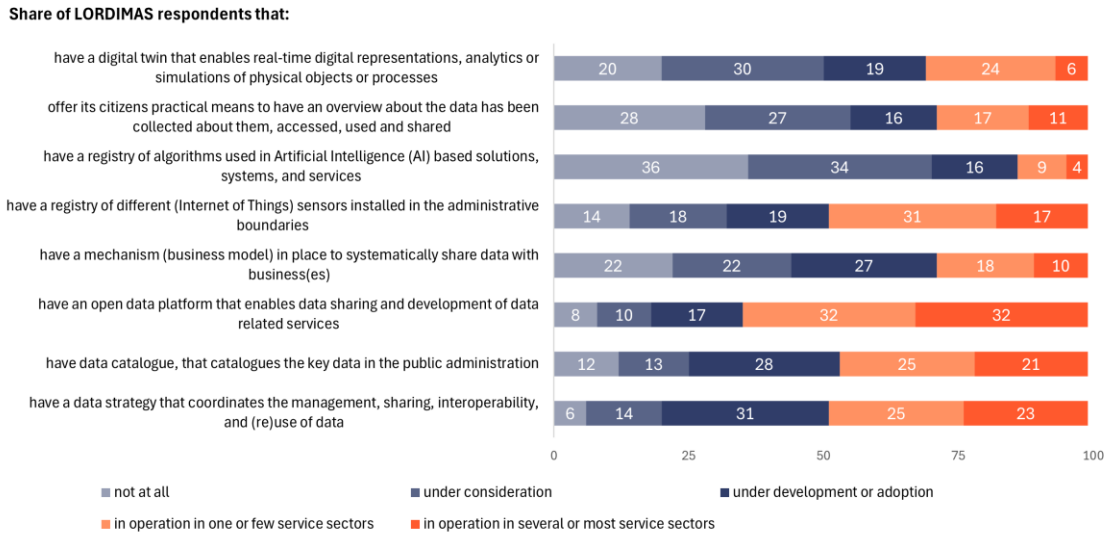
2.4 Data management

The LORDIMAS Data Management module assesses the maturity of the digital service design processes. It will give an insight to what degree the users and the whole digital innovation ecosystem is engaged in co-creating, prototyping, and developing services. In addition, it investigates how service delivery and design are driven by data.

The LORDIMAS 2024 results show, that Data Management maturity among respondents exhibits significant heterogeneity. While certain aspects, such as the prevalence of open data platforms (utilized by 64% of respondents), catalogues (46%) and data strategies (48%), demonstrate high levels of maturity, other areas lag behind. Digital twin adoption is currently at an early stage, with approximately one third of public administrations developing or operating them. Twins that are utilized organization wide are only 6, rest of them operate within specific department or service area. Data sharing with businesses is also at varying stages, with 25% of cities not considering it and 47% in the development or consideration phase. Regarding registries, while 43% of public administrations maintain a registry of city sensors, only 9% have a registry of algorithms used in AI-based solutions. Amsterdam stands out by mandating the registration of all sensors deployed in public spaces, encompassing both government

and private entities. On the downside, 71% of cities and regions do not offer citizens readily accessible means to consult and access the data collected. Helsinki serves as a pioneering example by allowing citizens to digitally or physically indicate their desired access to personal data, such as school records or medical files, and request corrections or removals.

Figure 2.6
Distribution of responses in the Data Management dimension (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

BEST PRACTICE EXAMPLE

Amsterdam informs citizens about sensors collecting information about the environment, people and objects

Private companies, research institutions and government organisations in Amsterdam must report sensors deployed in public spaces. The requirement applies to new sensors and those that are already installed in the city, including mobile sensors. The information is being displayed via an online map to give residents more insight into how, where and what data is collected from sources such as cameras, air quality and traffic sensors, Wi-Fi counters and smart billboards. The map shows the type of sensor, the owner and whether personal data is processed.

The municipality does not have the authority to prohibit the installation of sensors in public spaces. However, it does have the legal authority to make it mandatory to report it. The city hopes that this regulation to report sensors and a platform to access this information will lead to a public debate about public and commercial sensors in the public space, more research and business opportunities, as well as more informed policy making.

