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D2.4: Report for cross-border service gap analysis - Final

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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

This report considers how certain systemic gaps in identification, migration, digital literacy, and more, inform the context and set the boundaries for technical development in the field of cross-border services and in ACROSS. Main findings include:

- 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.
- All technologies and approaches related with cross-border services face gaps in their potential application. A user journey that defines one potential user inherently excludes another; a piece of technology that can help to protect individual privacy can also pose a threat to it. Specific instances of such gaps (e.g., regarding user journeys, attribute-based credentials in digital wallets) are considered according to their relation to ACROSS.
- For developers in general, some defences against the dangers inherent to attribute based credentials (ABCs) in digital wallets are to thoughtfully implement certain types of credentials; implement and enforce guidelines for requesting credentials; and ensure that use of a digital wallet is not required for access to basic, necessary, or public services.

There is an opportunity for ACROSS to address the impacts of these gaps upon our own work, particular via forthcoming tasks in Work Package 2 which finalise our user journey methodology and governance framework.



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List of Terms and Abbreviations

Abbreviation/term	Definition
ABCs	Attribute-based credentials are a mechanism to “selectively authenticate different attributes about an entity without revealing additional information about said entity.” ¹
Cross-border services	Cross-border services are the services that help people move between countries. In ACROSS, the cross-border services help EU residents move from one EU country to another EU country for work or study purposes. For example, one can think about services that help with locating job opportunities, finding accommodation or opening bank accounts.
(Digital) wallet	A ‘digital wallet’ broadly refers to an app that locally stores credentials, both identifying and non-identifying.
EC	European Commission
EU	European Union
eIDAS	“The Regulation on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) aims to create a predictable regulatory environment. The eIDAS Regulation helps business,

¹ “Attribute Based Credentials,” Privacy Patterns, accessed July 21, 2022, <https://privacypatterns.org/patterns/Attribute-based-credentials>. [22]



	citizens and public authorities carry out secure and seamless electronic interactions.” ²
IMAPS	IMAPS (Interoperability Maturity Assessment of a Public Service) is an online survey that helps public service owners evaluate, consider and improve all key interoperability aspects of their digital public service (legal, semantic, organisational, or technical). The survey allows the owners of public services assess key aspects of interoperability of their public service. ³
Pilot partners	These are the partners of the ACROSS project that provide information, conduct research, and organise co-creation workshops, among other activities, in the pilot countries. The pilot partners are Dataport, GRNET, and VARAM in respectively Germany, Greece, and Latvia.
SDG regulation	Single Digital Gateway Regulation (No 2018/1724) is an EU regulation that requires EU member states to ensure that the administrative procedures they provide online can be accessed and processed across EU borders, online and always. The SDG regulation also calls for EU-wide non-discriminatory access to the procedures provided online by the Member States. ⁴

² “eIDAS Regulation,” Shaping Europe’s digital future, European Commission, accessed July 22, 2022, <https://digital-strategy.ec.europa.eu/en/policies/eidas-regulation>. [15]

³ “About IMAPS (Interoperability Maturity Assessment of a Public Service),” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, last modified June, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/about>. [8]

⁴ “The single digital gateway and Your Europe,” Internal Market, Industry, Entrepreneurship and SMEs, European Commission, accessed July 22, 2022, https://ec.europa.eu/growth/single-market/single-digital-gateway_en. [18]



1 Introduction

1.1 Purpose, scope, approach and context

D2.4 “Report for cross-border service gap analysis – Final” is the second and final gap analysis in ACROSS (the first being D2.3 “Report for cross-border service gap analysis – Initial” [3]). The report builds on the findings of D2.3 and serves to revisit, challenge, and potentially validate our initial finding that ‘user agency’ (or rather, the lack thereof) is a main gap in the delivery of cross-border services.⁵

Our research continues ACROSS’s outward participatory trajectory by including relevant external experts to further define and understand the gaps facing European cross-border services. For this reason, our process centred around discussions (facilitated primarily through a workshop detailed in [chapter 2](#)) with people outside of the consortium to gain broader insight into the challenges facing cross-border services and ACROSS. This participatory process informed the larger European context within which development of cross-border services take place. The information presented in this report is primarily based upon these discussions, which informed the analysis conducted by researchers at Waag. An internal research process also took place specifically to revisit and challenge assumptions specific to ACROSS, for example regarding use cases and attribute-based credentials as described in chapters [3](#) and [4](#).

D2.4 precedes D2.2 “User Journey Methodology definition – Final” [2] and D2.6 “ACROSS Governance framework including service design approach – Final” [5], both of which will be informed by and build upon the analysis presented here.

1.2 Methodology and Structure of the Deliverable

This deliverable is the result of a participatory process to identify gaps (and opportunities) facing cross-border services, and an analysis to illuminate how such gaps impact specific aspects of ACROSS.

[Chapter 2](#) documents the gap analysis co-creation session during which external experts in cross-border services shared their knowledge regarding the gaps and opportunities facing the field. This collaborative session, its preparation and outcomes add clarity and nuance to the findings presented in D2.3 and inform the subsequent analysis of specific gaps facing ACROSS.

⁵ A summary of D2.3 is included in [Appendix 2](#). The full report is available at <https://across-h2020.eu/sites/d8across/files/D2.3%20Cross-border%20service%20gap%20analysis%20-%20Initial.pdf>



[Chapter 3](#) presents an analysis of the gaps inherent to a definition of user journeys, considered under the specific lens of ACROSS. In necessarily limiting the scope of user journeys to make technical development feasible, developers may potentially exclude people (users) whose own user journeys are more complex or different than what has been defined. This chapter considers how future development may approach a more fully inclusive user journey methodology and ‘design for the margins.’

Attribute based credentials (ABCs) in digital wallets were discussed in previous deliverables as a technology that could be leveraged to promote a greater level of user control over their personal data and digital identity (D2.3 “Cross-border Service Gap Analysis - Initial” [3] and D2.5 “ACROSS Governance Framework including service design approach - Initial” [4]). [Chapter 4](#) revisits attribute-based credentials in digital wallets through the lens of potential gaps in their use and application, particularly those gaps which pose a threat to civil liberties and human autonomy.

Technical interoperability was noted as a gap facing European cross-border services during the gap analysis co-creation session. [Chapter 5](#) presents [IMAPS](#) as a potential tool to assess ACROSS’s technical interoperability within the EU.

This report concludes that cross-border services run the risk of perpetuating and exacerbating inequalities by not accounting for many different potential users. There is an opportunity to address this risk in ACROSS, particularly as we finalise our user journey methodology and governance framework.



