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D6.5 Toolbox for public administration managers, and policy makers - Final

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Document description	ACROSS has developed a set of tools, methods and a functioning platform, which effectively has developed user-centric, interoperable cross-border services. The results of the ACROSS project have different targets: the administrations and governments willing to adopt an innovative approach to collaborate with the administrations of other Member states to create interoperable cross border citizen services; the citizens who need to access public digital services in other Member states to manage their mobility plans for study or work; the policy makers, who engage in the sponsorship of cross-border service implementation; the technology developers, who are willing to introduce new principles in their system design, which



	<p>are user-centricity, trustworthiness, control over the use of personal data, security. This toolbox will aid those engaged in cross-border development or use to adopt the innovative and approach, which has been judged accessible, attractive, recommendable, effective and efficient through the impact assessment undertaken on the platform.</p>
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About

The project is co-funded by the European Commission's Horizon 2020 research and innovation framework programme. Spanning through three years, ACROSS consists of a consortium of 10 partners from 7 countries: Athens Technology Center (coordinator), Tecnalia, Dataport, Engineering, Fraunhofer, GRNET, TimeLex, The Lisbon Council, Waag and VARAM.

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Executive Summary

The final version of the toolbox is a self-standing collection of information and knowledge that provides also recommendations and best practices based on the solutions developed in the project.

This deliverable provides an overview of the main results produced by ACROSS, in terms of methodologies, tools and solutions developed, mainly addressed to public administrations and policy makers to support the provision and creation of cross-border digital public services.

The toolbox includes the gap analysis made for the ACROSS project – and links with the solutions provided by the project, along with recommendations, good practices and tools. The toolbox provides also a visual summary overview on all the components developed that run the ACROSS platform, highlighting the role in the project and added value. It features a summary of the main results and insights gained from the ACROSS project, and it's been provided in a visual form and deployed in a public, accessible online portal, allowing for users to interact with it.

The toolbox is important because it addresses the methodology and the gaps mapped in cross-border services in the EU. The EU has a goal of providing seamless cross-border services for citizens and businesses, however, the reality is that there are still barriers that prevent citizens and businesses from accessing services across borders. This toolbox provides an overview on the practical approach adopted by ACROSS that can be utilized by public administrations to deliver cross-border services and evaluate their effectiveness, helping to remove these barriers and making it easier for citizens and businesses to access services across borders.



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List of Terms and Abbreviations

Abbreviation	Definition
European Union EU	EU
Once Only Principle	OOP
General Data Protection Regulation	GDPR
Information Communications Technologies	ICT
Single Digital Gateway	SDG
European Interoperability Framework	EIF
Virtual Assistant	VA



1 Introduction

Cross-border services in the EU are critical for ensuring that citizens and businesses can access the services they need, regardless of where they are located. However, there are still barriers that prevent citizens and businesses from accessing services across borders. These barriers can include differences in regulations, language barriers, and a lack of coordination between different national and regional public services. To address these gaps in cross-border services, it is necessary to provide public administrations with a set of tools and resources to support the delivery of seamless cross-border services. The toolbox developed by the ACROSS project highlights principles, recommendations and tools that can be used by public service managers and policymakers in delivering cross-border services in a practical and user-centred way. In the following sections, the final version of the toolbox is presented in all its sections.

1.1 Purpose and Scope

The purpose of the toolbox is to provide information about ACROSS solution, aiming to support public administration managers and policy makers with the tools and resources to effectively implement digital public cross-border services within the EU. The toolbox aims to assist these stakeholders in understanding the complexities of cross-border digital public services and provide them with the knowledge and guidance needed to successfully implement these services. The toolbox includes findings, good practices and examples on how the ACROSS approach has been implemented in the project, in order to provide the knowledge and resources that can support stakeholders interested in this type of solution for their own projects.

The scope of the ACROSS toolbox includes the following key areas:

- An online interactive toolbox designed to be a comprehensive resource for public administration managers and policy makers, providing them with all the necessary information to understand digital public cross-border services in the EU.
- An overview on the methodology and list of identified gaps for digital public cross-border services.
- A comprehensive overview on the solutions developed for ACROSS.
- Good practices, based on ACROSS use cases.
- Tools and resources to support co-creation processes in digital cross-border services.

The ACROSS team has built a visual version on the Interoperable Europe-Joinup portal (<https://joinup.ec.europa.eu/collection/sipg/solution/across-toolbox>) that is also available on the ACROSS website (<https://across-h2020.eu/>). The ACROSS online version of the toolbox will allow policymakers and public sector managers to use the resources in an interactive way and evaluate how the ACROSS approach can be adapted or reused for their own purposes. They will be able to understand how the ACROSS solution works and the details of each component are provided as well as the role and added value in the process.



1.2 Approach for Work Package and Relation to other Work Packages and Deliverables

This deliverable belongs to WP6 “Use cases deployment, evaluation and impact assessment.” It builds upon the impact assessment of the project, D6.2 “Use Case Evaluation and Impact Assessment - Initial.” and D6.3 “Use Case Evaluation and Impact Assessment - Final”. It contains also findings elaborated for the D1.6 “Policy brief – Final”. The toolbox uses the knowledge created for the impact assessment of the project to provide best practices and tools for public sector managers and policymakers. Where the impact assessment measures all of the impacts planned by the ACROSS project, the toolbox is a solution that is more focused on the implementation of cross-border digital public services by the public sector side.

To build the toolbox, the ACROSS team used the information generated by D2.3 and D2.4 “Cross-border service gap analysis,” the initial and final version, respectively. The identified gaps are important to be included in the toolbox as to give the correct context for policymakers and public managers when implementing the recommendations and guidelines proposed by the ACROSS team. The toolbox also uses D2.2 “User Journey Methodology definition – Final” to give context to the user-centred methodology used in the ACROSS project. The user journey is an imperative methodology in ACROSS to implement cross-border services in the pilots of the project and make cross-border services aligned with the citizens’ needs.

1.3 Methodology and Structure of the Deliverable

In Chapter 1, an introduction and overview of the deliverable is given, along with its purpose and scope. Chapter 2 provides an updated state-of-the-art about cross-border services to give context to the EU’s landscape and what are the most prominent gaps and drivers. Chapter 3, outlines the solutions developed in ACROSS, while Chapter 4 provides an overview about the user-journey methodology used in ACROSS. Chapter 5 presents the content of the Toolbox, explaining how the online version has been developed and the content included. Chapter 6 presents the recommendations of the toolbox and the policy road mapping. Chapter 7 is the conclusion. In Annex A, the impact assessment framework developed for ACROSS is provided.



2 State-of the art development of digital public cross-border services in the EU

Cross-border eGovernment is the provision of digital public services beyond national boundaries, enabling citizens, businesses, and of other states to interact and access services across different countries. The objective of cross-border digital public services is to make it easier for people and businesses to access the services they need, regardless of their location within the EU. The availability of seamless digital eGovernment services is a key enabler of citizens' who wish to move to other member states for work, study and living reasons. This access promotes mobility and cooperation across borders within the EU and allows people and businesses to take advantage of the opportunities provided by the Digital Single Market.

The European Union and national policy makers have since long put the development of eGovernment and of interoperable digital public services. In fact, promoting eGovernment remains a top priority for the European Union. In pursuit of the EU Digital Decade ambition, Europe aims to provide all key public services online by 2030¹. Investments and cornerstone policies are being put in place to make this happen and, consistently, Member States have allocated over 26% of the spending under the EU Recovery and Resilience Facility (RRF) to the digital transition². Moreover, Europe has established the foundations for more human-centric digital initiatives, in line with European values, basing on the Declaration on Digital Rights and Principles.

Cross-border eGovernment however pose different challenges in terms of scope, jurisdictional complexities, interoperability challenges, and cultural considerations. They require:

- The design of specific interfaces to serve stakeholders in other countries, considering service specificities as well as linguistic access;
- Matching the jurisdictional elements, enabling the cross-border eGovernment services to navigate the legal and regulatory frameworks of multiple countries, solving issues related to data protection, privacy, security, and interoperability;
- Addressing the issue of interoperability and of cross-border online user identification and authentication;
- Cybersecurity management, for ensuring the security of digital public services. This requires the implementation of robust cybersecurity measures, including the use of encryption and secure authentication systems, as well as regular monitoring and testing to detect and respond to cyber threats.
- Guaranteeing data protection and privacy. Protecting citizens' personal data is a critical challenge when it comes to cross-border digital public services. Solving this challenge

¹ <https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade> (Europe's Digital Decade, s.d.)

² https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en (A Europe fit for the digital age, s.d.)



requires the implementation of robust data protection and privacy regulations and ensuring that all member states comply with them.

- Dealing with greater complexity of coordination with multiple stakeholders, including governments, international organizations, and service providers across different legal contexts.

To develop EU cross-border eGovernment services it is necessary to achieve a robust level of interoperability that isn't solely reliant on technical solutions but requires agreements and established procedures among diverse organizations, synchronized data descriptions, legal frameworks permitting data exchanges, and sustained, structured cooperation over the long term. In this respect, the New European Interoperability Framework (EIF)³ outlines four distinct layers of interoperability that must be amalgamated into a comprehensive governance strategy: technical (pertaining to system compatibility); semantic (ensuring uniform comprehension of language and structured data); organizational (such as harmonized business processes); and legal (addressing rights and obligations).

The Interoperable Europe Act⁴ stands as a fundamental pillar of the European Union's strategy aimed at significantly enhancing collaboration in interoperability among public administrations within the EU. This new policy promotes the exchange and repurposing of solutions and data among administrations, emphasizing the elimination of unnecessary administrative hurdles, including legal, organizational, semantic, and technical barriers. Such efforts aim to streamline processes, thereby cutting costs and saving time for citizens, businesses, and the public sector alike. Enhanced interoperability in the EU is based on a connected network of independent yet interconnected public administrations, working in tandem to drive innovation and mitigate fragmented policy execution in alignment with the EU's digital objectives for 2030.

Overall, implementing effective digital public cross-border services in the EU is a complex and challenging task, requiring coordination and cooperation among different stakeholders at the national, regional, and EU levels. Innovative solutions that combine user experience, interoperability, and data sovereignty are needed to ensure successful cross-border services. Thus, the ACROSS project addressed the problem of providing cross-border eGovernment services in the fragmented, heterogeneous, and uneven landscape of online public services defining and implementing a practice model, which defines a set of principles and guidelines for public administrations in the provision of cross-border services in a practical way.

³ https://ec.europa.eu/isa2/eif_en/ (ISA² - Interoperability solutions for public administrations, businesses and citizens, s.d.)

⁴ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32024R0903> (European Interoperable Europe Act Regulation, s.d.)



3 Overview of ACROSS solution

As discussed above, cross-border services within the EU are gaining increasing importance as the EU continues to expand and pursue the Digital Single Market while favouring the free movement of people and things. These digital cross-border services have the potential to drive economic growth and improve the lives of citizens across the EU. However, the complexity of regulations, the lack of interoperability and obsolescence of administrative procedures can make it difficult for governments to provide efficient and accessible cross-border services. To facilitate cross-border trade and promote the growth of these services, ACROSS aims at supporting public administrations to deliver user-centric, interoperable, cross-border services in compliance with the European regulations, allowing also the private sector to interconnect their services while ensuring the citizens' data sovereignty.

