



Towards user journeys
for the delivery of cross-border services
ensuring data sovereignty

POLICY BRIEF

User-centricity, interoperability and citizens' data sovereignty: the foundations of cross-border digital public services



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1st ACROSS POLICY BRIEF

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¹This policy brief builds on the early research co-created for the ACROSS project, a 11-partner consortium co-financed by the European Union.

The consortium includes the Athens Technology Center (ATC), Tecnalía, Dataport, Engineering, Grnet, The Lisbon Council, Timelex, WAAG, Fraunhofer, the Ministry of Environmental Protection and Regional Development of Latvia (VARAM), and GFOSS.

The three-year project will provide a novel framework aiming to substantially complement SDG and Your Europe portal by leveraging the advanced capabilities of cloud, privacy-preserving, semantic interoperability, and mobile technologies, to build the next generation public services ecosystem while maintaining the highest privacy level.

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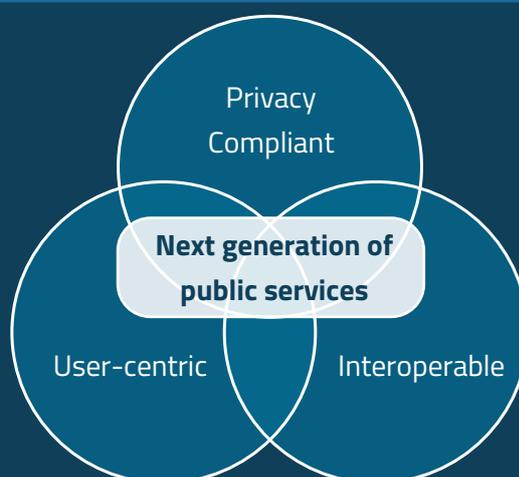


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Executive Summary

Delivering seamless cross border digital public services to citizens regardless of where they live may well be a long-standing goal of European policy, but the daily experience of citizens is different. Only half of essential public services are available cross-border, and eIDAS compliant solutions are rarely available and even more seldom used. Effective cross-border public services in Europe require user-centricity, interoperability and privacy embedded in their design. Unfortunately, turning these goals into reality is easier said than done.

It requires a renewed commitment to delivery and standard enforcement, combined with the need for continuous experimentation, agility and trial and error. There are promising signs, such as the new proposal on the European identity wallet, but there are also unsolved trade-offs between privacy, interoperability and user-centricity.



To address this demonstrated need for a coordinated approach to cross-border public services, the ACROSS project, funded by the Horizon 2020 programme, investigates a new way to deliver cross border public services, with citizens' data sovereignty at its core. The central principle is that citizens should control their data and monitor how it is accessed and used. Over the following months, ACROSS will expand the platform and the Application Programming Interfaces (APIs) necessary to pilot this approach in three use cases. The solutions are based on a co-creation approach with key stakeholders.

This policy brief outlines the importance of privacy, interoperability and user-centricity in cross-border public services. The first chapter illustrates the significance of cross-border services and why such types of services are so crucial to the EU and the member states. The second chapter focuses on the most prominent barriers hindering the advancement of such services. The third chapter depicts how cross-border services should be designed. Chapter four presents the ACROSS solution, how it will help translate the appropriate perspectives into practice and conclude with the ACROSS project's next steps. These issues are what this policy paper is about – a new solution that is going to be translated into concrete services by the EU funded ACROSS project.

1 Why effective cross-border services matter

Two years of the COVID-19 pandemic showed that many things European citizens took for granted can be disrupted: their freedom of movement throughout the European Union (EU) being one of them. Almost one-third of the EU population live in border regions or need to study or work in neighbouring countries.² However, in 2020, the COVID-19 pandemic abruptly made national borders visible again – even more so due to the coincidence with Brexit. Long-lasting border controls have a strong economic impact. These controls can generate a decline in trade of more than 10% between neighbour countries of the Schengen area, resulting in a 0.8% drop in the area’s gross domestic product (GDP).³ And a 1% decrease in the proportion of cross-border services would cost the EU economy roughly €8 billion.⁴

While these physical borders tangibly impact people’s freedom of movement, the possibility of using public services seamlessly across borders remains to be an invisible barrier that complicates European citizens’ efforts in conducting their lives abroad. Policymakers have long put interoperable public services at the

centre of European digital policy, more recently through the Single Digital Gateway regulation (SDGR)⁵ and the Regulation on electronic identification and trust services (eIDAS Regulation). Despite this, the once-only principle (OOP) across Europe is yet to be attained. The slow and challenging uptake of eIDAS solutions has shown that it remains cumbersome to access digital services from different countries throughout the EU. According to a recent evaluation study of the eIDAS Regulation⁶, only 14 member states have notified an electronic Identification (eID) to the European Commission or ensured that their eIDAS nodes are up and running. To some extent, cross-border interoperability is ensured, but there are significant challenges, particularly regarding organisational interoperability, which defeats the goals of decreased administrative load and improved service quality.

There are well-known barriers to achieving seamless cross-border services, such as legal constraints between member states, a lack of interoperability, absence of political priority and technical and legal difficulties in ensuring data

² European Commission, “EU Cross-Border Cooperation Survey (2020),” accessed February 15, 2022, https://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/survey-2020/.

³ Vincent Aussilloux and Boris Le Hir, “The Economic Cost of Rolling Back Schengen,” 2016, https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/the_economic_cost_of_rolling_back_schengen_0.pdf. The Schengen area is a zone in which 26 European countries have abolished their internal borders to allow for free and unrestricted movement of people, while also adhering to common rules for controlling external borders and combating criminality by bolstering the common judicial system and police cooperation.

⁴ Manuel Fritsch and Roman Bertenrath, “Cross Border Services in the Internal Market: An Important Contribution to Economic and Social Cohesion.” (Luxembourg: Publications Office, 2019), <https://data.europa.eu/doi/10.2864/06095>.