2 Gap Analysis Co-Creation Session

2.1 Rationale and Planning

Our initial gap analysis identified citizen control over process, personal data, and digital identity when moving across EU borders as a significant gap facing cross-border services (D2.3 “Cross-border Service Gap Analysis – Initial” [3]). Following from this, we wanted to assess and potentially validate these findings with the help of external researchers and professionals who work with European migration and cross-border services. We did this through a co-creation workshop that took place on the 30th of June, 2022. A general goal of the workshop was to understand where other initiatives find gaps in cross-border services, consider opportunities for addressing those gaps, and search for opportunities for support and collaboration.

As the pilot partners did extensive individual research in their local context with their respective stakeholders last year, they were now in need of a perspective that is broader than their specific pilot country – specifically, a European perspective. Therefore, we organised a single workshop in which public service providers from the three countries came together alongside experts on European migration, related EU projects (e.g., [mGov4EU](#)), and major EU initiatives (e.g., [eIDAS](#) and [SDG](#)).

To prepare workshop attendees, Waag prepared a document with background information about ACROSS, the goal and aim of the workshop, and the contact information of the relevant pilot partners and Waag ([Appendix 1](#)), as well as a summary of the ACROSS D2.3 “Gap Analysis of Cross-border Services - Initial” [3] ([Appendix 2](#)). The following preparatory questions were included (and, later, addressed during the workshop):

- Which issues with cross-border services have you or other researchers/professionals found?
- Where are the gaps in cross-border services? In service design, authorization, language, common standards etc.?
- What opportunities for support and collaboration do we have? Any contact/project/topic to consider for us?



2.2 Overview of Session

In this online workshop, we co-created a visual representation of the EU digital identity landscape together with the external experts. In total, 17 external experts participated in the workshop, of which 1 migration expert, 5 public service providers from Latvia, 1 public service provider from Germany, 3 public service providers from Greece, 4 partners from the mGov4EU project, 1 person who works closely with eIDAS, and 2 people who deliver digital ID wallet solutions.

The online workshop lasted for 2 hours, with four programme items (see Table 1 below).

Table 1: Workshop Schedule

Time	What?
13:00 CET	Intro to event
13:05	Start introduction and 1–2-minute response round
13:35	Explain the next part, make break-out rooms In every break-out room, add one ACROSS partner. They are in charge of note taking, should give enough space to the other participants
13:40	Break-out room: answer 2-3 of these questions in groups of 3 <ul style="list-style-type: none">• Which gaps are there?• Which gaps are being addressed?• Which blind spots are left?• SWOT technical assumptions• What outputs do you want from us?• Trust between countries
13:55	Back to plenary room.
14:00	Plenary discuss which gaps, solutions, and blind spots we see Change the narrative to rivers (gaps), bridges (solutions), rivers without bridges (blind spots) Map the gaps and the bridges
14:40	What do you need (from us or similar projects) to reach your goals and how can we work together to get there?
14:55	Wrap up
15:00 CET	End of session



Following an introduction round including all external attendees, attendees were assigned to ‘break-out rooms’ in groups of two or three to discuss gaps in the EU digital identification landscape, as well as solutions and opportunities for bridging these gaps (for full presentation, see [Appendix 3](#)).

The most prominent portion of the workshop was a discussion including all attendees. This discussion was visualised in real time (and later updated to reflect the analysis) 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 1 and 2 on pages 6-7). 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.

2.3 Session Outcomes and Analysis

Following the discussion, Waag team members analysed the gaps that had been raised and organised them into the following thematic categories: gaps in administrative and technical trust; gaps in cross-border interoperability; gaps in the user journeys of marginalised people; and gaps in user agency. The visualisation of the discussion was edited accordingly into the figure as presented in the following pages.



Figure 1: Summary of the gap analysis co-creation session (Left side)



Figure 2: Summary of the gap analysis co-creation session (Right side)



2.3.1 Gaps in administrative and technical trust

Gaps in administrative and technical trust make it difficult for a person to translate their credentials between countries and institutions:

- Countries are unable to identify a solid basis of trust and mutual recognition.
 - Interoperability and a shared approach to digital identity are two areas of policy discussion in the EU currently.
- There is a lack of trust towards and between institutions in the public and private sector.
 - Citizen trust will increase if people are given actual control over the guidelines for sharing their personal data.
 - Europe is starting to develop an infrastructure for digital identity wallets (building on the model of eIDAS), creating opportunities to protect personal data and control over digital identity if such areas can be prioritised.

2.3.2 Gaps in cross-border interoperability

Even when trust is established between countries, there can still be interoperability gaps which create problems and roadblocks for people who are moving across borders. A few out of many examples include:

- There is a low-level of information sharing between EU member states about status of refugee applicants.
 - The dynamics around this are currently changing, especially in the wake of the Russo-Ukrainian War.
- There is uncertainty over how to accommodate non-EU systems (for credentials, identity management, data sharing, etc.) within a European data infrastructure.
- Many services are not available in languages other than the local language.
 - There are language modules in the European digital market which could be implemented within the infrastructure of cross-border services.
- Certain services that have been digitised in one EU country may not yet have been digitised in another.

2.3.3 Gaps in user journeys of marginalised people

There is a lack of inclusion towards disadvantaged (marginalised people, refugees, migrants) regarding the development of and access to digital services. Specific examples of this include (but are by no means limited to):

- Gaps in how legal status translates across borders (for example, with regard to transgender people).



- Low digital skills which make it difficult for many people to access cross-border services.
 - The EU wants to improve digital literacy of adults to at least 80%.⁶
- Lack of attention to every-day commuters who face financial issues by working and living in neighbouring countries.
- In certain cases, a lack of an ‘anchor’ or administrative starting point for identification to give undocumented people, refugees, and others access to technology like digital wallets. In the current EU state of play, electronic identities are issued and managed by (or on behalf of) Member States. They may however decide not to issue such identities to temporary residents or non-residents, such as undocumented people and refugees. A standard ‘user profile’ often assumes that one already has such an anchor (e.g., Passport, national identity number), and such national policies can thus leave disenfranchised and vulnerable people digitally disconnected.

