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**LOOKING AHEAD**

# The user experience of eIDAS-based eID

Value Proposition of eIDAS eID

CEF eID SMO

Version 1.0

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### **Internal identification**

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# Introduction and context

# 01

## Electronic identification and the eIDAS Regulation

Today's world is increasingly globalised and connected. Within the EU, more people than ever are living, working and travelling across borders. In 2015, around 11.3 million EU citizens and 168,000 EFTA citizens of working age (20–64) were residing in a Member State other than their country of citizenship<sup>1</sup>. While there is freedom of movement and business, the administrative burden of conducting secure, online cross-border transactions with public and private sector entities is still high. A key enabler for these transactions is electronic identification, the mechanism through which citizens and businesses are able to digitally prove who they are when interacting with governments and businesses. 24 European countries currently have eID systems in place<sup>2</sup>, however they all have varying security mechanisms for identification and authentication, and are based on different philosophies which lack cross-border recognition and validation. Looking to the future, the pan-European availability of widespread and secure access to online services is essential for continued economic growth in Europe, and is thus a cornerstone of progress towards the Digital Single Market (DSM).

The [eIDAS Regulation \(EU No 910/2014\)](#), published in July 2014, aims to address this issue. With regard to eID, the eIDAS Regulation states that if a Member State offers an online public service to citizens/businesses for which access is granted based on an electronic identification scheme, then they must also recognise the notified<sup>3</sup> eIDs of other Member States by 29 September 2018. This applies to online services that correspond to an assurance level of 'substantial' or 'high' in relation to accessing that service online. Member States remain free, in accordance with EU law, to recognise

electronic identification means that have lower identity assurance levels. What this will mean in practice is a European citizen in possession of a notified eID will be able to use this to log-in to online public services offered in every EU and EEA country. By providing a common foundation for secure electronic interaction between citizens, businesses and public authorities, the Regulation aims to increase trust in electronic transactions in the internal market and thus increase the effectiveness of public and private online services, electronic business and electronic commerce in the European Union.

The legal deadline of 29 September 2018 has thus imposed a daunting obligation for EU and EEA countries. Each Member State (for simplification in this context, the use of the term Member State will include both EU and EEA countries) is ultimately responsible for ensuring that online public services available in that Member State are accessible to users of foreign notified eIDs, as well as for the (optional but strongly encouraged) notification of that country's own eID schemes.

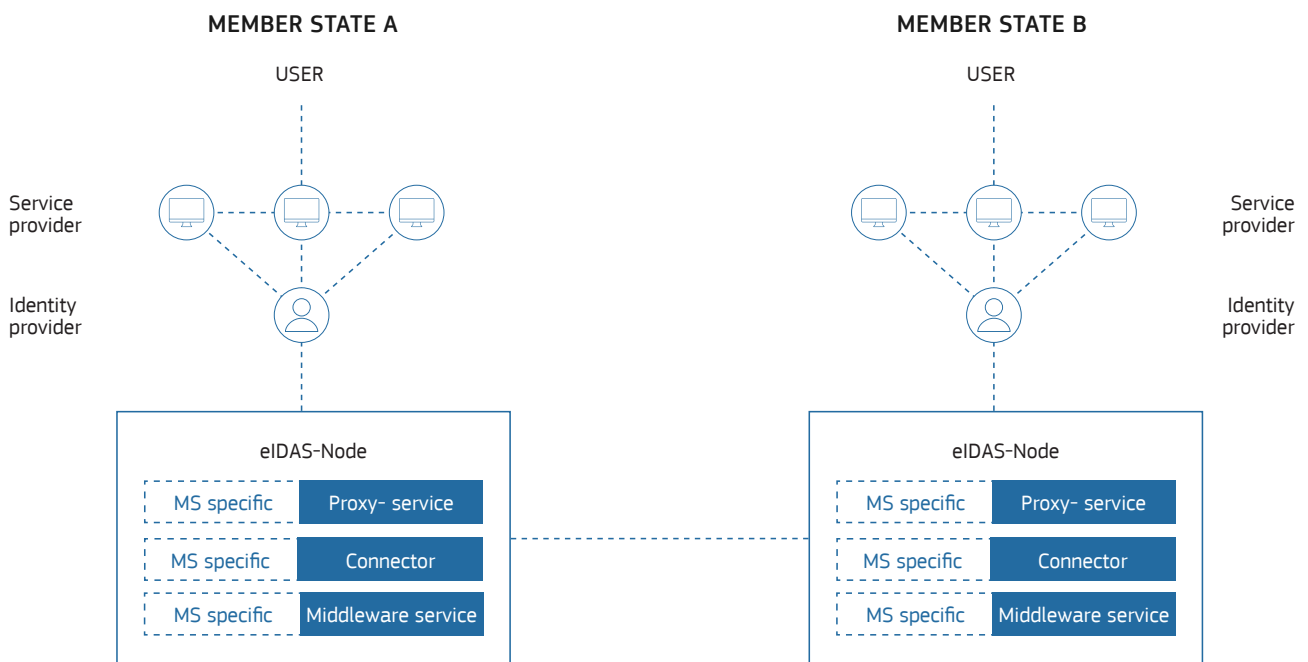
## The eIDAS Network

To deliver on the requirements of the eIDAS Regulation, the Member States have, for some years now, been working on a network of interconnected nodes (eIDAS-Nodes), one per participating country, which can either request or provide cross-border authentication. Essentially, the eIDAS-Nodes act as translators between national identity infrastructures, allowing authentication requests to be sent and validated from one country to another. The basic set-up is outlined below:

<sup>1</sup>2016 Annual Report on intraEU Labour Mobility', European Commission, p23

<sup>2</sup>Country overview regarding eIDAS eID implementation', CEF Digital, 2018, <https://ec.europa.eu/cefdigital/wiki/x/VAvNAg>

<sup>3</sup>eID schemes which have been officially accepted by the Member States and European Commission to be used in an eIDAS (cross-border) context, having met the relevant requirements



It is the responsibility of each Member State to ensure the correct implementation and functioning of their eIDAS-Node, and the connection of national Identity Providers and Service Providers to this node. A status of the node implementation can be found on the CEF Digital website.

## User experience and eIDAS-based eID

The eIDAS Regulation provides the EU with a platform for promoting the seamless and widespread use of secure eID across Member States; it will be 'technically' possible for a citizen to use his/her notified eID to log-in to the online public services of other European countries. However, to genuinely drive uptake of eIDAS-based eID across Europe, the experience of doing so must be strong.

### What do we mean by user experience (UX)?

User experience design is the science of creating meaningful interactions and relationships between the user, and an entity, brand, product or service. At its core, it focuses on having a deep understanding of users; what they need, what they value, their abilities, and also their limitations. With this knowledge, the right technologies and processes can then be designed and implemented to ensure that a user always has the optimal experience at every point of interaction with a product or service. UX design also takes into account the business goals and objectives of the organisation or group managing the project. UX is focused on ensuring that users find value in what you are providing to them. In order for there to be a meaningful and valuable experience, your product or service must be:

- **Useful:** Should fulfill an evidenced need.
- **Usable:** Should be easy to use.
- **Desirable:** Image, identity, brand, and other design elements should be used to evoke emotion and appreciation.
- **Findable:** Content needs to be navigable and locatable onsite and offsite.
- **Credible:** Users must trust and believe what you tell them.

UX is a growing field that is very much still being defined. However it can be seen as an umbrella term for a collection of disciplines which are employed at different levels:

- **At the organisational level:** Customer Experience Strategy explores what an organisation needs to do holistically to consistently deliver on customer needs (ensuring the right vision, technology, people and services are in place).
- **At the service level:** Service Design focuses on improving the quality (in terms of customer interaction) of a service or collection of services, by assessing user needs at each stage of the customer journey and then ensuring the right technology, processes and channels are in place to address these needs.

- **At the product level:** This is the level that many people automatically think of when they hear the term 'UX'. The focus here is on designing a system or product (e.g. a website or app) that meets user needs and expectations. Various disciplines intertwine in order to do this, including Information Architecture (defining the hierarchy and structure of information presented), Prototyping (creating interactive mock-ups to demonstrate usability of the system) and Usability Evaluation (testing how well users can learn and use the product to achieve their goals).
- **At the interface level:** This level of design is concerned with the layout, functionality and appearance of specific screens (interfaces). User Interface and User Interaction Design ensure that the interface has elements/features that are easy to access, understand, and use, in order to facilitate the achievement of user goals. Visual Design focuses on ensuring an aesthetically pleasing interface that is in line with brand goals.

At all levels, the discipline of User Research is crucial. Understanding the user, as mentioned, is at the heart of UX design, and no work towards the implementation of a product or service should be conducted before this research has been started. Fundamentally, user research focuses on understanding user behaviors, needs, and motivations through various techniques, including interviews, observation and task analysis.

The user experience of eIDAS eID touches each of the above levels:

- Public administrations need to be set up in a way that they can deliver best practice UX (organisational level)
- Users/citizens need to be able to obtain, use and manage their eIDs within the context of eIDAS in a frictionless way (service level)
- Users need to be provided with useable tools/platforms to support their use of eIDs cross-border (product level)
- The interfaces of these tools need to be carefully designed to ensure the user understands how to complete tasks related to cross-border eID (interface level)

## The importance of UX with regard to eIDAS eID

This work was initiated because simply put, the UX of eIDAS eID may be at risk. To meet the September 2018 legal deadline, Member States have justifiably been focusing on ensuring that they comply technically, as described above. This has however led to the de-prioritisation of other important factors. Member States, already with fundamental differences in eID infrastructure, approach and UX maturity, have lacked a coordinated approach to the design and roll-out of the cross-border authentication user journey. The risk is therefore that eIDAS eID will be disjointed, inconsistent and

largely poor with regard to user experience. This problem is compounded by the nature of eIDAS eID; each cross-border user journey relies on interfaces provided by multiple entities in two different countries, which exacerbates the effect of inconsistency on the user.