The ACROSS solution comprises several components that aim to tackle different aspects of the implementation of cross-border services. In the following table, an overview on the single developed components is provided, and how they work together to deliver cross-border services to citizens.

Table 1 -List of ACROSS components

Solution	Description
User journey	<p>Aims to define and model public services by identifying shared values, engaging in co-creation, and ensuring a coherent methodology across various use cases. The project's approach emphasises alignment with public values, respecting environmental boundaries, and empowering citizens. The user journey methodology's initial steps included inventorying existing cross-border services (based on the Gap Analysis) and internal workshops with the project partners to define goals and values and share resources and co-creative strategies. We then created an initial user journey based on personal experiences and literature and internet research, which helped create appropriate interview questions. The pilot partners conducted structured interviews in the three pilot countries with potential end-users, the results of which were collected in predefined templates, which facilitated the cross-country comparisons. Through internal online workshops, we distilled two shared user journey scenarios: one for students planning to study abroad and another for workers moving abroad for employment. The comprehensive user journey scenarios outline the steps and experiences users undergo during these life events.</p> <ul style="list-style-type: none">• For students, the journey encompasses phases such as exploration, research, paperwork, enrolment, accommodation, and diploma recognition.• For workers, the journey includes similar phases but may involve additional tasks like finding schools for children, registering cars, and setting up bank accounts.



Connectors	Demonstrate that due to the data harmonisation tools that allows to ‘translate’ the digital public services in the legacy format to the format recommended by the EIF ⁵ , the interoperability at cross-border in the different dimensions (technical, semantic) is achieved, so these can be used both by the public servants, businesses and the citizens. In order to create cross-border services, the platform has to support public and private sectors by providing a set of tools and applications that will help them with service integration.
Virtual Assistant (VA)	Enables the end user to use the ACROSS platform through the Citizen Web App (CWA) not only in the conventional mode of interaction (i.e. using keyboard and pointing device) but also through conversational interfaces, i.e. natural language. In a dialogue that can take place via text chat or through speech, the VA “remote-controls” the CWA according to the user’s utterances, provides directions for the user on how to proceed (i.e. when a form needs to be filled step-by-step), or answers specific user questions, providing background information for the ongoing session. The VA supports multi-lingual operation, and the prototype provides partial support for the ACROSS use-case languages (German, Latvian and Greek) as well as for English.
ACROSS platform	Demonstrates the potentiality of an integrated ICT platform that is prepared to interoperate with the SDG implementation ⁶ , as well as being compliant with the EIF vocabularies. Also, show that ACROSS is modular enough to be able to integrate external services coming from the private sector.
Web app	Shows the advantages of using a one-stop-shop application, web and accessible via mobile, that allows the users to carry out multiple transactions in several countries, without having to enter the multiple websites of the public services institutions relevant to said service.
ACROSS ecosystem	Demonstrates the potential of the ACROSS ecosystem and the resulting web applications for the implementation of an interoperable, user-centric cross-border digital public service, compliant with European regulations and recommendations, following a user journey approach.
User Journey Modelling Tool	The User Journey Modelling Tool (UJMT) supports the creation and exchange of ACROSS user journeys as digital artefacts. The UJMT is aimed not at end-users but at modellers - expert users who think about and design the user journeys. A modeller’s task is to plan in which combination and ordering an end-user (citizens) will need to access the services offered through the ACROSS platform in a specific situation (or use-case). Modellers have expert knowledge about the available services, but they are not expected to have in-depth IT expertise – therefore workflow modelling with the UJMT does not require programming skills but largely amounts to drawing a diagram. By the UJMT, a modeller is enabled to interactively create abstract, graphical models of the service workflows the end-users will be able to go through (using the ACROSS Citizen WebApp) in each user journey. Just

⁵ European Commission, “The New European Interoperability Framework,” Text, ISA² - European Commission, https://ec.europa.eu/isa2/sites/default/files/eif_brochure_final.pdf. Retrieved on March 29, 2024.

⁶ “Single Digital Gateway,” accessed January 30, 2024, https://single-market-economy.ec.europa.eu/single-market/single-digital-gateway_en. (Single Digital Gateway, s.d.)



	<p>like e.g. an office document or a design sketch, each modelled user journey is stored in a suitable machine-readable presentation and can be iteratively developed and exchanged between different modellers.</p>
Service Catalogue	<p>The Service Catalogue is the core component of the Harmonization and Connectors layers of ACROSS Platform to provide a uniform description of the services and the related invocation. The Service Catalogue provides all functionality to register, model, map and publish and manage all the information needed to support the uses of service (public & private) according to the following three points of view:</p> <ul style="list-style-type: none">● Informational● Service Invocation● Semantic interoperability & Personal Data Governance <p>The catalogue enables the storage and publishing of service by providing general, technical and data processing information based on standard models (e.g. ISA2 CPSV-APand DPV). The Service Catalogue has been designed and implemented with the aims to facilitate the actual interoperability of the cross-border mobility services through the connection of public services so that they can interoperate with services from other countries as well as with those of the private sector. For each service used by ACROSS Platform the related information is stored in the Service Catalogue together any information of the Service Adaptation if needed (endpoint and model adaptation, etc.).</p>
Data Governance framework	<p>Ensures that any Personal Data needed by the services used during the User Journey is handled in accordance with the consents and usage policies set by each individual citizen. This framework leverages decentralisation and data minimization principles, giving users the agency to manage their personal data. Through rigorous analysis and real-world workshops, this framework takes shape, offering a glimpse into a more secure digital future:</p> <ul style="list-style-type: none">● Integrated in Citizen Front End● Personal Data Governance Framework – a tool designed to empower users to monitor, manage, and control their personal data● Citizen can add, delete, modify or even block access to public administrations, companies, and data intermediaries. Every user can shape how their personal data is utilised.
Co-sessions	<p>Show the relevant stakeholders that participating in co-creation, co-design, and co-delivery sessions have an impact on the definition of the user journey and the implementation of a digital public service, in this case, in the life event ‘moving’.</p>
Citizen Front-end	<p>Serves as a comprehensive guide and facilitator for individuals intending to relocate to another European country for study or work. As a centralised portal, it acts as the primary interface for users, offering a wealth of digital services and pertinent information crucial to the relocation process. The Citizen Frontend (FE) has been developed to address the needs of citizens planning to relocate to another European country for study or work. Recognizing the complexities involved in the moving process, the Citizen FE functions as a centralised and comprehensive guide, serving as a one-stop portal offering both digital services and information related to moving abroad. It aims to support users through every</p>



step of their journey, providing assistance in navigating various actions required for a successful relocation. The platform gathers numerous European services in a user-friendly manner, aiding citizens in preparing for their move and facilitating interaction with User Journey Services that offer essential information for a seamless experience. Users can initiate a new User Journey by specifying their Country of Origin, the purpose of relocation (Studies or Work), and the Country of Destination. The platform then guides them through the journey steps with a quick tutorial.



4 User journey for digital public cross-border services in ACROSS

4.1 User journey definition in ACROSS

The ACROSS user journey methodology has stemmed from current research and approaches used in various contexts, both academic and industry-based. The initial and final definition of the user journey methodology is described extensively in deliverables D2.1 and D2.2 and is also provided in the initial version of the toolbox (D6.3).

This chapter will provide a general description of the methodology applied in the implementation of the ACROSS platform, on which the impact assessment was also carried out.

Defining and utilising a user journey methodology for cross-border digital public services in the EU is a decisive step in ensuring that services are tailored to meet the needs and goals of the users. By mapping the user journey and identifying any issues or challenges that citizens face when accessing the service, it allows government agencies to identify areas where improvements can be made to enhance the user's experience.

To establish the direction of the ACROSS project, the consortium needed to understand the current experiences and services utilized by EU citizens who move abroad for work or study. To do this, the team started with a co-creative process in WP2, understanding the journey of citizens moving across Europe for work or study. These journeys –referred to as "user scenarios" – represented the experiences of the project's end-users. The co-creative process included several steps: inventorying existing services, reflecting on personal experiences of moving across borders, conducting two online co-creation workshops with ACROSS partners, and conducting interviews with people in Greece, Latvia, and Germany who have crossed borders for work or study in the past.

The ACROSS user journey methodology includes the following steps:

1. Identifying shared values for the development of ACROSS technology, by initiating the co-creative process with the partners of the consortium.
2. Defining the community in order to narrow down and identify the use cases for the ACROSS platform. This process led to developing the journeys around work and study for people moving between Germany, Latvia, and Greece.
3. Engaging with the community, by interviewing the potential end users in order to identify the key points in the journeys of citizens who move across the EU for work and university reasons.
4. Definition of user journeys. Stemming from the findings of the previous steps, the partners developed the personas around which to develop the user journeys. The pilot partners subsequently developed workflows for each supported user journey, by detailing the steps needed to take each journey.
5. Development of user journeys, based on testing and feedback with external stakeholders.



6. Technical implementation of the Service Catalogue and User Journey Modelling Tool
7. Providing recommendations and good practices for public administration managers and policy makers.

The gap analysis on cross-border was conducted together with the user journey methodology, allowing a holistic view of what are the gaps in the currently provided services and how citizens would like these services to be provided.

First, utilising a gap analysis was vital in assessing the current state of cross-border digital public services, identifying areas where services are lacking, and where there are disparities in service delivery across different countries within the EU. This information can be used to prioritise areas for improvement and allocate resources more effectively. Benchmarking the performance of cross-border digital public services against established standards or best practices can provide a clear understanding of where the services stand in terms of quality and user-friendliness and help identify areas that need to be improved to reach desired levels of performance. It can also reveal trends and patterns in cross-border digital public services and inform policy and decision-making related to cross-border services to improve the overall performance and user experience.

Furthermore, it can be used to measure the effectiveness of interventions or solutions implemented to address service delivery gaps or improve performance. Finally, it can help ensure that the service is compliant with regulations such as the General Data Protection Regulation (GDPR) regarding data protection and privacy, which are important when it comes to cross-border services. Overall, conducting the gap analysis provided a comprehensive understanding of the current state of cross-border digital public services in the EU, allowing government agencies to make data-driven decisions and improve the overall performance and user experience of these services.

In ACROSS, the gap analysis methodology was translated into the following steps:

- First, the pilot partners each researched cross-border services offered in their respective countries. The research process began with finding and cataloguing the available cross-border services in each country. Partners then evaluated these existing services in terms of their readiness and ability to be integrated into the ACROSS user journey. Overall, the research found that fragmentation, lack of technical readiness, and lack of interoperability maturity are major issues in national cross-border services. Some services exist and may be integrated, while others are not ready or incompatible with other services. Additionally, necessary services for a complete user journey may not exist at all. More information is available in D2.3 “Cross-border Service Gap Analysis – Initial.”
- To further validate these findings, a co-creation workshop was organised on June 30, 2022, with the help of external researchers and professionals who work with European migration and cross-border services. More detailed information can be seen in D2.4 “Cross-border Service Gap Analysis – Final.” The goal of the workshop was to understand where other initiatives identify gaps in cross-border services and explore further points



of improvement for the identified gaps. All the relevant gaps are listed in Table 2 - List of cross-border service gaps.