⁵ European Commission, “Single Digital Gateway,” accessed February 17, 2022, https://ec.europa.eu/growth/single-market/single-digital-gateway_en.

⁶ Davide Ceccanti et al., “Evaluation Study of the Regulation No.910/2014 (EIDAS Regulation): Final Report” (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/850876>.

privacy for all citizens.⁷ Also, the tension between striving for greater data sharing that enables the OOP to become a reality across borders and the growing concerns over personal data use and misuse has become ever more critical. To ensure effective cross-border services

in Europe, it is necessary to develop a new approach that aligns user experience, interoperability, and data sovereignty as co-existing objectives rather than mutually exclusive concepts.

2 The barriers to seamless cross-border services

The goals of delivering the once-only principle by putting citizens at the centre of government decisions are endorsed in several political declarations on digital policy – from Tallinn, to Berlin, to Lisbon, to the most recent EU declaration. Nevertheless, frequent barriers impair the uptake of cross-border services across the EU.

2.1 Digital public services are not yet user-centric enough

The current scenario paints a vicious cycle for digital public services: a) there is a limited supply of cross-border digital public services in the EU⁸; b) there is relatively low citizen demand for and acceptance of these services⁹ and c) the reason for this low demand is that public services are insufficiently focused on the user¹⁰.

2.1.1 There are few cross-border digital public services in the EU

In addition to services for their own citizens, European governments provide services to cross-border citizens. When living, studying or working in a cross-border setting, these citizens may prefer to access foreign government systems with their own eID. According to the European eGovernment Benchmark, less than half of these national services are designed for international users (EU citizens from other countries), and business services have greater availability than services to citizens. The benchmark¹¹ identifies key limitations in European cross-border services (see Figure 1):

⁷ Tarmo Kalvet et al., "Cross-Border e-Government Services in Europe: Expected Benefits, Barriers and Drivers of the Once-Only Principle," in *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance* (ICEGOV '18: 11th International Conference on Theory and Practice of Electronic Governance, Galway Ireland: ACM, 2018), 69–72, <https://doi.org/10.1145/3209415.3209458>.

⁸ Niels van der Linden et al., "EGovernment Benchmark 2021: Entering a New Digital Government Era: Insight Report" (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/55088>.

⁹ Eurostat, "Individuals Using the Internet for Interaction with Public Authorities, by Type of Interaction - Products Datasets -

Eurostat," accessed February 14, 2022, https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_bde15ei&lang=en.

¹⁰ Hendrik Scholta et al., "Walking a Mile in Their Shoes—A Citizen Journey to Explore Public Service Delivery from the Citizen Perspective," in *Electronic Government*, ed. Gabriela Viale Pereira et al., vol. 12219, Lecture Notes in Computer Science (Cham: Springer International Publishing, 2020), 164–78, https://doi.org/10.1007/978-3-030-57599-1_13.

¹¹ Niels van der Linden et al., "EGovernment Benchmark 2021: Entering a New Digital Government Era: Insight Report" (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/55088>.

8 OUT OF 10

public services are available for national users online (81%).



4 OUT OF 10

public services (43%) are available for cross-border users.



2 OUT OF 10

of public services (24%) enable access with eIDs from other European countries.



Figure 1: Cross-border services availability¹²

Amongst the four main dimensions of the latest eGovernment benchmark (user-centricity, transparency, key enablers, and cross-border services), cross-border services are the least-developed dimension. Successful examples include Luxembourg, which allows people from other EU countries to register their business online¹³, or Sweden, which enables international students to digitally enrol in a new programme.¹⁴

Unfortunately, most public cross-border services still only accept eIDs from their respective countries. Only a quarter of government services (24%) from public sector providers enable access with eIDs from other countries.¹⁵

2.1.2 Low demand for digital public services

Although online availability of public services still requires much work across the EU, governments continue to focus on making public services available online rather than redesigning the full-service delivery value chain around citizens' current needs and expectations.¹⁶ If governments wish to raise adoption rates in cross-border services, then it is necessary to design these services with the final user in mind.

2.1.3 Citizens' digital skills are an essential variable in adopting digital public services.

The European Commission's 2021 Digital Economy and Society Index (DESI) report shows that 44% of the EU population is unable to perform essential tasks such as connecting to wi-fi or using websites.¹⁷ Additionally, citizens seem to be much keener to use eCommerce than eGovernment, as it can be seen in Figure 2.

¹² Niels van der Linden et al., "EGovernment Benchmark 2021: Entering a New Digital Government Era: Insight Report" (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/55088>.

¹³ The Government of the Grand Duchy of Luxembourg, "Applying for a Business Permit," accessed February 11, 2022, <http://guichet.public.lu/en/entreprises/creation-developpement/autorisation-etablissement/autorisation-honorabilite/autorisation-etablissement.html>.

¹⁴ University Admissions, "Apply to Courses and Programmes in All of Sweden," accessed February 11, 2022, <https://www.universityadmissions.se/en/about-this-website/>.

¹⁵ Linden et al., "EGovernment Benchmark 2021."

¹⁶ Frank Bannister, "The Curse of the Benchmark: An Assessment of the Validity and Value of e-Government Comparisons," *International Review of Administrative Sciences* 73, no. 2 (June 2007): 171–88, <https://doi.org/10.1177/0020852307077959>.

¹⁷ European Commission, "The Digital Economy and Society Index (DESI) 2021," 2021, <https://ec.europa.eu/newsroom/dae/redirection/document/80563>.