A poor user experience will lower overall uptake of notified eIDs by European citizens, decrease use of these eIDs in a cross-border context, and discourage private sector Service Providers, which cannot compromise on the quality of the services they provide, to also make their online services accessible via the eIDAS Network. Conversely, a good user experience will do exactly the opposite. The significance of user-centricity in the design of digital public services has also been underscored recently by the Tallinn Declaration of 6 October 2017. The importance of getting this issue right is therefore clear.

# Objectives and scope

## 02

This report focuses on a part of the eIDAS eID Value Proposition work, which overall seeks to better define and improve the value proposition of eIDAS eID, with a view to promoting uptake by European citizens and adoption by private sector Service Providers. To do this, we must:

- Make eIDAS eID more attractive as a service to users (improve the overall user experience across Europe)
- Better define the business case (value) of eIDAS eID for private sector Service Providers, and identify barriers to adoption

In other words, the value proposition consists of:

- User proposition: What can we do to improve the experience of eIDAS eID for citizens?
- Business proposition: How can we better define the value eIDAS eID will provide to the private sector?

This report therefore focuses on the user proposition component of the work.

### Objectives

The objective of the user proposition component of the work was to define how to improve the user experience (value) of eIDAS eID, thereby helping to promote uptake by European citizens. To do this, the work aimed to:

- Understand the extent to which eIDAS eID will currently be able to meet the needs of citizens (users), by identifying any potential user issues
- Define common solutions to address these user issues by identifying best practice in the Member States which can be reused



- Understand challenges faced by public administrations which may prevent them effectively improving the user experience of eIDAS eID
- Define potential methods to overcome these challenges
- Assist Member States in the ongoing implementation of improvements by providing them with useful tools/resources

## Scope

- We have only included in the scope of our assessment those countries which have participated in the UX Working Group (see next section)
- We have only focused on citizen use of eID, not business use
- The intention of this work is not to dictate to the Member States particular actions, but rather to work collaboratively with the Member States to define common principles or recommendations which may be followed.
- While the work has examined the entire eIDAS eID user journey (explained further in the next section), we realise that in many cases, some segments of the user journey are outside of the remit of the Member States (e.g. interfaces/services provided by private sector Identity Providers). Because of this, the focus of our recommendations has been on those areas within the control of the Member States, but we have also looked more broadly. In this case, it is our hope that the Member States may be able to use relevant recommendations to collaborate with external parties where appropriate.
- It was not our intention to encroach on Member State responsibilities (e.g. to conduct our own user research at the national level). As such the work has been reliant on collating research and best practice already conducted by Member States.
- We have not intended to prescribe to Member States how implementation should occur
- We have not intended to evaluate the progress of implementation in the Member States

# Approach

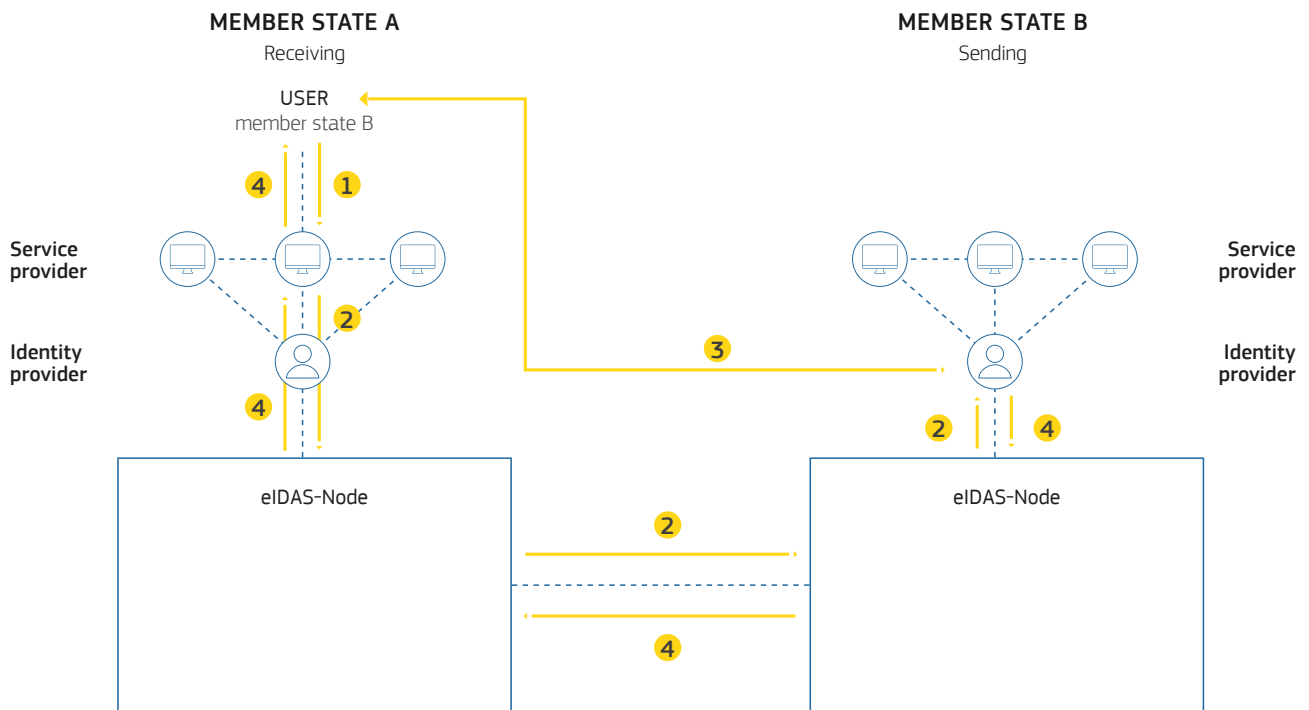
## 03

The work ran officially from December 2017 to May 2018. Below is a description of the key stages we undertook.

### **1. Framing the user experience of eIDAS eID**

As a first step we needed to determine a model for assessing eIDAS eID from a user experience perspective. This meant understanding better the user journey. Our starting point was the model defined by the CEF eID team for representing the flow of information and steps the user takes during cross-border (eIDAS-based) authentication. Below is a simplified description:

1. The user attempts to log-in to the website of a Service Provider in Member State A using an eID from Member State B.
2. A request is sent through the eIDAS-Node of Member State A, to the eIDAS-Node of Member State B, and then to the user's Identity Provider.
3. The user will then be asked by their Identity Provider to authenticate themselves, via the normal process they would go through at the national level
4. The successful validation of the user's identity is then sent back via the eIDAS-Nodes to the Service Provider, and the user is granted access to the service



We took this flow representing a cross-border authentication under eIDAS and defined with the Member States the key steps taken from the user's perspective:

Discovery	Country/eID selection	Attribute consent	Authentication	Use of the service
<p>"As a foreign citizen, I realise that I can use eIDs from other European countries to access this online service"</p> <p>1</p>	<p>"As a foreign citizen, I understand which eID is available for me to use"</p> <p>1</p>	<p>"As a foreign citizen, I understand which information will be shared during the authentication and agree to this"</p> <p>1</p>	<p>"As a foreign citizen, I log in using the authentication process of my national eID"</p> <p>3</p>	<p>"As a foreign citizen, I am now logged in and would like to use the service"</p> <p>4</p>

While the actual process for completing a cross-border authentication is the most obvious component of the eIDAS eID user journey, it is not the only element to consider if we want to holistically improve the eIDAS eID experience and drive uptake among European citizens. The ability of citizens to easily apply for and manage their eIDs at the national level are also important elements, as use of notified eIDs at the national level is a pre-requisite for use at the cross-border level. Additionally, the ease with which citizens can actually understand (be educated with regard to) what eIDAS eID is and what it means for them is equally important.

As such, we defined 4 key phases of the eID lifecycle that must be taken into account when analysing the eIDAS cross-border experience:

- **Apply:** This relates to the initial obtaining of an eID (that has been notified) by the citizen. This experience is dictated by the specific organisational structure, processes and technology that exist within each Member State for the provision of eID.
- **Understand:** This relates to the citizen becoming aware of what eIDAS means for them. It involves efforts made by each country to educate citizens in this regard.
- **Use:** This relates to the act of a citizen authenticating themselves on a service provider's website using an eID from another country (the authentication process described above).
- **Manage:** This relates to the citizen's ongoing relationship with the relevant identity provider, including renewal of their eID, updating information or receiving support.

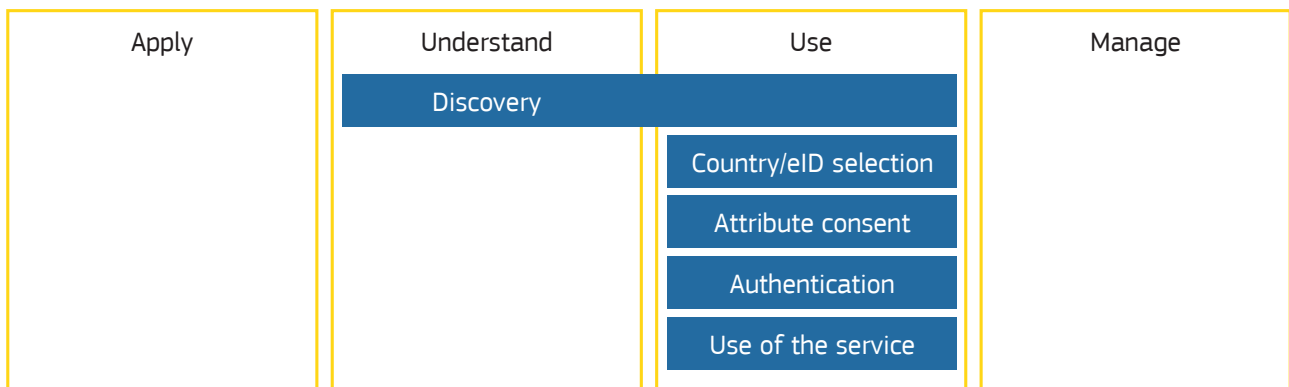
Each of these phases, across all Member States, need to be considered if the end-to-end experience of eIDAS eID is to be improved. They therefore became the basis for framing our investigation into the UX of eIDAS eID, with special emphasis placed on the key steps found in the 'use' phase.