2.3.4 Gaps in user agency

Our first gap analysis noted gaps in user agency as a main issue facing European cross-border services. Our discussion with external participants affirmed this position, noting two particular ways in which people lose agency when people move across borders:

- People do not have control nor access over their own personal data.
 - [Schluss](#), [IRMA](#), [mGov4EU](#) and other initiatives are indeed working on creating digital ID wallets. mGov4EU is also working on SDG data exchange with citizen consent management (authorizing) for granting access to data available at eGov institutions.
 - Digital wallets, however, bring with them their own gaps and risks, which are discussed further in [Chapter 4](#).
- People do not know what their workflow is to move abroad (which steps they have to take, and in which order).
 - ACROSS develops an approach to creating workflows. In addition to the workflows elaborated upon in ACROSS (moving between Germany, Greece, and Latvia for work or education), many other workflows would need to be completed in an EU-wide implementation of something like ACROSS. ACROSS demonstrates how such workflows can be created, and ideally a future scaling or adaptation of ACROSS would be more fully comprehensive with the user journeys that can feasibly be included.

⁶ “Digital Skills for all Europeans — Brochure,” European Commission, published January 20, 2021, <https://digital-strategy.ec.europa.eu/en/library/digital-skills-all-europeans-brochure>. [13]



2.3.5 Gaps in methodology and context of cross-border services

Certain gaps exist on a European-wide structural level which can place contextual limitations upon the development of (tools for and platforms for) cross-border services:

- There is limited use of the eIDAS infrastructure, and no mature digital identity wallet in the market today.
 - mGov4EU is working on an implementation of the EU digital wallet.
 - There is a lack of funding to accommodate the development of sustainable platforms to facilitate the use of cross-border services in a way which protects the agency of all types of citizens.
- The results from projects stay within projects.
 - Open-source code and sharing practical lessons learned between projects are two ways in which initiatives like ACROSS and mGov4EU can and do work together.
- Existing cross-border services are not publicly known and easily accessible.
 - ACROSS is developing a knowledge base with a workflow, ideally raising public awareness about useful and trustworthy cross-border services.

2.4 Session conclusions

The gaps mentioned here are not exhaustive – they reflect only a small portion of the gaps facing technical development on a European level. Nonetheless, the gaps identified as part of this participatory process are indicative of our previous findings regarding user agency: that people who encounter these gaps while moving across borders (rather than developers or policymakers) are the most negatively impacted by those gaps. Of particular interest are those gaps which threaten to stop a cross-border moving process altogether, such as **not having a (recognisable) anchor for verified identity** or **lacking the digital literacy or hardware needed to access digital services**. Such gaps can present themselves at the individual and group level, and point to a concern that cross-border movement may one day soon require and rely upon digital technology as a facilitator. Such gaps raise the question: to what extent are people and countries required to adopt and use digital technology in order to access basic and necessary services like those that are needed to move across borders? What can be done to mitigate the exclusion of people due to digitalisation?



3 Reflection on the ACROSS use case selection

ACROSS's context is exponentially complex: EU residents can move to and from 27 different EU member states, for diverse reasons and with varying personal circumstances. Those involved with cross-border services face familiar challenges of engaging and managing various stakeholders and interests, working with diverse cultures and governments, and managing resources accordingly. To define the scope of a project in the field of cross-border movement, it is thus crucial make limitations and avoid attempting to address every gap all at once.

ACROSS narrowed its scope to address certain specific gaps in the facilitation of digital cross-border services: The conclusion of D2.1 "User Journey Methodology definition – Initial" [1] arrived at a set of defined user journeys which were limited to particular use cases (of travelling for work or education) between particular countries (Germany, Greece, and Latvia). While necessary, defining such a scope inherently brings about its own limitations or 'gaps' in how we design user journeys in ACROSS. In focusing our development on specific user journeys, we necessarily exclude others from our focus. Even within a defined target group, there are migrants in many different circumstances which are not equally represented in a given user journey.

A gap that thus presents itself is the risk of excluding people who do not have the required knowledge, means and/or documentation needed to utilise ACROSS or to access cross-border services in general. Those who are potentially excluded may have the greatest need for moving across borders and the greatest need for help in the process, in particular refugees and other involuntary migrants.

3.1 Migration in the EU

There are many different types of migration in Europe. Some often-used categories of migrants include: temporary labour migrants; highly skilled and business migrants; family members who join other migrants; return migrants; forced migrants (also known as refugees and asylum seekers); and irregular migrants (often undocumented and unauthorised). Generally, these migrant categories can be split into two types: voluntary and involuntary migrants. In the case of voluntary migrants, people move to a new country on the basis of *pull factors*, such as the promise of better work or education opportunities. Involuntary migrants, on the other hand, leave their home country due to *push factors*: e.g., unstable economic and governmental or even unsafe situations.⁷ In reality, it is often a combination of pull and

⁷ "Migration," Council of Europe, accessed 21 July, 2022, <https://www.coe.int/en/web/compass/migration>. [7]



push factors that make someone decide to leave their home country and search for better opportunities elsewhere.

In 2010, there were 73 million people with a migration background in the entirety of Europe.⁸ That is a third of the migrants world-wide. Of these 73 million migrants, 1.6 million people were refugees (a number which does not include other types of involuntary migrants). Across these groups, people face a wide variety of situations that make moving more difficult, like having a lower income or education level, lacking prior experience moving across borders, or lacking formal documentation. Push factors are often urgent, meaning that people in this context may not have the time to follow the usual bureaucratic steps in order to apply for a residency or work permit, open a bank account, or enrol their children in schools. They may not have experience with dealing with foreign governmental institutions and unfamiliar service providers.

Those who lack formally recognised documentation face a particularly complex process, making basic steps in moving difficult or impossible to overcome. If a refugee gets a passport or citizenship, they are allowed to stay in another EU country, but this is not the case if they are only granted residency. With a residency permit one can apply for a permit for another country, but this comes with a heavy bureaucratic effort. For example, in the Netherlands, a person can only buy a public transport ticket with a bank card; however, opening a bank account requires a social security number, which is very difficult to obtain without an international passport. Moreover, residency permits do not necessarily result in electronic identities that are usable in online transactions, so that persons with an unstable residence status are particularly vulnerable to digital exclusion.

These and other scenarios illustrate that there are many people in need of help moving across European borders who start from a context that is without the resources and documentation which are often assumed as a starting point for user journeys in cross-border services.

3.2 The ‘most probable user’ and designing from the margins

In the ACROSS user journeys and scenarios, we have included and accommodated highly skilled and business migrants, family members, return migrants, and to a lesser extent, temporary labour migrants (for more information on the ACROSS user journeys and scenarios, see D2.1 “User Journey Methodology definition – Initial” [1] and D6.1 “Use case scenarios and roadmap” [6]). The concept of a *migrant* in

⁸ Council of Europe, “Migration.” [7]



ACROSS has necessarily been limited, and generally includes people who are moved by pull factors rather than push factors.