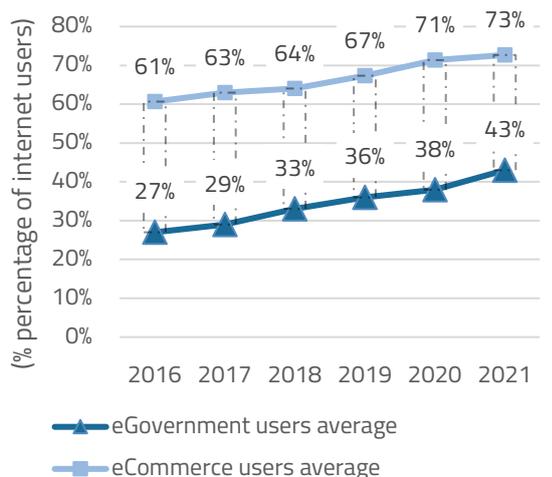


Figure 2: Growth in usage of eServices

For eGovernment, the data refers to the percentage of adults using transactional public services, i.e., submitting forms online.¹⁸ For eCommerce, the data refers to the average percentage of adults who bought goods or services online for private use.¹⁹

The low citizen adoption rates of digital public services are partially attributed to the services' poor user-centricity. According to Eurobarometer, only 46% of Europeans consider the public services in their country to be "good", while 51% consider them "bad". The other 3% have stated that they "don't know" how to feel about their public services.²⁰

¹⁸ Eurostat, "Individuals Using the Internet for Interaction with Public Authorities, by Type of Interaction - Products Datasets - Eurostat."

¹⁹ Eurostat, "E-Commerce Statistics for Individuals," accessed February 9, 2022, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=E-commerce_statistics_for_individuals.

²⁰ European Commission, "Public Opinion in the European Union: Standard Eurobarometer 94 - Winter 2020-2021" (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2775/841401>.

²¹ Scholta et al., "Walking a Mile in Their Shoes—A Citizen Journey to Explore Public Service Delivery from the Citizen Perspective."

²² Nalini Kotamraju and Thea van der Geest, "The Tension between User-Centred Design and e-Government Services," *Behaviour &*

The absence of user involvement in the design and development of eGovernment services is often cited²¹ as a reason for the lag in digital public services uptake. Citizens will only accept and adopt digital public services of organisations they feel they can trust, so the design should represent the administration's trustworthiness and create a sense of confidence and control in the citizen. When technology-mediated service encounters lack those qualities, they are not perceived as suitable alternatives to other modes such as face-to-face interactions between government officials and citizens. As a result, this gap in trust is potentially diminishing the acceptance of digital government services.²²

User-centricity is about the end-to-end satisfaction of citizens' needs.²³ If citizens' needs are not holistically embedded in an eGovernment service, it is unlikely to be valuable to or used by citizens. Such types of poorly designed eGovernment services reinforce the gap between citizens and governments and erode trust in public institutions. And having user-centric public services goes beyond having an attractive, well-designed website.²⁴

Information Technology 31, no. 3 (March 2012): 261–73, <https://doi.org/10.1080/0144929X.2011.563797>.

²³ Saqib Saeed, Thurasamy Ramayah, and Zaigham Mahmood, eds., *User Centric E-Government: Challenges and Opportunities*, Integrated Series in Information Systems (Cham: Springer International Publishing, 2018), <https://doi.org/10.1007/978-3-319-59442-2>.

²⁴ Chrysoula Mitta, Charlotte van Ooijen, and David Osimo, "User-Centricity: What It Means, How It Works, Why It's Needed. How Relentless Focus on End-Users Raises Adoption and Delivers Better Services to Citizens," 2021, 13, https://lisboncouncil.net/wp-content/uploads/2021/11/lisbon_council_user-centricity_what-it-means_how-it-works_why-its-needed.pdf.

2.2 Insufficient progress on interoperability

Alongside user-centricity in public services, interoperability must also be improved to foster effective cross-border services. ISA² (Interoperability Solution for Public Administrations, Businesses, and Citizens) is an EU-funded programme that supports the development of digital solutions that allow public administrations, businesses and citizens in Europe to benefit from interoperable cross-border public services. The programme was created in order to solve interoperability issues that public authorities face when delivering cross-border services to EU citizens.

The latest ISA² assessment report²⁵ finds that the programme has been less successful in "developing more effective, simplified and user-friendly public e-administration at the national, regional and local levels" with an average score of 3.20 out of 5. The review showed that regionally and locally, there is still a lack of awareness and adoption of solutions. In addition, there is a lack of a calculated and comprehensive strategy. In this sense, governments must address interoperability issues, which can be divided into three primary levels: technical, organisational, and semantic.

Technological factors are a prominent barrier to achieving interoperability between member

states and delivering data sovereignty for citizens.²⁶ For example, database conflicts occur when distinct member states adopt different units of measure for the same type of data or use incompatible systems.²⁷ These differences complicate data processing when executing cross-border services.

Aside from technical differences, member states also vary greatly concerning administrative procedures and organisational culture. The absence of organisational rules such as standard forms, processes and contact information increases the administrative costs of cross-border exchanges and the mental effort of understanding procedures for public servants, businesses and affected citizens alike.²⁸ As each member state has its own systems, people must consider different processes when engaging with cross-border services, which often run between different administrations in a single workflow. Unfortunately, in most cases, the user does not have an option and must use whichever system the public administration makes available.

Centralisation versus decentralisation is also an important point, where certain member states may appoint a single public organisation to oversee the workflow, in others, it may be decentralised to some extent and thus

²⁵ European Commission, "Report From the Commission To The European Parliament And The Council Results of the Final Evaluation of the ISA² Programme," 2021, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:965:FIN>.

²⁶ Adrian Mocan et al., "Solving Semantic Interoperability Conflicts in Cross-Border E-Government Services," *International Journal on Semantic Web and Information Systems* 5, no. 1 (January 2009): 1–47, <https://doi.org/10.4018/jswis.2009010101>.

²⁷ Carmen-Elena Cîrnu and Carmen-Ionela Rotună, "Cross-Border EServices for Public Administration Driven by Once-Only Principle,"

Revista Română de Informatică Și Automatică 30, no. 4 (December 18, 2020): 99–110, <https://doi.org/10.33436/v30i4y202008>.