What makes eIDAS eID such a unique challenge is that it is not a service which can be defined by a single user journey. In fact, it is a series of interrelated user journeys which rely on different Member States at different times. This is why it is so important that all Member States take a coordinated approach to design, informed by best practice. There are a few examples of how the UX in one Member State can affect another Member State. When a citizen from one EU country moves to another EU country, the ease with which he/she has been able to obtain, use and manage an eID in their home country will affect their decision to use this when overseas, or to apply for a new eID in the destination country. To authenticate cross-border, the user will need to interact with a Service Provider in one country and an Identity Provider in another country. The quality of the experience provided by both parties is merged into one user flow that needs to be as easy and seamless as possible. For awareness raising on the implications of eIDAS for citizens, the effectiveness of awareness raising in one country will affect the propensity of citizens from that country to use their home eID when overseas.

Essentially, any single eIDAS eID user journey will very likely span multiple countries, multiple entities (both public and private sector) and multiple channels, and the entire process should be as frictionless and possible for the user.

## 2. Building the UX Working Group

Given the need to collect detailed information on the current user experience, and the need for the Member States to fundamentally own the outputs of the work going forward, it was decided to establish an informal working group composed of representatives from each country, nominated by the eIDAS Cooperation Network. Individuals were to be nominated based on their level of knowledge and interest in the topic. In this way, we would construct a pool of motivated and diverse individuals to help us gather information, discuss the topic and validate our outputs. The group would operate primarily virtually, and so we created an [online collaborative space](#) (based on Confluence) to which members would be given access. This space would serve as a repository for



information gathered in collaboration with group members, as well as a place for the group to review outputs produced by the team. It was also foreseen, if necessary, that limited face-to-face meetings would be organised either in Brussels or in specific Member States. The UX working group would remain under the supervision of the eIDAS Cooperation Network and the coordination of DG CNECT Unit H4, with the Cooperation Network remaining the ultimate authority on the direction of and activities carried out by the group.

From December 2017 to January 2018, the team focused on building this group, working with the members of the Cooperation Network to encourage nominations. Participation to the working group was to be voluntary, and as such, it was not expected that all EU/EEA countries would participate. Nevertheless, the group grew to include 39 representatives from 17 different countries.<sup>4</sup>

### 3. Defining user-centric principles

To begin with we defined a set of foundational guiding principles to represent the ideal vision for the UX of eIDAS eID. These were divided into two different sets of principles; one set of 'experience' principles, concerned with the UX qualities that eIDAS eID should possess, and one set of 'delivery' principles, concerned with the methods and capabilities public administrations should possess in order to optimise the UX. We would use these principles throughout the rest of the work to frame our outputs, in particular our recommendations, where we ensured the recommendations we provided were contributing to the fulfillment of the principles.

### 4. Understanding the current state

Our next step was to work with the Member States in the working group to build a clearer picture of: The existing eID landscape in each country

- Existing processes for applying for and managing eIDs in each country
- User research already conducted in each country, and thus user needs/pain-points identified
- Work and/or planning already conducted towards the cross-border (eIDAS) user journey
- The maturity of each country with regard to UX delivery

With this information we could build a solid understanding of where potential user issues could present themselves along the eIDAS eID lifecycle (apply, understand, use, manage), how well equipped Member States were to deal with them, and what they would need to do so. Additionally we could identify where good work had already been carried out and help surface this for the benefit of other countries.

To collect this information we used a combination of primary and secondary research. We conducted desk research for all Member States participating in the working group, and we interviewed representatives from 14 of the 17 participating countries. We also held two in-person workshops, both of which were partially used to gather information from attendees.

### 5. Defining recommendations

Based on our understanding of the current state, we defined, in collaboration with the working group, a set of recommendations to improve the UX of eIDAS eID. These recommendations were divided into 'experience' and 'delivery' recommendations according to the principles we previously defined. The experience-based recommendations were further divided according to the phases of the eID lifecycle.

### 6. Building a toolkit

With input from the working group, we finally created a set of online 'tools' to help the Member States work together to carry the recommendations forward.

<sup>4</sup>Participating countries are Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Greece, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, United Kingdom. Full details can be found in Annex E.

# User-centric principles

## 04

To frame our thinking on the user experience of eIDAS eID, we created a set of foundational principles to act as guides for the design, delivery and assessment of eIDAS eID as a digital service. To do this, we considered two different perspectives. First, we have looked at the quality of the experience itself, putting ourselves in the shoes of a user consuming eIDAS eID. Second, we have looked at the ability of the organisation/s to deliver that experience. The principles were created based on a consolidation of best practices promoted by governments across the EU and globally.<sup>5</sup> We also leveraged the ‘user-centricity principles for design and delivery of digital public services’ of the Tallinn Declaration,<sup>6</sup> as well as the work of the user-centricity track of the eGovernment Action Plan Steering Group,<sup>7</sup> which surveyed 18 Member States with regard to common principles they applied to end user services. The principles are as follows:

<sup>5</sup>Government Design Principles’, GOV.UK, <https://www.gov.uk/guidance/government-design-principles>, ‘Digital Services Playbook’, The US Digital Service, <https://playbook.cio.gov/#play1>, ‘Digital Service Standard’, Australian Government Digital Transformation Agency, <https://www.dta.gov.au/standard/>

<sup>6</sup>Tallinn Declaration on eGovernment’, 2017, p9, [https://ec.europa.eu/newsroom/document.cfm?doc\\_id=47559](https://ec.europa.eu/newsroom/document.cfm?doc_id=47559)

<sup>7</sup>User-centricity: Report to the EU eGovernment Action Plan Steering Group’, 2018

## Experience principles.

The electronic identification experience should be...

### X1. Mobile-first and omni-channel

All interfaces supporting the eID user journey should be designed from a mobile-first perspective, meaning it should be just as easy for users to obtain, use and manage their eIDs via their mobile device, as it is via a desktop computer. The different channels supporting the journey should be fully integrated to deliver a cohesive omni-channel experience.

### X2. Personalised

Personalised and relevant content should be delivered to users based on a unified view of their behaviour, preferences and history of prior interactions.

### X3. Contextualised

Content, communications and services should be delivered to the user in a predictive way based on an understanding of the user's device context. Users should receive relevant content at the right time and place.

### X4. Usable

Digital assets should be underpinned by a rigorous user experience design process, supported by an innate understanding of the user. It should be easy for users to understand and complete any task they wish to related to the use of their eID, regardless of how complex the underlying systems are.

### X5. Accessible

Ensure that content is designed in such a way that it is usable by people with disabilities, conforming to the standards relevant in your particular country.

### X6. Consistent

Content should be presented to the user in a consistent tone of voice. The different interfaces that support the eID user journey should, where possible, reuse common design elements and patterns, creating a familiar environment for the user and building brand awareness.

### X7. Once-only

Once a user has provided information for the purposes of identification, this information should be securely reused by the responsible entity/ies in a way that the user does not

have to provide the same information the next time they interact with that entity.

### X8. Transparent

Information relevant to the user's decision making, particularly related to data privacy and security implications, should be readily available, helping to establish a relationship with the user based on trust.

### X9. User-controlled

The user should be free to use the authentication means which they trust the most for a given transaction, assuming it is relevant. The user should have control over the data that is exchanged for the purposes of identification/authentication.

### X10. Proportional

The request for user data should be proportionate to the level of the transaction in question.

### X11. Two-way

There should be established mechanisms allowing for a constant two-way dialogue between the user and the responsible entity.

## Delivery principles.

The delivery of electronic identification should...

### D1. Be rooted in user needs

Too often, services are built according to the provider's needs, or based on false assumptions about the user. Before designing or improving a service, real user needs must be uncovered. If you don't know what the user needs are, you won't build the right thing. Build this understanding by talking to as many real users as possible, walk in their shoes, and remember that what they ask for isn't always what they need.

### D2. Be delivered in an Agile way

Online services should be delivered by teams using Agile tools and techniques. These techniques emphasise iterative delivery, with a product or service delivered earlier in 'minimum viable' form, and then improved through subsequent releases based on its actual performance. In order to do this, teams structure their work and communicate in specific ways.

### **D3. Be delivered by multidisciplinary teams**

The successful delivery of an online service requires the intersection of a number of diverse skills, including product management, user research, user experience and visual design, copy-writing, front and back end development, and performance analysis.

### **D4. Tested with users early and often**

From early in the design process, put your designs regularly in front of real users and incorporate their feedback. You can start with low fidelity mock-ups of what your service will look like, and gradually refine your designs as you become more certain of their success with users. Before launch, the service should be tested end-to-end in a dummy environment identical to the live version, on all main devices and browsers.

### **D5. Cater for the lowest common denominator**

Building a service which is usable for 'most people' is not good enough. Test thoroughly with typically non-digitally savvy user groups (e.g. the elderly, those with disabilities and those living in remote/rural areas), ensuring they are able to consistently succeed.

### **D6. Reuse common components**

Where possible, the design and delivery of the service should draw upon common design patterns, visual styles and pre-configured components which are promoted for use across all government departments in your country. In this way the eID experience will be consistent, regardless of which service they are using or which department owns which part of the eID user journey.

### **D7. Be open and connected**

The eID platform should be built where possible on open source code and standards, ensuring easier integration with online services across government departments.

### **D8. Be monitored and improved continuously**

Once live, data analytics and the systematic collection of qualitative user feedback should be employed to regularly assess the performance of the service. Define key performance indicators and a benchmark for each metric. Based on the success of the service, define new features to test in the next phase of development.



# Member State models

# 05

The experience of eIDAS eID differs between countries, each having different infrastructures, philosophies and maturities with regard to eID. As such, a one-size-fits-all approach to this work would not provide the best outcome. Conversely, it was not possible within the scope of the work to tailor our recommendations to the needs of each individual country. We therefore conducted an exercise to group Member States into key categories (models) based on commonalities. In this way we could provide a degree of tailoring based on these models. The criteria we looked at in order to define the models were:

1. Type of eID ecosystem: The specific type of ecosystem that exists around each eID scheme, including the associated service providers, attribute providers and identity providers, and how responsibility is shared across public and private sectors.
2. Organisational structure: The extent to which public entities in each Member State are dictated to by a central decision-making body in regard to the delivery of online public services, or are more autonomous in operation and approach.
3. Level of maturity: The ability of the Member States to implement and reflect upon user experience best practice, as well as the level of overall adoption of national eID scheme(s) by end users in each country, and the extent to which use eID can be used across both public and private sector services.