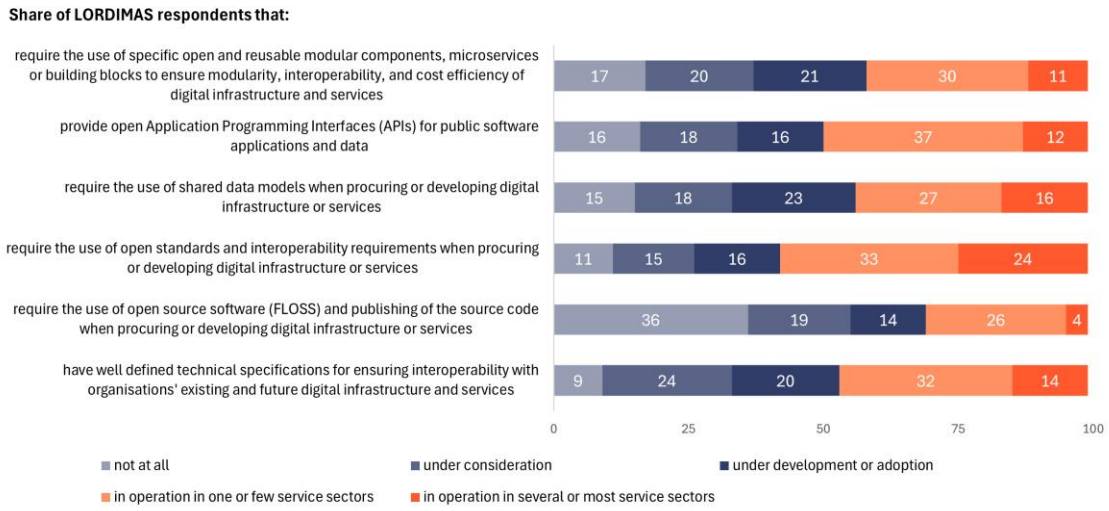
Amsterdam believes that residents have the right to know where and when data is collected. The sensor Registry offers more transparency to citizens, visitors and companies, by providing an online registry of as many sensors as possible. It answers basic questions like: Why is the device here? Who installed it here? What kind of data it collects? And who has access to the data?

Explore the solution: https://sensorenregister.amsterdam.nl/

2.5 Interoperability

The Interoperability module assesses the level of interoperability of infrastructure and services in public administrations, in terms of efficiency, security, modularity and portability. It helps to evaluate how easily the data, infrastructure, and services in one department or public administration can be potentially connected to other data, infrastructure, and services that are governed by other public or private entities.

Figure 2.7
Distribution of the responses in the Interoperability dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

While efforts are underway in many cities, public administrations generally exhibit moderate maturity levels in Interoperability. When procuring or developing digital infrastructures, about 45% use technical specifications to follow. This includes requirements for shared data models (43%) and interoperability standards (57%). For example, the city of Porto built their urban data platform based on the Minimal Interoperability Mechanisms. However, mandates for open-source software and the publication of source code are less common, with 53% of public administrations not including these provisions in their procurement contracts. Furthermore, half of respondents provide open Application Programming Interfaces (APIs) for public software applications and data. Additionally, 41% utilize specific open and reusable modular components during the development of digital infrastructures and services to enhance interoperability and cost-effectiveness.

BEST PRACTICE EXAMPLE

Alcoy defines its own telecommunications network for IOT, based on open standards

Alcoy City Council has launched its own private telecommunications network for IoT, covering the city, industrial areas and natural parks of Alcoy in order to be able to connect any IoT sensor/actuator/device and smart node in the city to the network. This network uses LoRaWAN technology and is designed to be available, free of charge, to universities, educational institutions, businesses and citizens.

Having its own communications network for IoT covering the entire municipality allows the installation of sensors and actuators of various types and with multiple use cases, facilitate the creation of smart nodes, provide connectivity for IoT in areas where it would be unfeasible today and facilitate innovative projects and environments and social inclusion.