²⁸ Nikolaos Loutas et al., "Building Cross-Border Public Services in Europe Through Sharing and Reuse of Interoperability Solutions," *Proceedings of the 14th European Conference on EGovernment (ECEG 2014)*, 2014, 170–79, <https://www.proquest.com/openview/6964291f2da5da625059b06e1ca75da6/1?pq-origsite=gscholar&cbl=1796415>.

complicate when identifying the competent public organisation.

Semantic interoperability is hampered by a lack of agreed-upon data models and reference data, such as code lists, identifiers and taxonomies. For one, there are no widely accepted data models or reference data that member states can use to interconnect their services. Secondly, various governmental administrations utilise a variety of overlapping and unaligned standards in the same context (for example, distinct public sector organisations using vocabularies to indicate different styles of commercial activity).²⁹

2.3 Citizens' concerns about data and online services

In addition to user-centricity and interoperability, another barrier to seamless cross-border services is the lack of trust in how digital services treat data. The digital world revolves around data, and this relationship is highly trust dependent. Only if citizens can 'trust' that their data is secure will they continue to share it with corporations and governments, shop online and adopt innovative services.³⁰

However, as Figure 3 shows, citizens' trust in the way their data is used is poor and economic progress is hampered by this lack of confidence. Most Europeans do not trust governments to keep their data secure, and for half of them, this is a reason not to use eGovernment services.

²⁹ Loutas et al.

³⁰ Viviane Reding, "Digital Sovereignty: Europe at a Crossroads," 2016, <https://institute.eib.org/wp-content/uploads/2016/01/Digital-Sovereignty-Europe-at-a-Crossroads.pdf>.

9 OUT OF 10 Europeans

are concerned about mobile apps collecting data without their consent (92%).



6 OUT OF 10 Europeans

are concerned about their online personal information not being kept secure by public authorities (61%).



ALMOST HALF of Europeans

do not utilise eGovernment services because of data privacy concerns.



Figure 3: Citizens' concerns about data safety³¹

This is obviously part of a wider societal concern over how data are used. In a recent study conducted, by the European Union Agency for Fundamental Rights (FRA), an average of 55% of respondents (from a total of 35,000 people) expressed concern that the information that they disclose online and on social media could be accessed maliciously.

One-third of citizens (31%) are concerned about their data being accessed without their consent by corporations, followed by foreign governments (30%).³² Yet it is clear that such concerns do not hamper the adoption of social media as much as they hamper eGovernment. Winning the trust of citizens remains a challenge.

³¹ European Commission, "Europeans' Attitudes towards Cyber Security" (Luxembourg: Publications Office, 2017), <https://data.europa.eu/doi/10.2837/82418>.

³² European Union Agency for Fundamental Rights., "Your Rights Matter: Security Concerns and Experiences: Fundamental Rights Survey" (Luxembourg: Publications Office, 2020), <https://data.europa.eu/doi/10.2811/549982>.

3 The next generation of public services

The next generation of public services must be a) user-centric, b) interoperable by default, and c) privacy compliant by default. These principles are necessary to increase citizen trust in digital public services, improve people's experience while using these services and enhance the efficiency of local, national and EU institutions.

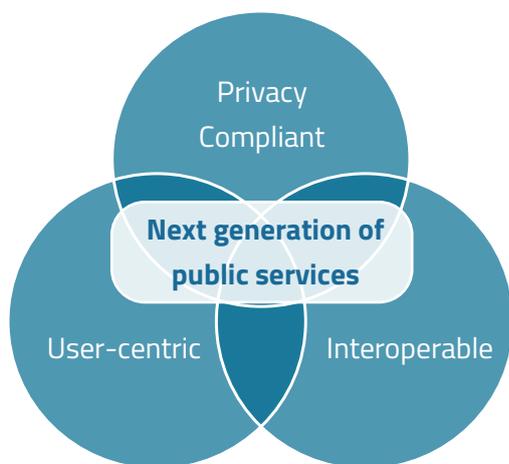


Figure 4: Next generation of public services

This is a long-term vision, but many examples of such services are already available. To propagate seamless cross-border services in the EU, these three principles must be consolidated at scale. For example, **the citizen data dashboard in Estonia**³³ allows people to select how to share information with government agencies and see precisely which public employees are utilising their data and for what purpose: All done in a

user-friendly format. This process safeguards citizen data and boosts institutional trust while raising adoption rates. It should be no surprise that the adoption rate of digital public services in Estonia is very high.³⁴

Another use case is the **Italian Public Digital Identity System (SPID)**, enabling people and businesses to access eGovernment services. Italy has long struggled with defining a stable, standard eID solution that citizens adopt widely. Through SPID, residents can access an eIDAS-compliant, 3-level security authentication system and online services associated with over 5,000 local and central administrations, public bodies, agencies and private individuals, all using the same ID and password. The adoption of SPID has skyrocketed during the COVID-19 pandemic, as it has been integrated into the processes to access financial emergency support.³⁵

While these cases are strong examples of services meeting the three goals of user-centricity, interoperability and privacy being mutually reinforcing, there are also trade-offs. For example, privacy requirements can stand in the way of user-centricity, such as when users must click through many consent forms. Interoperability can stand in the way of privacy by allowing the aggregation of citizen data by

³³ Republic of Estonia Information System Authority, "Usage of Personal Data," accessed February 12, 2022, <https://www.eesti.ee/en/security-and-defense/safety-and-security/usage-of-personal-data>.

³⁴ Niels van der Linden et al., "EGovernment Benchmark 2021: Entering a New Digital Government Era: Insight Report"

(Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/55088>.