When doing this exercise, we only took into account nationally issued eID schemes, recognized to access online public services (at least, but in addition they may be used to access private services), which are notified or should be notified under eIDAS.

## Definition of criteria

### Type of ecosystem

Historically it has been the role of government to provide a legal and secure identity to citizens. Over the past 15 years, it has become of utmost importance to provide citizens with an equivalent digital identity with which they can transact online. However digital identity management is not anymore a unique prerogative of governments but can also involve to different extents private sector actors. Some further criteria can help us better classify national eID schemes based on the approach taken by the Member States.

If the state is in charge of regulating the infrastructure, the interaction between identify providers and the operation of the eID scheme, we are talking about a **public-led ecosystem**. Today, we observe two types of approach:

- **Sovereign eID schemes:** The national eID scheme set-up and implementation is driven by the government. Governments consider digital identity as an extension of their responsibility to provide an identity to their citizens, and are the main verifiers of those identities. Infrastructure is managed by the State but may rely on private sector sub-contractors for its delivery. Governments can decide on the modalities of reuse of eID (e.g. for public sector only or open for private sector services as well).
- **Federation of identity providers regulated by the government:** The government sets up an interoperability framework with different private sector identity providers. Common principles are defined regarding the design and delivery of the eID scheme. The State maintains a supervisory power on the identity providers and defines the conditions for reuse of the eID scheme (to access public or private services). In many cases, the federated eID scheme adopts its own branding.

In a **private-led ecosystem**, a series of private sector identity providers offer nation-wide solutions for electronic identification for online public and private services. In this case, the state has no direct stake in the provision of eID but acts as a consumer of digital identities for granting access to public online services. In Europe, those eID schemes take the form of:

- **Private-led federation of identify providers:** A number of private identity providers have defined common technical specifications and principles to develop an interoperable eID scheme. The State is acting as a consumer of the eID and may allow access to public online services under certain conditions.
- **BYOI (Bring Your Own Identity):** Citizens are self-asserting their identities, for example using their Google or Facebook accounts. Citizens can also purchase identification and authentication certificates from private service providers. eGovernment services may accept this type of credential as a proof of electronic identity. If the private service provider verifies that the user possesses an official ID document, then we can talk about verified self-declared identities. Verified identities ensure a higher level of assurance than basic self-declared identities.

The European eID landscape is however evolving rapidly. Governments are still negotiating terms of agreement with the private sector in regard to service or identity provision. It is likely that this current snapshot of eID ecosystems will need to be regularly updated in the upcoming years to reflect the evolution of these arrangements.

### Organisational structure

Identifying the extent to which the delivery of online public services at the national level is managed is crucial to better understanding how user-centric practices could be implemented by Member States in regard to online identification. As a general rule there are three approaches:

- **Centralised:** Rules, principles, methodologies and styles are dictated to public entities delivering online services by a governing organisation or team.
- **Coordinated:** Public entities are autonomous but are guided by a higher body which sets direction with regard to user experience best practice. Some rules or guidelines may be enforced, but many are simply encouraged.
- **Self-directed:** Public entities are autonomous in their decision-making with regard to the style and approach of online service delivery. They do not follow common principles and guidelines.

Decision power in terms of:	Centralised	Coordinated	Self-directed
design and delivery principles	Implementation of strict national rules is mandatory	National rules/ principles are optional but encouraged, or are a combination of mandatory and optional	Definition of own principles without guidance from a higher entity
Organisation of work	Dictated	Independent, though higher guidance may influence	Independent
Budget	Specific budgetary lines have to be planned and approved by a central organisation	Organisation can allocate budget accordingly, though higher guidance may influence	Organisation can allocate budget according to its own priorities

## Level of maturity

In regard to eID and user experience, Member States can be looked at in terms of maturity in three different ways:

**UX capability:** Member States differ in their attitude to and capacity for delivering good user experience to citizens. This includes elements such as budget and resources allocated, the prevalence of user-centric design practices and the degree to which organisational structure and process supports UX best practice.

**eID adoption:** There is a wide range of adoption levels regarding eID in Europe. For this we are taking into account the number of active users of the eID, meaning people that have at least used once the digital functionalities of their eID scheme.

Level	Description
LOW	Limited or no awareness of, or investment in, user-centric methodologies for the delivery of online services
MEDIUM	Awareness of and basic capacity to incorporate user-centric design Some efforts are made to assess user satisfaction and incorporate feedback into the design of online services A small dedicated team may exist to support UX best practice
HIGH	User-centric design principles are well understood and applied consistently for the design of online services Qualitative and quantitative user feedback is collected regularly and used to inform all stages of the design process Significant resources are in place to support the delivery of best practice UX

Level	Description
LOW	Less than 10% of the total population*
MEDIUM	Between 10% and 50% of the total population
HIGH	More than 50% of the total population

Level	Description
LOW	Only few cases of reuse or none
MEDIUM	Reuse limited to one sector (eg. banking)
HIGH	Reuse in several sectors

\*Total population refers to nationals and legal residents of a particular country that are entitled to own the local eID means.

**Inclusion of private sector services:** The extent to which eID has penetrated all aspects of the user's life. eID use in the public sector is very important of course, but end users come into contact with private sector services on a much more regular basis, so there are strong use cases here.

## Member State models

Please note that these models are approximations based on the research we have conducted with only the Member States participating in the UX working group. While we have endeavoured to be as holistic as possible, the models may not 100% accurately describe the situation in every country.

### Model 1: The Beginners

This type of country has recently launched or will launch soon an eID scheme. Not only will they have to adapt national processes to allow for the use of the new eID scheme, but they will directly fall under the obligation to recognise notified eIDs in their country for access to public online services. Their culture of electronic identification is low, and roles and relationships between the public and private sectors remain to be determined. Essentially the whole eID ecosystem needs to be created. Countries in this position will move towards a public-led ecosystem, but this could be either sovereign or a public-led federation. Beginners will have the possibility to rely on the experience of more advanced countries and implement best practices from the start. Good user experience will be key to ensure a large adoption of the new scheme.v

Model 1	
Type of ecosystem	Sovereign or public-led federation
Type of organisation	Centralised or self-directed
Level of UX maturity	Low
Level of adoption	Low
Inclusion of private sector services	Low

## Model 2: The Governors

Among this group, one can find typically Member States that have digitalised their ID documents over the past 15 years. The eID scheme is usually managed in a highly centralized manner and security is of the utmost importance. This control and emphasis on a higher level of security (LoA-High, rather than a more progressive approach) can result in a poor user experience and low adoption of the eID scheme nationally by end users, despite a relatively long history of eID availability in society. These countries may breed a strong culture of trust in the government's use of data among the population. Because of a decade or more legacy of eID operation and a tight culture of government control and centralisation, it can be difficult for these countries to radically and quickly shift their fundamental approach to eID. Having said this, centralisation of this kind has advantages when it comes to the decision-making and communication of UX related issues.

Model 2	
Type of ecosystem	Sovereign
Type of organisation	Centralised
Level of UX maturity	Medium or low
Level of adoption	Low or Medium
Inclusion of private sector services	Low

## Model 3: The Federators

This model groups Member States that do not have a strong culture of state centralization. Often national ID documents are not compulsory for the population or do not even exist. Necessity to prove one's identity online has led the private sector to play an important role in the provision and verification of citizen identity. These countries have either taken the lead in the regulation of private identity providers or have left this role to the market. In both cases, the presence of private sector actors, and the necessity to build a business case for participation as well as competition between identity providers, has pushed the State to embrace UX principles. In many cases, private actors and the public agencies in charge of the eID schemes have important decision-making powers.

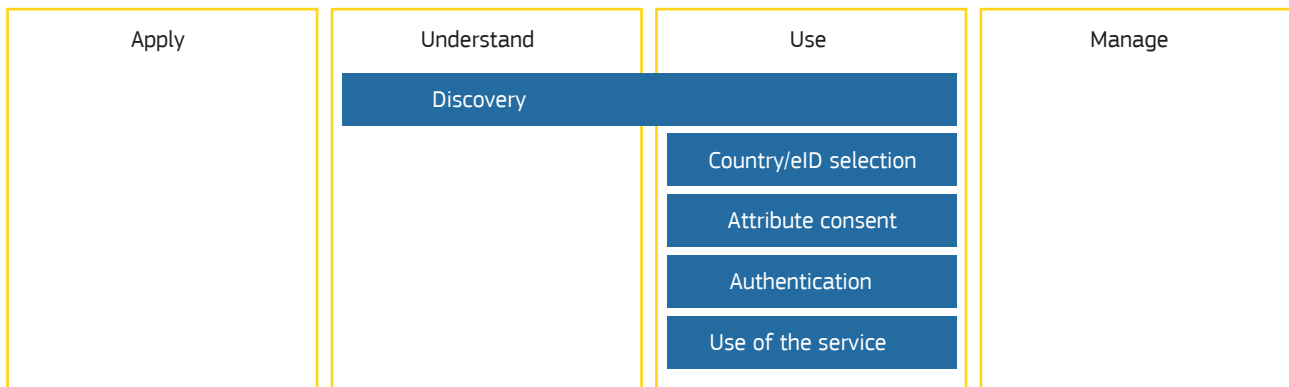
Model 3	
Type of ecosystem	Public or private-led federation
Type of organisation	Coordinated
Level of UX maturity	Medium or High
Level of adoption	Medium or High
Inclusion of private sector services	Medium

# User experience of eIDAS eID

## Findings and recommendations

# 06

In this section we present a summary of key issues which could potentially affect the experience of eIDAS eID, as well as a summary of key recommendations. They are divided by phase of the eIDAS eID lifecycle:



These findings are the result of desk research conducted by the team on the 17 Member States within the UX Working Group, interviews with 14 Member States, and 2 workshops with Member State representatives. The user issues discussed are not based on our own user research, but rather are a collation of insights derived from user research already conducted at the Member State level. In particular, the user research conducted by the GOV.UK Verify team<sup>8</sup> was very helpful. For the full list of user-pain-points identified, see Annex A, and for the full list of UX recommendations, see Annex C. Each issue below is linked to one or more pain-points in Annex A, and each recommendation is linked to one or more Member State models and experience principles (as discussed previously).