5 Toolbox for public administration managers and policymakers

This section describes the development process of the online version of the toolbox, illustrating the platform chosen for implementation and the content that is included. The toolbox is accessible at the following link: <https://joinup.ec.europa.eu/collection/sipg/solution/across-toolbox>

5.1 Interoperable Europe - Joinup portal

Interoperable Europe - Joinup⁷ is an online collaborative platform created by the European Commission that provides a sharing and learning space for e-government practitioners and brings together free, open and interoperable ICT solutions for digital public services. Joinup provides a series of services and tools to facilitate the collaboration among public sector professionals and fosters a collaborative environment for communities - called “collections” - for sharing and re-using interoperability solutions featured on the portal. This approach is intended to enhance the exchange of knowledge, studies and use cases for promoting digital transformation as well as initiatives and best practices related to interoperability and cross-border collaboration.

Since Joinup is an open-access platform, the ACROSS partners evaluated that creating the toolbox within the portal could be a winning strategy to make the project results available to as many stakeholders as possible and thus increase the project's impact. Moreover, the presence on Joinup of many other solutions and toolboxes created by other European projects and initiatives represents the possibility of creating further synergies to establish a virtuous circle of knowledge related to cross-border public digital services that could be exploited by policy makers and public administrations interested in learning more about the results achieved by ACROSS.

LC proposed to the partners an initial version of how to structure the toolbox. This proposal focused in particular on presenting the methodologies, approaches and solutions developed over the course of the project, the concrete capital of knowledge and technical development created by the joint effort of the partners. Sharing this information represents a resource for managers and policymakers because it enables them to understand how the ACROSS model works and how it could be replicated or reused in some of its parts for co-creation processes and the functioning of cross-border digital public services. Once this was reviewed and approved by all partners, LC developed the solution on the Joinup platform and gathered the contributions of the different partners to populate the different sections of the toolbox. Finally, the contents were further updated during the final stages of the project, in order to accommodate particularly useful results from the assessment. The toolbox was then put online and a direct link was created within the ACROSS website.

⁷ <https://joinup.ec.europa.eu/>



5.2 Structure of the toolbox

The toolbox is structured in several sections that collect different outcomes from the project:

- Overview
- Gap analysis
- Solution and components
- Good practices and Recommendations
- Lessons Learned
- Tools and resources

Each section is described in detail in the following subparagraphs.

5.2.1 Overview

This section collects several information on ACROSS, highlighting its purpose and providing the owner of the solution, contact information and a link to the project website. It also provides an overview on the purpose of the toolbox aimed at being a resource for public administration managers and policy makers.

The screenshot shows the homepage of the ACROSS Toolbox on the Joinup platform. At the top, there is the European Commission logo and the 'interoperable europe' header. The main content area is titled 'ACROSS Toolbox' and includes a navigation menu with tabs for 'Overview', 'Gap Analysis', 'Solution and Components', 'Good practices and Recommendations', 'Lessons learned', and 'Tools and resources'. The 'Overview' tab is selected. Below the navigation, there is a main text block that reads: 'The ACROSS Toolbox is a comprehensive resource for public administration managers and policy makers, providing information to understand and implement digital public cross-border services in the EU.' To the right of this text, there are buttons for 'Bookmark', 'Like (1)', and 'Translate'. Below the main text, there is a 'Quick links' section with a 'Website link' button. At the bottom, there is a 'Welcome to ACROSS toolbox!' section with a paragraph describing the purpose of the toolbox: 'The purpose of the ACROSS Toolbox is to provide public administration managers and policy makers with resources to effectively implement digital public cross-border services within the EU. The Toolbox aims to assist these stakeholders in understanding the complexities of cross-...'

Figure 1 - Homepage of ACROSS Toolbox on Joinup



5.2.2 Gap analysis

This section is aimed at describing the methodology approach and the findings of the gap analysis performed in ACROSS. The goal is to share the knowledge produced from the study and research on cross-border services to the community of stakeholders. The gap analysis activity was led by WAAG, that is also credited on the page:

1. Methodology:

1.1. Mapping of European Cross-border initiatives:

- 1.1.1. eIDAS (<https://digital-strategy.ec.europa.eu/en/policies/eidas-regulation>)
- 1.1.2. The Single Digital Gateway (SDG) and Your Europe portal (https://europa.eu/youreurope/index_en.htm)
- 1.1.3. European Student Card initiative (<https://education.ec.europa.eu/education-levels/higher-education/european-student-card-initiative>)

1.2. Desk research

- 1.2.1. Inventory of cross-border services offered in a country
- 1.2.2. Categorization of each service by criteria: type of end users; level of readiness of integration with European Cross-border initiatives; type of service (informational, technical); language options; availability (residents only, non-residents, both); stakeholders involved in the provision of service.

1.3. Validation

- 1.3.1. Interviews with end-users

1.4. Synthesis and prioritization of gaps

- 1.4.1. Hierarchization of gaps
- 1.4.2. Clustering of gaps

1.5. Second round of Validation

- 1.5.1. Technical workshop with key-stakeholders (researchers, professionals who work with European migration and cross-border services).
- 1.5.2. Analysis of session outcomes
- 1.5.3. Session conclusions
- 1.5.4. Mapping of the gaps

In Task 2.2, Waag researched the context in which ACROSS operates, what is missing, and the desires and needs of the end-users through a Gap Analysis. A clear understanding of the playing field helps to develop the transformative impact, potential and benefits of interoperable, single-sign-on, cross-border and user-centric digital public services that put European citizens and their sovereignty at the core. The gap analysis consisted of desk research regarding the digital single gateway and other relevant EU standards, co-creation sessions with the internal partners and an analysis workshop with external stakeholders.

In the latter workshop, Waag discussed gaps in the EU digital identification landscape, as well as solutions and opportunities for bridging these gaps. The most prominent portion of the workshop was a discussion including all attendees. This discussion was visualised in real time using the

metaphor of a river to illustrate gaps (water), solutions (complete bridges), and opportunities (bridges in progress), drawing from an existing metaphor of ACROSS as a bridge that connects different peoples, countries, cross-border services, and technological artefacts (see Figure 2). The discussion concluded with an exchange of concrete opportunities for collaboration amongst participants, in particular noting potential use cases for ACROSS's collaboration with various digital wallets. Below is also provided the graphic summary of the ACROSS co-creative gap analysis conducted by Waag.

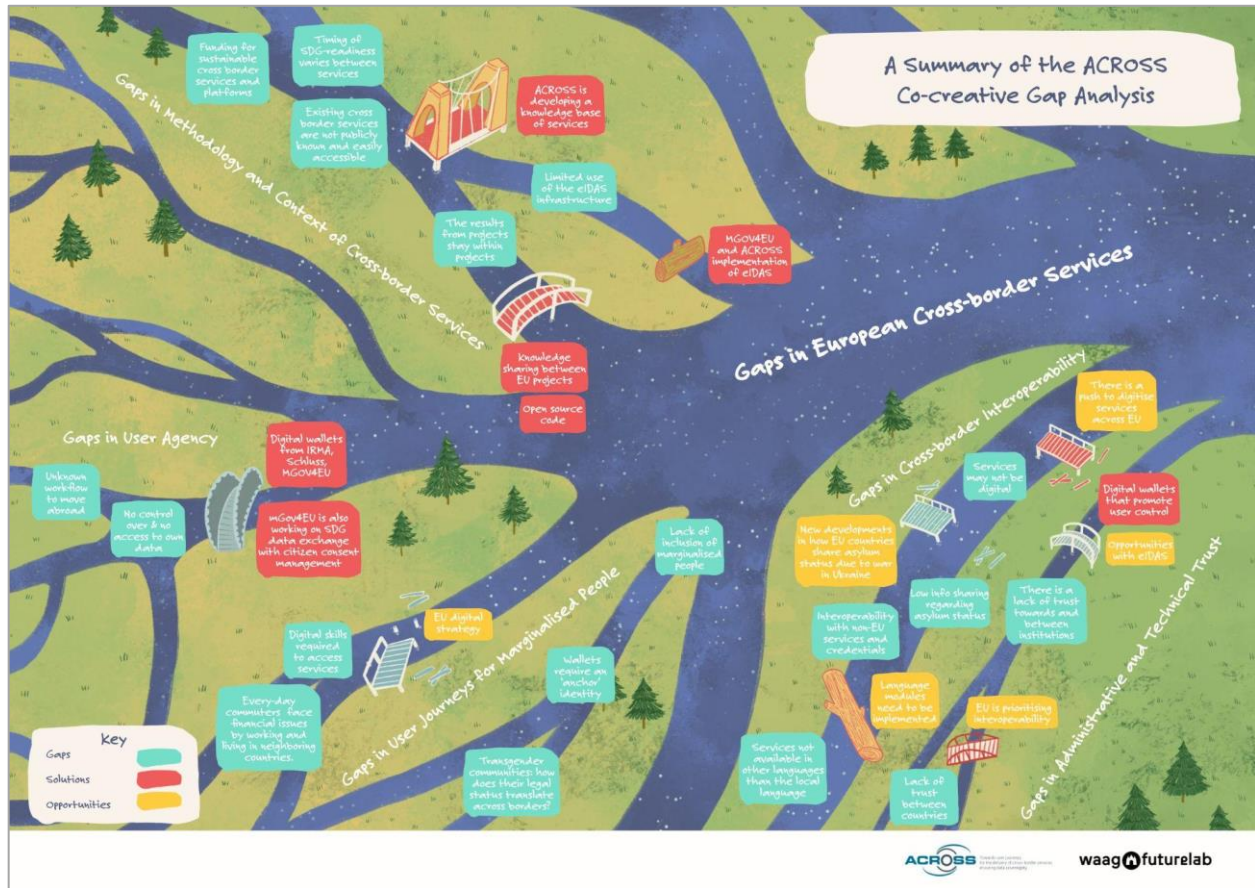


Figure 2 - ACROSS Co-creative Gap Analysis Map made by Waag

2. Cross-border services gap analysis

The main gaps and challenges identified in the context of cross-border services revolve around the development of a user-friendly and comprehensive technical infrastructure. The primary gap is the lack of an effective technical infrastructure, which hinders the provision of user-friendly



digital cross-border services. This gap is further divided into two aspects: the machine-to-machine gap and the machine-to-user gap. The machine-to-machine gap emphasizes the need for open and interoperable systems to enable data sharing and protect users' personal data. This includes addressing issues related to protocols, APIs, datasets, service naming, and central data exchange tools. The machine-to-user gap highlights the importance of placing users at the centre of service design, addressing their specific needs and ensuring inclusivity, especially for marginalized users who might be hindered in their use of the platform due to external factors.

Cross-border services risk perpetuating and exacerbating inequalities, in part due to the complexity in accounting and designing for many diverse potential users. Certain gaps threaten to stop a cross-border moving process altogether, such as not having an anchor for verified identity or lacking the digital literacy or hardware needed to access digital services. Such gaps may particularly affect people who are in urgent need to cross a border, and can exclude them from taking necessary steps like opening bank accounts, finding housing, or accessing other cross-border services.