³⁵ Agenzia per l'Italia Digitale, "Public Digital Identity System," Spid, accessed February 12, 2022, <https://www.spid.gov.it/en/>. The initiative became so successful that it disrupted the process for requesting a referendum, made much easier by the electronic collection of signatures, and led to the creation of the new term "SPID democracy."

potentially harmful third parties through unique persistent identifiers. And user-centricity can be at odds with interoperability, requiring the adoption of more universal data standards that can be less fit for specific user or service types.

The importance of these three objectives and trade-offs are exemplified in one of the European Commission's flagship initiatives, the new European digital identity wallet. The new identity will allow citizens to easily authenticate themselves when utilising digital public services across national borders while providing a secure, user-centric environment (see Box 1).

However, as seen with the debate on revising the eIDAS Regulation, the wallet's implementation requires an intelligent conciliation of trade-offs and continuous experimentation. This resolution is precisely the challenge addressed by the ACROSS project (Towards User Journeys for the Delivery of Cross-Border Services Ensuring Data Sovereignty). Before explaining the project's contributions to this debate, it is necessary to understand more about the new European digital identity:

On 03 June 2021, the European Commission unveiled a new framework³⁶ for the European digital identity in the form of a bloc-wide digital ID.

³⁶ European Commission, "Proposal for a Regulation of the European Parliament and of the Council Amending Regulation (EU) No 910/2014 as Regards Establishing a Framework For a European Digital Identity" (2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0281>.

³⁷ Eurobarometer, *Digital Rights and Principles: Report*. (Luxembourg: Publications Office, 2021), <https://data.europa.eu/doi/10.2759/30275>.

³⁸ European Commission, "Commission Proposes a Trusted and Secure Digital Identity," accessed January 31, 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2663.

If approved, it will allow European citizens to prove their identity online for online and offline public and private services across the EU.

While 85% of EU citizens want a secure and trustworthy single digital ID for a wide arrange of public and private digital services,³⁷ only 14% of public service providers in all member states use an eID system to support cross-border authentication, such as proving a person's identity online without the need for a password.³⁸

User-centricity is a longstanding challenge of electronic identification, and few countries have managed to provide an eID that has become mainstream and regularly used.³⁹ Therefore, one of the proposal's innovations is the possibility of carrying an accepted form of identification in a mobile app recognised in all 27 member states.

This form of identification is also interoperable by default as the wallet goes one step further than eIDAS by defining a single, EU-wide approach to digital identity. The wallet will also provide privacy by design by allowing people to control and track what information they share with third parties.

As of May 2022, the next step in the legislative process for the European digital identity wallet is a committee vote on 28 June 2022 on the draft report in the European Parliament.⁴⁰

Box 1: The new European Digital Identity Wallet

³⁹ Charlotte van Ooijen and David Osimo, "Unlocking the Hidden Data Pearls in Digital Government Monitoring: Measuring Uptake at the Source," Co-VAL blog, 07 May 2021. <https://www.co-val.eu/blog/2021/05/07/unlocking-the-hidden-data-pearls-in-digital-government-monitoring-measuring-uptake-at-the-source/>

⁴⁰ European Parliament, "Work in Progress - Referred Dossiers - Committee (ITRE)", accessed 05 May 2022, <https://www.europarl.europa.eu/cmsdata/246834/20220405-iter-reporting.pdf>

4 From vision to implementation: the ACROSS project

Currently, when a European citizen wants to work or study abroad, he or she must share a great deal of information with governments, go to their offices in person and patiently await the many bureaucratic processes. While it currently only takes two hours to fly from Germany to Greece, opening a bank account in these countries can take more than two months for a foreigner. It is easy to imagine a better way. People should be able to secure their information in one place, ready to be used when they move, easily share what they want to share and manage how long their data can be accessed. ACROSS functions as a service broker that people can access through a wallet to exchange the data needed to move abroad. It is a one-stop migration portal that offers a full-package experience. ACROSS creates the opportunity to use wallets that EU member states can quickly implement through an open Application Programming Interface (API).

ACROSS focus is to create a simple information-exchange platform that the users can manage. The information is decentralised and there is no need to log in. A mobile application is one of the ways to get access to exchanged data, but an app is not at the core of the platform. Other essential aspects of the platform are a straightforward interface for service providers and users and a well-documented methodology and governance framework. Most importantly, ACROSS is here to create a bridge between local EU governments, facilitate communication and data exchange, and

reduce the stress of moving across EU borders. In short, it is a user-centred approach that respects and safeguards citizens' data while creating interoperable services. ACROSS has two deliverables to achieve this goal.

The first deliverable is the **data governance framework**. The data governance framework will allow citizens to control the use of their personal data. The aim is to give the citizen the chance to govern the access to their data, benefiting from a set of usage policies that implement levels of access, and they can be the sovereign owner of such data. The second deliverable is the **ACROSS platform**, integrating information and communications technology (ICT) components into an innovative platform for seamless cross-border service delivery. This platform is built based upon co-creation sessions to build user journeys.

These key results will be tested in three piloted countries: Germany, Greece and Latvia. These solutions are incorporated into the cross-border scenarios of working and studying abroad. The deliverables will help the EU achieve cross-border services that are interoperable, private and user-centred. These two everyday life events will be tested and integrated between these countries. And how the project will accomplish these feats is explained in the following paragraphs and depicted in Figure 5.



Figure 5: Translating the perspectives into practice

4.1 The ACROSS personal data governance framework

What does personal sovereignty mean? The immediate response would be that users get (back) control over their data, as opposed to the present situation where once data are provided, there is no way to know what has been done with it, by whom, and for what purpose.⁴¹ Today, data access and reuse are black boxes for users who are not privacy lawyers. This vague notion of control is interpreted in two concepts. First, the idea is that users can add, delete, or change the data about themselves held by public administrations. They can provide and revoke access to their data from public administrations or private services providers. Secondly, users can monitor which data are available, who has accessed and used them, and for what reasons.

