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User Centri Cities

Policy Brief

The Interoperability Imperative

A Tale of Four Cities: How to Deliver Good Public Services to All European Citizens

By Alice Iordache, Chrysoula Mitta and David Osimo

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Digital government is at an inflection point.[1] After three decades in which rates for online access to public services pointedly trailed the adoption of commercial and other services, citizens are starting to see the digital space as the go-to point for communicating with the government and accessing the social services they need.

Over the next couple of years, the majority of Europeans will be regular users of digital public services.[2] To be sure, the success comes after a major effort. Governments – local, national and regional – have done an enormous amount to improve those services, believing (correctly) that online digital services needed to improve dramatically if they were to enjoy a success or adoption rate on anything at par with their fast-developing commercial cousins. For the most part, the effort has been successful. But has it yet been enough? What more must governments do not just to make additional gains but to consolidate the ones they have already enjoyed? And where in particular do citizens' expectations lie? How can we ensure great services for all citizens, digital native or not, in small and big cities across Europe?

'Over the next couple of years, a majority of Europeans will have used digital public services.'

The answer lies in a single word: interoperability.

Interoperability is sometimes thought to be as obscure and technical as it is important. According to the Oxford English Dictionary, interoperability is "the ability of computer systems or software to exchange and make use of information."[3] In the government context, it refers to the possibility of accessing and sharing data between different departments or administrations thanks to common standards such as data models or unique identifiers, to collaborative solutions such as application programming interfaces (APIs) and to the possibility to have different software components to work together in order to deliver a service. For instance, local governments often combine their software modules (such as notification, document management and payments) with the secure authentication solution defined by the national government through a national ID system, including the ability to verify the information by accessing national registries.

And recent events show how and why this new kind of system – one that delivers benefits much faster and much more directly to citizens – has gone from an eGovernment showpiece in some places to a life-or-death requirement in all countries. Most telling is the no-nonsense response to the COVID-19 pandemic. Suddenly, digital was the only channel, and governments and citizens had to rely on their digital services to get on with their life. Some governments did better than others, but everyone realised that only well designed and robust

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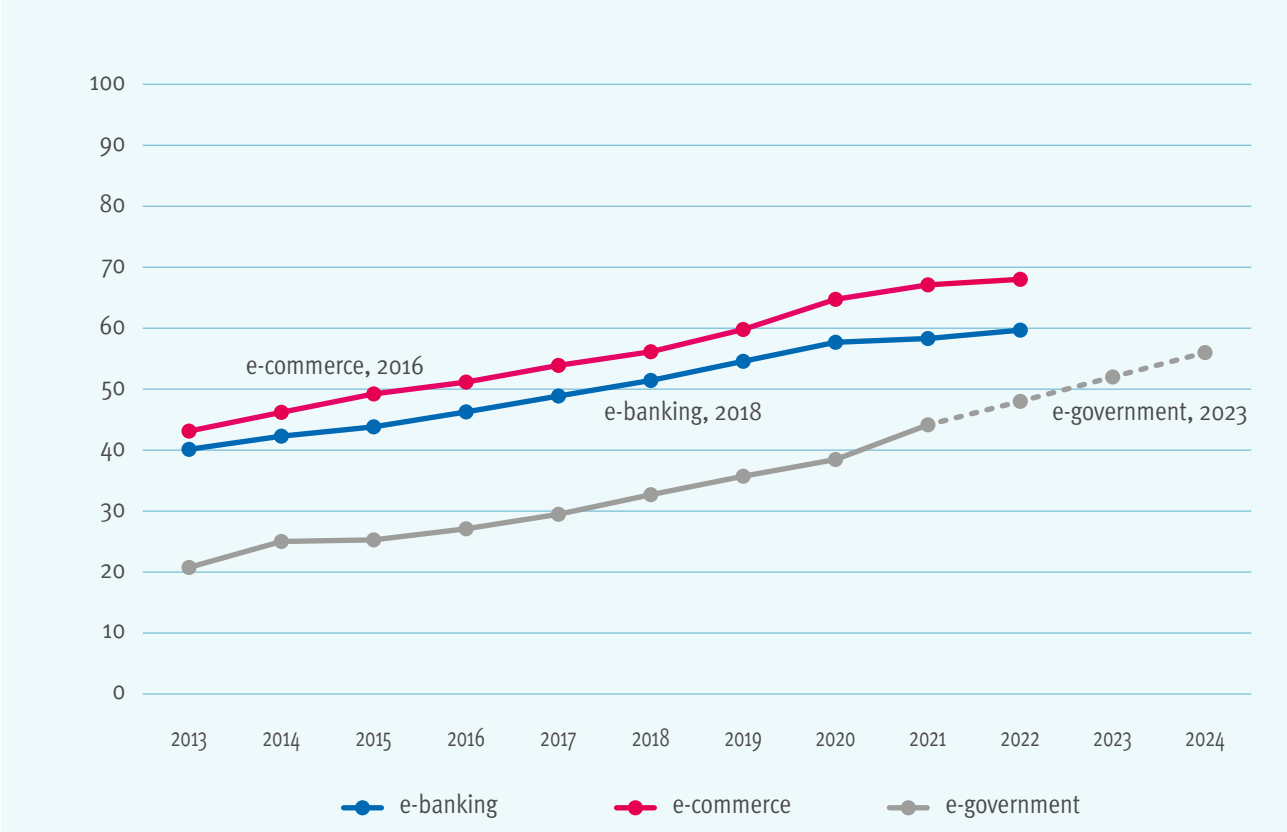
1 This policy brief builds on research conducted by **UserCentriCities**, a 30-partner research consortium co-funded by the European Union. The authors would like to thank Johannes Hahn, commissioner for budget and administration at the European Commission, for joining **The 2023 Digital Government Summit** where this policy brief was first presented. Special thanks as well to Mark-Boris Andrijanič, Sibylle Bikar, Silvia Castellanza, Giorgio Costantino, Mykhailo Fedorov, Andrea Halmos, Paul Hofheinz, Christ'l Van Houtte, Luukas K. Ilves, Valeria Ionan, Tim Lyon, Evgenia Malikova, Andres Maremäe, Stella Meyer, Marco Giuseppe Minelli, Cristina Moise, David Muñoz, Dan-Flaviu Nechita, Petro Olenych, Geilan Omer, Alessandro Paciaroni, Anna Pizzamiglio, Oleg Polovynko, Christopher-Robin Raitviir, Isabelle Van de Reviere, Leontina Sandu, Sarah Spiessens and Maximilian Strotmann. For more, visit http://www.usercentricities.eu. Any errors of fact or judgement are the authors' sole responsibility.