Another key challenge is the issue of (de)centralization. Certain aspects of cross-border services are overly centralized, leading to disparities in service requirements across EU countries, causing confusion for citizens. There is a lack of a clear central checklist or workflow for moving across borders, leaving individuals uncertain about the steps they need to take. Authentication issues arise due to the absence of a single point of sign-on across different countries. Centrally held personal data, whether by private entities or governments, results in a loss of control over personal data and digital identity. The project also highlights concerns related to privacy, including data minimization, lack of transparency regarding data use, and forced consent, which all contribute to users' loss of control over their personal information. Moreover, the project underscores the challenges faced by individuals at the margins, who may encounter exclusion and increased points of exposure during the cross-border movement. Lastly, the usability and technical completeness of the existing infrastructure are identified as a significant challenge, including language and bureaucratic gaps and issues with system usability, which hinder the smooth process of moving across borders.

In summary, the main gaps and challenges in the ACROSS project involve the need for a robust and user-centric technical infrastructure, addressing (de)centralization, ensuring privacy and data control, and making cross-border services accessible to all, particularly those with unique circumstances. The project suggests potential technical approaches, such as radical decentralization of personal data storage and a central checklist approach, to address these challenges and improve cross-border services.



Table 2 - List of cross-border service gaps

Identified cross-border service gaps
1. Countries are unable to identify a solid basis of trust and mutual recognition.
2. There is a low level of information sharing between EU member states.
3. Lack of interoperability of ICT solutions amongst different countries.
4. No temporary ID for non-EU residents, newcomers or refugees to access digital wallets.
5. Function creep is a serious issue facing cross-border services, because the types of credentials that are developed and used in a cross-border context are often highly personal or sensitive.
6. Certain services that have been digitised in one EU country may not yet have been digitised in another.
7. There is a lack of trust towards and between institutions in the public and private sector.
8. People do not have control over who has access to their personal data and there is a lack of transparency about their data processing.
9. There is uncertainty over how to accommodate non-EU systems (for credentials, identity management, data sharing, etc.) within a European data infrastructure.
10. There is limited use of the eIDAS infrastructure, and no mature digital identity wallet in the market today.
11. Cross-border services are not perceived as safe (like other digital public services). The implementation of robust cybersecurity measures, including the use of encryption and secure authentication systems, is necessary to increase service uptake.
12. Undetermined impact of disruptive technologies for cross-border digital public services.
13. Lack of attention to every-day commuters who face issues by working and living in neighbouring countries.
14. Low digital skills which make it difficult for many people to access cross-border services.
15. People do not know what their workflow is to move abroad (which steps they have to take, and in which order).
16. Many services are not available in languages other than the local language.
17. Lack of impact assessment of cross-border services.



5.2.3 Solution and components

The section provides an overview on the ACROSS solution and dedicated pages to each of the components developed by the partners. The aim of this section is to collect all the technical outcomes of the project and to provide knowledge on how they have been developed and what is their role within the ACROSS solution. At the top of the page, one of the videos produced for the project has been featured, in order to provide a simple and compelling way to understand how the components developed work together. The informative pages provided are the following:

- i. Co-creation workshops
- ii. User journey methodology
- iii. User journey modelling tool
- iv. Service catalogue
- v. Transparency Dashboard
- vi. Citizen Front-end
- vii. Virtual assistant

The descriptions of each component are summarised in the table above. On the online version of the toolbox, in addition to the video, the user can open the information document of each individual component and find the detailed description and role within the ACROSS platform, as well as an indication of the partner who developed it during the project.



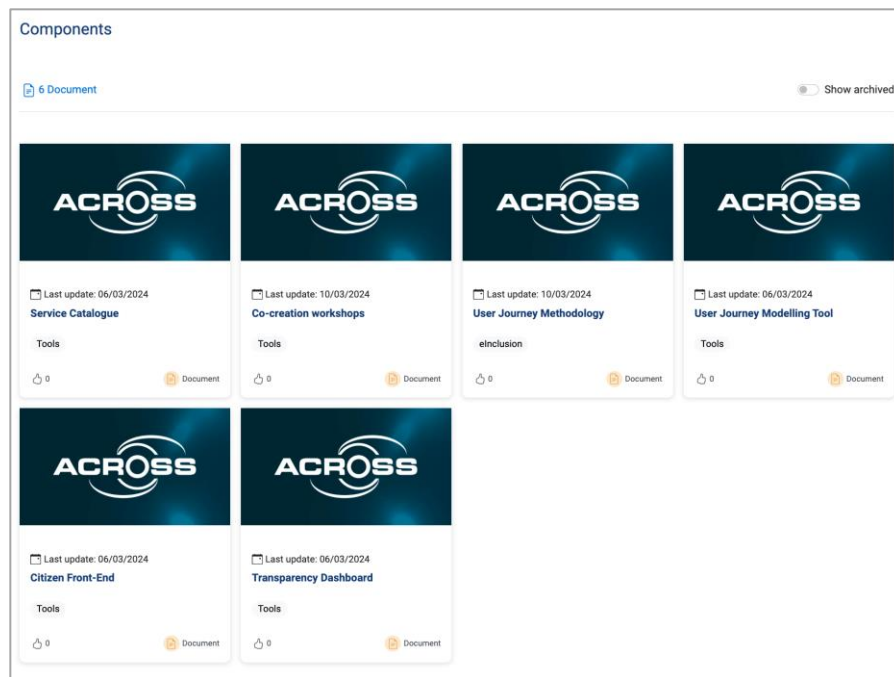


Figure 3 - Solutions and Components section on ACROSS Toolbox

5.2.4 Tools and resources

This section contains links to public resources that have been used to conduct activities in the project, as well as the impact assessment framework utilized in the three use cases and a glossary that collects the key terminology used for describing ACROSS. The resources featured in particular are the co-creation methods used for the engagement process and co-creation phase of user journey design with citizens. These tools are particularly useful for managers and policy makers for performing assessment and co-creation activities in order to support user engagement:

- [Value ladder](#) (Waag): this visual tool can be used to keep the shared values visible throughout the course of a project or on a specific subject. During a co-creation session, it can be used to merge and discuss individual values and place the 5 selected in order of importance, if needed. This exercise can also be done online through a whiteboard like Mural or Miro.
- [Ambition ranking](#) (Waag): this method can be used during a co-creation process to get insights into what ambitions or ideas are prevalent in a team, and in which way common ground can be found. The purpose of this method is to get a sense of what a team or group of stakeholders would like to achieve at the end of a project or session. Like the Value Ladder method, this exercise can also be done online through a virtual whiteboard.
- [Public Stack Reflection cards](#) (Waag): this tool has been designed to guide users through the governance and service design approach implemented in ACROSS. They serve as a means for users to identify the foundational values that drive their development process



and reflect on how these values are integrated into their design process and technology. Additionally, the cards encourage users to consider the societal impact of their projects on both people and the planet and to address any design dilemmas with a thoughtful balance. In essence, the public stack approach promotes the alignment of technology with public values, an open and participatory design process, open-source and privacy-by-design technology, and a positive impact on society and the environment. These cards are best used in a team setting, facilitating discussion and reflection, and they can be applied throughout the development process, even if it is already underway. Inside the related page, the file that contains the printed version of the cards is available for anyone who wants to download it and use it.

- [Roadmap for co-creation](#) (Waag): ACROSS employed a co-creation methodology as a guiding principle in conducting user research across pilot countries, providing a foundation for partners to develop innovative solutions supporting cross-border services. Waag's contribution to this approach is exemplified by the [Co-Creation Navigator](#) (CCN), a roadmap developed to structure co-creative processes with a suite of tools, methods, and recommended workflows. Serving as a central platform for transparent communication, the CCN encapsulates Waag's evolving co-creation methodology.
- [Impact assessment framework](#): the framework has been developed to measure the impact of the ACROSS solution on different through different categories of indicators. The impact measured are related to efficiency gain for stakeholders, usability of the platform, government's reliability, empowerment and technology. The impact assessment process phase and final results are described in D6.3.
- [Glossary](#): the glossary aims to be a comprehensive resource of the key terminology and concepts that are used in ACROSS and that can be found in the content provided in the toolbox. The terms contained in the glossary are related to cross-border services, digital ID and eGovernment. This collection aims at providing context to less specialized users that encounter ACROSS for the first time and might find useful to have a guidance on specific terms used for describing the outputs of the project.

5.2.5 Good practices and recommendations

The content featured in this section on the online version of the toolbox is presented in Chapter 6 "Lessons learned and recommendations for policymakers and public administration managers".

ACROSS provides benefits to two main target groups: Government Organisations and Citizens:

- To Governments it provides good practices and tools to implement simplified administrative processes and reducing the administrative burden for end-users, facilitating their interaction with the platform, and avoiding duplicate tasks. It sets out the principles to achieve improved process efficiency by optimizing the government offices organizational processes, reducing time, limiting the need for transactions, and improving the overall data and information quality. It proposes practices to improve service delivery,



process transparency and accountability leading to greater satisfaction and trust of citizens.

- Citizens benefit from ACROSS which provides a model for a one-stop-shop of information regarding the life event of moving. The platform facilitates the understanding of the administrative procedures of other EU Member states and helps overcoming language barriers and provides a one-stop-shop with easily understandable procedures and instruction, fast downloadable results.

The ACROSS model builds on a paperless concept and it respects the Data Governance Framework, which empowers citizens to make better decisions on handling their data across all the different stakeholders. It uses a single authentication to the platform for the whole process.

5.2.6 Lessons learned

The list of lessons learned from the impact assessment and project outcomes are presented in paragraph 6.2 “Roadmapping for policymakers and public administration managers”.

The lessons learned are based on the findings from the impact assessment and it aims to collect information that can be useful and effective for policymakers. These lessons are complemented by a proposed roadmap that highlights how an ACROSS-like solution could be implemented to tackle identified cross-border service gaps in order to respond to needs of transparency, data sovereignty, user-centricity and interoperability of digital public services.

5.2.7 Tools from EU

As already mentioned, the Joinup portal represents a community source of knowledge and tools derived from projects and European initiatives that are specifically related to interoperability. Among the resources that are available on the portal, it is worth mentioning one that is particularly relevant for ACROSS, which is the EIF (European Interoperability Framework) Toolbox created by NIFO – National Interoperability Framework Observatory.

The EIF Toolbox (<https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/solution/european-interoperability-framework-eif-toolbox>) is designed as a guidance to help national public administrations align with the EIF standards and to promote interoperability at national and European level. The toolbox contains policy recommendations, solutions and a section to discuss with the community.

The goal of the Partners, given the focus on interoperability of digital public services across Europe, is to promote the ACROSS as a good practice or solution to be featured among the EIF recommendations. This would be an exploitable opportunity for the ACROSS toolbox in order to increase the reach of project’s findings and contribute concretely to the progress of the community towards the promotion of interoperability.



6 Lessons learned and recommendations for policymakers and public administration managers

To encounter the citizens needs and the high-level digital policies proposed by the EU, the ACROSS project has prepared a toolbox to share the knowledge created by the project and mitigate some of the challenges that policymakers and public administration managers might encounter when implementing cross-border services. The toolbox is intended to assist public administration managers and policymakers in delivering seamless services. It follows a user-centred approach, to aid in the process. The toolbox is built on real research, easy to understand and available in an interactive form. This final version updates the identified gaps and lessons learnt from the solutions provided in ACROSS and tested in real condition of use in three Pilot cases (i.e. Greece, Germany and Latvia). Furthermore, a final roadmap is proposed that emphasises local initiatives and vision while also utilizing the support of the European context to promote user-centricity, interoperability, and data sovereignty in cross-border services.