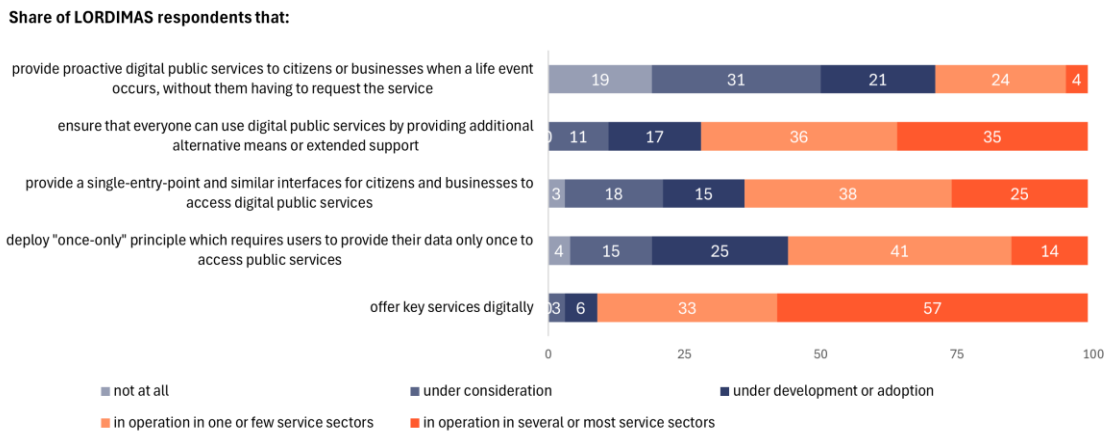
It is already being used by universities and companies. In addition, work is being carried out on a project to bring IoT closer to citizens using this network as a transmission medium. This network infrastructure will fulfil a dual role: on the one hand, it will serve as a production environment for Alcoy City Council and, on the other, as a proof-of-concept environment for new ideas arising within a Smart City, enabling development and research in one of the fields that is currently attracting most interest, that of smart cities, thus involving a large number of actors in participation and collaboration.

Explore the solution: https://catalogue.city/en/solutions/public-iot-network

2.6 Service delivery

The LORDIMAS Service Delivery module assesses the level of digitalisation of public services in public administrations, how easy and empathetic the service delivery process is and whether all citizens can benefit from the service, including people with limited access, skills, disabilities, or other legally protected characteristics.

Figure 2.8
Distribution of responses in the Service Delivery dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

The local, metropolitan and regional governments who participated in LORDIMAS in 2024 exhibit a higher level of maturity in Service Delivery compared to other aspects of digital transformation, suggesting that the development of digital public services constitutes a primary focus for these administrations. A significant majority (86%) deliver key public services digitally, 57% organization wide. Moreover, 63% have implemented single-entry points, and 55% have adopted the "once-only" principle for citizen data to streamline service utilization. 71% also offer alternative means or extended support for users that do not have access to digital services or do not have the skills to do so. However, a notable proportion (71%) of respondents do not proactively provide digital public services to citizens or businesses in response to life events. In contrast, the city of Ghent, Belgium, exemplifies proactive service delivery by automatically granting certain social benefits, such as discounts on cultural activities, free garbage bags, and reduced school fees, to eligible citizens based on existing datasets without requiring any further action or data input from the individuals.



BEST PRACTICE EXAMPLE

Ghent actively pointing out benefits, discounts and granting certain rights automatically and no longer requiring data from citizens if the government already has it

The city of Ghent grants several services to citizens in a specific socio-economic situation. Instead of beneficiaries having to fill in a form and provide proof of income or other information for receiving social benefits, it provides services in a proactive way currently for 3 use cases: discounts for cultural activities, distributing free garbage bags and reduced school bills. In the case of these services, benefits and discounts are granted by checking in available datasets if the citizen meets the specific criteria. The relevant data is no longer provided by the citizen, but automatically gathered from federal databases which we check through the Business Rule Engine set up by the Flemish administration.

These proactive services reduce administrative burden, improve efficiency and take-up, and free up valuable time of civil servants, as they no longer have to invest a lot of time explaining and helping citizens to get the right kind of documents to be eligible for certain benefits, discounts or rights. Previously, this often meant sending citizens back to get the right or more up-to-date form and making a new appointment at a later date. Furthermore, civil servants in the local administration are relieved they no longer have to ask difficult questions about citizens personal situation or access personal data, but only receive the results of the data to check eligibility.