2 The majority of European adults shop online since 2016, use online banking since 2018, and based on recent trends we can expect to reach the threshold around 2023/4. The data comes from Eurostat at https://ec.europa.eu/eurostat/web/digital-economy-and-society/overview.

3 The definition is found online in Oxford English Dictionary Online at https://www.oed.com/.

Chart 1. Date of Achieving 50% Adoption Rate for Different E-Services in the European Union



Source: Authors' elaboration of Eurostat data

services were able to cope with the crisis. In that time, something important happened: Digital government became an essential service.[4]

But this milestone poses challenges too. First, citizens' expectations have risen, and the higher expectations now have to be met. Traditionally, digital public services were perceived as an additional channel, as something that only really worked in some cases. But now that citizens have started getting used to effective services – to using digital services via secure identification, to paying fines and taxes online, to actually having to fill out forms or ask for documents "only once" – governments have to meet such demands – or disappoint citizens and further undermine their trust in government. There will be a time soon when citizens are requested to produce documents that they know the government already holds – and will simply refuse to do so. And that moment is closer than we think.

'During the pandemic, digital government became an essential service.'

Second, the first 50% of users are easier to reach than the late adopters, many of whom may have typically lower digital literacy levels. Alternative channels will have to be found, such as the services delivered automatically like the social energy tariffs (paid out automatically

4 See David Osimo, "How Digital Government Has Risen as an Essential Tool in Times of Crisis and Lockdown," *The Forum: A Lisbon Council Initiative*, 24 August 2020.

to citizens who qualify) in Portugal or the automatic registration of pre-school age children in pre-primary education pioneered in Helsinki.[5]

And it is precisely here that interoperable solutions become an imperative. One good service can be delivered with *ad hoc* agreements, solutions and data sharing. But delivering high user experience across all services requires a highly interoperable architecture, one that allows data sharing at scale across multiple institutional levels and fast deployment of services based on the needs of the users. This is even more true for automatic or proactive services that serve those most in need without any action on their side, requiring granular and almost real time data across different departments and administrations. Building services around users' needs concretely means that civil servants, software modules and datasets of different public administrations work together to deliver the services – and that happens, inevitably, through interoperability.

'Governments – local, national and regional – have done an enormous amount to improve their digital services.'

This is the challenge that lies in front of us. Public administrations have finally achieved the desired change in citizen behaviour. Now it is necessary to deliver good services consistently, across all services, across all administrative levels, across countries, for all citizens. But just how do we do that?

This policy brief looks at the role of interoperability in delivering excellent public services at scale and how leading public administrations can achieve it. The analysis is based on a literature review (see the Bibliography that begins on page 21 for more) and four cases of world class digital service provision at city level (Ghent, Kyiv, Milan and Tallinn). The policy brief concludes with a four-point roadmap that calls for radical steps forward in delivering interoperability at scale across Europe, taking advantage of the opportunity provided by the *Regulation Laying Down Measures for a High Level of Public Sector Interoperability across the Union (Interoperable Europe Act)*, a future-looking European Commission proposal making its way through the European regulatory system right now.[6]

Why Interoperability Matters

Interoperability is not a black and white scenario. There are different degrees of it, and any single public service can be provided also with very limited interoperability. At the more basic level, interoperability between e-mail protocols allows Civil Servant A to ask Civil Servant B to send one piece of information from a separate register. In a high interoperability scenario, the service supervised by Civil Servant A would automatically obtain the data from the original base registry supervised by Civil Servant B without any human intervention or replication of data, often based on unique persistent identifiers of citizens (as is done in Ghent, Belgium, one of the four case studies presented in this paper). High levels of interoperability provide

5 Grace Milne, Chrysoula Mitta and David Osimo, *Help Where It's Most Needed: How Leading Administrations are Using 'Proactive Public-Service Delivery' to Aid Citizens* (Brussels: The Lisbon Council, 2022). See also Hendrik Scholta and Ida Lindgren, "The Long and Winding Road of Digital Public Services - One Next Step: Proactivity," *Fortieth International Conference on Information Systems Proceedings* (2019).

6 European Commission, *Proposal for a Regulation Laying Down Measures for a High Level of Public Sector Interoperability across the Union (Interoperable Europe Act)* (Brussels: European Commission, 2022).

advantages that enable service to be deployed fast, more accurately, more effectively and at scale. And when it comes to public services, our collective safety net, this can literally be the difference between life and death.

To be clear, interoperability does not mean that all parties involved choose the same software, protocols or data structure. It is actually the opposite of "one size fits all." Interoperable solutions allow interaction and data exchange even between different solutions, provided certain rules are followed. They allow for federated infrastructure and unbundle the relation between the software solutions, the datasets and the service provided. And thereby, they allow for open markets and competition between different solutions. For instance, SPID, the Italian eID service, is provided by 11 different solution providers, but any Italian citizen can use the service even if the authentication is delivered by a different provider.

'Citizens' expectations have risen, and the higher expectations now have to be met.'