6.1 Toolbox recommendations per gap and lessons learned per solution developed

The toolbox provides recommendations for using a gap-analysis in cross-border services in the EU. It includes the solutions created by ACROSS to address identified gaps and complements them with lessons learned from implementing each solution. Annex A: Impact Assessment Framework reports also the Impact assessment Framework developed for ACROSS. Moreover, the gap analysis is important to help identify areas where current services are not meeting the needs of EU citizens and businesses, and the solutions and lessons learned can assist in developing more effective and efficient cross-border services in the EU. These are final knowledge sharing created by the ACROSS partners, directed to policymakers and public administration managers with the perspective of the project solutions. It is based on the evidence gathered from the Pilot cases where ACROSS has been tested and reported in Deliverable 6.3 (“Use Cases Evaluation and Impact Assessment – Final”). They identify the extent to what the adoption Citizens, Stakeholders and Experts engaged in the Pilot cases perceive ACROSS solution capable to address the gaps identified by ACROSS project and reported under paragraph 5.2.2.

Table 3 - Good practices and recommendations per gap and per solution developed

Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
1. Countries are unable to identify a solid basis of trust and mutual recognition.	ACROSS ecosystem	Pilot tests indicate that ACROSS is capable of bridging this gap, aiding the Administrations responsible for cross-border services in enhancing mutual trust and recognition. ACROSS creates an ecosystem of stakeholders which can help countries that are unable to identify a solid basis of trust and mutual recognition in



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>several ways. First, by creating the ACROSS platform, it enables collaboration and information-sharing.</p> <p>The evidence gathered during the Pilot tests show that there is a wide consensus among the Pilot cases participants about the Platform capability to help administrations in charge for the cross-border services in establishing a mutual sense of trust and improve cooperation between member states involved in the cross-border services provision. Projects can foster a sense of trust and cooperation among the stakeholders, including government agencies. This cooperation can help to build mutual understanding and acceptance of each other's needs, concerns, and perspectives. Additionally, by identifying and addressing specific challenges and barriers to cross-border services, the project can help to establish a more solid basis of trust and mutual recognition between countries.</p> <p>All the Pilot cases score this issue highly above the threshold of 5 on 1-7 Likert scale.</p> <p>Therefore, the establishment of ACROSS ecosystem provides a framework for countries to work together on common issues and to learn from each other's experiences. It also gives stakeholders an opportunity to engage in dialogue and to exchange best practices, helping them to build greater mutual understanding and cooperation between countries, which in turn, can help to build trust and mutual recognition between countries.</p>
<p>2. There is a low-level of information sharing between EU member states</p>	<p>ACROSS ecosystem and ACROSS platform</p>	<p>Evidence from Pilot Cases shows the capability of ACROSS Platform to improve the information sharing process among EU MSs governments in charge for cross-border services.</p> <p>The ACROSS platform significantly streamlines cross-border processes for administrations, surpassing current practices in effectiveness and efficiency, thereby simplifying procedures for users. This is evidenced by 60% of respondents acknowledging the platform's capabilities in D6.3 (EFF_01). It also minimizes the amount of information users need to provide to complete a</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>service, as indicated by a score of 6 out of 7 on the Likert scale by respondents (EFF_04, in D6.3) and reduces the number of public entities users must engage with, with 72% respondent agreement (EFF_02 in D6.3). However, the adoption of ACROSS Platform would be facilitated by the establishment of the ACROSS Ecosystem which would help governments in leveraging the ACROSS Platform to devise and implement outreach strategies to various stakeholders. This integration forms a matrix of complementary and occasionally competing services, compelling the adoption of open standards for interoperability as for Gap #3.</p>
<p>3. Lack of interoperability of ICT solutions amongst different countries.</p>	<p>ACROSS platform</p>	<p>ACROSS platform can help making the cross-border processes more automated and streamlined. Public administrations are working on interoperability at the national level to interact with all local administrations, there is work in progress however, a lot of effort should be given to extending the level of interoperability at the European level. 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.</p> <p>Pilot cases have demonstrated that employing the ACROSS Platform significantly facilitates improvements. During the testing phase, the platform was shown to enhance the efficiency of cross-border processes (EFF_09), receiving an average rating of 5.96 against a threshold of 5 on a 1-7 Likert scale. Additionally, it was found to reduce the overall number of interactions required (EFF_10) with an average score of 5.78 and expedite the collection of necessary information for completing cross-border procedures, outpacing traditional online and offline methods (EFF_04) with an average score of 6.31.</p> <p>Thus, the implementation of the ACROSS Platform is poised to do more than just reconcile technical disparities; it is also capable of facilitating Member</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>States in harmonizing administrative practices and organizational cultures. The platform effectively tackles the lack of uniform organizational protocols, such as standardized forms, procedures, and contact details, which currently elevate the administrative burdens and cognitive load associated with understanding procedures for public officials, businesses, and the citizens they serve.</p>
<p>4. No temporary ID for non-EU residents, newcomers or refugees to access digital wallets.</p>	<p>ACROSS platform</p>	<p>ACROSS adoption could enhance the use of digital technologies such as eID and digital wallets. Unfortunately, access to any public administration service requires strong authentication using the ID as the base. Without an ID, ACROSS will provide access only to a very limited set of services. However, there are alternatives that allow online registration by video calls, if the public administration accepts to be registered, so has been done in ACROSS.</p> <p>Pilot cases show a positive evaluation of the Platform capability to improve the on-line access to the services than the current practices (EMP_01) with an overall score of 6.24 with a threshold of 5 in a 1-7 Liker scale.</p> <p>Moreover, evidence from TEC_02 shows the positive judgment of participants to the Pilot case in the capability of the Platform to help administrations to exploit digital innovations such as the eID and digital Wallets with a score of 6.25 with a threshold of 5 on 1-7 Likert scale.</p>
<p>5. Function creep is a serious issue facing cross-border services, because the types of credentials that are developed and used in a cross-border context are often highly personal or sensitive.</p>	<p>ACROSS platform</p>	<p>Pilot cases demonstrate that utilizing the ACROSS Platform increases users' trust in public administrations by enhancing their sense of safety and security when submitting personal data. Through the Personal Data Framework provided by ACROSS the user can decide which personal data or credentials are shared as well as tracking if they have been used by the service provider in the way it was meant to. Across supports user control of their data, also towards public authorities. User data should not be shared with public authorities without the explicit request of the user, and users should</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>always be able to review the information before it is shared with public authorities. This should help to prevent or at least diminish Function creep.</p> <p>Pilot cases provide clear evidence about this capability of the Platform. EMP_03 shows an overall score of 5.09 that is above the threshold of 5 on 1-7 Likert scale. Moreover, all the Pilots’ participants agree that the Platform helps citizens in handling their personal data in an easier way with a score of 5.31 (EMP_04).</p> <p>Although the overall score of EMP_03 is positive, German and Latvian responders slightly disagree on the capability of the Platform to enhance citizens’ control over their personal data when utilizing cross-border services. To facilitate broader adoption of the Platform across EU Member States, it is advisable to undertake comprehensive communication and demonstration initiatives addressing the needs and cultures of users of every single MSs during the exploitation phase.</p>
<p>6. Certain services that have been digitised in one EU country may not yet have been digitised in another.</p>	<p>ACROSS ecosystem, Service Catalogue and Adapters</p>	<p>ACROSS solution adoption could also accelerate the digitalization processes of public sector. Recent discussions⁸ have pointed out the need of semantic interoperability to assure the provisioning of seamless digital public services (see recommendation #3). This aspect also is in line with the coming Data Act and the proposal of the Interoperable Europe Act. The European Commission ISA2 programme worked on reducing barriers that currently hinder the adoption of an EU-wide solution for the cross-border transfer of representation information, highlighting the lack of a common semantic framework.</p> <p>Feedback from pilot cases reveals that 84% of trial participants are inclined to recommend ACROSS to colleagues or friends (USA_07), showing a high interest in adoption ACROSS Solution.</p> <p>Implementing features like the Service Catalogue and Adapters meets various service description</p>