In technical terms, the ACROSS data governance framework is a personal information management system, consistent with the definition provided in the Data Governance Act,⁴² supported by a set of APIs. The architecture is depicted in Figure 6 below. The product

information management system (PIMS) data governance framework is composed of five modules, each provided with an API and libraries that interact with the rest of the ACROSS platform.

- 1) The Citizen Data Ownership allows citizens to manage their data and grant or withdraw consent.
- 2) The Usage Control allows enforcing consent through usage policies, making sure that the consent is provided for the actual purpose of use.
- 3) The Service Registry provides a human and machine-readable description of the services available in the ACROSS platform that will make use of the citizens' data.
- 4) The Transparency Dashboard allows users to monitor how their data are used and modify them.
- 5) The Service Provider Dashboard allows service providers to manage their services' descriptions and manage the consent and services given by users.

⁴¹ Patrik Hummel et al., "Data Sovereignty: A Review," *Big Data & Society* 8, no. 1 (January 2021), <https://doi.org/10.1177/2053951720982012>.

⁴² European Commission, "Commission Proposes Measures to Boost Data Sharing," Text, European Commission - European

Commission, accessed February 14, 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2102.

It is worth mentioning that the technical solutions to implement this architecture are not reinvented from scratch but built on the most consolidated existing approaches to ensure interoperability, user-centric and privacy compliant data sharing: Mydata,

attribute-based credentials and international data spaces.

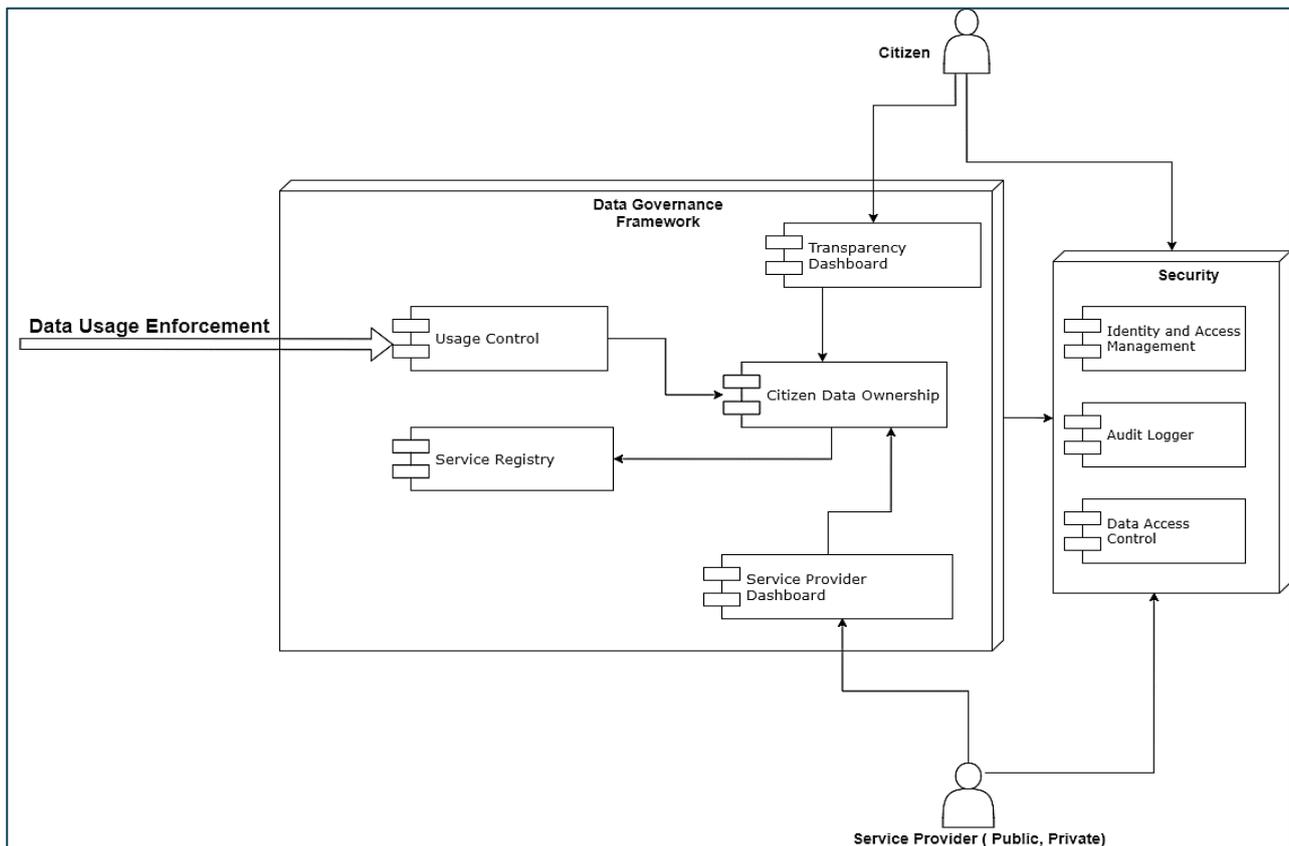


Figure 6: Component view of the data governance framework

- The **Mydata solution** is the most well-known initiative to design solutions that put users in control of the data. It is a global movement of ideas, and also of practical software solutions for Personal Information management systems.
- **Attribute-based credentials** is an approach to designing data solutions to deliver the objective of data minimisation enshrined in the GDPR. Put simply, ABC systems only display the

minimum data necessary for the service to happen. To obtain a discount for local residents at the museum, ABC solutions will only display that you live in the city, not your complete address. To be admitted to a nightclub, the solution will only certify that you are at least 18, not your age or date of birth.

- The **international data space** initiative aims to develop a set of standard schemas for data sharing, covering not

just data model standards but also the underlying processes and legal agreements to allow such data sharing to happen. IDS aims to simplify data sharing so that entities do not need to negotiate an ad hoc agreement for data sharing every time they share data. Still, they can use out-of-the-box solutions as

a plug-in to their existing processes. Such standardised processes allow the scalability in data sharing that is necessary to achieve the once-only principle in Europe.