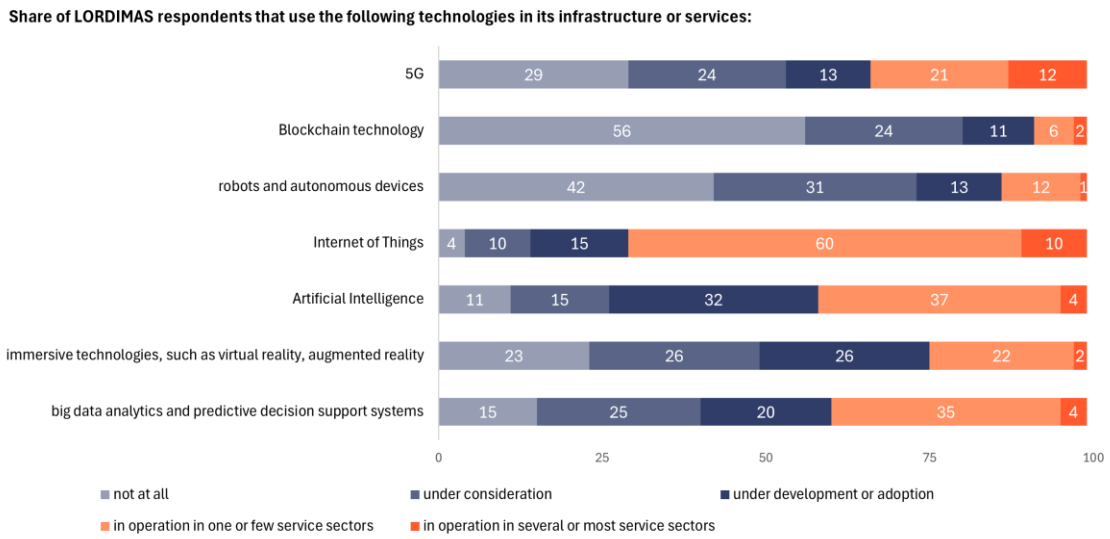
Proactive services, that do not need citizen inputs, remove the difficulty of finding out which benefits citizens are entitled to, remove the barriers of applying for a service, getting the right documents and sending them to the administration. Furthermore, they work on the basis of minimization of shared (personal) data: users often find themselves in a painful situation where they have to explain their personal context, going into detail about their financial status and having to share very personal information often with different people. Prior to this service, in the case of the school bills for example, parents had to hand over their tax-return documents (which include a lot more personal information than is required) first to the teachers, who pass it to school administrations, who pass it over to a centralized team at the education department who finally brings it to the colleagues that make up the school bills. This is now being removed.

Explore the solution: https://stad.gent/nl/over-gent-stadsbestuur/dienstverlening/proactieve-dienstverlening-gent

2.7 Technology

The Technology module assesses the current uptake of emerging digital technologies in public administrations. It evaluates the readiness of public administrations to utilise data through advanced technologies to provide new and innovative public services and to fulfil the potential to improve government efficiency, transparency, and accountability.

Figure 2.9
Distribution of the responses in the Technology dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

The results show that local, metropolitan and regional governments exhibit a low level of maturity in adopting new digital technologies, scoring worst on this dimension. Blockchain and robotics/autonomous devices are minimally utilized, with half of respondents not considering their implementation. 5G and immersive technologies are also limited, with less than half of respondents developing or operating them. While AI and big data analytics are more prevalent, their current operational use is still relatively low. However, AI shows significant potential for growth, as half of respondents are adopting or considering its deployment. This underscores the importance of ongoing monitoring of digital maturity trends. The Internet of Things (IoT) stands out as the most widely utilized technology, with 70% of respondents employing it. Notably, large Spanish cities, such as Madrid, Barcelona, and Valencia, generally demonstrate higher-than-average scores in the Technology dimension.

BEST PRACTICE EXAMPLE

A chatbot supporting citizens looking for information related to all the administrative services

The Digital Assistant (Chatbot) is an innovative tool available 7/24, that supports citizens looking for information related to all the administrative services offered on the institutional portal of the city of Rimini. Using a chat window it is possible to talk with the digital assistant, asking it questions and requests, obtaining information, assistance and support. This is possible thanks to the use of artificial intelligence (AI) technologies such as machine learning and deep learning used to implement the AI training with the application of natural language processing for the understanding of human language and is able to understand user requests more and more precisely by answering an increasing number of questions.

The AI technology offers the speed and immediacy of response via chat, as well as the ability to manage multiple conversations initiated by multiple users at the same time. It is a considerable advantage compared to other more traditional channels such as emails, phone calls, physical counters, lightening the workload of operators. It offers the ability to take on different requests and to respond on topics that are also very different from each other.

The service is available 24/7/365 in assisting and guiding citizens in accessing and using all the services of the Municipality of Rimini. Thanks to the use of artificial intelligence (AI) technology and deep learning algorithms, the Digital Assistant is able to understand user requests more and more precisely by answering an increasing number of questions. In this way, citizens who need to use the Municipality services, are always supported in the search for information and in accessing the services.