⁸ <https://semic2022.eu/>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>needs through the use of semantic formalization and standardized vocabularies.</p> <p>Analysis of USA_07 results from the three pilot cases shows general agreement with the impact indicator's statement, particularly among German and Greek participants. However, the Latvian response rate was 75%, marginally below the >75% threshold. This suggests a need to further cultivate the ACROSS ecosystem by encouraging the exchange of knowledge and best practices and design dedicated communication efforts as well, aiming to expedite the adoption of the solution, especially in less digitally advanced EU Member States. This approach is further validated by positive outcomes from TEC_01 and TEC_02, indicating that ACROSS could hasten the digital transformation of the public sector.</p>
7. There is a lack of trust towards and between institutions in the public and private sector.	Data Governance framework	<p>ACROSS enhance the trust towards and between institutions in the public and private sector. Administrations are currently implementing the Once-Only Principle (OOP), launched in 2024, aimed at bolstering trust between public institutions.</p> <p>Regarding Gap #1, trial feedback indicates widespread agreement among participants during the experimental phase that ACROSS has the potential to enhance trust between public administrations engaged in cross-border processes, as well as between governments and service users.</p> <p>Additionally, trial outcomes suggest that ACROSS could create new business opportunities for service providers (EFF_06) and expand their customer base (EFF_07), achieving scores of 5.42 and 5, respectively, on a 1-7 Likert scale. This perspective is particularly strong among German and Greek participants, in contrast to notable scepticism from Latvian respondents. Given this feedback, we recommend implementing all suggested technical improvements for the Platform as outlined. Moreover, deploying effective communication and</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>demonstration strategies is essential for ensuring the successful adoption and utilization of ACROSS.</p>
<p>8. People do not have control over who has access to their personal data and there is a lack of transparency about their data processing.</p>	<p>Data Governance framework</p>	<p>ACROSS helps people to have control to their personal data and increase the transparency about their data processing. It is imperative to provide a governance framework for personal data (including electronic documents) that gives the citizen the ability to decide to whom their data will be shared and for what purpose their information is used. Users should be able to grant, deny or terminate access to their data with equal ease, in a sufficiently granular manner to enable effective control. In short, they become the sovereign of their personal data.</p> <p>ACROSS governance framework should comply with the GDPR and the Data Governance Act as reported in D6.3.</p> <p>Through the Platform, users are informed through a Privacy Policy about the way in which their data will be processed, the recipients of their personal data, the retention periods, their data subject rights, etc. With regards to their data subject rights, users should be able to access, amend, correct and/or always delete their data, and to be able to obtain a copy of it. This has been done through data subject rights interfaces in the ACROSS Platform.</p> <p>As already described for gap #5, participants to the Pilot cases agree about the capability of the Platform to improve the sense of control of citizens over their personal data when using online cross-border services (EMP_03) as well as their perception of the extent to what the Platform help the citizens in handling their personal data in an easier way (EMP_04). Moreover, the citizens participating to the Pilot cases perceive that the Platform is safer than the current data management practices of cross border services (GOV_02) with a score of 5.36 with a threshold of 5 on a 1-7 Likert</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>scale as well as the Capability of the Platform to help in facilitating the use of the data that is strictly necessary to complete the process (EMP_05) with a score of 5.39 with a threshold of 5 on a 1-7 Likert scale.</p> <p>This perspective is highly accepted among German and Greek participants, in contrast to Latvian respondents which slightly disagree with a score just below the thresholds of the Impact Indicators listed above. Given this feedback, it is recommended to implement all suggested technical improvements for the Platform as outlined. Moreover, deploying effective communication and demonstration strategies is essential for ensuring the successful adoption and utilization of ACROSS.</p>
<p>9. There is uncertainty over how to accommodate non-EU systems (for credentials, identity management, data sharing, etc.) within a European data infrastructure.</p>	<p>Data Governance framework</p>	<p>ACROSS support the interaction also with the non-EU system. The EU is working on their identity systems, that preserve its values in terms of privacy. This does not preclude the participation of non-EU companies.</p> <p>Same considerations of identified Gaps #1, #2, #3, #4, #6 and #7.</p>
<p>10. There is limited use of the eIDAS infrastructure, and no mature digital identity wallet in the market today.</p>	<p>Data Governance framework</p>	<p>ACROSS adoption enforces the possibility of using eIDAS infrastructure and improve the digitalization of PA processes across EU MSs with different degree of digital maturity. By September 2023, all EU member states must ensure that a Digital Identity Wallet is available to all EU citizens, residents, and businesses in the EU and usable not only for identity documents but for all attestations, including those with sensitive personal data, such as health-related data and documents.</p>
<p>11. Cross-border services are not perceived as safe (like other digital public services). The</p>	<p>Data Governance framework</p>	<p>ACROSS improves the trust among public administration for cross-border services as well as between governments and citizens by implementing more secure and safe personal data exchange. Citizens have a low level of trust regarding the safety of the information they share</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
<p>implementation of robust cybersecurity measures, including the use of encryption and secure authentication systems, is necessary to increase service uptake.</p>		<p>digitally. To combat this, public services (and also private cross-border services) need to ensure that they can demonstrate that their technology is indeed safe by design. This is a different approach than that taken by private companies, which prioritise marketing and communication. In contrast, public services should focus on technical demonstrability (e.g., of privacy-by-design) in order to increase trust.</p>
<p>12. Undetermined impact of disruptive technologies for cross-border digital public services.</p>	<p>Impact analysis</p>	<p>ACROSS promotes the adoption of digital innovation for cross-border services and support the adoption of digitalization of public services. There are no "off the shelf" and widely accepted metrics or frameworks to evaluate the implementation of disruptive technologies for cross-border services. Policymakers and public sector managers should always consult with experts from the eGovernment field before making investments and choosing the appropriate technology.</p> <p>The impact assessment outlined in D6.3 and detailed here in Annex A: Impact Assessment Framework illustrates how adopting ACROSS can help bridge the identified gap. Specifically, TEC_01 and TEC_02 reveal a broadly positive view of the Platform's ability to ease the integration of new technologies, with an average score of 5.88, and its enhanced capacity to leverage emerging digital technologies, thereby hastening digital transformation efforts, with an average score of 6.28. These results are measured against a benchmark of 5 on a 1-7 Likert scale.</p>
<p>13. Lack of attention to every-day commuters who face issues by working and living in neighbouring countries.</p>	<p>ACROSS platform</p>	<p>The great usability of ACROSS verified through Pilot tests allows to support users, including day commuters to work and/or study abroad, also by using ACROSS applications. Policymakers can take several steps when developing a web app for cross-border services to improve the process for everyday commuters who work and live in neighbouring countries in the EU.</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>First, policymakers can involve stakeholders such as commuters, businesses, and government agencies in the design and development of central platforms or apps to ensure that it addresses the specific needs and challenges faced by cross-border workers. This involvement can include conducting user research and testing to gather feedback on the app's usability and effectiveness.</p> <p>Second, policymakers can ensure that the application is designed to be user-friendly and accessible to all, including those with disabilities or those who may not be proficient in the local language. This process can contain providing support for multiple languages and implementing accessibility standards.</p> <p>Third, policymakers can work to integrate the application with existing systems and services such as transportation, social security, and tax systems to make it as seamless as possible for commuters to access the information and services they need.</p> <p>Fourth, policymakers can also ensure that the application is secure and respects users' privacy, by implementing robust data protection measures and ensuring compliance with relevant EU regulations.</p> <p>Finally, policymakers can also work to promote the application and educate commuters on its features and how to use it, to ensure that it reaches the target audience and is effectively used.</p> <p>The positive results given by the usability Impact Indicators from USA_01 to USA_08 provide clear evidence of the capability of the Platform to bridge this gap. Moreover, the capability of the Platform to support people with their intention to work and/study abroad is confirmed by the overall score of EMP_02 with a final value of 6.2 with a threshold of 5 on a 1-7 Likert scale. The wide consensus about the Platform is confirmed by the “overall satisfaction” Impact Indicator that reports high</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>degree of satisfactions registered among the participants to the experimental phase of each Pilot and overall. In all the cases the Impact indicator is highly above the expected threshold of 5 in a 1-7 Likert scale. Finally, the perceived degree of the Platform’s easiness of navigation through mobile phones (USA_08d) is also a clear demonstration of the capability of ACROSS to bridge this gap.</p>
<p>14. Low digital skills which make it difficult for many people to access cross-border services.</p>	<p>User journey</p>	<p>The ACROSS Platform enhances the user journey, significantly facilitating access to cross-border services. When designing these services, it's imperative to account for the varied profiles of potential users, considering their distinct needs and requirements. The diversity in user backgrounds necessitates thorough user research, particularly focusing on the different degrees of digital literacy. The GOV_06 indicator, with an average score of 5.18 on a 1-7 Likert scale, surpassing the threshold of 5, illustrates the high level of willingness among stakeholders involved in the pilot cases to endorse user-journey methodologies that ease the use of cross-border services.</p> <p>Evidence from several impact indicators suggests that the Platform can effectively address these challenges. Particularly for gap #13, usability impact indicators uniformly reflect the Platform's positive role in helping users easily navigate cross-border services. Features like the Virtual Assistant (VA), positively evaluated through indicators USA_01, USA_02, USA_03, and USA_04, the high-quality information provided by the Platform (USA_06c), and the use of clear, understandable language (USA_08a) coupled with a straightforward and engaging visual design (USA_08b) are all acknowledged for significantly mitigating this gap.</p> <p>Feedback from pilot participants overall praises the Platform's usability. However, regarding the VA feature, German users have expressed minor reservations about its current quality. Prior to the Platform's broader deployment in specific EU Member States, it is suggested to organize targeted</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		sessions with potential users and experts to specifically address and resolve this concern.
<p>15. People do not know what their workflow is to move abroad (which steps they have to take, and in which order).</p>	<p>User journey</p>	<p>ACROSS meets the needs of the citizens when using cross-border services and facilitate in understanding the process to study and/or work abroad. Extensive user research helped to get an understanding of which steps, hurdles, and pain points citizens face when they move across borders. In ACROSS, the team built a user journey methodology aimed at recreating the journey that citizens undertake in preparation for and during their move. This methodology consisted of a series of guided interviews in each of the pilot countries.</p> <p>The results were collected in a template which allowed for comparison between the countries. This gave insight into the different parts of the citizens' journeys. Here again it is essential to include people from the wide socio-economic, educational, ethnic, gender, and ability spectra.</p> <p>As highlighted for Gap #15, the ACROSS solution receives strong acceptance from both users and providers, a fact underscored by the Impact Assessment findings in D6.3. These findings illustrate how ACROSS adoption effectively addresses the identified gaps, notably referenced in the GOV_06 results.</p> <p>Feedback from the testing phase indicates a significant consensus, with 93% of trial participants affirming that the ACROSS Platform reduces the time users spend on accessing cross-border services. Furthermore, a majority of respondents recognize the Platform's role in helping users more easily understand the procedures needed to pursue educational and employment opportunities abroad, surpassing current methodologies (GOV_01). This is evidenced by an average score of 6, above the threshold of 5 on a 1-7 Likert scale.</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
<p>16. Many services are not available in languages other than the local language.</p>	<p>Virtual Assistant</p>	<p>ACROSS Platform and its VA are effective in supporting the usability of the platform and combining English and local languages in a more effective ways to facilitate the access to on-line cross—border services.</p> <p>The first set of recommendations focuses on ensuring that the VA can understand and respond to a wide range of languages and dialects and that it can provide accurate and up-to-date information and services. This understanding comprises of implementing machine translation for all EU languages, providing resources and support for users who may have difficulty understanding or communicating in the local language, and regularly reviewing and updating the assistant's language capabilities.</p> <p>Final version of ACROSS overcome this gap. USA_03 overall score of 5.35 with a threshold of 5 on a 1-7 Likert scale, shows a shared agreement that VA really help users overcoming language barriers. Also, USA_08a overall score value of 5.96 confirms that according to participants to the trials, ACROSS Platform uses an easy-to-understand language.</p> <p>The second set of recommendations focuses on ensuring the Virtual Assistant (VA) is both accessible and user-friendly for all users, in alignment with relevant EU regulations. Adopting a user-cantered approach involves collaborating with government agencies and public service providers to verify the accuracy and currency of the information and services the VA offers. It also entails monitoring and evaluating the VA's usage and effectiveness, alongside establishing mechanisms for user feedback and reporting. Impact assessments conducted across three Pilot sites have shown progress in addressing this gap, with overall scores of 5.91 for USA_01 and 5.83 for USA_02 indicating the ACROSS VA's ease of use and its assistance in completing cross-border services. However, the score of 4.98 from German participants for USA_04 highlights the need for improvements in the VA's</p>



Cross-border services gaps	ACROSS solution	Lessons learned and recommendations
		<p>quality. Despite the overall positive rating for USA_04 exceeding the threshold of 5 on a 1-7 Likert scale, feedback from Germany suggests there is potential for enhancing VA services. To address this, we recommend conducting dedicated user requirement sessions with potential users and experts prior to the Platform's deployment in any EU Member State.</p>
<p>17. Lack of impact assessment of cross-border services.</p>	<p>Impact analysis</p>	<p>The Impact Assessment methodology applied in the Pilot cases has proven to be effective in evaluating the impacts of cross-border services on both users and providers. Policymakers are encouraged to actively engage with various stakeholders involved in these services to co-develop metrics, thereby selecting the most relevant Key Performance Indicators (KPIs) for assessing the impact of cross-border services across different categories. It is important to note that there is no universal, "ready-to-use" impact assessment framework available.</p> <p>The Impact Assessment framework designed for evaluating the use of ACROSS, as detailed in document D6.3, has demonstrated its utility in assessing criteria such as Usability, Accessibility, Efficiency, Effectiveness, Trust, and Adoption of cross-border services through specific KPIs (see Annex A: Impact Assessment Framework). We advocate for the adoption of this Impact Assessment Framework in conjunction with the ACROSS Platform to enable ongoing monitoring of its impacts and to provide feedback for the enhancement of cross-border services.</p>

6.2 Road mapping for policymakers and public administration managers

Based on all the information provided thus far, there are several key lessons that policymakers can learn from ACROSS. The road mapping has been updated in this final version of the toolbox, which also contains the impact assessment framework developed in ACROSS – helping policy makers to measure their process and see how far away they are from achieving the provided recommendations.