These three pillars are the basis for the technical work of ACROSS:

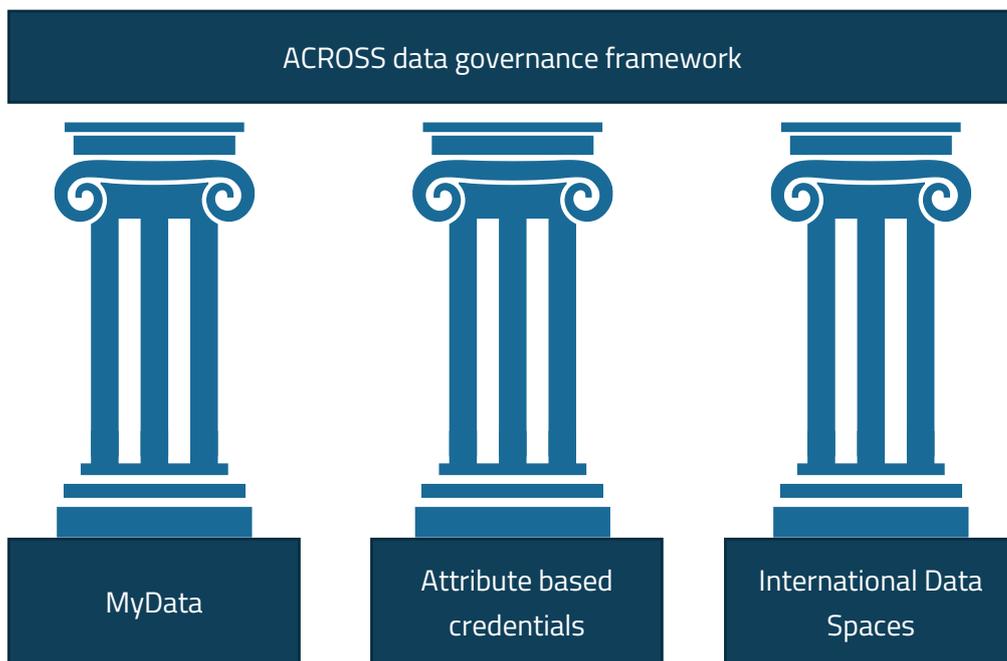


Figure 7: ACROSS data governance framework pillars

4.2 The ACROSS platform, user journeys and use cases

The ACROSS platform aims to help public administrations deliver cross-border services focusing on the citizens. The platform is built utilising **co-creation sessions with citizens**. This methodology will allow developers to create a platform that a) enables data ownership, b) is scalable and c) is user-friendly. Furthermore, the platform is tested in three countries to become a

feasible solution throughout the EU. Before explaining the platform and how it helps to deliver unified cross-border services, it is imperative to understand the co-creation methodology utilised in the project, which in the ACROSS case, is designed to investigate the process of working or studying across borders.

4.2.1 User journeys services and co-delivery results

To ensure that this platform achieves user-centric principles, the ACROSS project includes co-creation sessions with the final users, employing the user journey methodology. The consortium first mapped the current experiences and services used by the EU citizens who **move abroad to work and study**. Then, a co-creative process begun to clarify the user journeys of citizens who move across Europe. The user journey is an AGILE method that is at the heart of public services that are user-centred by design.⁴³

To date, government agencies have adopted a supply-oriented approach to designing eGovernment services for residents, resulting in low adoption rates. Companies in the private sector, on the other hand, have relied on demand-oriented service design for many years. They employ “customer journeys” to better understand client perceptions of services and customise services to that impression.⁴⁴ A user journey is a valuable tool that transparently shows the whole relationship within a service. It identifies the strengths and shortcomings of each step of the interaction between the service provider and user, focusing on those that impact the user experience.⁴⁵

This examination is essential in understanding how an ideal “working abroad” cross-border service should look **based on the citizen's perspective**. When analysing use case scenarios

to work and study abroad, it is possible to identify some gaps. Based on interviews conducted, the citizens pointed out that the entire moving process requires many on-site visits, both while searching for accommodation and registering at local authorities and using other public services. Language barriers also present a significant problem. Many document submissions are manual (printing, signing, scanning or uploading) and there is no user-friendly exchange management portal or tool where all parties (universities and students) can communicate and make changes. It is often difficult to get an overview of courses and credits available at the receiving institution when studying abroad. There is no universal information system for exchanges.

Naturally, these hurdles discourage citizens from using cross-border services to study in a different country within EU borders. And these are real-life examples of problems that EU citizens face when dealing with public services. These insights were then used to design the ACROSS platform.

4.3 ACROSS platform and use cases

Currently, the ACROSS platform is in its initial development and blueprint stage. Suppose governments wish to comply with standards such as the General Data Protection Regulation (GDPR) and ISA² to deliver the next generation of public services. In that case, they need to solve

⁴³ Anna Ludwiczak, “Using Customer Journey Mapping to Improve Public Services: A Critical Analysis of the Literature,” *Management* 25, no. 2 (December 1, 2021): 22–35, <https://doi.org/10.2478/manment-2019-0071>.

⁴⁴ Scholta et al., “Walking a Mile in Their Shoes—A Citizen Journey to Explore Public Service Delivery from the Citizen Perspective.”

⁴⁵ Jakob Trischler and Jessica Westman Trischler, “Design for Experience – a Public Service Design Approach in the Age of Digitalization,” *Public Management Review*, March 11, 2021, 1–20, <https://doi.org/10.1080/14719037.2021.1899272>.

the barriers mentioned by the citizens and the ones presented in this policy brief. And they need to solve it fast.

Hence, the ACROSS platform will operate as a one-stop portal where digital services and “moving abroad” information will be available.