## Phase 1: Apply

This relates to the initial obtaining of an eID (that has been notified) by the citizen. This experience is dictated by the specific organisational structure, processes and technology that exist within each Member State for the provision of eID.

### Assessment of current experience

#### The eID application process can be confusing and difficult for users, even those who are citizens or residents

Applying for, obtaining and activating an eID is often complicated for the user. Information can be spread across multiple government websites, with no clear guidelines on what is needed, what the steps are or where to find help. This problem may be exacerbated by a lack of general understanding by citizens of what eIDs are and how they can be used. Depending on the country and type of eID, the user will need to also possess additional identifiers (e.g. tax number, social security), visit an office or service centre in person, download supporting software, purchase hardware (e.g. a card-reader) and wait days or weeks for activation information to be sent via post.

When something goes wrong, it can be frustrating and time-consuming for users to get help. The following is an actual quote from an EU citizen regarding the application process for a mobile ID: “In total the process...took me: five calendar weeks, around eight hours of my life, 15 emails, 10 phone calls, acquiring a bachelors in computer science to be able to tackle the technical issues. I would say this is something that should not be acceptable... I had all the required infrastructure elements (browser plugins, ID card admin utilities, etc) in place and I have worked in IT for 20 years. Yet still I faced the mess above.” In countries where eID adoption is relatively low, issues such as this will greatly reduce the likelihood of use, at the national level and certainly at the cross-border level.

In countries where there are multiple eID schemes available, or federated schemes with multiple Identity Providers, it can be difficult for citizens to determine which option is most suitable for them. Similarly, with federated schemes, users can find it difficult to understand the relationship between the scheme brand and the individual brands of the Identity Providers.

*Linked to pain-points: P3, P4*

#### Lack of virtual eID onboarding presents problems for global mobility

The ideal vision of an ‘eIDAS enabled’ future Europe, is one where citizens are in possession of perhaps several eIDs, any of which can be used at any time, in any country, to access any online service. In this digital, border-less Europe, one can imagine that applying for and obtaining an eID could be done digitally and remotely. Based on the research we have conducted however, we are far from achieving this. Of the 17 Member States involved in the UX working group, only 3 offered completely virtual eID onboarding (i.e. with no face-to-face touch-point during the process), and of these, there was generally still a requirement for the applicant to have a valid residential address in that country, or another identifier that could only be obtained when in the country.

The eIDAS Regulation will reduce the need for citizens to apply for a new eID in the country they are moving to, thereby lowering the potential demand for virtual onboarding in this respect. However, there is a particular scenario which demonstrates how a lack of virtual onboarding could pose an immediate problem for citizens in an eIDAS context. A citizen from a country with no ingrained legacy of eID ownership could move to another country in the EU where eID use is very prevalent, and only then become aware of eIDAS and the possibilities it offers. At this point, they may want to obtain an eID from their home country, but either cannot (because they no longer reside there) or can only do so by physically returning home. They would then find themselves stuck between this option and applying for a local eID as a foreigner, which can be complicated.

*Linked to pain-points: P2*

#### Even after understanding the eIDAS concept, citizens may choose to obtain an eID from their destination country, rather than using their home eID, even if this means undergoing a more laborious process

It is easy to assume that if the option was available to them, citizens would always choose to use the eID they already possess and are accustomed to using, when in a foreign country. However the research that the GOV.UK Verify team has conducted would suggest this is not necessarily the case. Citizens, even if they realise that it will add additional upfront administrative burden, may choose to apply for and use an eID of their new country of residence. There are several potential reasons for this:

- Citizens may perceive a local eID to be more useful or compatible with services in that country. This perception may be unfounded or indeed rooted in reality, if for

example, the local eID can be used to access a range of private sector services while the foreign eID can only access public services.

- If the individual is planning to stay in the country for a longer period of time, as opposed to a temporary stay (e.g. for study), they may be inclined to obtain a local eID as it psychologically allows them to 'fit in' better as a resident.
- If the experience of using their own eID is particularly poor, the citizen may choose to obtain and use a local eID with a comparatively better experience. The initial inconvenience of applying for the eID will be traded off against the longer term convenience of using it.

*Linked to pain-points: P1*

## Looking ahead

### Pursue options for virtual eID onboarding

Removing the need for face-to-face touchpoints during the eID application process will not only remove barriers to eID uptake at the national level (by making the overall process more frictionless) but will also give citizens that are living overseas the ability to obtain an eID remotely. Facial recognition technology is already a proven example of how identity can be validated virtually. Similarly, do not link the ability to obtain an eID to a citizen's residential location (i.e. an address within the country of issuance), as this creates a barrier for citizens who are already living overseas. Explore options to securely deliver security elements (e.g. activation codes) digitally. Where a physical card needs to be collected or delivered, provide overseas shipping options (potentially for a small fee).

*Relevant for: Governors, Federators*

*Linked to principles: Usable*

### Provide a one-stop-shop for eID at the national level

At the national level, create an online hub that consolidates information on eID schemes available in that country into a single location. Invest in ensuring this is well designed and clear. This hub should include information on the eID scheme/s, how to apply, what is needed to be eligible, which services the eID/s can be used with, and how to seek support. This recommendation is especially relevant if the eID/s of the country are operated by public entities, but this hub can also consolidate information (or at least direct users to information) on privately operated eID schemes.

For countries that present the user with multiple eID options (schemes or Identity Providers), provide a step-by-step

online guide that tailors the onboarding experience to the user's needs. Practically this could include a small quiz which assesses the user according to certain criteria and then suggests the most appropriate option/s. A comparison tool for Identity Providers could alternatively be used, which would provide key facts and figures for each option.

*Relevant for: All MS models (particularly Governors)*

*Linked to principles: Usable, Consistent, Personalised, Transparent*

### Emphasise mobile-based and contactless solutions

A key issue that card-based eID solutions face in terms of uptake is the burden they can place on the citizen to own and manage additional equipment (such as a card-reader). Smart-cards may still be a desirable option for political or technical reasons, but Member States should explore ways to make these cards as easy as possible to use (e.g. incorporating Near-Field Communication (NFC) capabilities into government applications and the cards themselves). Having said this, there appears to be a clear user preference for mobile-based ID solutions. However there must always be a trade-off between convenience and security, especially in relation to eIDAS. Explore mobile solutions at the national level which may achieve this balance. This may involve assessing a shift of identity provision to the private sector.

*Relevant for: Governors, Federators*

*Linked to principles: Usable, Mobile-first and omni-channel*

## Phase 2: Understand and Discover eIDAS

This relates to the citizen understanding the concept of eIDAS eID and what it means for how they interact with online public services (i.e. understanding that they can use their own nationally-issued eID to access foreign public services). It involves efforts made by each country to educate citizens in this regard.

### Assessment of current experience

#### The concept of electronic identity remains difficult for citizens to grasp

The level of adoption of electronic identity schemes is still rather low in many Member States. 11 out of 17 investigated Member States have an adoption rate of less than 10% of the total country population, while only 4 Member States reach a level of adoption representing more than 50% of their population. As a result, many citizens may still have



insufficient awareness on what an eID is and what it can be used for.

Nationally-issued eIDs are referred to using different terminology depending on the country in question (eg. Digital identity, eCitizen account, governmental log-in, etc.) and of course in different languages, adding to the confusion of citizens when trying to determine whether they actually possess a means of electronic identification as defined under eIDAS.

*Linked to pain-points: P8, P10, P13, P15*

### **There is a prejudice from users about the possibility to reuse a national solution abroad**

The general public is not familiar with the existence of the eIDAS Regulation and even less so with the new possibilities that this Regulation offers them. User research performed by the GOV.UK Verify team has shown that citizens have a shared prejudice about the possibility of using their own national eID when abroad. Even when citizens are regular users of an eID in their home country, they may easily discarding the possibility of using this to access a foreign online public service. The legacy of public services being designed in siloes and with a supply-chain driven approach has resulted in the creation of a preconceived notion that solutions are by default not interoperable between services (at the national level but even less so at the European level).

*Linked to pain-points: P7, P16*

### **Current interface designs may mislead users into not choosing the cross-border authentication option**

At the moment, several Member States have updated or plan to update their current authentication gateway with an “eIDAS option”, as per their obligation under eIDAS. Some Member States are considering the use of an EU-related logo (e.g. European Commission logo, EU flag, other EU-related designs of their own creation) to represent to the user where they can choose this “eIDAS option” on their authentication gateways. This may or may not be complemented with text, such as “connect as a EU/EEA citizen” or “Connect with eIDAS-eID”.

Through their user research, the GOV.UK Verify team found that when an EU-related visual cue was relied upon to present to users the “eIDAS option”, a majority of them discounted it as the correct choice. These users did not make the connection between the logo and the eIDAS concept, because by itself it was not descriptive enough for them to make an informed choice. Some users were misled to the

point of assuming that the “eIDAS option” was for those in possession of a separate EU-wide identity that they didn’t have.

It was also observed in the case of some Member State authentication gateways, that the “eIDAS-option” for users was placed beneath the umbrella of the national eID scheme brand. In other words, to select the “eIDAS option”, the user would first have to make a connection between the national eID brand and the eIDAS concept. This is not intuitive for users, as they actually need to understand exactly the opposite - that the “eIDAS option” is an alternative to the national option.

*Linked to pain-points: P17, P23*

## **Looking ahead**

### **Promote the new possibilities offered by eIDAS, not just the Regulation itself**

One of our experience design principles is to always contextualise information provided to users, taking into account their level of understanding and their needs. Information must thus be proportionate to what the users actually needs to know and be provided at the most appropriate moment (not too early, not too late). As such, understanding what the eIDAS Regulation is is not the first need of users. Rather, Member States should strive to explain to citizens how their lives will benefit from the changes eIDAS brings. The emphasis needs to be on what citizens can now do under eIDAS, and how this is different from the previous situation.