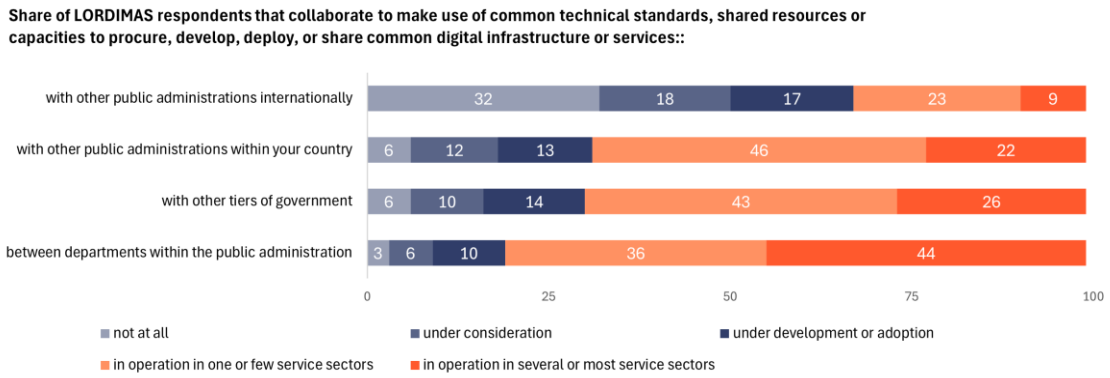
Explore the solution: https://www.usercentricities.eu/services/rimini-chatbot

2.8 Networking

The LORDIMAS Networking module assesses how collaboration between departments, across different tiers of government and across geographies will boost innovation and allow public administrations to scale up open, interoperable, cross-sector, and cross-border digital infrastructure and services. It also helps to understand how public administrations are contributing to the promotion and deployment of common technical grounds for a functioning Digital Single Market where businesses of all sizes can equally participate and compete.

LORDIMAS respondents generally prioritize collaboration, but the level of engagement varies significantly across different domains. While international collaboration remains relatively limited, with over two third of respondents lacking any international partnerships for digital infrastructure and services, national and local collaborations are more prevalent. The majority of respondents collaborate with other public administrations within their country (68%) and with other levels of government (69%). Although a substantial proportion of respondents (80%) report collaboration between departments within their own administration, a significant minority (19%) still lack interdepartmental collaboration in the procurement, development, and deployment of digital infrastructure or services.

Figure 2.10
Distribution of responses in the Networking dimension, (%)



Source: LORDIMAS (Data extracted as of December 19, 2024).

BEST PRACTICE EXAMPLE

Inter-municipal chatbot MUNI developed in collaboration of 36 municipalities

MUNI is an innovative chatbot project that brings together 36 municipalities (and potentially up to 78 municipalities) in Denmark to explore how AI and chatbot technology can enhance the interface between citizens and government services. In 2022, the "MUNI project" was awarded the Danish Innovation Award. The chatbot project aims to supplement and potentially replace traditional self-service solutions with AI-powered alternatives that allow for more efficient and user-friendly interactions between citizens and the government.

MUNI has been able to integrate with various municipal call centres and self-service systems such as Puzzel and Selvbetjening.nu, among others. One of the key benefits of MUNI is the optimized utilization of shared resources, while allowing individual municipalities to tailor their offerings to local needs. MUNI is a new setup and design that enables all municipalities in Denmark to use AI and chatbots for their citizens, with a plug-and-play concept that makes it easy to scale up the rollout. Moreover, any municipality can take over control of the project and build local areas, as Viborg municipality has done with its own version of the chatbot named Victor. MUNI has become the new "colleague" for municipalities in Denmark, as it can handle an unlimited number of inquiries simultaneously and frees up skilled employees to focus on more complex cases. The MUNI project has significant potential for scalability and customization.

This project is a promising example of how AI solutions can transform traditional government services into more efficient, accessible, and user-friendly services that meet the needs of citizens. The citizens in the Danish municipalities are increasingly contacting the public sector. As a result, the citizen services in the municipalities are under pressure on resources, which can lead to longer waiting times for citizens, both for physical visits and phone inquiries. Since the launch in 2020, 10,000 citizens rated their experience with the chatbot, and on average they rated the service 2.43 out of 3. It is essential that the citizens always receive the help they need, so if the chatbot is not able to give a sufficient answer, the citizens can choose to talk to an agent from the call centre in the Digital Hotline. The chatbot will simply offer to make a callback, and the citizen will be contacted by an agent from the call centre.

Explore the solution: https://www.aarhus.dk/borger/borgerservice/bestil-tid-i-borgerservice/

3 Policy recommendations

3.1 Governance

ADOPT INTEGRATED DIGITAL STRATEGIES AND POLICIES AND REINFORCE ITS IMPLEMENTATION

Co-develop digital strategies and action plans from the bottom up, rooted in place-specific challenges (climate change, ageing) and in what citizens aspire to have, ensuring different voices are well represented. Link sectoral policies in a cross-thematic manner under the umbrella of digitalisation. By cross-fertilising policy themes that usually work separately, value-adding combinations can be identified and allow better integration of place-based policies by using digital development as a bridge.