There are three main benefits of highly interoperable solutions:

1 Public administrations that adopt interoperability – and make it a cornerstone of the services they provide – can offer rapid, agile deployment of services in response to emerging citizens' needs. Interoperability enables different software modules and datasets (such as authentication, data verification and payments) to be quickly assembled to deliver new services through what experts call a Service Oriented Architecture (SOA).[7]

2 It enables better data management, including improved data quality and higher levels of data protection. Interoperability allows governed access to granular data at scale. This helps governments better deliver high quality services, for instance when it comes to the automatic proactive service delivery described above. But its granularity also facilitates data minimisation by providing access only to the required information. It also reduces the scope of data duplication, which is a well known cause for low data quality and a risk for data protection.

3 It could become the foundation of a more competitive govtech market, with lower risk of lock in. Interoperable solutions ensure the possibility to adopt different components from different providers, facilitate switching between providers and ultimately provide for a more open environment where new providers can enter the market. When deployed at European scale, this paves the way for new "govtech" startups to enter the market across borders, which is currently exceptional. On a similar note, interoperable solutions are by definition easier to be reused by other public administrations, avoiding the "not invented here" syndrome and lowering the costs.

7 As the name suggests, a Service Oriented Architecture (SOA) is an approach that focusses on the final service or deliverable from an information- and communication-technology (ICT) system. It generates distributed, self-standing, interoperable software components that can be assembled to deliver a specific service, as opposed to a traditional a monolithic, strongly integrated design. See Eric A. Marks and Michael Bell, *Service-Oriented Architecture: a Planning and Implementation Guide for Business and Technology* (London: John Wiley, 2008).

But how does interoperability work in practice? How does it benefit service delivery concretely? And how can it be achieved? The next section contains four case studies illustrating these aspects. In Kyiv, digital services can deploy new essential services in a few days, rather than months, thanks to an interoperable architecture. In Tallinn, a new 3D planning tool allows citizens to visualise proposed new planning interventions and to verify in real time their compliance with existing legal requirements and infrastructure needs. In Ghent, the administration pre-registers citizens in need with the required discounts and social benefits. In Milan, the Digital Folder gathers data and services from different departments and national administrations, reducing mistakes and simplifying service access for citizens.

'Interoperability offers rapid, agile deployment of services in response to emerging citizens' needs.'

Interoperability in Practice: A Tale of Four Cities

Kyiv, Ukraine
Kyiv Digital

Kyiv Digital is a popular and efficient digital service in the capital of the war-torn European country – a role it would hardly ever seek. But the city's digital team has proven to be able to rise to the challenge.

Provision of interoperable services has been on Kyiv's agenda since 2018, when the city adopted its "Electronic Capital" five-year digital transformation strategy which focussed on removing the silos-based architecture and moved to service-based architecture. The launch of the Kyiv Digital app two years ago put those ideas into practice. Kyiv Digital started as a convenient transport app with a quick access to free parking slots and public transport tickets. Then it developed into a digital services ecosystem involving e-democracy tools.

Kyiv Digital is fully interoperable with Diia, Ukraine's advanced document sharing service, which means that citizens can share documents made available by other services. Ukraine's exemplary nation-wide Diia app allows Ukrainians to store in smartphones their domestic and travel passports, driver's licenses and other documents and certificates which they can easily share when using the city services. Among other all-Ukraine registries integrated with Kyiv Digital are the state registry of vehicles, the registry of administrative offences, the State

Tax Service, the BankID and various payment systems. Kyiv Digital is also interoperable with the Trembita platform, the interoperability service developed at national level, to allow data sharing between public administrations.

Within the city, Kyiv Digital is integrated with the municipal hotline service 1551 known to the Kyiv residents as the contact centre to call when something happens or requires the attention of municipal services. The app allows to easily create an appeal, take photos of the site, mark the location, and then monitor the progress and evaluate the quality of the work done. Other integrated city-level registers include the information and analytical system "Maino" ("Property"), the public services centre, the city transport payment tracking system, and the Qpass managing the quarantine-related passes.

Over the years, Kyiv Digital has helped more than two million users carry out transactions online. The users have purchased over 700,000 transport cards and 24 million QR tickets; paid for parking 450,000 cars almost 700,000 times, paid about 450,000 fines and received two million notifications from utilities.

A year ago, Kyiv Digital launched the public petition mechanism – a new e-democracy tool allowing the city residents to get their collective opinion straight to the decision makers, quickly and effectively. Public petitions can be shared via social media and, after collecting at least six thousand votes, they go directly to the city council. This is, for example, how it became possible to e-pay for all means of public transport. Russia's aggression made the Kyivites feel increasingly strongly about renaming some of the city streets. Petition has become a popular way to come up with or support a new street name.

After 24 February 2022, Kyiv Digital added yet another, unprecedented, trajectory and moved ahead at a maximum speed. The war demanded that the city app be transformed into a life-saving app and new vital functions be added. Emerging needs, such as real time situational awareness, emergency services coordination, unparalleled cyberattacks redefined the city's priorities "overnight" and called for the development of new digital services. The new features include air alarm notification, shelter map, working businesses map and volunteer help to the army. It is a hard gained experience which could be applicable to any kind of disruptions a city may face at the time of pandemics, natural disasters, social and war conflicts.

'Kyiv can deploy new essential services in a few days rather than months.'

Thanks to a robust, modular service oriented architecture, Kyiv was able to add new services and features very rapidly to respond to citizens' demand. Thanks to its five years investment in making silos interoperable, it was able to launch a new service for veterans support integrated with Trembita (to check for personal data) in two months, for what would have taken at least one year in previous conditions.

While working under the unprecedented threats and time pressure, the team got ahead so quickly that the gap between the provision of an e-service and the real-life follow-up has become a challenge. The ease of placing and processing a complaint or a service request cannot be matched as promptly with road repairs, for example. Still, the team is trying to help close the cases by making projections and estimating the costs. In a February 2023

survey, 90% of respondents said they are happy with Kyiv Digital. But the real-life fulfilment of the services, such as road repair, draws frequent criticisms because of the much longer execution times compared to the immediacy of reporting via the digital service. As Oleg Polovynko, Kyiv CIO, put it at **The 2022 UserCentriCities Summit** in Barcelona: "The digital is faster than the real life."[8]

'Now it is necessary to deliver good services consistently, across all services, across all administrative levels, across countries, for all citizens.'