Public authorities will connect their services to the platform and use the environment to deliver digital public services that comply with such regulations and user-centred perspectives. The following Figure 8 depicts how the co-creation sessions were used to help in the development of the platform:

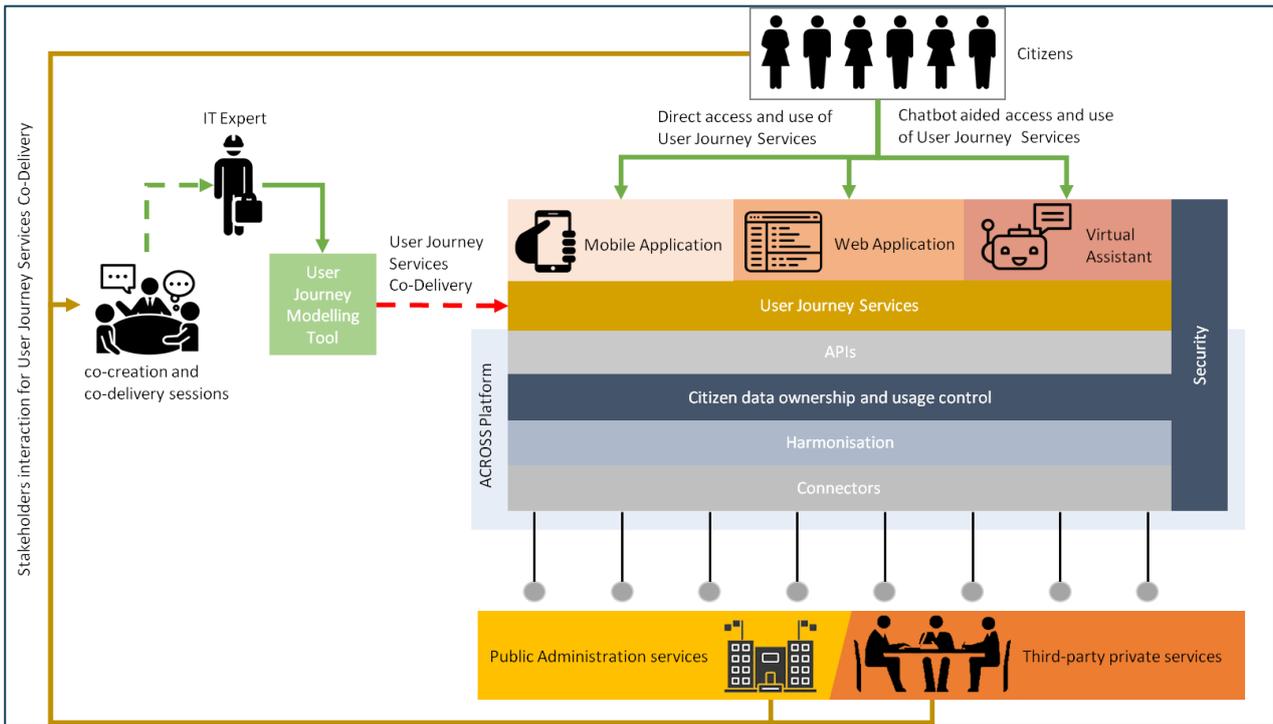


Figure 8: ACROSS platform conceptual architecture and methodology

The ACROSS implementation phase involves a series of development sprints to develop, extend and customise existing technological assets per an agile development philosophy to constantly build and update the ACROSS platform based on feedback received from citizens. If viable, the platform will provide more than just digital services alone, as it is not ideal if citizens cannot learn about the best practices and steps needed to smoothen their migration process. Users will enjoy interactive data management tools such as checklists. Complementing these types of tools with examples, tutorials, information, and

external connections will make the platform more attractive and improve user value.

The design of the platform follows the planning of pilots. Hence, based on user research, standard service workflows were created and performed in current environments in the respective piloted countries. A key takeaway of this exercise was that it is not currently feasible to ensure a digital end-to-end user journey. Therefore, initial use case deployment steps will connect and showcase relevant digital services to ACROSS to test their functionality in the cross-border scenario. Additional services will

then be filled in as the ACROSS team builds a digital user journey to align with the reality of the user journeys people encounter in real life. When it comes to the development of the ACROSS pilots, the overall situation suggests that:

- a) Some **German** public services can be executed entirely digitally, while some require physical presence, but in general, they show great potential for complete digitisation in the future.
- b) Although some public services are available digitally, many **Greek** digital

public services are a work in progress following the development of the national platform gov.gr.

- c) The overall assessment suggests that in **Latvia**, it is possible to access many essential services digitally. However, they are not currently available without national credentials (while few public services are, but they are not relevant to use cases), which is a considerable gap addressed by ACROSS.

5 Next steps

This policy brief explains the barriers hindering seamless digital public cross-border services in the EU, how they should look in theory, and how the ACROSS project will deliver the desired service. As ACROSS is an ongoing project, it is imperative to mention the next steps that the project has planned for the following months to reach these goals:

- **First release of the ACROSS integrated platform:** An alpha version of the ACROSS platform is approaching its launch date of July 2022. The envisioned technical architecture of the ACROSS platform is structured in a series of layers offering functionalities required to deliver the next generation of public services.
- **Finalise the gap analysis on cross-border services:** Further research will be made to evaluate the gap in delivering efficient cross border services in

Germany, Greece and Latvia. This analysis is vital to understanding what these countries lack to enhance their citizens' experience when using cross-border services. The gap analysis is also used to build the ACROSS platform and use it as a tool for the use case in these three different countries.

- An initial implementation and **evaluation of the ACROSS solution** in the use cases. To incorporate the principles of the next generation of public services, the subsequent phases of use case deployment will concentrate on the connection of existing digital services to the ACROSS environment to showcase the functionality of fully digital user journey elements. The implementation will allow team members to enhance the first release of the ACROSS platform and adjust it according to these initial employment results.

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