To maximise the impact of ACROSS and its potential to be sustained, future development might consider how to design for the people who face great difficulty in crossing borders. This is where the concept *designing for the margins* comes in. It is the idea that if the target group includes the most marginalised people, the people within the margins will also be included by default. For example, a design for digital cross-border services could accommodate for people without documentation, making development more complex due to the need to address fundamental decisions about digital identity. However, if people without documentation are accommodated by such a design, likely so too are people with documentation. Our forthcoming deliverable D2.2 “User Journey Methodology definition – Final” [2] provides an opportunity to revisit how those at the margins may be better included in the user journeys utilised by developers of cross-border services.

3.3 Conclusions

It is our hope that ACROSS and its outcomes will be sustained and expanded. As cross-border services become more ubiquitous, developers need to be aware of the varied nature of people’s user journeys and the different impacts that (technical) designs and decisions may have on different people. The digital divide is a known risk – digital services can exacerbate inequalities. An inclusive approach to cross-border service development will ideally achieve the opposite, by alleviating some of the burden of moving across borders for those who need it most.



4 Potential Gaps in ABCs and Digital Wallets

Attribute based credentials (ABCs) in digital wallets were discussed in previous deliverables as a technology that could potentially be leveraged to promote a greater level of user control over their personal data and digital identity (D2.3 “Cross-border Service Gap Analysis - Initial” [3] and D2.5 “ACROSS Governance Framework including service design approach - Initial” [4]). In this case, a ‘digital wallet’ broadly refers to an app that locally stores credentials, both identifying and non-identifying. Attribute-based credentials are a mechanism to “selectively authenticate different attributes about an entity without revealing additional information about said entity.”⁹ This allows, for instance, a user to selectively prove an attribute like ‘age > 18’ to a verifying party without revealing any additional information. ABCs are central to the eIDAS digital wallet, precisely because they can technically enable data minimisation and more granular consent regarding personal data sharing.

Despite the potential benefits of ABCs in a digital wallet, there are also gaps – valid concerns about their capacity lead to unintentional and/or undesired consequences that need to be considered in light of their relevance to ACROSS.

4.1 Over-identification, function creep, and discretionary space

In the blog “Civil Liberties Aspects of the European Digital Identity Framework,” researcher Jaap-Henk Hoepman lays out a number of considerations regarding the implementation of digital wallets within the context of the eIDAS regulation and notes several ways in which implementation could infringe upon civil liberties, in particular as a result of over-identification.¹⁰

Function creep is one manifestation of over-identification. It refers to the phenomenon whereby as a technology (in this case, a digital wallet) becomes more ubiquitous, people will be compelled to use it more regularly. As Hoepman writes;

“The end result is that the use of wallet becomes mandatory in the daily life of a citizen, and that she has to prove certain properties about herself in a context where this is currently deemed unnecessary. Instead of increasing the privacy of the citizens, this function creep actually creates more opportunities for tracking and profiling.”¹¹

⁹ “Attribute Based Credentials,” Privacy Patterns, accessed July 21, 2022, <https://privacypatterns.org/patterns/Attribute-based-credentials>. [22]

¹⁰ Jaap-Henk Hoepman, “Civil liberties aspects of the European Digital Identity Framework,” published January 31, 2022, <https://blog.xot.nl/2022/01/31/civil-liberties-aspects-of-the-european-digital-identity-framework/index.html>. [19]

¹¹ Hoepman, “Civil liberties.” [19]



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. Imagine that a credential of EU citizenship is created in the context of cross-border services. There are certain contexts when such a credential would be relevant and appropriate to request and share, such as when a person meets a border agent while physically moving from one country to another. In this case, there is a risk that this primary function will creep into other areas and thus infringe upon civil liberties; for example, if proof of citizenship is requested at the library, on the train, or in any other context than where strictly necessary.

A lack of **discretionary space** can also lead to over identification and otherwise threaten human autonomy. Discretionary space has various forms. It may refer to an authority's capacity to override certain categories or deviate from protocol when deemed necessary. Discretionary space may also refer to a person's capacity to choose what information they share; the level of specificity with which they choose to share it; and whether or not they are truthful. Wallets and ABCs limit discretionary space by design – they are built to enable provable attestation – and thus may also limit one's capacity to “bypass overly restrictive access conditions.”¹²

Consider various activities that were once illegal and required social justice movements in protest of laws, such as same sex and interracial marriage and abortion rights. These social movements went through phases where people had to make use of discretionary space where people must first ‘technically’ break the law in order to change the law. Discretionary space may also need to be utilised in emergency situations – for example, if someone needs to drive over the speed limit to get to a hospital. However, discretionary space would be technically and mechanically limited in this instance if the car's intelligent speed assistance did not allow it to go faster than the speed limit, posing a danger to the person with an emergency.

4.1.1 Technical protocol and human agency

In the non-technical realm, law and protocol may be challenged – a police officer or judge may use their discretionary space to decide that it was okay for you to break into your neighbour's house to save their kitten from a fire. But code is a command – one cannot challenge it, as changes need to be implemented in the technical design. 'Sign says no' is much different than 'computer says no.' This is a fundamental and problematic difference between law as we are used to it and law as it is enacted through code and technically-mediated protocol: When rules are defined through digital protocol, people lose agency to

¹² Hoepman, “Civil liberties.” [19]



decide whether or not to follow law or protocol, even in cases where the law or protocol is unsafe, inhumane, or unjust.^{13,14,15}

One potential response to such concerns is that exceptions may be made whereby a technical system allows for an ‘override’ in specific situations, like those mentioned above. The problem here is that there are a multitude of potential cases in which over-identification via function creep or lack of discretionary space will pose problems, and not all of these cases can be predicted. Moreover, such systems nonetheless shift agency to exercise discretion from the person who finds themselves in a situation to coders and developers who are otherwise removed from that situation.

In cross-border movement, there are numerous potential ways in which a person may want or need to exercise discretionary space in order to protect themselves (again, all of which we cannot predict): for example, hiding or misrepresenting their sexual orientation to a border officer by lying about their marriage status; or making use of an alias/pseudonym to protect their identity or nationality in a wartime situation. In digital services, consent (to share personal information) is a binary concept: a 0 or 1. And whether the consent was coerced in any way cannot be judged.