The app's features continue expanding. In April 2023, it added an option to buy train tickets. Its traffic related service has also been improved by adding the metro stations and the up-to-date train schedules. The customer-oriented team actively uses surveys to learn about the user experiences and to assess the needs for further upgrades and new tools targeting different user groups. In addition, the plan is to expand to the city agglomeration and scale the solutions to other cities in Ukraine and abroad. Another key strategic project underway is to integrate the Public Safety Data Model to ensure coordinated efforts of various providers such as energy, water and gas companies.

How does the team ensure the interoperability of services involved? First and foremost, they do it with a commitment to standardisation and unification principles which they apply across the board, i.e., to the structural design and organisation of the app as a whole and its components, to the information classification and integration and to the app modernisation. Moreover, they are looking forward to the improved interoperability that could emerge from the Interoperable Europe Act.[9]

Despite the unparalleled challenges, the Kyiv Digital team remains optimistic and forward-looking. Their dedication and eagerness to share their experience was acknowledged by the special recognition city award at the World Smart City Expo 2022. The 3.5 million city appreciates the service; more than two million of them use it.

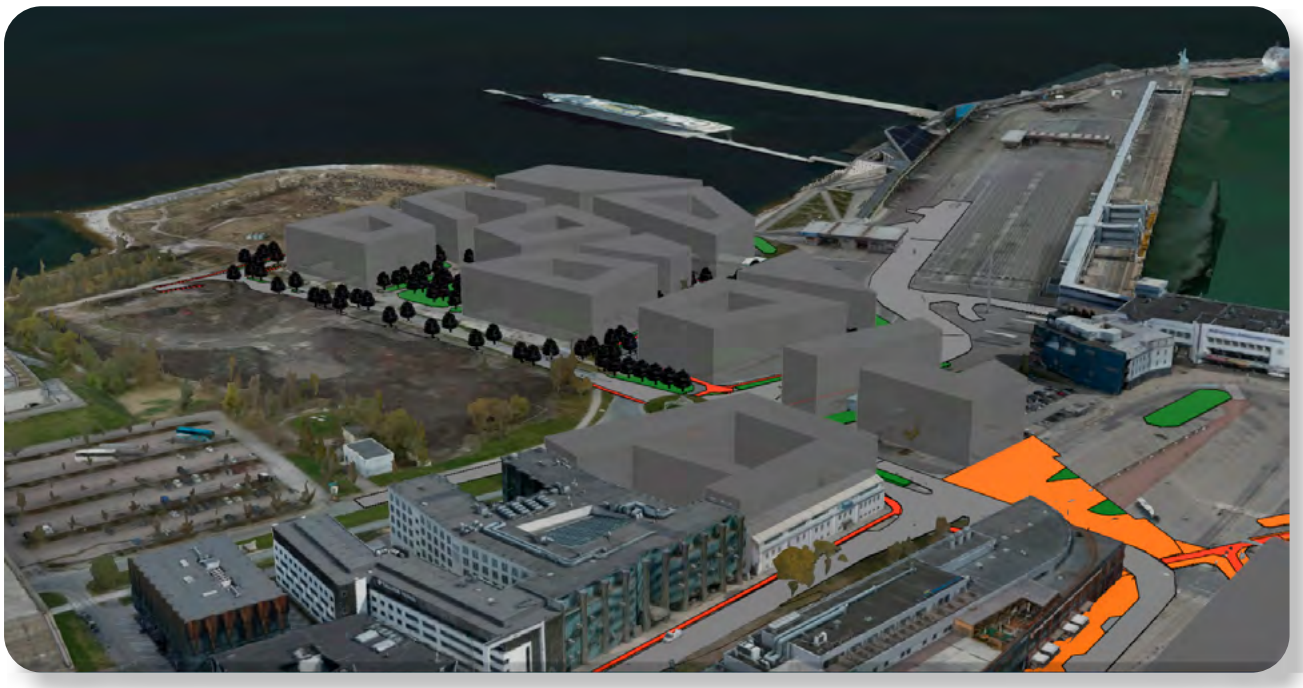
Tallinn, Estonia

Three-Dimensional City Planning

Estonia's digital government is built on a strong interoperability infrastructure, enabling innovative and user-centric public services. The X-tee framework, combined with digital-friendly policies and regulations, has allowed for the consolidation of data and the implementation of government-wide interoperability. As a result, Estonian civil servants are developing future-ready public services, such as the three-dimensional (3D) city planning project in Tallinn, which leverages this interoperability infrastructure to create a more human-centric approach to city planning.

8 CIO Polovynko's sizzling intervention can be viewed in full at https://www.youtube.com/live/HfrThZaloag, the video record of The 2022 UserCentriCities Summit in Barcelona. A very special thanks to the City of Kyiv for being with us in Barcelona despite the evident difficulties their city was encountering in Autumn 2022.

9 See Footnote 7 on page seven.



Urban planning can be a complex and cumbersome process, involving large amounts of data and technical jargon. In Tallinn, civil servants are working to address this challenge by leveraging the building blocks of Estonia's digital government to create an innovative, human-centric solution. By combining interoperability infrastructure and cutting-edge technologies, they have developed a new city planning service that brings all relevant information together in a single, interactive 3D map of Tallinn. This shift from a traditional digital service to a more human-centric approach has the potential to revolutionise city planning. It makes the process more accessible, increases the efficiency of evaluating proposals, and enables a more realistic visualisation of plans. With this new service, Tallinn is leading the way in creating public services that truly put people first.

