The European Digital Identity Wallet – the current state of play

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Executive summary

This report gives an overview of the current and expected development of the European Digital Identity Wallet in the coming years. The main body of the report analyses the development of the regulatory framework, the process for implementation and likely outcomes in the near and longer term. The appendix gives a country-by-country overview of the state of implementation in EU member states and associated European countries.

- eIDAS 2.0 is an EU regulation that introduces the **European Digital Identity** (EUDI)**Wallet**.
- The Wallet shall be **available** to all EU citizens **by 2026** at the latest, and the goal is to reach 80% adoption by 2030.
- eIDAS 2.0 stipulates that several players have to accept the wallet as an user authentication method: All public administrations of Member States, all private service platforms that need strong user authentication, and "Very large online platforms", which is defined as platforms reaching at least 45 million monthly active users, and need user authentication.
- It will store a wide range of digital documents, called **verifiable credentials**, which could for example include a digital ID and a digital driving licence.
- The Wallet will become a reality, but will **likely be delayed** past 2026.
- If implemented successfully, the wallet brings a **broad range of opportunities** to citizens, public administrations and private companies.
- However, **several challenges remain**, involving a tough **balancing act between privacy and usability.**
- Some have also raised concerns connected to **limitations in fraud protection,** as user interactions will not be trackable.
- Some countries have taken the lead and already launched their EUDI Wallets, while many countries have yet to announce their strategy.
- Looking ahead, **widespread use of EUDI Wallets is far away**, and companies looking for a digital identity platform will **have to find other solutions** while waiting for the protracted implementation of eIDAS 2.

Introduction

Purpose of the report

This report will provide a comprehensive overview of the European Union's regulation eIDAS 2.0[1], with focus on the European Digital Identity (EUDI) Wallet. As the regulation has seen mixed reception, businesses are unsure if the Wallet will become the ultimate identification and authentication solution for Europe, thereby rendering other efforts and systems unnecessary.

By analysing the legislation, development and current status of implementation, the report seeks to answer questions about the future of digital identities in Europe, and support businesses in their strategic decisions concerning digital customer identity.

Background and objectives of eIDAS and the European Digital Identity Framework

The European Union's Electronic Identification, Authentication and Trust Services (eIDAS) regulation, initially adopted in 2014, established a legal framework for electronic identification and trust services across the EU.

It was designed to enable secure and seamless cross-border electronic transactions within the Single Market, ensuring that citizens, companies, and public administrations could access online services and carry out electronic transactions with the same legal standing as traditional paper-based processes.

The regulation has been important in fostering trust in digital interactions, providing a standardised approach to electronic signatures, seals, timestamps, and other trust services across the EU. However, many of the initiatives in eIDAS fell short of their initial expectations, with limited follow-through in Member States.

Even six years after entering into force, several countries in the EU still lacked a notified national eID scheme and full cross border recognition of eIDs is far from a reality. To address this shortcoming, the EU has moved forward with an extensive overhaul of the eIDAS regulation, often referred to as “eIDAS 2.0”.

eIDAS 2.0 was launched as a part of the broader Digital Decade strategy, and a central part is the introduction of the European Digital Identity(EUDI) Wallet. The Digital Decade strategy contains the EU’s targets and objectives for 2030, including that all citizens should have access to a digital ID.

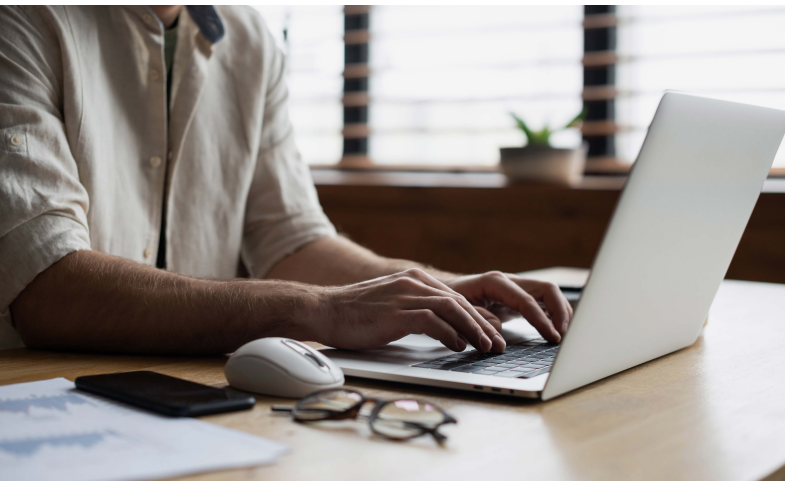
[1] The full name is *"Regulation (EU) 2024/1183 of the European Parliament and of the Council of 11 April 2024 amending Regulation (EU) No 910/2014 as regards establishing the European Digital Identity Framework"*.