4.1.2 Recommendations for developers

For developers in general, some defences against the dangers inherent to ABCs in digital wallets are to thoughtfully implement certain types of credentials; implement and enforce guidelines for requesting credentials; and ensure that use of a digital wallet is not required for access to basic, necessary, or citizen services.

- **Thoughtfully implement certain types of credentials** – In many cases, a thoughtful implementation of certain types of credentials can help to protect rather than threaten civil rights. A previous example mentioned that a person may be compelled to share their actual name via a verified credential. While this could occur (e.g., a government could provide a credential attesting that your name belongs to you), we could also imagine a credential in which people are provided with a pseudonym that is tied to other credentials. For instance, when a name is optional, a wallet could allow a person to make up a name to be used (and stored in the wallet) for a particular service provider (e.g., they could ‘lie’ about their name to a housing agency but prove that they

¹³ The idea that code is not neutral and can in practice become a surrogate for legislation without an actual democratic mandate behind it stems from Lawrence Lessig’s various writings on the notion that ‘code is law.’

¹⁴ Lawrence Lessig, *Code and Other Laws of Cyberspace* (Basic Books, 1999). [20]

¹⁵ Lawrence Lessig, “Code is Law: On liberty and cyberspace,” *Harvard Magazine*, published January 1, 2000 <https://www.harvardmagazine.com/2000/01/code-is-law.html>. [21]



meet the rental requirements nonetheless). This facility could be applied to other cases where optional attributes are at play, typically in conjunction with an attribute that *is* verifiable.

- **Implement and enforce guidelines for requesting credentials** – The (type of) service provider and the context of the transaction may restrict the attributes that can be requested. This involves a schema of such restrictions, as well as a mechanism in which the requester’s authorisation to request certain attributes is validated. For example, the Dutch ‘civic service number’ can only be legally used (and thus requested) by government agencies or health care service providers. As another example, a border agent may have the right to verify a person’s nationality, but a housing company would not. This implies that such requests would be bi-directional, where the service provider reveals certain attributes and thereby asserts their right to the request what they want.
- **Ensure that use of a digital wallet is not required** for access to basic, necessary, or public services.¹⁶ To do so excludes people, for example with those with lower levels of digital literacy, those who do not have access to a computer or smartphone, or those who otherwise choose to not use such technology.

ABCs in wallets are a great opportunity for a considered, privacy-preserving approach to identity and authentication, and as such offer the right approach for many of the cross-border services’ needs that we are discussing in ACROSS. They are, however, also emerging technologies, the nuances of which are still being discovered. As with any technology, bad or mistaken design choices can undermine or weaken the advantages, and it is always prudent to guard against an overly optimistic belief in technology.

¹⁶ The Single Digital Gateway Regulation has the basic principle that services must be available online, but there has to be an alternative to the EU based technical system. (*Article 14.4. The use of the technical system shall not be obligatory for users and shall only be permitted at their explicit request, unless otherwise provided under Union or national law. The users shall be permitted to submit evidence by means other than the technical system and directly to the requesting competent authority.* [23]). This seems like a good policy model: offer, but do not coerce, and provide an alternative.

5 IMAPS as an opportunity for further technical assessment

It is relevant for ACROSS to consider various ways of assessing our progress and trajectory. Assessment may be multifaceted and approached from a range of perspectives, whether ethical, legal, operational, technical, etc. This chapter presents one example of technical assessment as it might be applied in ACROSS.

Interoperability was raised as an issue facing cross-border services during the gap analysis co-creation session. To test the interoperability-readiness of a public digital service, one can conduct a technical assessment of interoperability in Europe, for example through IMAPS.

IMAPS¹⁷ is an online survey that helps public service owners evaluate, consider and improve **all key interoperability aspects** of their digital public service (legal, semantic, organisational, or technical). The survey allows the owners of public services assess key aspects of interoperability of their public service, such as digital multilingualism, re-use/production, data protection, etc.

In addition to service identification, IMAPS helps to assess the main aspects of a digital public service's life cycle, namely the provision of services, consumption of services and facilities management:

- **Service Delivery (D)** – Delivery of the digital public service;
- **Service Consumption (C)** – Consumption of reusable machine-to-machine services from other public administrations and businesses. This can include the consumption of functionalities, base registry information, and security services;
- **Service Management (B)** – Controlling and monitoring the process flow related to service interactions with the external domain from trigger to outcome. This area includes Service Management aspects such as enterprise architecture, procurement, and service level management.

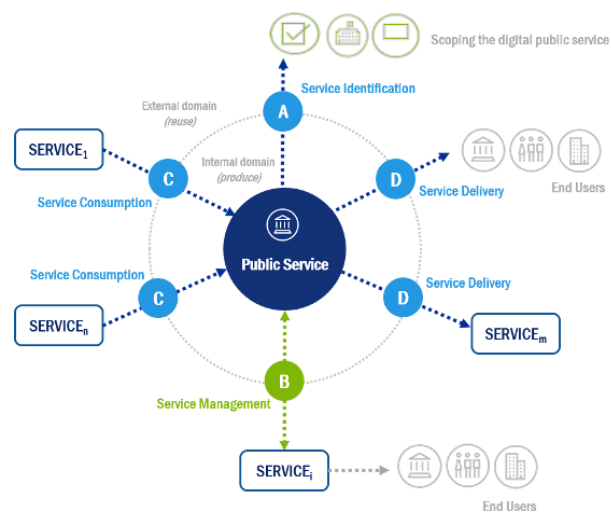


Figure 3: IMAPS conceptual model

¹⁷ "About IMAPS (Interoperability Maturity Assessment of a Public Service)," IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, last modified June, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/about>. [8]



These, in turn, are being assessed in terms of data, information and knowledge specifications, capabilities and manifestations, meaning specific details that enable and support peer-to-peer service collaboration.

Starting from IMAPS, several specializations have been produced to support the assessment in terms of Legal Interoperability (**LIMAPS**¹⁸), Organisational Interoperability (**OIMAPS**¹⁹), Semantic Interoperability (**SIMAPS**²⁰), Technical Interoperability (**TIMAPS**²¹). Considering ACROSS, SIMAPS and TIMAPS are most relevant considering key aspects and objectives of the project. SIMAPS is a specialization of IMAPS to assist public service owners to **evaluate key semantic interoperability aspects** of their digital public service.

The main objective of the Semantic Interoperability Maturity Assessment of Public Services (SIMAPS) is to provide insight into how digital public services can improve their semantic behavioural interoperability maturity. The SIMAPS conceptual model describes all possible instances where interoperability with the outside world may occur from the digital public service viewpoint. It distinguishes between the internal domain (the internal service management) and the external domain (the digital public service uses/consumes existing services and exposes the produced service to third parties).