'One good service can be delivered ad hoc*, but delivering high user experience across all services requires a highly interoperable architecture.'*

The 3D city planning service offers a visualisation of the city akin to real-life, enabling citizens to understand the real impact of a project proposal such as building a new park or a shopping mall. The value created for architects should not be underestimated either. Despite having the knowledge to read project proposals with acronyms and jargon they can now see how their ideas fit in the city environment. Finally, urban planners working in Tallinn can benefit from a partial automation of compliance verification and spare valuable time from looking at norms and regulations.

Data interoperability is the key to the city planning of the future. The Geographical Information Systems (GIS) Department of Tallinn manages a 3D map of the city, which relies on data exchange between national and local level registries.[10] This interoperability ensures that the map is trustworthy and up-to-date. The map is developed in one application, which

10 The map is accessible at https://gis.tallinn.ee/linnamudel/.

connects to multiple databases at the national and local levels, including land, cadastre, business, building and planning.

However, the difference between two dimensional (2D) and 3D data requires software interoperability, which is addressed by using Feature Modelling Engine (FME) software. This software overcomes the challenge of different software systems used for 2D and 3D data as it combines the approaches of Business Information Modelling (BIM) and GIS.

Different software operating with different logics mostly reflects different approaches characteristic of two fields of practice, architecture and urban planning. This is a cornerstone of the discussion on interoperability. In fact, interoperability is not only technological but also organisational. Civil servants in Tallinn know this and point to the multi-stakeholder engagement needed to ensure the success of this innovative public service. Business process changes, such as adding metadata to construction projects since the beginning, are needed to ensure that every stakeholder can visualise the ideas suggested in the 3D map.

'Milan's Citizens' Digital Folder gathers data and services from different departments and national administrations.'

Artificial Intelligence (AI), especially the latest developments such as generative AI, makes many wonder what could be done with the new technology to improve government and what might public service provision look like in only a couple of years. Views on this vary, but many believe AI capabilities could open opportunities and, when combined with Virtual Reality (VR) or 3D mapping, you could have city planning navigation and proposals based only on the description of a project and automated design or problem solution.

However none of this is best driven by top-down change. In the perspective of many Tallinn government officials with whom we talked, the European Commission should encourage the inclusion of interoperability as a strategic component in the public sector of the future. This would help developing these advanced planning tools since they heavily rely on the interoperability of public- and private-sector data and business processes. A network of cities facing the same challenges and sharing experience, knowledge and ideas is the key to facilitating innovation. It also increases the sustainability of innovative public services, giving them deeper pools of applicants to serve and deeper roots from which to study user experience.

Ghent, Belgium
Proactive Service Delivery

Proactive service delivery underpins Ghent's city-wide digital agenda. In a policy brief entitled *More than a Smart City: Data, Innovation and Digitisation*, co-authored by Mayor Mathias de Clercq and Deputy Mayor Sofie Bracke, proactive service delivery is identified as the policy spearheading the city's digital transformation.[11] And while proactive service delivery is often seen as a way to advance the city's digitalisation, Ghent goes a step further, taking a human-

11 Sofia Bracke and Matthias de Clercq, *"Meer Dan Een Slimme Stad: Data, Innovatie en Digitalisering"* (Ghent: City of Ghent, 2021).

centric approach by making it part of its plan to reduce poverty. The authors write "where we provide rights or premiums locally, we opt for an automatic allocation of rights as much as possible. Through data exchange and automation, we ensure that the vulnerable citizen of Ghent gets what he is entitled to." But how is this done in practice? The city already offers three services proactively. First, since 2021, the city provides low-income citizens with free garbage bags for their waste disposal. Citizens in Ghent are obliged to dispose of their waste in bags provided by the city. Their cost ranges from €11.00 to €18.00 per package. Second, the city provides automatic reductions and discounts to parents with low income for daycare and school expenses including food in the canteen and extracurricular activities. And third, the city offers the *Uitpas* a pass where citizens collect cultural points and receive reductions up to 80% for cultural and sports activities, such as museum entrances, or holiday camps for children. While the *Uitpas* is available to all citizens who can collect cultural points and get reductions, the city offers automatic reductions to citizens with low income.

'Automatic, proactive services require granular data access across different departments and administrations.'

Interoperability among national, regional and local registries is the cornerstone for the delivery of these services. City administrators make inquiries to the national and regional social services databases to determine and identify the citizens that meet their criteria to receive these benefits. For the free garbage bags, inquiries are done four times per year and for the school and day care reductions benefits, six times per year. The city uses the citizen's national identification number (ID) as the unique identifier to make these inquiries. After they are identified by the system, the city sends citizens by mail a coupon, which they can use

to get free garbage bags and in the case of school and day care reductions, the reduction is automatically applied to their invoices.

Through the Maximum Data Sharing between Administrations and Agencies (MAGDA) platform, a tool provided by the Flemish Agency of Digitalisation, the city can access national base registries of citizen and enterprise data.[12] More specifically, through MAGDA the city of Ghent gets access to different national registries, such as the Belgian Crossroads Bank for Social Security, a registry combining data from 3,000 actors in the social sector, the Belgian National Register, where the city can verify data such as the address and family status of citizens, the New Horizon database of social services offered by the city of Ghent and the Federal Belgian Public Service for Finance, where the city can access a citizen's fiscal data. Another building block for enabling proactivity is Automatic Advice. The city doesn't have to have all the web tools and services for data analysis or implement them internally. Instead they use Automatic Advice, a business rule engine, provided by the regional Government of Flanders. Automatic Advice, does all the data analysis and attributions on behalf of the city.

'Ghent administration pre-registers citizens in need with the required social benefits thanks to interoperable data registries.'

Quality of data is very important to deliver such services accurately and fairly. While city administrators cannot write information or update the data in these registries, they have the flexibility to adapt their decisions based on more up-to-date and accurate facts and information presented by the citizens at the desk office or online. In addition, the use of the national ID as the unique identifier is an important enabler for drawing together datasets. In Belgium, the national ID number is the same as the social security number, which simplifies data collection.