eIDAS 2.0 is an effort to achieve this goal, with the addition of the EUDI Wallet within a larger European Digital Identity Framework.

The idea of the EUDI Wallet is to allow EU citizens, residents, and companies to securely store and manage their identity credentials, such as driving licences, diplomas, and bank account details, in a single, interoperable app.

The primary objective of this framework is to ensure that every EU citizen and resident has access to a universally recognized and trusted digital identity that can be used across borders, thereby reinforcing the Single Market and enabling secure and efficient digital interactions across the EU. The initiative reflects the EU's commitment to Digital Sovereignty* and seeks to empower individuals with greater control over their personal data.

Minimising the dependence of non-European companies, e.g. large American tech companies, is a key aspect of it.



*Digital Sovereignty is a concept proposed by the EU, which refers to Europe's ability to act independently in the digital world.

Method and scope

The scope of the report is to describe eIDAS 2.0, with the primary focus being on the EUDI Wallets throughout Europe. It will cover the state of implementation in all EU Member States, as well as some non-EU states like Norway, Liechtenstein and Iceland, which have implemented the original eIDAS regulation into local law, and intend to do so with the updated regulation as well.

The UK and Switzerland will also be discussed, although their alignment with eIDAS 2.0 is not yet determined. Through interviews with industry experts conducted in the summer of 2024, open source research, and with Truid's internal expertise, the report will give companies a better understanding of what eIDAS 2.0 says and what its implications will be.

This report was researched and compiled between June and September 2024. Data sources include desk research of public information, reports, webinars etc by public and private organizations, expert interviews and expertise built up within the Truid team. The purpose of the report is to give a comprehensive overview of the current state of play, as well as in-depth information on a country-by-country level. As it analyses a dynamic process where many questions of how developments will play out are still unanswered, some conclusions in the report might have to be adjusted as new information becomes available.

Overview of eIDAS 2.0

eIDAS 2.0 was signed and published in April 2024, entering into force 20 days later in May as per EU standard. The legislative text mandates the functionality, development, and implementation of the Wallet, as well as the new set of rules regarding trust services.

It stipulates that the European Commission shall by **November 21st, 2024** publish the implementing acts for the EUDI Wallet, which set the technical standards and procedures for the Wallet in order to ensure conformity throughout Europe. After the Implementing Acts are published, Member States have **24 months** to launch an EUDI Wallet and offer it to its citizens. The implementation process will be described further below.

What is new from eIDAS?

Drawing from the learnings of eIDAS 1.0, the updated regulation expands the Digital Identity Framework to include the European Digital Identity Wallet, enabling users to securely store and manage a variety of personal credentials.

While eIDAS 1.0 left it voluntary to notify a national eID scheme, eIDAS 2.0 makes it **mandatory** for states to offer its citizens at least one EUDI Wallet by 2026. It further defines a clear and uniform set of rules for providers of electronic attestations of attributes (EAAs), which allows actors all across Europe to verify the authenticity of digital documents.

eID – a digital solution for proof of identity of citizens or organisations, that are used for online authentication and login.

Digital Identity Wallet – a digital repository that can store an eID, but also various other digital documents such as licences and credentials.

eIDAS 2.0 introduces several key components and innovations that significantly enhance the original regulations:

A digital identity accessible for all Europeans

By mandating Member States to create a Wallet, all Europeans will have access to a digital identity with a high level of assurance. Being able to identify and authenticate oneself online conveniently might seem obvious to citizens of digital leaders such as the Scandinavian countries, but is currently not possible for a significant part of Europe's population. Many countries have functional eID schemes, but limited for use only by public organizations, and not available to the private sector.