For awareness raising, use a combination of campaigns at the national/local level and contextual education at the point of need (i.e. promote/explain eIDAS at the point a citizen attempts to access an online service). The key is ensuring all outgoing citizens from each Member State understand the eIDAS concept before they leave the country, thus ensuring they are completely ready to start using their national eID when they arrive at their destination country. Awareness raising on eIDAS could be linked to any pre-planned campaigns around the national eID scheme, or any communications related to significant moments of citizen-government interaction during the year (e.g. tax declaration period). Another approach could be to identify activities that will gain the most exposure to citizens planning to move overseas (i.e. tie awareness raising/communications to government services that help citizens prepare to leave a country, or arrive in a country).

*Relevant for: All MS models*

*Linked to principles: Contextualised*

## Ensure more detailed information on eIDAS is available to users, when they need it, across government websites

Users should be able to easily access more detailed information on eIDAS when they need it. A page or set of pages (perhaps in FAQ format) should be implemented across all relevant government websites. These should provide general information such as what eIDAS allows, Levels of Assurance, and which eIDs have been notified, as well as specific information for outgoing citizens (e.g. a departure checklist) and incoming citizens (e.g. eligibility criteria to access online services).

*Relevant for: All MS models*

*Linked to principles: Transparent*

## Design the “point of discovery” of eIDAS log-in with the needs of foreign users in mind

Online public services have traditionally been designed for citizens of that particular country. eIDAS will introduce in larger quantities foreign users, who may have very different needs and expectations. It is therefore important that Member States, together with public Service Providers, ensure that foreign users can easily “discover” the eIDAS option when seeking to log-in to a government website. We therefore recommend some specific actions:

- Ensure that the “eIDAS option” on the authentication gateway is not hidden behind the option for the local/national scheme
- In general, avoid using terms such as ‘eIDAS’ or ‘eID’ without appropriate explanation, especially at the point of discovery/education of the user
- In lieu of an officially approved logo to present the “eIDAS option”, use a descriptive textual cue (e.g. “sign in with a digital identity from another European country”).
- If use of a visual element cannot be avoided when presenting the “eIDAS option”, use the EU flag, but do not use the flag without complementary descriptive text. Do not use a new logo designed at the national level or any other EU-related logo (e.g. European Commission, EU trust mark) until there is official consensus and approval on a common solution at the EU level.
- Provide translation of content. By way of prioritising, identify the top 5 incoming nationalities to your country and at least provide support for these languages (in addition to English). Consider automated translation tools but be careful not to lose nuances of language related to specific terms.

Most importantly, we encourage Member States to test the “point of discovery” with actual EU/EEA citizens to determine

which nuances of interface design work best, and, once implemented, to continually monitor the effectiveness of the chosen design (e.g. through completion rates) to understand how it can be improved.

*Relevant for: All MS models*

*Linked to principles: Personalised, Usable, Accessible, Consistent, Transparent*

## Phase 3: Use

This relates to the act of a citizen authenticating themselves on a service provider’s website using an eID from another country.

### Assessment of current experience

#### The length and potentially disjointed nature of the authentication journey increases the risk of low completion rates

The cross-border authentication process is a relatively long process, involving several steps. It may also feel disjointed to the user due to different visual appearance at different stages (as a result of multiple owners). For the same reason, some interfaces along the journey may be mobile-optimised, while others may not be. All of these factors will reduce the likelihood of the user completing the authentication process. Additionally, if accessibility standards are not respected to the highest level possible, completion for users with impairments will be almost impossible, especially considering the complexity of the eIDAS eID concept.

*Linked to pain-points: P13, P29*

#### When logging-in under eIDAS, users may be presented with an unintuitive means of selecting the eID scheme they would like to use, and/or not enough information to make an informed choice

When selecting the eID scheme they would like to use to log-in, the user may be presented with incomplete information which makes it difficult for them to make an informed choice. Some examples of this, and how it may create problems for the user, include:

If the user is presented first with a list of countries for them to choose from, with no additional context, they may incorrectly assume they must select the country of their nationality, rather than the country which issued their eID

- The user may correctly identify the relevant country, but

if they are not provided with information on which eID schemes are supported for that country, they cannot make an informed decision

- At least at first, the eID schemes of many countries will not be notified and hence not available for use. If the user cannot find their scheme in the list of options, they may become confused or make false assumptions if the reason for this is not explained
- If the user is in possession of multiple schemes, and both are available as options for use, they may be confused as to which one they should use if there is no supporting information
- Since different services have different assurance level requirements, a particular service may not accept a user's eID even if the scheme has been notified and is generally available for use. This will be confusing without explanation

*Linked to pain-points: P11, P12, P14, P19, P20, P24, P25*

### **Attribute consent is unintuitive and time-consuming**

When the user is asked to provide consent to the sharing of attributes (personal data) during the authentication process, a distinction is generally made between mandatory and additional attributes. Mandatory attributes are shared by default, but the user is asked to also consent to the sharing of additional attributes. This may appear to the user as a choice, and it is, but what may not be clear is that without consenting to the sharing of this additional information, the user may be denied access to the service. This could present a significant frustration for the user. Additionally, the user may have to confirm the attributes to be shared at least twice during authentication (once to consent to the sharing of attributes, and once to confirm the actual information being sent). This is cumbersome and time consuming.

*Linked to pain-points: P6, P22*

### **User trust in the handling of personal data may be reduced by an inconsistent user journey and specific cultural biases**

The inconsistency in appearance of the user journey, as a result of different entities owning different segments, may reduce user certainty/trust in how their data is being handled and who exactly receives it. Additionally, depending on the culture of their country of origin, citizens may have varying levels of inherent trust in governments or businesses, and may be quite reluctant to share specific personal data.

*Linked to pain-points: P21, P26*

### **While users may be able to log-in to a service, they may not be eligible to use it**

While there is a legal requirement for online public services requiring a certain level of assurance to accept foreign notified eIDs, this does not mean that all foreign citizens will actually be eligible to use the service. This creates a situation where the user may technically be able to log-in, but won't actually be able to use the service. For example, a user may log-in using their own national eID, successfully completing the necessary steps for authentication, only to discover once logged-in that the service is inaccessible because they do not possess all the necessary documentation/data (e.g. citizen number, social security number). This will of course be both frustrating and confusing for the user.

*Linked to pain-points: P5*

### **Users may not be able to authenticate when overseas in the same way they could at home**

An example of this involves eID schemes that rely on two-factor authentication during the log-in process. If a citizen has moved to a new country, they may also have obtained a new phone number. If at this point they attempt to log-in to a service using their home eID, they may not be able to do so as the log-in process will be tied to their old number.

*Linked to pain-points: P27*

### **Users may face difficulties during cross-border identification due to a mismatch of citizen data between countries**

Cross-border identification poses some problems in practice due to the potential differences between the set of data used to identify the citizen in the notifying Member state which are sent in the authentication response, and the set of identification data under which the records of the person are stored in the relying party's information systems.

Some of the cases in which these differences may exist are the following:

- The user accesses the service with a notified eID for the first time, so the relying party does not know the unique identifier
- The unique identifier changes due to the fact that it is not persistent for the entire life of the person
- In cases when the notified eID allows for multiple eID choices, the user uses an eID means different from the one he used in previous interaction

- National legislation requires the user to provide a national Foreign Identification Number which is not included in the identification data coming from the eIDAS platform

These scenarios can clearly cause huge problems for the citizen, as they will either not be identified successfully, or will be treated as new user even if they have a record of previous transactions.

*Linked to pain-points: P28*

## Looking ahead

### When a user is logging-in to a service under eIDAS, ensure they are able to make an informed decision by presenting country and eID scheme options in an intuitive way

It is important to make clear to the user that the country flag does not equate to their nationality, but to the issuing country of their eID. This can be done through text, visually, or a combination of both. For example, show to the user both the country flags and the logos/brands of the eID schemes associated with each country, in order to maximise recognition.

Show to the user all country options (even if some countries have not yet notified a scheme), and all eID schemes associated with each country (even if not all of these have been notified). Grey out or otherwise distinguish the available options from the unavailable options. This will show to the user the full scope of eIDAS will not lead them to think that only some EU countries are involved. Clearly explain to the user why some countries and eID schemes are not currently available for selection.

*Relevant for: All MS models*

*Linked to principles: Usable, Transparent, User-controlled*

### Ensure all elements of the authentication journey are optimised for mobile

To ensure the authentication journey is as seamless as possible, ensure all interfaces are designed from a 'mobile-first' perspective. If there are Identity Providers from the private sector active in your country, incentivise them to ensure they meet the required design standards. In countries with federated identity schemes, implement a UX assessment process for newly joining Identity Providers which includes mobile optimisation as a requirement.

*Relevant for: All MS models (especially Governors and Federators)*

*Linked to principles: Mobile-first and omni-channel, Usable*

### Simplify and explain attribute consent to the greatest possible extent

Keep the number of attribute consent steps to an absolute minimum. Explain clearly to the user what the difference is between mandatory and additional attributes, and the implications of not sharing the requested additional attributes. To reduce the likelihood of the user not providing the required data, pre-select all additional attributes. Investigate the possibility of allowing the user to permanently approve specific Service Providers to use their attributes, so consent does not need to be given each time.

*Relevant for: All MS models*

*Linked to principles: Usable, User-controlled, Once-only*

### Be clear to the user about how their personal data will be used and who will have access to it

Include information (e.g. a small disclaimer/description) on what exactly the user's personal data will be used for.

*Relevant for: All MS models*

*Linked to principles: Transparent, User-controlled*

### Ensure foreign users understand any eligibility requirements before they log-in to a service, and provide clear directions to users who do not meet them

Before the user begins the log-in process, provide an eligibility checklist which clearly spells out requirements for use of the service (additional information required, LoA requirements, etc). This information could be provided either on the landing page dedicated to each service (if applicable), or on a separate page dedicated to providing information for foreigners on eIDAS. Provide clear options on next steps for users who are not eligible (e.g. what they need to do to become eligible, where they can go to find out more, and alternative means of accessing the service in the short term). For ineligible users who nevertheless log-in and attempt to access the service, provide a well designed 'waiting/help room' (i.e. a page they are directed to) that explains what is happening and why, and provides the same clear options for next steps.