Offering these services proactively has had multiple benefits for city administrations and citizens. First, this process achieves data minimalisation, allowing city administrators to only collect personal information to what is directly relevant and necessary to accomplish the specific service. Second, in the past the city could only do the inquiry to the registries once per year, while now this number has increased to four times per year for the service on free garbage bags and six times per year for the provision of school and day care reductions; therefore results are more up-to-date and targeting more accurate. In terms of reduction of burden, specifically for the garbage bags benefit, previously the city required more than 1,350 documents to be brought manually to its desks. Since the proactivity was introduced in 2021, only 61 documents are necessary.

Proactivity is also a vehicle for adoption and better uptake of services and benefits by citizens. Regarding the schools and daycare reductions benefit, after the service was automated, the city estimates that the number of parents receiving the benefit rose up to four times.

12 MAGDA provides one common service-oriented data exchange infrastructure for the 190 agencies, 13 departments and 308 local governments of the Flanders Region. For more information visit https://joinup.ec.europa.eu/collection/egovernment/solution/magda-platform/about.

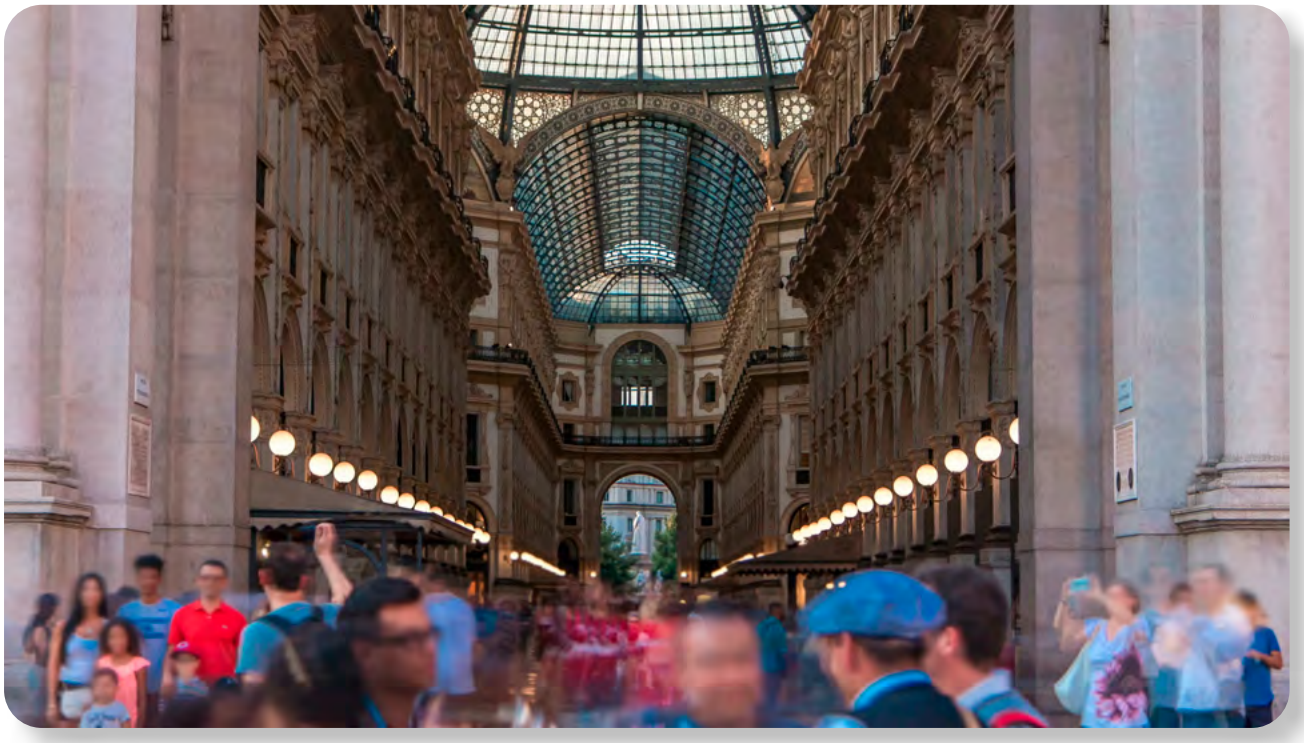
But success wasn't instant. Legal barriers related to permissions for access to national databases based on the General Data Protection Regulation (GDPR) had to be overcome. According to Belgian laws, local authorities weren't allowed to have access to national fiscal data. Without this access, the city would not be able to apply the once-only principle and fully transition their services to proactivity. In 2021, under the leadership of Sarah Spiessens, project leader for simplification and proactive services, the administration initiated a petition to change this law and succeeded in convincing national legal advisors to come up with a solution that would change the existing law and grant the city GDPR-compliant access to fiscal data.

Milan, Italy
The Citizens' Digital Folder

Milan is a virtuous example of digitalisation in Europe. As public administrations are the first contact point for citizens, it is fundamental that civil servants provide simple access to citizens' inquiries. In 2016, the city started to develop the so-called *Mobile First, One Click* strategy. But how does that work in practice? And most importantly, was it possible for the Milan municipality to deliver this promise – and if so, how? A municipality is composed of offices which are often resistant to joined-up innovation, both because of the structure of the services employed and because of the nature of the data processed.

'Interoperability offers the possibility of better data management, including improved data quality and higher levels of data protection.'

Milan's journey started in 2014 with *Progetto di Interoperabilità* (the Interoperability Project). The goal was to set up a platform to allow the administrations' silos to communicate, integrate and enable a data flow to display the information needed to deliver



services in a secure and modular way. The data domain most impacted by the application of interoperability within the administration is the general registry office because of the nature of the data employed. However, it is important to note that it does not act “alone” and it interfaces with other offices and data types in order to be processed and fed into applications offering services to the citizens.