As all public administrations and some regulated private companies will have to accept the EUDI Wallet as an authentication method, the European Commission believes that the launch of the Wallet will boost the Union's digitalisation and growth as a whole, for access to both private and public services.

Protection of user privacy is central

Through selective disclosure of data and zero-knowledge proofs, a user should be able to verify that one attribute is true without disclosing any further details. For instance, if a service requires age verification, the wallet can confirm the user's age without revealing their full date of birth or other unrelated details. This approach increases the user's control over their personal data and enhances privacy by limiting the exposure of sensitive information.

Introducing a standard for authentic digital documents

The user will have access to so-called Qualified Electronic Attestation of Attributes (QEAAs), that they can store in their wallet alongside their personal data. A QEAA is a digital document, whose validity can be proven inside the new trust framework.

Examples of such documents are driving licences, and educational and professional credentials. The source of the QEAAs will not know when or if the attribute is being presented; a user can apply for a new job with the proof of current employment, without the new workplace having to contact the current employer to ask.QEAAs will be issued by a Qualified Trust Service Provider (QTSP), that is audited by an Assessment Body of the Member State.

Less sensitive documents, such as a train ticket, can be issued as a regular Electronic Attestation of Attributes (EAA). These carry the same functionality, but are not handled by a QTSP and do not have the same validity as their qualified counterparts.

How has eIDAS 2.0 been received by the European community?

The implementation of eIDAS 2.0 presents both exciting opportunities and significant challenges as the European Union advances toward a more integrated digital identity framework. Given the varying levels of digital infrastructure, legal systems, and administrative capacities among countries, ensuring a harmonised rollout of the EUDI Wallet will require substantial coordination and cooperation.

There have, naturally, been many voices speaking both in favour and against the regulation as a whole, as well as the specifics. We go through some of the central ones below.

Opportunities to speed up digitalization of public and private organizations

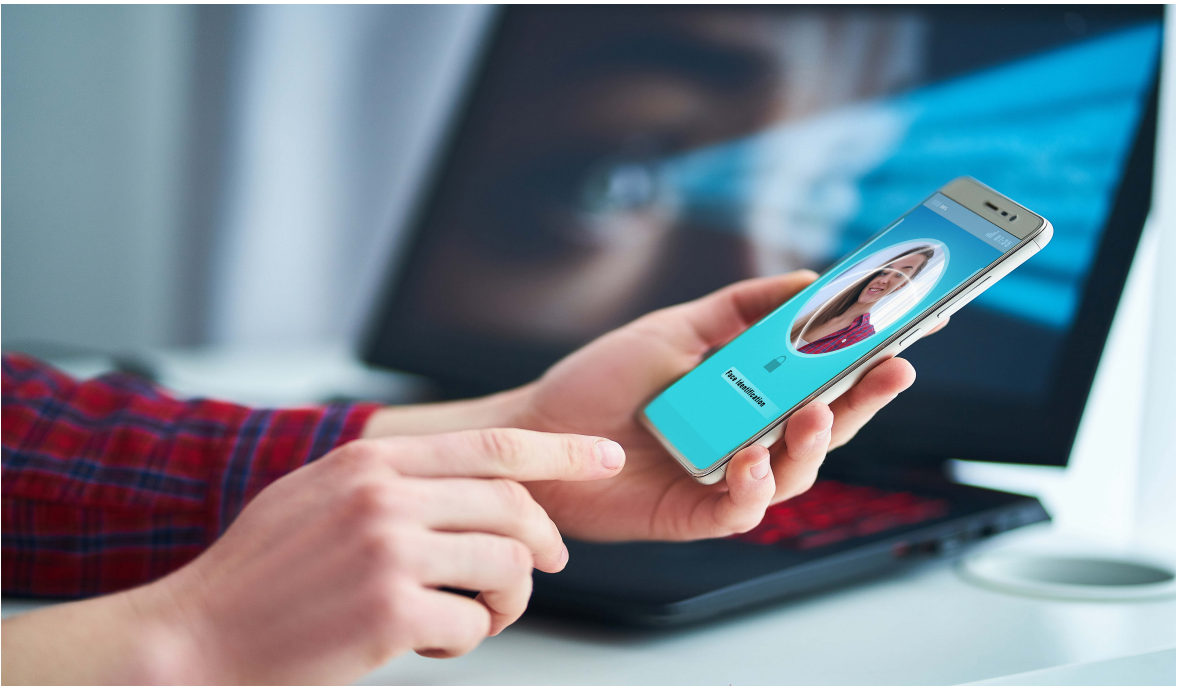
There are a broad range of opportunities throughout society, if eIDAS 2.0 manages to reach its high ambitions. The EU has a quite unique position globally, having the possibility to create common standards and interoperability for many people, which then could also be copied by other countries and regions. The effects on various stakeholders are discussed below.