↑ * C2. To what extent does the service use commonly agreed standards to semantically align the data, information and knowledge consumed? (ontology, data model, data syntax, data format)
More info

Enabler / Manifestation

- The service does not use any commonly agreed standards to semantically align the data, information and knowledge consumed
- The service uses custom standards to semantically align some of the data, information and knowledge consumed
- The service uses formal standards to semantically align most of the data, information and knowledge consumed (e.g. e-Government Core Vocabularies)
- The service uses formal standards to semantically align any data, information and knowledge consumed (e.g. e-Government Core Vocabularies, Asset Description Metadata Schema (ADMS) or DCAT Application Profile for Data Portals in Europe (DCAT-AP)), CPSV-AP, etc.)
- The service uses ontology classes to semantically describe any data, information and knowledge consumed
- Not applicable or not necessary (according to the scope of the digital public service)
- No answer

Figure 4: Example of SIMAPS section C questions

¹⁸ “About LIMAPS,” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, accessed June 29, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/solution/limaps/about>. [9]

¹⁹ “About OIMAPS,” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, accessed June 29, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/solution/oimaps/about>. [10]

²⁰ [“About SIMAPS,” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, accessed June 29, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/solution/about-simaps>. [11]

²¹ “About TIMAPS,” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, accessed June 29, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/solution/timaps/about>. [12]



The TIMAPS specialization is focused on assisting public service owners to evaluate key technical interoperability aspects of their digital public service. Technical interoperability focuses on the technical aspects of linking information systems and services. It includes aspects such as interface specifications, interconnection services, data integration services, data presentation and exchange, syntactic definitions, etc. Technical Interoperability is usually associated with hardware/software components, systems and platforms that enable machine-to-machine communication (see figure 3) to take place. The interoperability of information systems is essential in providing integrated government services.

* D2. To what extent does the service deliver data, information and knowledge via Machine to Machine (M2M) interfaces?

[More Info](#)

Enabler / Manifestation

- The digital public service delivers data, information and knowledge via a single, custom-built non-open Machine to Machine (M2M) interface (e.g. via a data infrastructure specific to the service, not designed for reuse, including database interconnections, database links, database views, etc.)
- The digital public service delivers data, information and knowledge via a single open standard Machine to Machine (M2M) interface for direct exchange of files (e.g. using Telnet, SFTP, HTTP, etc.)
- The digital public service delivers data, information and knowledge via multiple open standard Machine to Machine (M2M) interfaces for direct exchange of files (e.g. a combination of Telnet, SFTP, HTTP, etc.)
- The digital public service delivers any data, information and knowledge via a single open API format for Machine to Machine (M2M) direct data exchange (e.g. SOAP, REST, gPRC, etc.)
- The digital public service delivers any data, information and knowledge via multiple open API formats for Machine to Machine (M2M) direct data exchange (e.g. SOAP, REST, gPRC, etc.)
- Such interfaces are not applicable or are not necessary (according to the scope of the digital public service)
- No answer

* D9. To what extent is the service made discoverable towards its end users or other services?

[More Info](#)

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- The service is made discoverable towards its end users or other services only via ad-hoc communication (e.g. upon request, via e-mail, etc.)
- The service is made discoverable towards its end users or other services through service portals or service catalogues
- The service is made discoverable towards its end users or other services through communication on the website of the public service or other related websites (e.g. Joinup)
- The service is made discoverable towards its end users or other services through digital service registries along with its specifications (description, publication details, etc.)
- The service is made discoverable towards its end users or other services through digital service registries (client-side server discovery) along with its specifications (description, publication details, etc.), as well as, server-side service discovery (e.g. through a router)
- Not applicable or not necessary (according to the scope of the digital public service)
- No answer

Figure 5: Examples of TIMAPS section D questions

The above questionnaires provide advice to the respondent on how to improve the semantic behavioural interoperability of their digital public service:

- The assessed maturity level;
- The next maturity level to be reached through improvement;
- The recommendation as to how to reach the next maturity level.

IMAPS can be used to assess the interoperability of a **public service** – from open data portals, and e-voting platforms, to public procurement services, and much more – it is applicable to services at **all levels of**



government (international, national, regional and local), and its last version²² has been aligned with the terminology of other interoperability frameworks (e.g., EIRA²³) and has improved user-friendly aspects (e.g., simplified language and improved user guidance in the surveys) and gives more context and explanation to the end-user on how the IMAPS Specialisations surveys can be used, what to expect from the assessments, as well as what their connection is to the IMAPS survey.²⁴

²² “Discover the brand-new versions of IMAPS and its specialisations – LIMAPS, OIMAPS, SIMAPS and TIMAPS!,” IMAPS (Interoperability Maturity Assessment of a Public Service), European Commission, last modified January 28, 2022, <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/news/follow-imaps-user-journey>. [14]

²³ “EIRA,” European Interoperability Reference Architecture (EIRA), European Commission, accessed June 29, 2022, <https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/eira>. [16]

²⁴ “IMAPS User Journey,” European Commission, published January, 2022, https://joinup.ec.europa.eu/sites/default/files/news/2022-01/IMAPS%20and%20its%20specialisations_User%20Journey_v1.00.pdf. [17]



6 Conclusions and Next Steps

A main contribution of this piece is that cross-border services run the risk of perpetuating and exacerbating inequalities due to the complexity in accounting for many different potential users and the ways they might be affected by technical and design decisions. This is a particularly relevant gap as people moving across borders may face physically, legally, or politically dangerous circumstances. It is also a systemic gap (or set of gaps) with many causes and no single solution.

There is an opportunity for ACROSS to contribute to address specific instances of these gaps as part of our forthcoming efforts in Work Package 2, which will revisit and finalise our user journey methodology and governance framework. Further research might consider how to address such ‘fully exclusionary’ gaps, like for those without a those without an ‘administrative anchor’ in their wallet, as discussed above; how to incorporate those at ‘the margins’ as part of a user journey methodology for cross-border services; and how a governance model (for public, digital development processes like ACROSS) might incorporate human and ethical considerations alongside technical assessment.