Table 4 - Lessons learned and road mapping

Addressed issue	Lessons learned and road mapping
Interoperability is crucial	<p>The project highlighted the importance of ensuring that digital public services are interoperable across different countries in the EU, to facilitate seamless access for citizens moving between countries. Therefore, for digitally based government programs to succeed, political power must be used to establish and enforce standards and rules for cross-border services across countries. Breaking down silos and ensuring that all government agencies follow the same rules and procedures across all departments and institutional levels is the most challenging component of implementation.</p> <p>To tackle this challenge, policymakers should encompass standardised techniques and procedures including interfaces, data governance, interoperability, and open standards for technology in addition to the technical standards established by bodies like the International Organisation for Standardization (ISO).⁹ This value can be accomplished by establishing required procedures and compliance monitoring, as well as by tying public financing to the achievement of standards like the European Interoperability Framework (EIF).</p> <p>Gaps #3, #4, #6, #9, #10, #11, and #12 pertain to this issue. As outlined in the preceding section, adopting ACROSS could play a pivotal role in mitigating these gaps and hastening the collaboration between EU Member States and organizations engaged in cross-border services. Furthermore, the adoption of ACROSS could help narrow the digital divide between more technologically advanced organizations and their less developed counterparts. It would also ease the integration of eID, digital wallets, and other digital innovations, potentially reducing administrative burdens and fostering trust between public organizations and users engaged in administrative processes.</p>
Necessity of creating a unified cross-border service platform	<p>As seen in the piloted countries – a unified platform, where different building blocks from different projects can be used - is necessary to improve the cross-border scenario in each country, for different reasons. To build such a platform that offers cross-border services in the EU, collaboration and coordination between different government agencies and EU member states are essential. Harmonising regulations and standards across the EU can help ensure that the platform is compatible and accessible to all member states. Adopting common technical solutions and infrastructure can help reduce costs and increase interoperability and encouraging private sector participation and partnerships can help bring in expertise and resources. Ensuring data protection and privacy compliance with EU regulations such as the General Data Protection Regulation</p>

⁹ Kurt Kosanke, “ISO Standards for Interoperability: A Comparison,” in *Interoperability of Enterprise Software and Applications*, ed. Dimitri Konstantas et al. (London: Springer, 2006), 55–64, https://doi.org/10.1007/1-84628-152-0_6. (Kosanke, 2006)



	<p>(GDPR) is crucial, as well as regularly reviewing and updating the platform to ensure it meets the changing needs and demands of users.</p> <p>Providing training and support to users and government officials to ensure the platform is being used effectively and building a central governance structure to oversee the platform's development, operation and maintenance are also important considerations. Establishing clear and transparent communication and feedback mechanisms is important to ensure the platform is meeting the needs of the users, and to identify potential issues that need to be addressed. Continuously monitoring the performance and usage of the platform and using data to inform and improve the platform's design and functionality is also crucial for the success of the central platform.</p> <p>Gaps #1, #2, #3, #6, #7, #8, #9, #10, #11, and #17 are associated with this challenge. The implementation of the ACROSS Platform in Pilot cases has showcased its potential to facilitate cross-border services efficiently and effectively. The Toolbox presented in this report provides a significant opportunity for governments and key stakeholders to advance the integration of services across EU Member States into a cohesive cross-border service platform. Following the ACROSS Toolbox requirements, this platform would be designed to be in compliance with GDPR and aligned with cutting-edge digital innovations.</p>
User-centred design and creation of user-journeys	<p>The project demonstrated the value of adopting a user-centred design approach when developing digital public services, to ensure that they meet the needs of the people who will use them. Then, as policymakers, it is vital to involve citizens in the early stages of policy development for cross-border service design. Doing so will ensure that the needs of citizens are met at the local level and that cross-border initiatives are tailored to the unique needs of communities. The citizens are the final users of such services and their participation in the policy development process is essential for creating truly effective cross-border services. To ensure that citizens are efficiently integrated into the policy development process, a minimum standard of co-creation with public authorities should be established for all European, national and regional initiatives on digital government that are funded by European funding. By working closely with citizens and involving them in the policy development process, we can ensure that digital government initiatives are more effective. Additionally, local authorities can act as a conduit for the adoption of cross-border solutions and compliance with standards developed in these initiatives.</p> <p>Improving transparency and communication with citizens and businesses about the development and implementation of cross-border services can help build trust and ensure that services meet the needs of users.</p> <p>Gaps #5, #7, #8, #11, #13, #14, #9, #15, and #16 are linked to this issue. The experimental phase of the Project, conducted through three Pilot cases, has demonstrated how well the ACROSS Platform is received by both users and providers of cross-border services. Features such as the Virtual Assistant (VA),</p>



	<p>the use of simple language that includes both English and local languages, attractive visual navigation, easy access to online services, and a strong sense of security in personal data sharing have all contributed to reducing the time and cost associated with using cross-border services. These features also enhance the opportunities for users to work or study abroad. The ACROSS Toolbox, as detailed in this report, along with the user journey approach adopted in its design, could serve as an effective means to develop truly user-centered cross-border services that are easy for both users and providers to adopt.</p>
<p>Low level of trust in digital public services regarding privacy and personal data protection</p>	<p>The project emphasised the importance of ensuring that data protection and privacy are built into the design of digital public services from the start, to protect citizens' personal data and build trust in the services. To make cross-border services more compliant with data protection regulations is to adopt a risk-based approach to data protection. This approach involves assessing the potential risks to personal data associated with a particular service and then implementing appropriate measures to mitigate those risks. To implement a risk-based approach, public authorities need to conduct a thorough data protection impact assessment (DPIA) of all cross-border services. A DPIA is a systematic examination of a proposed service or project that helps identify the potential risks to personal data and suggests measures to mitigate those risks.</p> <p>Ensuring data protection and privacy compliance is crucial for building trust among citizens and businesses and protecting personal data, this can be achieved through regular audits, training and awareness-raising activities, and through the creation of dedicated data protection and privacy units within member state governments.</p> <p>It is also necessary to implement technical and organisational measures to mitigate the identified risks, such as encryption, pseudonymization, and access controls. They should also establish clear and transparent procedures for data processing and ensure that these procedures are in line with EU data protection regulations. Policymakers should also establish mechanisms for monitoring and enforcing compliance with EU data protection regulations. This includes regular audits of data controllers, as well as sanctions for non-compliance.</p> <p>Gaps #5, #7, #8, #9 and #11 are linked to this issue. The Pilot texts of ACROSS Platform provide evidence of the positive perception of users about the data management solution adopted and the capability of the Platform use to increase the trust between governments in charge for cross-border services and the users.</p> <p>Gaps #1, #2, #3, #6, and #7 relate to this challenge. Insights from the Pilot cases highlight the ACROSS Platform's significant role in fostering trust between public organizations. The Toolbox presented in this report could serve as an effective tool to implement this recommendation.</p>



<p>Trust between member states could be improved for the benefit of cooperation</p>	<p>Policymakers can take several actions to achieve a high level of mutual trust between different member states and create excellent cross-border services, using EU policies and directives. One of the key actions is to foster mutual understanding and cooperation between different EU member states and government agencies. This fostering can be achieved through regular meetings and consultations between representatives of different member states, as well as through the creation of working groups and task forces focused on specific cross-border issues. EU policies such as the European Semester and the European Cooperation in Science and Technology (COST) can help facilitate this cooperation.</p> <p>Another important action is to harmonise regulations and standards across the EU, which can help ensure that cross-border services are compatible and accessible to all member states. EU directives such as the e-Commerce Directive, the Services Directive, and the Digital Single Market Strategy can help member states harmonise regulations and standards.</p> <p>Encouraging private sector participation and partnerships can bring expertise and resources to the development and implementation of cross-border services, and public-private partnerships can help ensure that services meet the needs of users. EU policies such as the Public-Private Partnership (PPP) and the Single Market Act can help encourage private sector participation and partnerships. Encouraging the use of open standards and open data can help increase interoperability and make it easier for businesses and citizens to access cross-border services, fostering mutual trust and cooperation. Finally, creating an independent body to oversee the cross-border services can help ensure that they are being developed and implemented in a transparent and accountable manner, building mutual trust among member states.</p>
<p>Continuous improvement in cross-border service provision</p>	<p>ACROSS has demonstrated that it is important to continuously monitor and evaluate the performance of cross-border services, and adjust as needed, to ensure that they meet the evolving needs of citizens and remain relevant over time. Therefore, governments should monitor the usage of cross-border services, and provide data that is compliant with open data directives. Cross-border services that are user-centred, interoperable and safeguard data can only be implemented at scale with close monitoring. Cross-border services truly need to be monitored to improve their implementation and allow member states to learn from their peers. Current measuring frameworks, such as the eGovernment benchmarking, only cover local websites somewhat, making them insufficient for large-scale, granular digital service rollout. A permanent system or dashboard that monitors a sufficient sample of cross-border services is required.</p> <p>Gap #17 is associated with this issue. The Impact Assessment framework outlined in D6.3, employed for evaluating the effects of the ACROSS Platform in pilot cases, has proven highly effective in monitoring the provision of cross-border services. This framework comprises six Impact Assessment criteria: Accessibility, Usability, Efficiency, Effectiveness, Trust, and Adoption, each with</p>



	<p>specific KPIs, metrics, and thresholds. The selection of KPIs adheres to the S.M.A.R.T. criteria¹⁰, ensuring they are specific, measurable, achievable, relevant, and time-bound. These KPIs can be readily incorporated into a dashboard for ongoing evaluation of cross-border service performance. Additionally, the annex includes a questionnaire and a checklist that form an integral part of the ACROSS Toolkit, designed for this purpose.</p>
<p>Lack of mandatory compliance to accessibility and inclusion standards</p>	<p>The project highlighted the importance of accessibility and inclusion (along with other user-centred aspects), making sure that cross-border services are accessible to all citizens, including those with disabilities. Considering this, policymakers should require mandatory reporting of metrics on the use of cross-border services from member states. All digital projects funded by European funds should regularly report metrics on usage in a machine-readable format, as a requirement for receiving funding. This transparency will create a positive accountability system that encourages prioritising user needs, interoperability, and data sovereignty.</p> <p>Gap #8 is associated with this issue. ACROSS governance framework should comply with the GDPR and the Data Governance Act as reported in D6.3.</p>
<p>Internationalisation of services by providing them in all EU supported languages</p>	<p>ACROSS showed the importance of the internationalisation of cross-border services, making them available in multiple languages. Service standards should be included in the EIF. The EIF is the back-office architecture concept for European cross-border services. It serves as a model for national interoperability frameworks. To speed the adoption of such standards, it should be expanded to include service standards compatible with the objectives of the 2020 Berlin Declaration on Digital Society and Value-based Digital Government.</p> <p>Gaps #14, #15, and #16 pertain to this challenge. The favourable outcomes from the Pilot tests in Germany, Greece, and Latvia illustrate the ACROSS Platform's use of clear, easy-to-understand language, along with its user-friendly navigation and engaging visual interface. Additionally, the Virtual Assistant (VA) has been well-received by users for requesting cross-border services. Despite the generally positive feedback from the Pilots, certain impact indicators from some countries fell marginally below the expected thresholds. Hence, when planning to deploy ACROSS in a specific EU country, it is advisable to conduct targeted sessions with users and key stakeholders to capture their specific needs and requirements before implementing the cross-border services. Special consideration should also be given to the use of local languages and their integration with English to ease the adoption of the services. The ACROSS Toolkit would be an effective mean to this end.</p>

¹⁰ <https://www.evalcommunity.com/career-center/smart-indicators/> (htt



7 Conclusions

In conclusion, the toolbox presented in this document is intended to assist policymakers and public administration managers in the EU in the application of digital public cross-border services. The toolbox provides a set of initial recommendations and best practices for building a central platform and other solutions that offer cross-border services in the EU.