Citizens will benefit from the EUDI Wallet by gaining easy and secure access to a wide range of public and private services across the EU. The Wallet is designed to protect personal data, allowing users to control what information they share and ensuring their privacy is maintained. Additionally, the Wallet supports anonymous identification, enabling individuals to verify their identity or meet specific requirements without revealing unnecessary personal details, thus enhancing both convenience and privacy.

Public organisations will benefit from the EUDI Wallet by significantly improving security in the delivery of their services, ensuring that citizens' identities are verified more reliably and securely. This enhanced security will also facilitate the broader uptake of digital services, making it easier and more appealing for citizens to engage with government processes online.

Private businesses will benefit from the EUDI Wallet by reducing the costs associated with authentication processes, as they can rely on a standardised and secure digital identity system. The wallet could simplify compliance with GDPR and cybersecurity regulations, helping companies meet legal requirements without investing heavily in their own solutions.

Additionally, the wallet provides a neutral public sector authentication solution, allowing companies to verify identities with confidence, knowing the system is backed by the EU and widely recognized across member states.



Lack of sustainable business models

Many innovators and thought leaders of the private sector have raised the concern regarding the lack of business models connected to the EUDI Wallet. The Wallet will be free for natural persons, and Wallet Providers will not be able to charge service providers for authentications, as the Wallet Providers should not know if or when a user presents a credential.

By removing the possibility for monetization, the EU has placed the financial burden on Member States, potentially straining national budgets and limiting commitment to the project. Instead of promoting a competitive digital identity market, the regulation may end up penalising companies that have already invested in advanced solutions, hindering the growth and innovation of the EU's digital economy.

One of the primary players voicing this opinion is the CEO of the Estonian digital identity company SK ID Solutions Kalev Pihl. He recently wrote on a blog post:

> *"And to the best of my knowledge EU should be an economic union - I simply do not get it. We dislike that companies in US make money, but absolutely deny any European companies to earn money outside public procurements and EU borders. We dislike China for its control over citizens and companies, but really leave no room for actual economy within Europe that is not EU Commission controlled."*

Too little focus on usability

Representatives of current leading digital identity solutions have claimed that the emphasis on "privacy at any cost" in the design of the EUDI Wallet, while crucial for data protection, risks making the wallet difficult to use and less attractive to service providers.

Firstly, there is a massive job to be done in harmonising the data in various credentials in order for the Wallet to be usable. For example, all universities in Europe will need to coordinate the format they issue diplomas in, for relying parties to be able to ask for the correct data.

Secondly, there is no clear answer to if or how a wallet could be restored in case of a loss of or change of device. As access to the Wallet is placed on the user's phone, a new Wallet will likely have to be issued if the phone is replaced, including issuing PID and credentials, which would mean additional work.

Thirdly, people with double citizenship will be forced to have different digital identities, due to the responsibility of the EUDI Wallet being at individual Member State level. Without a focus on user experience, the EUDI Wallet risks becoming a cumbersome tool rather than a convenient solution. Worst case, adoption would be driven by service providers who will be forced to adopt it through regulatory mandates rather than voluntary choice.

One industry leader that has voiced his concerns is the German software house Lissi's co-founder Adrian Doerk:

> *"The answer may be clear for certain types of credentials, such as driving licenses. ut what about things like proof of income? Not only can there be multiple potential issuers (such as an employer or bank), but proof of income is an abstract concept instead of a specific source the relying party can point to. If a degree is required for a job application, there are 427 universities in Germany - how do you find out if your degree is available as a [Verifiable Credential]?"*

Too little focus on fraud prevention

A further worry is that detecting fraud will be very difficult in the EUDI Wallet ecosystem. If a hacker gains access to someone's wallet through e.g. social engineering, they will be able to do massive damage as the EUDI Wallet has such broad functionality.