CREATE NEW INSTITUTIONS

Align both digital and development policies by establishing a specialised cross-sectoral agency to steer digital transformation and to ensure free flow data, strategic planning and monitoring, together with a holistic approach to the different dimensions of digital innovation.

APPOINT DIGITAL LEADERS AND BUILD A TEAM OF EXPERTS

Appoint digital leaders to develop and manage the implementation of digital policies across agencies and departments and to engage with stakeholders and relevant networks, such as chief digital officer and chief data officer, and establish cross-disciplinary digital units. Add civic tech talent to these teams and enable a learning environment where team members are offered the opportunity to develop and improve their skills. Valorise their competencies and facilitate training and professional development that contributes not only to deliver public service, but also to retain talent within your administration. Smaller public administrations may benefit from these teams and talent by pooling them from other tiers of government through cooperation to meet their needs.

SET CLEAR OBJECTIVES, TRACK AND COMMUNICATE PROGRESS

Set clear objectives, ensure the capacity and financial means to achieve them and monitor its progress. Ensure greater transparency, openness and inclusiveness to government processes and operations by including those objectives into the main goals of digital government strategies and by adopting an appropriate measuring and monitoring framework. Adopt key performance indicators and real-time information dashboards to inform both the civil servants as well as the citizens whether digital policies are working.

BUILD IN SECURITY AND PRIVACY MEASURES

Ensure that the new solutions are secure, respect users' privacy rights and work with minimal personal data. Build in security measures and make sure that potential breaches and fraud are designed out. Anticipate the risks, and plan defences accordingly.

3.2 Service design

ADOPT AGILE AND ITERATIVE SERVICE DESIGN PRINCIPLES

Develop new services in a cyclical, instead of a linear manner. Embrace uncertainties and to promote an environment where learning and improvement are constantly in-progress prioritising, therefore, added value to its users. Start with small phases designed to build understanding through exploration, research, prototype, test and learn about the needs of users before committing to building a real service. Allow prototypes to fail quickly and correct course in response to testing with users.

BECOME CITIZEN-CENTRIC, ENGAGE AND EMPOWER

Redefine your digital goals so that citizens and their intrinsic needs are at the centre of every objective, instead of the usual domains, such as utilities and transportation. Engage with citizens to co-create public policies and services and encourage direct dialogues between citizens and policymakers.

FOSTER A CIVIC INNOVATION ECOSYSTEM THROUGH OPEN INNOVATION

Network, collaborate and coordinate to enable, orchestrate and encourage the development of a complete civic innovation ecosystem that engages with a diverse set of stakeholders: citizens, businesses, civic society, academia and different agencies and departments of public administration. Support platforms that connect the different stakeholders and ease their collaborative work, as well as oversee the management of open innovation projects, to ensure the sustainability of the effort. Adopt instruments such as innovation clusters, intelligent hubs or living labs, hackathons, and application development contests as well as civic accelerators.

ESTABLISH FEEDBACK LOOPS AND DESIGN BY DATA

Deliver services that are responsive to feedback and that can be iterated in days rather than in decades. Improve and optimise services, by combining passive and active data from internal and external sources to identify the satisfaction and use patterns of the services as well as to assess where to allocate resources and match workload, skills, and location to create more efficient schedules for staff. Establish the useful feedback loops for each service to help gauge how well a particular service is meeting the policy intent behind it.

IMPROVE GOVERNMENT PROCUREMENT POLICIES

Highlight digital innovation in procurement strategy, procurement process, technical specifications, or functions in a strategic, complementary way. Clearly define principles of interoperability, open standards, and data. Agree on a (limited) list of open standards and technical specifications with which procured digital solutions should comply. Consider data as key assets both as inputs and as outputs of a solution or system. Set the goal to optimise procurement itself, i.e., ensuring employees are better trained and offer incentives to economic operators for their innovative behaviour.

3.3 Data management

FOSTER A DATA-DRIVEN CULTURE

Follow the guidance of international and national frameworks to better enable, guide and foster access to the use and re-use of the increasing data and metadata in open and interoperable formats. Provide and systematically make use of timely data to support decision making processes and monitor performances and progress.

LEVERAGE AND OPEN UP DATA THROUGH A DEDICATED PLATFORM

Recognise the value of data as a public good. Leverage the potential of data innovation, including big, open, and geospatial data, to ground policy decisions in up-to-date and quality information and evidence. Provide citizens and civil servants an overview of key data held in your administration together with descriptive information about datasets including their purpose, their coverage and whether they include any personal or sensitive personal data. Make data accessible to third parties (companies, entrepreneurs, residents, universities, etc.) through open data platform to promote transparency, democracy, and the development of innovative applications (open data) while safeguarding the individual's privacy. Promote the dissemination of data and information through new visualisation techniques, such as maps and graphics (online dashboards), and make data available in public spaces.