In 2017, the municipality started to work on an innovative project: the citizens’ digital folder. The main goal was to have a unique landing page for citizens where the different offices of the administration could plug in services. The folder provides an integrated access to data held in separate registries: seven from the municipality (from education to toponomy), three national registries (from income to car ownership) and two shared registries (public housing and bus service).

‘Tallinn’s three-dimensional planning tool allows citizens to visualise proposed planning interventions and to verify compliance.’

The municipality outputs the data through the underlying infrastructure. This allows the municipality to centralise the service offer and enable a direct, online access to citizens' personal data. The services provided range from the management of personal documents and certificates to the payment of municipal fees and traffic fines, streamlining the procedures for citizens.

On the back end, the municipality employs the city dashboard, a tool supported by internal key performance indicators (KPIs) that monitors the most requested services and provides constantly updated data - some even in real time - to the city’s analytics department. Simultaneously, the dashboard is an interactive tool for the many municipality departments who are in charge of transforming data into policy. For example, the municipal website underwent a complete review and make-over in 2019, which revealed that people primarily visited the site to obtain clear transactional information and services. This finding drove the development of a new website that prioritised direct access and clear information on city services over narrative-focused content.

In addition to the online portal, in 2020 the digital lead division and the citizen experience department of the municipality developed a dedicated digital citizen folder app to improve citizens’ experience when requesting services, and to take advantage of the ubiquity and accessibility of mobile devices. The project is a cornerstone of the “Mobile First, One Click” user-centred approach established by former Deputy Mayor for Digital Transformation Roberta Cocco. The app serves as a digital repository for citizens’ personal documents, including vital records and voter registration cards. It also enables digital transactions such as scheduling in-person appointments, accessing personal data for the individual and their family, downloading certificates, reporting complaints and requesting assistance.

The story of Milan is the story of a city that exploited a learning opportunity and continues to grow, focusing on citizens’ needs and prioritising easy, fast and simple communication. However, what emerges as interesting from the Milan story is that the biggest challenges are not technical. There are several standards in place now and they are well-consolidated. The main barrier is cultural. It was a long process to get the different offices on-board with the importance of the so-called “data culture,” often missing in public administrations, especially

the small ones. This is not the case for a metropolis like Milan, yet it is crucial to observe that civil servants acknowledge that one fundamental element of the digital transition relates to the enforcement of a digital culture as well.

What Next? A Four-Point Roadmap

The current policy context is particularly favourable in view of the European Commission's "Interoperable Europe Act," a proposal currently under discussion and headed for negotiation and amendment by the "co-legislators," that is, the European Parliament and the Council of the European Union.[13] The very choice of a regulation, the strongest of the legislative measures available in the European Union toolbox, in itself implies a welcome recognition of the importance of the topic – even if limited to cross-border services. The new act aims to promote greater ownership of cross-border interoperability policy at the member-state level through the creation of the "Interoperable Europe Board," a new governance body, which (under the proposal) will be composed of EU member states, the European Commission, the Committee of the Regions and the Economic and Social Committee. The Board is entitled to define the European Interoperability Framework, to cooperate on guidelines and standards, to recommend solutions and to select common digital initiatives on which to work. Needless to say, the Act is a welcome step forward and an inspiration for delivering great digital services for all European citizens. The question that informs the argument in this policy brief is, how can we help? How can we make the Interoperable Europe Act and similar local and national initiatives a success? We propose a four-step roadmap, with actions that are crucial and relevant for all levels of government.

'We propose four steps to make the Interoperable Europe Act a success.'

1 Put Political Capital First

Delivering interoperability entails a long-term commitment, negotiation with all parties involved and a process to gain the trust of all such parties. Successful initiatives share one common trait: a long-term, high-level political endorsement from the top. For instance, the city of Milan has been working to make their data registries interoperable since 2014, long before the launch of the new "Digital Service Folder" under the strong leadership of the then new Deputy Mayor Cocco, who incidentally brought vision and private-sector experience to this crucial job. Similar stories can be found in many of the cases presented in this policy brief.

Strong political capital is expressed not primarily through budget, but through a long-term hands-on approach, including hiring and governance. First, political leaders should be deeply committed to the interoperability agenda in the long term and understand its technical implications enough to be able to interact with technical experts. Second, administrations should hire new top-level expertise (from the private and the public sector) to lead the transformation and deliver interoperable services, with the goal to gain the trust of all parties by delivering tangible results. Third, these managers should have a strong mandate

13 European Commission, *Op. cit.*

to negotiate interoperability agreements with all the city departments, as well as with third party administrations such as social security or ministries. In the case of Ghent, the appointed expert has a dedicated role to negotiate access national base registries, addressing the data protection and legal concerns of different data holders.

'Successful initiatives share one common trait: long-term, high-level political endorsement from the top.'

The political approach of the Interoperable Europe Act is therefore very well thought through, as it focusses rightly on gaining the political buy-in of the member states and investing in governance structures, joint promotion of standardisation and collaboration frameworks. But to be successful, this framework should be accompanied by delivering visible results that are seen as useful by the member states. The cities studied in this policy brief were able to ensure the buy-in of the different departments in interoperability initiatives not through negotiation alone, but by understanding their needs and gaining trust by delivering outcomes that were genuinely useful to them, mostly by recruiting new qualified experts at senior positions. Similarly, the European Commission, the member states and any institution promoting interoperability should focus on increasing trust by delivering results that are useful to citizens but also recognised as useful by the other stakeholders. The work on the EU Digital COVID Certificate offers a clear example of collaboration that delivers benefits to all parties.[14]

2 Clarify Data Protection Implications

Every case in this policy brief, as well as countless other examples, highlights the difficulty for public administrations in gaining access to the data even when interoperability is in place. Interoperability can be seen as a threat to data protection, but the opposite is true. Interoperability means no data duplication, more data minimisation and greater control over who has access to data. Yet consistently, cities report that access to the necessary data creates a continuous legal struggle and that it requires dedicated resources to navigate the obstacles posed by different administrations based on data-protection issues. For instance the city of Ghent was able to deliver proactive services only by having a dedicated person in charge of negotiating access to base registries with different data holders.