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8 Appendix 1: Invitation to the workshop

Invitation for co-creation workshop on gaps in European cross-border services

Date: 30st of June 2022

Time: 13:00-15:00 CET

Location: online, Zoom link will be distributed closer to the date

About ACROSS

ACROSS improves data exchange between EU member states' public services by prioritising citizens' privacy. The project will last three years and is funded by the European Commission. With the ongoing digitalisation of society, data exchange between public services of different European member states has become increasingly important. The 2018 [Single Digital Gateway](#) (SDG) Regulation aims to facilitate data exchange and support EU citizens who live, work, study or do business in different member states by using a common digital gateway (to be termed 'Your Europe' portal) where they can find all relevant information, procedures and services. The SDG also entails the [Once-Only principle](#), that will enable public administrations to share data across borders in a secure way, such that citizens do not have to provide the same information multiple times.

ACROSS will research how to co-design an ecosystem to facilitate cross-border services, that could eventually contribute to the further implementation of the SDG. The project places the user perspective at its core, ensuring data sovereignty of EU citizens that study or work abroad. Privacy and the needs of citizens drive the co-creative process of developing technology and resources to increase the interoperability of decentralised cross-border services. This framework will be tested in three pilot countries: Greece, Germany, and Latvia.

About the workshop

In the past year, we have done research into the steps citizens must take in order to move abroad for work or study purposes. We have created user journeys and identified where the gap lies that ACROSS will address. Before we move on and start addressing that gap (namely, citizen control over process, personal data, and digital identity when moving across EU borders), we want to validate our findings using the help of researchers and professionals who work with European migration and cross-border services. We want to do this through a co-creation workshop that will take place on the 30st of June, 2022.



Therefore, we invite you to this co-creation workshop to actively contribute with your diverse perspectives and help us to better understand the following:

1. Which issues with cross-border services have you or other researchers/professionals found?
2. Where are the gaps in cross-border services? In service design, authorization, language, common standards etc.?
3. What opportunities for support and collaboration do we have? Any contact/project/topic to consider for us?

We are inviting expert stakeholders from different fields, including migration experts, public service providers of the three pilot countries, other related EU projects (e.g., mGov4EU), and major EU initiatives (e.g., eIDAS and SDG).

Contact information of the pilot partners:

Dataport (Germany): Timo Behrmann
timo.behrmann@dataport.de

VARAM (Latvia): Matiss Veigurs
matiss.veigurs@varam.gov.lv

GRNET (Greece): Nikos Vasilakis
nvasilakis@admin.grnet.gr

Contact person for questions about the workshop:

Waag (the Netherlands): Marit Hoefsloot
marit@waag.org

We hope to see you on the 30th of June!

We hope you will be able to join the workshop on the 30st of June, we look forward to learning from you.

Visit our website <https://across-h2020.eu/>

Find us on [Twitter](#) and [LinkedIn](#)



9 Appendix 2: Preparatory materials for the workshop

ACROSS is a research and innovation project that aims to make moving across borders in Europe easier. We aim to build a platform to connect users with the existing public cross-border services. ACROSS is based on a defined user journey experience. It includes a workflow around specific cases of people moving for work and university. This workflow tends to include services from the private sector. On the ACROSS platform, a user can access an “integrated” service either from within the ACROSS platform or by being redirected, with **single-sign-on**, to the service’s platform. Across is **decentralised** – it works with a wallet so that the ACROSS platform does not store personal data but handles requests.

The user will have full control of his/her private data that ACROSS platform shares with the service. The output of the service can be provided instantly or at a later time and will inform the user directly or via the ACROSS platform. We are building this solution based on an analysis of the existing cross-border services and the corresponding gaps. This gap is what we want to validate in the co-creation workshop on the 30th of June.

Our analysis of existing gaps in cross-border services began with an investigation of four European-wide cross-border initiatives relevant to ACROSS: the [Single Digital Gateway act](#), the [Your Europe Portal](#), the [European Student Card Initiative](#), and [eIDAS](#). Next, gaps were gathered by the pilot partners in the three pilots: Latvia, Germany, and Greece. These gaps were identified through an inventory of public services (desk research) and interviews with projected end users. After the inventory of the services and the interviews were completed, the gaps were combined and compiled into a single, complete overview of the main gaps.

The initial gaps gathered by pilot partners indicated that *fragmentation* and *lack of completeness* are major gaps. When compiling these gaps during a subsequent co-creation session, project partners supported this initial finding, noting that the main gaps involved *lacking or incomplete technical infrastructure* and *issues related to authentication, personal data, and digital identity*.

Our analysis of gaps in cross-border services indicates that citizen control (over personal data and digital identity when moving across borders) is an area where ACROSS can specialise and contribute a human centric approach. It is crucial to place the user [citizen] at the centre of the service design process. Simply put, people do not feel they are in control while moving across borders. They do not feel in control of who they share information with, or what is done with their data. They do not feel in control over whether processes – like applying for housing or registering in a new country – will be successful. Moving across borders makes people vulnerable; those who are already vulnerable (perhaps due to a low income or unclear residential status, for example) become even more vulnerable.

This citizen control is diminished by gaps in *(De)centralisation*, *privacy*, *exclusion of people at the margins*, and *usability and technical completeness*. We can address the major gaps in cross-border



services by **approaching ACROSS as an experiment in radical decentralisation of personal data storage and data management at a supranational (EU) level**. Under this approach, information about and resources for moving across borders should be more centralised, while personal data and digital identity ought to be radically decentralised addressing specific requirements of user-centeredness, transparency, standardisation and interoperability. Here, we consider how the various gaps or ‘sub-gaps’ that we have identified contribute to this core problem of citizen control.

(De)centralisation

Certain aspects of cross-border movement are too centralised, while other aspects are not centralised enough. Issues involving (de)centralisation which are detrimental to citizen control include:

- **Dissimilarity of services and requirements per EU country** – Citizens encounter different requirements between their home country and destination country. From the perspective of a developer of cross-border services, this poses inter-operational challenges and multiplies the considerations for any cross-border service positioned at the European level. From the perspective of those moving ACROSS borders, this poses immediate practical challenges in knowing what is required and obtaining correct forms of documentation.
- **No clear central ‘checklist’ or workflow for moving across borders** – People who move across borders often do not know which steps to take, or in which order. Requirements are often fragmented. Checklists provided by private websites and other non-governmental resources may not provide certainty about the process (for example, that all requirements are present, or that advertising or other forms of bias may be at play). **Sometimes, a mix of public and private services are required or perceived as required**, resulting in a messy process, over-exposure of personal data, and a lack of transparency in how data is processed (see Data Minimisation and Increased Points of Exposure below).
- **Authentication** – Authentication issues are encountered by citizens because there is no single point to ‘sign in’ (for example, one cannot use the Dutch DigiD to login to a German government website). Where authentication does occur, it is often unclear to people what control they have over that authentication and the extent to which their personal identifying information is held. This presents a design question of how to build something that is both a single point of sign-on *and* decentralised.
- **Centrally held personal data** – Centrally held personal data, by private parties and governments alike, is problematic in that it causes people to lose control over their personal data and digital identity. To the extent possible, personal data should be stored and controlled



locally by individuals themselves, who ought to have more granular control over their own digital identity.