These recommendations include the importance of collaboration and coordination between different government agencies and EU member states, harmonizing regulations and standards, adopting common technical solutions and infrastructure, encouraging private sector participation, and ensuring data protection and privacy compliance.

Furthermore, the toolbox highlights the need for regular review and updates, provision of training and support, central governance, clear and transparent communication and feedback mechanisms, and continuous monitoring and data-driven improvement. By following the guidelines in this toolbox, policymakers and public administration managers can ensure that digital public cross-border services are implemented more efficiently and effectively, providing benefits for citizens and businesses throughout the EU.

However, as presented in this report, the implementation of cross-border services can often be complex and challenging, requiring coordination and cooperation among different countries and regions. To facilitate the efficient implementation of these services, policymakers can use and access this comprehensive toolbox for resources and recommendations. The toolbox is designed to provide guidance on the development and implementation of cross-border services and to support policymakers in achieving their goals.

The following bullet points outline key elements that are included in the toolbox (see also the Annex) to ensure that it is effective and useful for policymakers:

- The Toolbox for public administration managers and policymakers, which includes:
 - o The overview and details of the components developed that constitute the ACROSS solution;
 - o The description of User Journey Methodology
 - o The findings of the gap analysis on cross-border services
- A list of recommendations and lessons learned, based on the findings from the impact assessment conducted on the three pilot countries (Germany, Greece, Latvia) The Impact Assessment Framework to continuous monitoring the implementation and use of Cross-border services. The framework developed in D6.2 and finalized in D6.3 used in pilot cases is recommended to help the toolbox in being effective and useful for policymakers. The Impact Assessment Framework would be translated into a dashboard to be consulted by policy makers and public managers to assess the progress of the cross-border services executions against given thresholds.
- The visual handbook of the toolbox: An interactive and visual version of the toolbox is available on the Joinup portal, which is easily accessible to policymakers and other stakeholders. The visual version has a user-friendly interface, making it easy to navigate and find the information needed. The handbook is organised into different sections or categories, such as "Gap analysis", "Solution and components", "Tools and resources", "Lessons learned" and "Good practices and



recommendations". Each section contains relevant information, resources, and tools related to that specific topic.



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9 Annex A: Impact Assessment Framework

Impact	Category	KPI identifier	Question indicator	Target	Data source
<i>Efficiency gain for citizens, public administrations and service providers</i>	Number of steps to complete a service	EFF_01	Can the process of using cross-border services become easier through the use of ACROSS?	> 50% of responders answers “Very much” or “A lot”	Survey to citizens
	Number of interactions with public bodies	EFF_02	Can ACROSS help reduce the number of public bodies that citizens have to interact with, compared with traditional processes?	> 50% of responders answers “Very much” or “A lot”	Survey to citizens, Survey to experts
	Time to complete the process	EFF_03	Does the platform help citizens in reducing the time to complete a cross-border service?	> 50% of responders answers “Yes”	Survey to citizens, Survey to experts
	Number of researches done outside the platform	EFF_04	To what extent does the platform help gather the information required to complete a cross border process faster than the traditional online and offline processes?	> 5	Survey to experts
	Costs associated with the process	EFF_05	Can the platform have an impact in reducing the costs of completing a cross-border service, for citizens and public administrations?	> 5	Survey to experts
	New business opportunities	EFF_06	How likely is the platform to help generate new business opportunities?	> 5	Survey to experts
	Increase customer base for service providers	EFF_07	To what extent could the ACROSS solution helping service	> 5	Survey to experts



Impact	Category	KPI identifier	Question indicator	Target	Data source
			providers expand their customer base?		
	Reduction of operational expenditure (OpEX)	EFF_08	Could the platform help to an extent service providers diminish their operational expenditure (OpEX)?	> 70% answers "Yes"	Survey to experts
	Overall process efficiency	EFF_09	To what extent did the process become more efficient and streamlined?	> 5	Survey to experts
	Number of interactions for the overall process	EFF_10	will the cross-border services process require an overall lower number of interactions through ACROSS automation?	> 5	Survey to experts
<i>Usability of the platform: allow citizens to easily understand the administrative procedure with the aid of a virtual assistant and a user-centred service</i>	Tracking progress of the steps	USA_01	How easy is to track the progress by setting the status of Actions and Services as a checklist?	> 5	Survey to citizens
	Level of integration	USA_02	To what extent can the integrated application forms help in completing the service?	> 5	Survey to citizens
	Language barriers	USA_03	To what extent can the platform help overcome the language barriers?	> 5	Survey to citizens
	Virtual Assistant (VA) quality of experience	USA_04	How would you assess the quality of the virtual assistant provided?	> 5	Survey to citizens
	User-friendly perception	USA_05	Is the platform perceived as being user-friendly? A user-friendly platform	> 70% answers "A lot" or "Very much"	Survey to citizens



Impact	Category	KPI identifier	Question indicator	Target	Data source
			means a platform with easy-to-understand language, simple and compelling visuals, and generally fast and easy to use.		
	Straightforward language	USA_05a	Level of agreement to the following statement “the platform uses an easy-to-understand language”	> 5	Survey citizens; survey experts
	Friendly design	USA_05b	Level of agreement with the following statement: “The look of the platform is characterised by simple and compelling visuals”	> 5	Survey citizens; survey experts
	Ease of use	USA_05c	Level of agreement with the following statement “In general, the website of the platform is fast and easy to use”	> 5	Survey citizens; survey experts
	Easiness of navigation	USA_06a	Measure of the overall perceived quality of the platform in terms of navigation	> 6	Survey citizens; survey experts
	Time to complete the service	USA_06b	Measure of the overall perceived quality of the platform in terms of time spent to complete the services	> 6	Survey citizens; survey experts
	Information clarity	USA_06c	Measure of the overall perceived quality of the platform in terms of clarity of information provided	> 6	Survey citizens; survey experts



Impact	Category	KPI identifier	Question indicator	Target	Data source
	NPS (Net promoter score)	USA_07	Would you recommend an ACROSS-like solution to a friend or colleague?	> 75% would recommend	Survey citizens; survey to experts
	Mobile friendly	USA_08	How easy is it to navigate on the platform through mobile phones?	> 5	Survey citizens
<i>Government's reliability: Reinforce trust in public institutions, along with promoting transparency, accountability, and trustworthiness</i>	Platform clarity	GOV_01	Does the platform facilitate in understanding the process to study or work abroad (for example which steps to take, and in which order)	> 5	Survey citizens
	Citizens' trust	GOV_02	Do you feel that your data is safer when providing inputs in the ACROSS platform?	> 5	Survey citizens
	Governments' capability	GOV_03	By adopting an ACROSS-like solution can the government's ability to meet citizens' expectations effectively in using cross-border services increase?	> 5	Survey citizens; survey to experts
	Level of governments' care	GOV_04	Does the government care for the experience and well-being of its constituents by demonstrating organization, guidance and caring about the pains and needs of its citizens when they need to study or work abroad?	> 5	Survey citizens; survey to experts
	Language barriers	GOV_05	Does the fact that ACROSS integrates	> 5	Survey citizens;



Impact	Category	KPI identifier	Question indicator	Target	Data source
			services both in English and local language help to improve the clarity of communication between the government and its citizens?		survey to experts
	Government's support	GOV_06	Could governments be willing to support the methods of user journeys provided by the ACROSS project?	> 5	Survey to experts
	Mutual trust	GOV_07	Does the platform have a positive impact on identifying a solid basis of trust between governments and improve cooperation between member states?	> 5	Survey to experts
<i>Empowerment: citizens will be empowered to make better decision on handling their data, fostering participatory democracy</i>	Accessibility	EMP_01	Does the platform improve the access for citizens to online cross-border services?	> 5	Survey to citizens; survey to experts
	Free movement	EMP_02	Can the platform help people to study or work abroad?	> 5	Survey to citizens; survey to experts
	Privacy control	EMP_03	Can the platform improve the sense of control of citizens over their personal data when using online cross-border services?	> 5	Survey to citizens; survey to experts
	Data Handling	EMP_04	Does the platform help citizens in handling their personal data in an easier way?	> 5	Survey to citizens; survey to experts
	Data Minimization for users	EMP_05	Does the platform help in facilitating the use of	> 5	Survey to citizens;



Impact	Category	KPI identifier	Question indicator	Target	Data source
			the data that is strictly necessary to complete the process?		survey to experts
	Data minimization for providers	EMP_06	Does the ACROSS platform help service providers to request only the necessary information?	> 5	Survey to experts
<i>Technology: impact on digitisation and new technologies exploitation</i>	Digitisation of services	TEC_01	Does the platform have a positive impact on facilitating the digitisation of services and the adoption of new technologies?	> 5	Survey to experts
	Exploitation	TEC_02	Can a solution like ACROSS exploit new technologies (e.g. eID, Wallets, Data Spaces, Interoperability) and contribute to accelerate the digital transformation process?	> 5	Survey to experts
<i>Platform usability performance and implementation</i>	Accessibility compliance score	USA_09	Is the ACROSS platform compliant with the WCAG and other accessibility requirements?	health score of >70	Automated Tool
	First Input Delay (FID)	USA_10	How long does it take for the webpage to start processing the first user interaction?	<100ms	Automated Tool
	Cumulative Layout Shift (CLS)	USA_11	How long does it take for unexpected elements to stop moving before the page fully loads?	<0,1 (score)	Automated Tool
	First Contentful Paint (FCP)	USA_12	How long does it take for the FCP to appear?	<1,8s	Automated Tool



Impact	Category	KPI identifier	Question indicator	Target	Data source
	Total blocking time (TBT)	USA_13	What is the total blocking time of the page (in milliseconds)?	<300ms	Automated tool
	Largest Contentful Paint (LCP)	USA_14	How long does it take for the largest content on the page to load?	<2,5s	Automated Tool
	Speed index	USA_15	What is the speed index of the page in seconds?	<3,4s	Automated tool
	Search engine optimisation (SEO)	USA_16	Is the platform optimised in a way to make it more publicly known and easier for citizens to find it?	SEO score > 70	Automated Tool
	Platform implementation	USA_17	Was the project able to test the necessary features to run the ACROSS platform efficiently in each pilot?	>60% of planned features tested in each pilot	Platform logs