PUT IN PLACE BUSINESS MODELS TO COLLABORATE WITH THE PRIVATE SECTOR

Collaborate with the private sector for more efficient and informed policy making. Data held by companies can help guide policy decisions and improve public services. For example, such data can lead to a more targeted response to epidemics, better urban planning, and improved environmental protection, market monitoring and consumer protection. To successfully engage with private sector, establish a governance, ensure transparency, citizen engagement and ethics and develop or adopt a suitable operational model, structure, and a set of technical tools.

EMPOWER PERSONAL DATA AND INFORM CITIZENS

Recognise data as a new power for citizens and empower them by giving complete access to and ownership of their data, adopt a human-centric approach to personal data and create personal data spaces. Promote the participation of residents and communities in data collection and analysis processes, through do-it-yourself sensors or smartphones. Utilise new technologies to create new models of data sharing and citizen engagement through which citizens can share their data for public benefit. Inform citizens about how you are collecting and processing

citizen created data within your administrations by providing them overview of the sensors and data processing methods.

SIMULATE IN DIGITAL TWINS BEFORE IMPLEMENTATION IN REAL LIFE SETTINGS

Develop a digital twin to have a virtual representation of governments physical assets to describe reality or to simulate what impacts certain policy proposals may bring about. Use data, data analytics and machine learning to help simulation models that can be updated and changed (real-time) as their physical equivalents, or assumptions made about them, change.

3.4 Interoperability

EMPHASISE (FUTURE) INTEROPERABILITY AND STANDARDISATION

Future-proof tech deployments to ensure that they do not fall into lock-ins of potentially problematic data and technology silos and become obsolete or isolated. Ensure that your systems and data models are interoperable, by default, with new solutions and solutions that have not yet been thought of. Use open standard APIs for the development of all systems and establish a common framework and models for data, which allow for major changes to software or vendors without losing access to data. Team up with other public administrations through networks such as the Living-in.EU and adopt joint interoperability and data models such as Minimal Interoperability Mechanisms which allows for scaling up and the creation of a joint market for new solutions and a quick and widescale roll-out and adoption of digital innovation. Draft and keep up to date technical specifications that could be used as a reference for the development and procurement of digital solutions across the organisation.

UTILISE BUILDING BLOCKS

Do not reinvent the wheel and adopt existing and validated standards-based open and reusable digital solutions offered by Digital Europe Programme. These Building Blocks offer basic capabilities that can be used in any European project to facilitate the delivery of digital public services across borders. Deployed alone or as a portfolio, Building Blocks can build smart cities and communities. They allow data to become the digital lifeblood of modern services built on the principle of interoperability. Similar solutions are offered by many national and regional governments.

PROMOTE A PLATFORM APPROACH

Systematically open up the development of public administrations' digital environments, systems, products and services to outside developers and value creation, the key aim of which is to allow platform users to benefit from each other and from the network effect brought about by participation. Since technology is always evolving, governments need to adopt a platform approach and develop a technology infrastructure that is modular and will be scalable as they grow, and easily replaced or upgraded as underlying needs change.

THINK OPEN

Encourage and leverage the transformative, innovative, and collaborative power of open source, its principles and development practices. Promote the sharing and reuse of open software solutions, knowledge, and expertise to deliver better services at lower costs and with increased societal benefits.

3.5 Service design

ADDRESS DIGITAL DIVIDE

Take steps to address existing digital divides and prevent the emergence of new forms of digital exclusion. Put the needs of marginalised groups and disadvantaged neighbourhoods on the agenda when developing digital public services and ensure alternative or assisted access. Develop initiatives to increase digital literacy and improve the penetration and affordability of internet access and smartphones to ensure access to the benefits of smart city solutions. Form partnerships with private and social sector players to deploy applications specifically designed to level the playing field for the most vulnerable.

PROVIDE MORE EMPHATETICDIGITAL PUBLIC SERVICES

Provide a one-stop shop to access most digital government services, allowing citizens and businesses to access these services in a centralized location rather than in different places. Adopt the once-only principle to eliminate the administrative burden when citizens are required to provide the same information to public administrations again and again. Instead, public administrations should have the means to reuse information already supplied by citizens in a transparent and secure way.