Modern fraud prevention uses a wide range of data points to identify patterns that deviate from the normal, and protects users from malicious parties. However, an EUDI Wallet Provider will not have access to the data needed to conduct such fraud detection. There will also be very limited possibilities for the victim to regain control over their digital identity.

As John Erik Setsaas, a digital identity expert, summarised:

> *"If this means that we can no longer collect data and profile for fraud prevention, we will have huge problems going forward, and the fraudsters will have a field day."*

Too little focus on privacy

Technical architects and Self-Sovereign Identity proponents are instead promoting the concept of "privacy at all cost". To truly protect user privacy in the EUDI Wallet, they claim, it is essential to prioritise principles like unlinkability and everlasting privacy, ensuring that individuals' actions cannot be tracked or uncovered, even far into the future.

These concepts reflect a commitment to safeguarding personal freedom in the digital age, where every interaction should remain private unless the user consciously chooses to share it. The framework must be designed to prevent any form of surveillance or data trails that could expose users to scrutiny or profiling, now or decades from now.

One of the main groups advocating this matter is the European Identity Group of the mobile ecosystem organisation GSMA. They wrote in an open letter:

> *"However, our concerns remain that the draft regulation still enables large-scale tracking of citizens based on government-issued identifiers. Our concern that unobservability (towards the Wallet provider) and unlinkability are not sufficiently assured has not been addressed: this means the technical implementation will decide on core privacy safeguards and that relying parties will choose the Member State with the weakest protection. The current reference architecture does not use the state-of-the-art technologies such as anonymous credentials that have been developed more than 20 years ago."*

Conflicting feedback - can it be resolved?

A key aspect of the challenges facing the EUDI Wallet is that they work against each other. Improved usability and fraud protection leads to less privacy and vice versa. The various perspectives will need to be balanced against each other, and there is a risk that all sides end up being disappointed with the end result.

The implementation of eIDAS 2.0 and the EUDI Wallet presents a daunting task as Europe progresses towards a unified digital identity framework. Most would agree that the very tenets of the regulation, if successfully developed, would bring great value for society as a whole, but the current challenges require tough decisions in order to be solved.

The European Digital Identity Wallet Explained

The EUDI Wallet is essentially a digital safekeeping system for personal information. It comes as an application installed on your phone that serves as a centralised hub for your digital identity. In the application, you will find your digital ID and a collection of digital documents. These documents can range from educational certificates and driving licences to employment records, collectively referred to as Verifiable Credentials or Electronic Attestations of Attributes (EAA).

Crucial aspects of the EUDI Wallet are the ability to verify the authenticity of these documents without compromising user privacy, and the possibility of selective disclosure. These functions set the Wallet apart from existing national eID solutions, and how the EU justifies its creation.

To ensure seamless functionality across the European Union, the EUDI Wallet is designed for cross-border interoperability. This means that your digital identity and stored documents should be recognized and accepted regardless of which EU country you're in. However, questions of the documents' compatibility across countries and organisations, as mentioned above, remain unanswered. Functionality of the Wallet will be expanded, and might in the future encompass digital payments and digital travel credentials.

Figure 1. Functions of the EUDI Wallet

How will users get a Wallet?

To get an EUDI Wallet, the user requests one from a Wallet Provider. A Wallet Provider is a public or private entity that is licensed to issue EUDI Wallets instances. A Wallet Instance is the specific Wallet that is bound to the user, and that the user controls. The user then verifies their identity with a Personal Identifier (PID) Provider, who is responsible for issuing the Personal Identifier to the Wallet Instance.

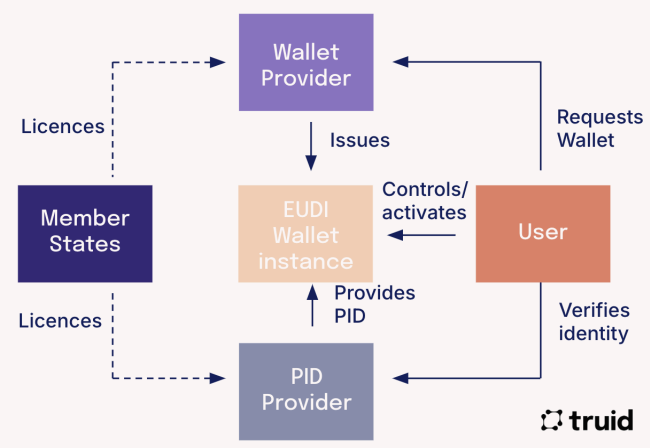


Figure 2. Flow of onboarding a user

It could be e.g. the body responsible for issuing ID documents in the Member State, or a PID Provider licensed by the government. Once the PID is provided to the Wallet instance, the Wallet instance is tied to the specific user and ready to use.