*Relevant for: All MS models*

*Linked to principles: Usable, Transparent*

### Ensure close alignment between Member States with regard to best practice and design patterns for the authentication journey

With the entire authentication journey in mind (discovery, country selection, attribute consent, authentication, use of

the service), Member States should continue to work towards a common approach by maintaining a means of information exchange and collaboration. The user journey across Member States does not need to be identical, but by reusing certain approaches and design patterns that have been proven to work, we can ensure a similar quality of experience across Europe and promote universal recognition. Some examples of where this could be particularly beneficial are:

- Visual and/or textual cues to represent eIDAS-based eID: while the European Commission is currently exploring the possibility of a common visual identity/logo for eIDAS authentication, it is likely that this process will not be finalised before the legal deadline. This is why we recommend use of textual cues or the adoption of the EU flag - they provide a low effort alternative which will ensure consistency across Member States.
- References to eID/digital identity: this should also be aligned to an extent across countries, at least to ensure that users can always infer the same meaning.
- Design patterns for the presentation of country and eID scheme options
- Overall number of steps in the authentication process and use of a progress indicator for the user

*Relevant for: All MS models*

## Phase 4: Manage

This relates to the citizen's ongoing relationship with the relevant identity provider, including renewal of their eID, updating information or receiving support. The objective of the mutual recognition principle of eIDAS is to provide EU citizens with the possibility to use the same eID/s to access the public services of other European countries. Thus, citizens need to be able to manage their eID/s on an ongoing, long-term basis from wherever they may be.

### Assessment of current experience

#### Some eID renewal processes require physical presence in the country of issuance

Some eID schemes require regular renewal or re-validation. In some cases, this process requires the citizen to be physically present in the country of issuance. In other cases, the renewal process is automated, and linked to a residential address in the country of issuance. Renewal failure will immediately leave the citizen without an active eID solution until they can travel home. In a future situation where eID is the default option for accessing eGovernment services, this would present a significant problem to the citizen. It would also incentive citizens to obtain a local eID instead, creating unnecessary onboarding and operational costs for Member

States.

*Linked to pain-points: P31*

#### It may be more difficult to obtain technical support from abroad

Some Member States researched have an offline (e.g. help-line) option for seeking support if the user has an issue, and/or online options such as FAQs or email. These online options are however not necessarily comprehensive or rapid solutions, and so immediate assistance may only be accessible via phone. However for citizens seeking support from overseas, phoning a call centre may incur a cost which they are unable or unwilling to bear.

*Linked to pain-points: P32*

#### It may be impossible to change attributes from abroad

Different life events can give citizens the need to change attributes, such as last name in the case of marriage. Currently, some eID schemes require a full renewal of the eID to include these changes, and often (as mentioned previously) this cannot be done remotely.

*Linked to pain-points: P33*

### Looking ahead

#### When designing renewal and modification procedures, consider the situation of citizens living overseas

Regardless of the type of eID, certificates might need to be renewed, smartcards may have to be exchanged, etc, for a variety of reasons (e.g. expiry, damage or change of attributes). A citizen living in another country should have access to a procedure that will allow them to perform these activities successfully regardless of their physical location. Improvements made in this respect will also benefit citizens living locally who would nevertheless appreciate the possibility of avoiding face-to-face interaction. Of course, any modifications to the renewal procedure may impact the Level of Assurance of the notified eID schemes. This recommendations is therefore to be considered on the longer term.

*Relevant for: All MS models*

*Linked to principles: Usable*

## **Ensure there are always international options for technical support which provide users with rapid assistance**

At the national level, consolidate support options for each eID scheme of that country into a single hub (ideally the same hub previously proposed to house all eID and eIDAS related information). Along with FAQs and email, ensure there are international calling options available. To reduce the cost of call centres for both administrations and users, explore additional online options such as live chat or chat-bots. If the eID in question is supported by a third party Identity Provider, work with them to fulfill these suggestions.

*Relevant for: All MS models*

*Linked to principles: Usable, Two-way*



# Delivery of user experience

## Findings and recommendations

# 07

In this section we present a summary of key issues which could potentially affect the ability of Government to deliver best practice user experience applied to eID, as well as a summary of key recommendations. These findings were uncovered in conjunction with our findings on the UX of eIDAS eID. For the full list of issues identified, see Annex B, and for the full list of recommendations, see Annex D. Each issue below is linked to one or more of those collated in Annex B, and each recommendation is linked to one or more Member State models and delivery principles (as discussed previously).

### At the governmental level

Here we discuss issues identified that cut across Government departments and/or authorities within a country.

#### **Barriers to the delivery of user-centric online services**

##### **There is a lack of coordination between Government departments and/or entities in relation to user-centric design**

Very few Member States investigated have centralised to any extent the way in which user experience is managed and delivered across Government departments. There are generally no common principles defined for UX best practice, and no driving force pushing authorities to adopt a more user-centric mindset. As a result, it can often be the case that different public authorities act independently with regard to UX. The quality of the experience of public services across the country therefore reflects the maturity of the responsible authority, leading to a very inconsistent landscape.

*Linked to issues: 18, 19, 110*

## Effective communication and transparency between public entities can be challenging

There is commonly a lack of communication and transparency between public entities at all levels of Government, due to technological, political or organisational reasons. This makes it difficult for different public entities to collaborate or coordinate effectively with regard to user experience or the delivery of specific online services. For example, a lack of communication between central and local authorities can make it difficult for central authorities to have visibility on where good user experience practice is being conducted in their own country, which can then make it difficult for this to be showcased or formalised across Government.

Often, it is an issue of lack of trust or a sense of ownership over particular information that builds walls between departments or authorities. With regard to eID, these siloes can make it very difficult to create a one-stop-shop experience that cuts across Government departments (i.e. implementing a single point of authentication across public online services). Additionally, a lack of data sharing can lead to significant duplication of effort.

The issue of transparency is not just prevalent within Government - in countries where the private sector is involved in national identification, it can be difficult for the Government to access information owned by the particular private sector organisation/s (e.g. usage data).

*Linked to issues: 14, 17, 18, 110, 112, 114*

## There is a lack of understanding across Government on eIDAS

While not directly related to user experience, this issue is a significant barrier to the overall successful adoption of eIDAS eID by public services. Furthermore, the later that authorities understand and act on their obligations under eIDAS, the less time they will have to consider issues such as UX, and the more likely they are to de-prioritise it. This lack of understanding can manifest itself in different ways, from a complete lack of awareness in some local or regional entities, to misunderstanding or misinterpretation of the legislation. For example, a public administration may not understand that it still has an obligation to provide an authentication possibility under eIDAS despite the fact that its online services are not available to users not in possession of a national identifier.

*Linked to issues: 122*

## Looking ahead

### Construct a common approach to user-centric design through coordinated oversight at the national level

Designate an entity or a team that is tasked with the establishment of a common vision and approach to the design and delivery of online public services in the country. This entity will not necessarily be responsible itself for the design of all online services (though it may deliver some), but it should be responsible for creating, maintaining and promoting common elements for reuse nationally. These elements could range from basic accessibility rules to a full digital handbook featuring principles, design patterns, style guides, technical components, etc. Depending on the situation in your country, all or some of these common elements could be made mandatory for use across public entities, or a more flexible approach could be taken where they are optional but encouraged.

Some excellent examples already existing in the Member States include the Designers Italia<sup>9</sup> and Developers Italia<sup>10</sup> websites operated by the Agenzia per l'Italia Digitale and the Team per la Trasformazione Digitale, and the Service Manual<sup>11</sup> operated by Government Digital Service in the UK.

*Relevant for: All MS models*

*Linked to principles: D6, D7*

### Encourage closer collaboration between central and local authorities by using the correct incentives and enablers

Encourage the adoption of user-centric and collaborative practices across public authorities by setting targets for authorities to meet based on efficiency, employee and citizen satisfaction, and design capability. Reward those that meet these targets with recognition or funding. Of course this is dependent on the level of relevant centralisation in each country. To facilitate closer collaboration, online communities could be set up which are open to all government practitioners working on specific elements of service delivery (e.g. a community for designers, for front-end development, for performance monitoring, etc). Here practitioners can discuss and share insights, approaches and tools, which they can take back to their respective organisations. In addition, the adoption of compatible tools across Government authorities, where possible, will aid communication and the sharing of information. The use of open source code and standards will ensure easier integration of Government services where necessary. GitHub is a good example of a platform which can be used to promote collaboration between practitioners (in this case, developers) across public authorities.

<sup>9</sup>Designers Italia, Agenzia per l'Italia Digitale, <https://designers.italia.it/>

<sup>10</sup>Developers Italia, Agenzia per l'Italia Digitale, <https://developers.italia.it/>

<sup>11</sup>Service Manual, GDS, <https://www.gov.uk/service-manual>



Again, a good example of this is the GitHub based community on Developers Italia,<sup>12</sup> or the Communities of Practice<sup>13</sup> on GOV.UK.

*Relevant for: All MS models*

*Linked to principles: D7*

## **Raise awareness on eIDAS across all government authorities using a combination of targeted and general communication**

In some cases, the sheer number of public authorities that need to be made aware of their obligations under eIDAS can pose a significant challenge. In addition, certain parts of the eIDAS Regulation may be misinterpreted. We recommend the creation of a prominent website (or set of pages on an existing website) which explains eIDAS in detail to public service providers. This will be an effective way of providing a single hub of information to direct relevant parties to. Information should include the basics of what eIDAS is, what the obligations are for public services, what needs to be done, and who to contact for more information. This information could be presented via the same platform established to educate citizens, as discussed in the previous section. Webinars can also be an effective way to disseminate information to and answer questions from a large audience. With the website and webinars being used as the tools for mass communication, a combination of social media, email campaigns, national and regional 'ambassadors', and online communities can be used to funnel the target audience to them.