To be clear, this can be fully acceptable, as data protection deserves this kind of attention, and a learning process is certainly in place. But there is no doubt that at scale, within some public administrations, data protection combines with a well-known risk aversion culture to act as a bottleneck to effective data sharing, in particular for organisations who do not have the resources to dedicate personnel to this issue.[15] In particular, it should be recognised that dealing with data protection is a question of trade-offs between costs and benefits. Today, the reality is that every single local administration is addressing the issue on its own, replicating similar questions and issues. There is a strong need for making it easier to address data protection concerns, to accelerate the pace of learning, to move from thousands of *ad hoc* fragmented efforts to a shared learning at scale. This will help compliance and remove

14 For the importance of delivery as a vehicle of trust, see Andrew Greenway, Ben Terrett, Mike Bracken and Tom Loosemore, *Digital Transformation at Scale: Why the Strategy is Delivery* (London: London Publishing Partnership, 2018).

15 See also Nuttaneeya (Ann) Torugsa and Anthony Arundel, "Rethinking the Effect of Risk Aversion on the Benefits of Service Innovations in Public Administration Agencies," *Research Policy*, 2017.

some of the bottlenecks to public-sector innovation. This is why the authors reiterate the need for institutions such as the European Data Protection Board (maybe in collaboration with the European Data Innovation Board envisaged by the Data Governance Act, and the Interoperable Europe Board) to clarify under what conditions access to base registries should be granted for public services delivery, building on the immense experience gained by individual cases.

3 Cultivate the Ecosystem

It might seem self-evident that delivering interoperability requires the involvement of all stakeholders, including the member states, different national departments and ministries, agencies, regional and local authorities, and last but not least the private sector and civil society. To make interoperability effective, interoperable solutions should benefit all the different parties necessary to deliver it.

Interoperability, to succeed, needs to be owned and endorsed by all these stakeholders and the decision to include in the Act not only a Board composed of the member states but also an Interoperable Europe Community composed of all stakeholders is certainly a step in the right direction. This high-level governance framework should be accompanied by concrete actions that show a real commitment to meet the needs of all relevant stakeholders. The cases illustrate well this approach, where any interoperability was only achieved by delivering clear benefits for the different departments and agencies involved.

The direct involvement of local authorities should be prioritised as they are the part that has most interaction with citizens. Regional authorities play a key role in making sure that small municipalities are involved by delivering support and joint services.

Last but not least, this extends to the careful involvement of providers – software companies and individual developers. Their ownership of interoperable solutions and standards is at least as important as the role played by public administrations. The uptake of electronic ID, for one, could only become a reality if identification providers embrace the public standard. This is particularly important in the context of public procurement of ICT, which is often plagued by a strong presence of incumbents and a market that is very fragmented nationally. The latest available data point to less than 4% of public procurement being cross-border. Moreover, this is typically not geared towards innovative solutions. Recent research shows that "in 2018, the 30 countries around Europe devoted only 9,3% of their total public procurement expenditure (10% when including defence) to the purchase of innovative solutions, which is only just above half of the ambition level."[16] In other words, creating a "community" is the easy part. The difficult one is keeping the community engaged, and ensuring that it is populated

'Political leaders should be deeply committed to the interoperability agenda.'

16 For cross-border procurement, the data come from Zornitsa Kutlina-Dimitrova and Csilla Lakatos, "Determinants of Direct Cross-Border Public Procurement in EU Member States," *DG Trade Chief Economist Note* 2-2014 (Brussels: European Commission, 2014). For public procurement of innovation, see PWC, *The Strategic Use of Public Procurement for Innovation in the Digital Economy* (Brussels: European Commission, 2021).

by the right entities, in particular by small innovative companies – the so called govtech ecosystem.[17]

The quality of the stakeholders involved, and their engagement, will be where the interoperability game is won or lost. It is necessary to coordinate all the different instruments available, such as standards, support services, benchmarking, negotiation, funding and procurement, to ensure the involvement of this diverse set of actors.

4 Monitor, Showcase and Reward Interoperability and Reuse

Interoperability needs to get into the limelight. Policymakers and the public at large need to better understand its crucial importance. Currently, there is too little in terms of measurement and showcasing.

The National Interoperability Framework Observatory (NIFO) provides a much needed service, but its indicators need to be more relevant to distinguish real progress. It is simply unrealistic that the average EU score on interoperability reaches 100% on the majority of the 12 interoperability principles, as the latest progress report indicates. Indicators should be able to discriminate between the progress of different administrations, so they can act as a roadmap for all administrations, including local ones. And the monitoring of adoption of open standards in procurement, carried out in previous *ad hoc* studies, should be continued.[18]

'Administrations should hire new top-level experts from the private and public sector to lead the delivery of interoperable services.'

In addition, the business case for interoperability needs greater visibility, for instance through prizes for interoperability implementation. Cases of reuse of software by public administration should be particularly recognised, not by awarding the administration developing the interoperable solution that is reused, but the administration which decided to reuse the solution: the goal is to highlight the benefit and to combat the well-known "not invented here" syndrome.

17 On the opportunities and challenges of govtech, see Ines Mergel, Peter Ulrich, Maciej Kuziemski and Amanda Martinez, "Scoping GovTech Dynamics in the EU," *JRC Technical Report* (Brussels: European Commission, 2022).

18 See European Commission, *State-of-Play Report on Digital Public Administration and Interoperability 2022* (Brussels: European Commission, 2022). For more on open standards, see European Commission, *Study on Best Practices for ICT Procurement based on Standards in order to Promote Efficiency and Reduce Lock-In: Final Report* (Brussels: European Commission, 2016).

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