How can the Wallet be used?

There are several steps for a user to present a credential to a Relying Party, which is for whom the documents are shown. The Relying Party could for example be a service provider that needs to see a document from the user in order to offer a service to the user.

The user requests the digital document, or the Qualified Attributes Electronic (QEAA), from Attestation a of Qualified

Attestation Provider, which is a Qualified Trust Service Provider (QTSP) that is licensed to issue verified digital documents. The QEAA is issued to the Wallet instance, from which the user presents it to the Relying Party. The trust is established through the Trust Framework, where all parties are registered in so-called Trusted Lists.

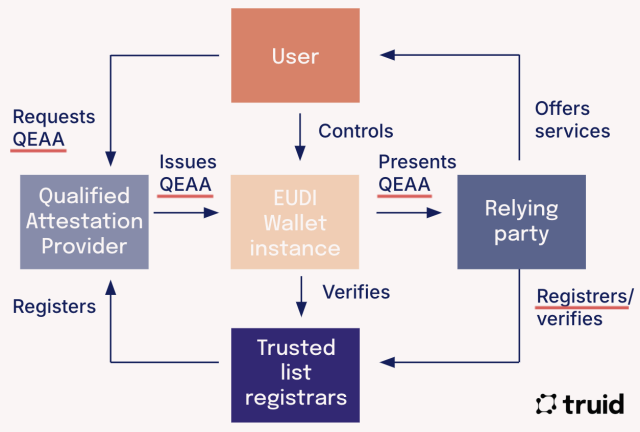


Figure 3. Flow of presenting a credential

The Trust Framework – the glue of the Wallet system

The Trust Framework is what allows the various players to trust each other, and brings "truth" into the online space. This will alter slightly from country to country, but the general architecture is shown above. The very foundation of the Framework is the common trust infrastructure, where there are Trusted Lists of all actors. These are upheld by parties selected by the Member States, so-called registrars. During an authentication, the various parties are able to cross-check each other to verify that it is taking place within the trusted framework.

Technical standards for the Wallet

The foundation of the framework is built on the "W3C Verifiable Credentials Data Model", that defines the various actors in a digital trust framework. It was proposed by the World Wide Web Consortium (W3C) –an organisation promoting various standards for the internet.