*Relevant for: All MS models*

## **At the service provider level**

Here we discuss issues identified which may exist within specific public entities.

### **Barriers to the delivery of user-centric online services**

#### **There may be limited awareness of the value of experience design, leading to lack of prioritisation**

UX is a young, complex and ever-evolving discipline. As such, a lack of general understanding and support within an organisation can be one of the greatest barriers to progress. This can permeate every level of the administration, leading to a lack of vision from the top and limited investment in experience design. This of course then affects the amount of effort placed on experience design practices during ser-

vice delivery and the resulting user-centricity of the service. There is often a cultural tendency within public administrations to meet the minimum requirements for compliance with legislation, but to not take the extra step to ensure that the best possible service is provided to the user.

*Linked to issues: I15, I18, I20*

## **Public entities often lack the right skills/profiles to deliver best practice UX**

Many teams responsible for service delivery across Government (especially smaller teams or those within local authorities) do not have enough people with relevant specialist knowledge and skills (e.g. user researchers, designers, product managers, etc) to deliver best practice UX. This reflects a lack of understanding of and investment in experience design from management.

*Linked to issues: I21*

## **The processes and ways of working required for effective experience design may not be understood or supported**

Public administrations are restricted by out-of-date processes and legacy systems, which are not compatible with the operational environment required in the digital world. Without embedded processes which promote flexibility, collaboration, constant change and experimentation, administrations are at risk of irrelevance - not able to keep pace with technological changes and shifting citizen expectations.

*Linked to issues: I5, I17*

## **Looking ahead**

### **Build necessary UX skills gradually, transitioning from out-sourced help to in-house competencies**

Assess your administration's need for an in-house team, or whether outsourced resources are more appropriate. An in-house team will evolve and adapt with the organisation, and will be much better connected with different parts of the organisation and more in tune with the culture. However, there will also be human resource and financial burdens associated with operating the team, especially at the outset. An outsourced team (i.e. an agency) will bring better results in the short term and a valuable external perspective, but perhaps less flexibility and higher long term costs. A two-pronged approach can thus be an effective solution for receiving the best of both worlds when it comes to building a UX team. Hiring an agency in the short term allows the administration to reap the benefits immediately of a group of experienced

<sup>12</sup>Developers Italia, Agenzia per l'Italia Digitale, <https://github.com/italia/>

<sup>13</sup>Communities of Practice, GDS, <https://www.gov.uk/service-manual/communities>

practitioners, while taking the necessary time to hire and properly establish an in-house team which should become more effective on the long term.

Define the profiles you require. A well-functioning UX team should have profiles including: UX Designer, Visual Designer, UI Designer, Information Architect, UX Researcher and Enterprise Architect. Especially at the early stages of the team, there may be quite a lot of overlap between these roles (i.e. the same person may perform multiple roles). There should be strong connections between this team and other functions within the administration, especially Product Management, Development and Marketing.

*Relevant for: All MS models (particularly Beginners and Governors)*

*Linked to principles: D3*

### **Integrate UX practitioners with other teams using a Hub-and-Spoke approach**

There are two basic models for integrating a UX team with other teams within an organisation. With the 'internal agency' model, a UX Manager intercepts and distributes incoming work across the UX team. The UX team produces the designs and then passes them on to the engineers/developers. The UX team thus works in relative isolation with little understanding across teams. The second model, and the one we would recommend, is the 'Hub-and-Spoke' model.<sup>14</sup> Here, the UX team is fully integrated with Product and Development teams, allowing for close collaboration and shared vision. This approach is much better suited for Agile development, which will be discussed later in this section.

*Relevant for: All MS models (particularly Beginners and Governors)*

*Linked to principles: D3*

### **Raise awareness and promote the value of UX within the administration**

Raise awareness across the administration on the value of UX, leveraging internal channels to provide examples of the team's work and the impact it is having. Find and use senior members of the administration who support the value of UX to help push this message. The UX team should be as transparent as possible about the work they are conducting. Explain to the rest of the administration the entire design process, from research to prototyping. For example, broadcast user testing sessions to members of other teams as a means of explaining the process and demonstrating value. UX bootcamps, workshops and participatory design sessions

open to the whole administration are worthwhile ways to raise awareness and understanding, from top management downwards.

*Relevant for: All MS models (particularly Beginners and Governors)*

### **Ensure user research and testing is embedded into delivery processes**

When designing or improving an online service, ensure the appropriate investment is made into uncovering genuine user needs before work begins. This will shape the high-level positioning, direction and design of the service, ensuring it will actually add value for users. This research can take many shapes, but could include user interviews, observation techniques or surveys.

Services should be tested regularly with real users at various stages of design fidelity, both pre and post launch. By testing designs as early as possible, major problems can be identified and fixed before significant time/investment goes into development. The most common way to test with users is through 'usability testing' - one-on-one sessions with real users where the way they interact with the service is assessed. This can be done in-house or outsourced through an agency.

Crowd-sourcing activities can also be effective ways to layer in citizen/user needs. For example, SIMPLEX+<sup>15</sup> is a collaborative and nationwide simplification program launched by the Portuguese government to co-create new online public services and optimise existing ones. Numerous tools were used to listen to and collect inputs from various societal groups (citizens, businesses, academia, etc), to map their priority services. This groundbreaking bottom-up diagnosis enabled the design of a national simplification program consisting of 255 innovative initiatives.

*Relevant for: All MS models (particularly Beginners and Governors)*

*Linked to principles: D1, D4, D5*

### **Explore Agile delivery methods**

If Agile practices are not present already within your administration, we recommend piloting this approach with a segment of employees and measuring the impact of this on delivery speed and quality. Agile is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organising, cross-functional teams. Scrum is one of the most popular Agile frame-

<sup>14</sup>'How to build an Agile UX team: The culture', Jeff Gothelf, 2011, <https://www.smashingmagazine.com/2011/10/how-to-build-an-agile-ux-team-culture/>

<sup>15</sup>SIMPLEX+, Agency of Administrative Modernisation, Portugal, <https://www.simplex.gov.pt>

works, designed for the management of software delivery. Teams break their work into 1-4 week cycles, called “sprints” and deliver workable software at the end of every sprint. Agile allows for more flexibility in software delivery and a faster delivery time. It is a good complement to the ‘hub-and-spoke’ model of team organisation as discussed previously, with designers, product managers and developers working together within a single Agile team.

*Relevant for: All MS models (particularly Beginners and Governors)*

*Linked to principles: D2*

### **Provide dedicated physical spaces for collaboration and experimentation**

Explore the establishment of a dedicated physical space for experimentation, collaboration and testing with regard to service delivery. The space can be used for collaborative working, but also as a space to showcase concepts and bring together representatives from government, business and civil society. LabX<sup>16</sup> in Portugal is a good example of how this has been implemented successfully.

*Relevant for: All MS models*

*Linked to principles: D2, D4, D5*

### **Continuously monitor and improve service delivery**

Ensure you have implemented a tool to monitor usage of your online services. In this way, you can identify potential problem areas (e.g. unexpected drop-off) to be explored further through qualitative methods. Set KPIs for your service which you constantly measure performance against. In the context of eIDAS eID, an effective use of analytics may be to monitor completion rates along the authentication journey. This can be measured against a target completion percentage. If completion rates are lower than expected, you can deduce where in the journey users are dropping off, create a hypothesis as to why, and test this hypothesis through usability testing.

*Relevant for: All MS models (particularly Beginners and Governors)*

*Linked to principles: D8*

<sup>16</sup>LabX (Laboratório de Experimentação da Administração Pública), Agency of Administrative Modernisation, Portugal, <https://labx.gov.pt/>

# Next steps for the Working Group on User Experience

## 08

The UX working group has existed up until now to support the definition of common recommendations to help the Member States collectively improve the experience of eIDAS eID. After the conclusion of this work, the UX working group should take forward these recommendations, further prioritise and implement them. The working group will need to shift from passive to active, with each Member State being responsible for implementation of the recommendations and coordination with other countries. The European Commission should remain in a facilitation role, and the eIDAS Cooperation Network should continue to be used as a formal channel of decision and discussion.

We see the immediate priorities of the UX working group as follows:

- 1 Review and validate recommendations**  
Agree on the recommendations provided, suggest improvements
- 2 Adjust group composition (as needed)**  
Change group membership/structure based on foreseen work
- 3 Collectively prioritise recommendations**  
What MUST be done accross all countries before the legal deadline ?
- 4 Define 24 month roadmap**  
What is the longer term implementation plan per country?
- 5 Coordinate with regard to implementation**  
Discuss design details and share progress
- 6 Test UX performance and showcase results**  
What is working with users and why ? Adapt designs accordingly

A [new section of the online working space](#) (restricted access) has been created specifically to support the Member States to collaborate with regard to user experience improvements. This section contains a set of useful tools for collaboration and guidance, which we have defined with the help of the members of the UX Working Group. The intention is that it will continue to evolve and grow over time through contributions from the Member States. Our hope is that this space will become an active hub of resources and discussion between Member States. The toolkit currently consists of:

### **Definition of key UX metrics for the cross-border authentication journey**

It is inevitable that Member States will make design choices that differ from each other. We have designed a basic measurement framework that will allow the Member States to assess the success of their design choices relative to each other. In this way, over time the Member States will be able to understand which design approach is working best with users and adjust accordingly.

### **Repository of notified eID schemes with key information**

This will give Member States more specific information on each notified eID scheme.

### **Translation matrix for national eID denominations**

One of the issues we uncovered during the work is that there is significant inconsistency across Europe in the way that 'digital identity' is referred to. This can be confusing for users who are used to digital identity being referred to in a specific way and who encounter something else. Member States should therefore take these differences into consideration in their designs. This is a repository of different terms for digital identity used across Europe.

### **Example wireframes/templates for key interfaces of the cross-border user journey**

For Member States that have not advanced far with interface designs for the authentication journey, this is a collection of examples inspired from work that has already been done in several countries.

### **Methodological kit for user research and digital service delivery**

A collection of resources for successfully conducting experience design activities.

## European Commission

Looking ahead: The user experience of eIDAS-based eID

2018 – 40 pages