SHIFT TOWARDS A PROACTIVE APPROACH

Provide proactive public services by shifting from the 'pull' approach of traditional e-government - whereby the citizen must first know, decide, and seek out government services - towards a 'push' model, whereby governments proactively and seamlessly deliver just-in-time information and services to citizens based on their needs, circumstance, personal preferences, life events, and location. Proactiveness can be based on the citizens' ability to seamlessly share information and data that enable the prediction of their needs. Proactive services can be based on data related to demographics (e.g., age or marital status), life circumstances (e.g., change in employment, disaster recovery or movement to a new location), or some other contextual factors.

3.6 Technology

COMBINE SMART TECHNOLOGIES WITH DEVELOPMENT POLICIES

Leverage emerging technologies for implementation for various development policies and goals. For such an intervention to be successful, it requires a comprehensive, holistic, and integrated approach to policies and planning that considers the highly complex interaction of different systems that exist in public administrations as well as all industrial requirements, business needs and in citizens' life. Consider the foundational elements that make technology-driven innovation possible, such as data and link it with a data strategy that defines access to robust, accurate data, in a manner that maintains privacy and conforms to societal and ethical norms.

3.7 Networking

PROMOTE MULTI-LEVEL APPROACHES

Work closely together with regional, national, and international counterparts. Seek out expertise and knowledge stored in competence centres and act within the framework of wider digital innovation polices. Efforts made at the level of one public administration alone will not be sufficient. Consolidated and collective actions at international, national, and regional levels are essential, including for prioritising and allocating appropriate resources and funds and for formulating strategies. Digital innovation in urban environments can be facilitated holistically only through system-wide strategies on multiple scales, integrated both horizontally and vertically. However, while strategic coordination is crucial, policies must always be responsive to local situations, which requires tailored instruments and strategies.

NETWORK WITH OTHER PUBLIC ADMINISTRATIONS

Work together with other public administrations to develop and coordinate multi-settlement strategic planning to strengthen functional networks and markets, foster and facilitate digital innovation roll-out, and achieve a more efficient use of public resources through establishing incentives for cooperation among public administrations and limiting the negative impacts of competition. Identify common challenges: many public administrations at different levels of digital maturity are facing similar challenges. Exchanges between public administrations with similar challenges are most likely to occur among those with similar or complementary strategic lines. Establish cross-institutional governance frameworks and cooperation mechanisms to pool the necessary resources and competences.

PROMOTE NETWORKING

Uplift genuine co-development by public administrations by supporting their networks through funding that encourages collaborative innovation. Bring local stakeholders directly into contact with international experts and

stakeholders from other European regions and municipalities. Inspire local stakeholders by involving them in meetups with other public administrations and experts.

SCALE UP BEST PRACTICES

Orchestrate or enable pilots to test what works and what does not at a limited cost. Scale up successful pilot activities to broader activities to be rolled out in the medium term. Promote successful pilots within the organisation and through relevant networks, conferences, and media. Ensure that success is recognised and that best practices of your digitalisation efforts are widely shared to enable further development and spin-off projects, so more public administrations can get involved. Seek out best practices and pilots elsewhere and adopt them in your context.

THINK GLOBAL, ACT LOCAL

A single public administration on its own is not a market. No matter how great your public administration is in developing or adopting digital solutions, it does not represent a big enough opportunity for smaller businesses to thrive. It might be attractive for a local business to provide you with a new smart parking application that integrates different local parking service providers. Nevertheless, in order to grow their business, or even to sustain their operation, they will need to sell the service to other public administrations too. A public administration may help a local start-up to launch and sell its first application by allowing it to respond to a local challenge/market need and act as its first customer. However, if a public administration has adopted a proprietary data platform or if the challenge only exists in the local context, it may be difficult for the start-up to scale up its service to different environments.

4 Conclusions

Monitoring the digital transition of local governments is crucial for several reasons: it facilitates the identification and dissemination of successful strategies and best practices, enables proactive responses to emerging challenges, and provides valuable data for informed policymaking at the European level.

The LORDIMAS 2024 report offers valuable insights into the diverse digital maturity landscape of European local and regional authorities, highlighting strengths in areas like Governance, Service Delivery, and Networking while identifying challenges in Data Management, Interoperability, and Emerging Technology adoption.

While the LORDIMAS report provides valuable insights, it's crucial to acknowledge that the current sample does not fully represent the reality on the ground, particularly for smaller municipalities. To enhance the representativeness of our data and strengthen the evidence base for European policymaking, we aim to increase the number of participating administrations year-on-year. We encourage all municipalities, metropolitan regions, and regions to join our monitoring efforts to ensure a more comprehensive understanding of the digital transformation landscape and inform more effective policies.

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