Technical development in ACROSS requires careful, balanced consideration of what is centralised, what is decentralised, in which case and with which potential consequences. Generally speaking, **information about and resources for moving across borders should be more centralised**, while **personal data and digital identity ought to be radically decentralised addressing specific requirements of human-centeredness, transparency, standardisation and interoperability**.

Privacy

The issue of privacy is closely related to the discussion above regarding decentralisation of digital identity and personal data. People who move ACROSS borders are unduly exposed to a number of hidden actors, both public and private, throughout the course of their journey. Important gaps in privacy involve:

- **Data minimisation:** The European Union values data minimisation¹ but in practice data is generally not minimised when moving ACROSS EU borders. As mentioned above, people may have data requested from an array of public and private parties. Often, much more data is requested than is strictly necessary (for example, confirming previous residency in another country by providing a specific street address, or confirming one's ability to rent an apartment by providing a bank statement).
- **Informed about use of data:** People moving ACROSS borders often do not have knowledge of who has their data, how that data is being used, with whom it is being shared, how long it is held, and so on. Uninformed about the status of their own data, people lose the ability to properly consent to how that data is held and used.
- **Consent and identity management:** People moving ACROSS borders may feel forced into sharing certain information with certain parties (consider the example above of sharing a bank statement with a landlord). Also related to data minimisation, people may need to consent to provide more information about themselves than is necessary for a given situation. All of this deteriorates the control that people have in managing and protecting their own identities.

Exclusion of people at the margins

As is too often the case, people with existing disadvantages face exacerbated obstacles when moving ACROSS European borders or planning to do so. For these people, the problems and complications that everyone faces when moving ACROSS European borders are even harder. We can consider some of the challenges people face in terms of exclusion and increased points of exposure:



- **Exclusion:** Even in ACROSS, we encounter the problem that those with unique circumstances can be difficult to account for. Because including them is complicated, people who have special circumstances are often excluded from consideration.
- **Increased Points of Exposure:** There are many ‘points of exposure’ during the process of moving. For someone with limited mobility, physically moving ACROSS a border is difficult. People without housing in their home country may be unable to provide required documents in their new country. People with low or even median incomes may struggle to fulfil requirements like finding an apartment in a new city. Immigrants and others without EU citizenship may fear (real or perceived) consequences and choose to not move ACROSS borders at all.

Usability and Technical completeness

Moving across borders is not a user-friendly process. Difficulties with technical interoperability and usability, such as interface specifications, interconnection services, data integration services, data presentation and exchange, syntactic and semantic definitions,² can have negative real-life consequences in slowing or stopping people from moving across borders. Areas with gaps in this regard include:

- **Insufficient or Incomplete Technical infrastructure and interoperability:** Gaps in technical capabilities of the ICT solutions, affect the behavioural aspects and effectiveness of their interaction with their end-users (citizens, PAs, businesses) or other client services. causing delays and roadblocks for people moving across borders. For example, many forms of documentation exchange and request cannot be facilitated online.
- **Language and bureaucratic gaps:** Slow and opaque bureaucratic processes can leave people waiting for confirmation from an authority before a next step can take place. They may be uninformed about the status and expected waiting time for their documents to be produced, processed, or confirmed. At times, destination countries will request pieces of information that do not exist in the country of origin (such as proof that one has never been married), or will have issues in processing certain documentation due to issues in translating languages and/or bureaucratic processes from one country to another.
- **Systems’ lack of usability:** A number of issues regarding usability were raised during interviews including user (un)friendliness, confusing interfaces, mismatches between system language/requirements and reality, and user control over interaction elements. Such issues with usability can go beyond being disruptive or annoying, and can significantly impact or halt one’s ability to move across borders.



Implications

The gaps at hand imply that ACROSS can meaningfully contribute to European cross-border services by focusing on addressing key gaps in citizen agency, personal data protection and privacy, digital identity, and user-friendliness. Certain technical approaches follow from this, e.g.:

- Approaching ACROSS as an experiment in **radical decentralisation of personal data storage and data management at a supranational (EU) level.**
- Approaching **ACROSS as a centralised workflow**, or ‘checklist’ that contains timelines, order of processes, and (inter)dependencies for specific cross-border use cases, **but does not store personal data.** Instead, this approach would include a relationship between a (central) platform and a (decentral) wallet that makes use of attribute-based credentials or another method of granular data management. In this approach, clear standards for services included on the ACROSS platform would be based upon commonly held values by ACROSS partners, GDPR and other EU guidelines, and would be supported and verified through co-creation with citizens.

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10 Appendix 3: Workshop PowerPoint presentation



Key Context Questions

- What are the **gaps in European cross border data sharing and services?**
- What is **going well** and what is **not going well** for people who cross European borders?
- Do you recognize a **gap in citizen agency** when moving across borders? If so, how?
- Which **gaps are you addressing?**
- Which **gaps are not being addressed?**



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Key Technical Assumptions

- ACROSS is **decentralised** – it will work with a digital wallet so that the ACROSS platform does not store personal data but handles requests
- ACROSS **works with Single Sign-on**, meaning that with the same set of credential one will be able to access all services offered by the ACROSS platform (**eID**)
- ACROSS is an **enabler of SDG** (Single Digital Gateway) for cross border services in Europe, since it uses a compatible **CPSV-AP Service Catalogue**
- ACROSS is based on a defined user journey experience. It includes a workflow around **specific cases of people moving for work and studies**. This workflow tends to include services from the private sector



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Key Technical Questions

- Which Strengths, Weaknesses, Opportunities or Threats do you find in ACROSS' initial technical assumptions?
- What issues and information have you encountered regarding trust between authorities in different EU countries? Are they (or will they be) legally obliged to trust one another? What are/will be standards for this trust?



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Key Exploitation Questions

- What are the possible applications of future exploitation of ACROSS' solution as a toolbox of blocks, methodologies and co-creation framework rather than a single platform?
- What is more valuable: a platform, or a toolbox about methods and values?
- What helps to increase interoperability with your project or initiative?
- What knowledge/experience from us would be most useful for you?
- Which assets from ACROSS are most valuable for you?



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