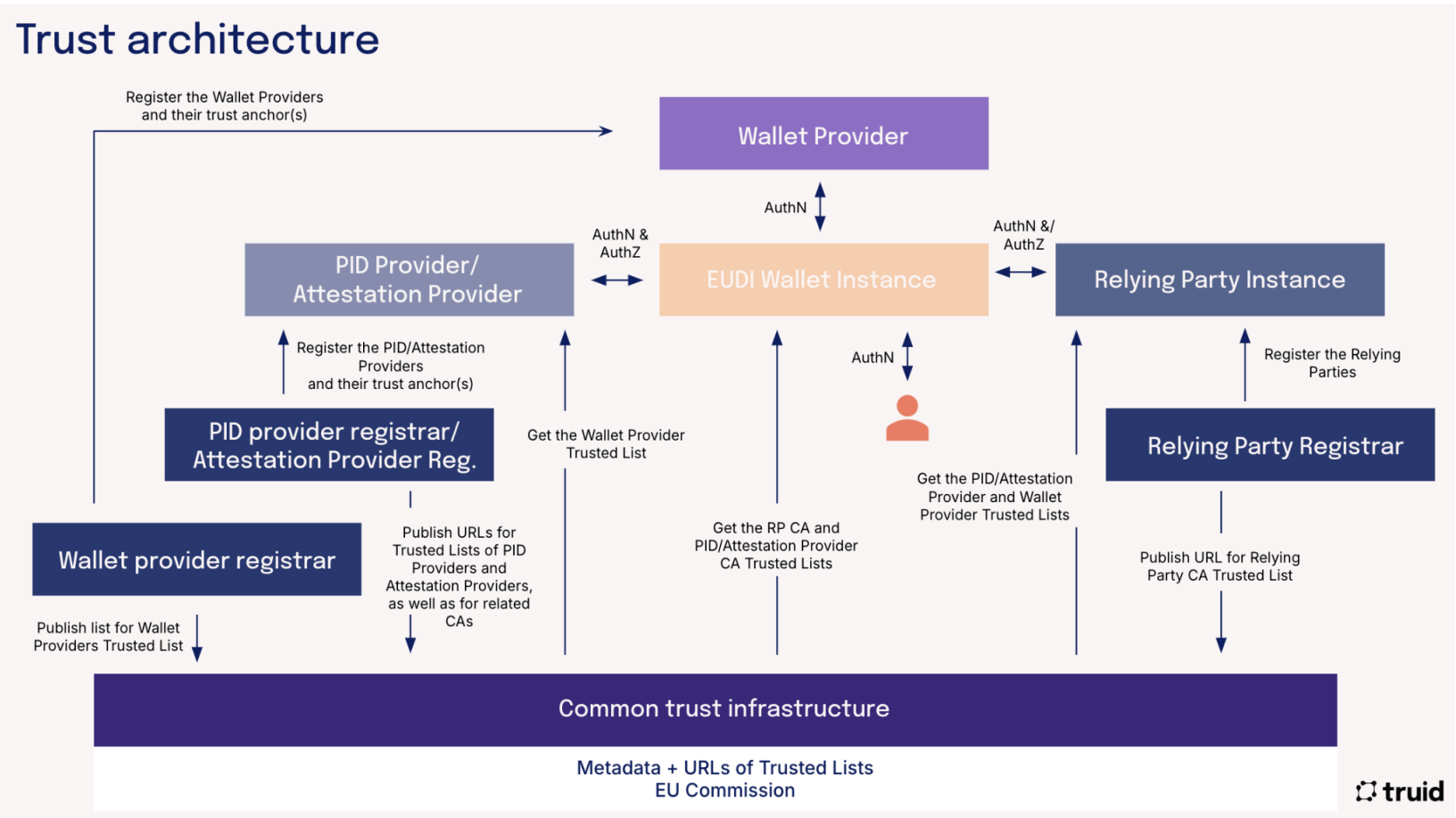


Figure 2. Flow of onboarding a user

For accessing online services, the proposed protocol is OpenID for Verifiable Presentations. It resembles the widely used Open ID Connect protocol, which is widely used for various Single sign-on (SSO) solutions such as login with e.g. Google or Facebook, but is specified for the use of verified credentials.

The proposed protocols for attestations are ISO/IEC 18013-5 and "SD-JWT-based Verifiable Credentials". ISO/IEC 18013-5 protocol is developed for mobile driving licences (mDL),and uses proximity factors such as NFC or Bluetooth. "SD-JWT-based Verifiable Credentials" are developed for selective disclosure of data, which allows a user to present only select information from an issued attestation.

There has been a discussion regarding the interoperability between these protocols, and whether they understand the same data. This issue will have to be resolved. One possible solution is that the user issues different credentials: one for each protocol that is needed. The chosen protocols are also modern and up to date with what the major private solutions use, showcasing the commitment to implement up-to-date technologies.

Security and privacy features

The security of the EUDI Wallet builds upon the Member States' control of PID Providers and the storage of a private key within the Wallet. By the Member State-control of PID Providers, relying parties can trust the identity of the user. Meanwhile, the private key stored in the Wallet can prove the authenticity of the Wallet instance. The Trusted List Registrars ensure that all players in the ecosystems are able to verify and trust each other.

The main privacy features of the EUDI Wallet is selective disclosure of data and the untraceability of Wallet interactions. Selective disclosure allows the user to share only specific information that is needed, while the untraceability of the Wallet makes people untrackable in the digital world.

The implementation of the Wallet

The amended regulation describes the high level functionality and the general principles for the EUDI Wallet, but the technical requirements are still under development. A structured collaboration between Member States, the European Commission, and relevant private sector operators was established to develop a Toolbox, with the eIDAS Expert Group and the Large Scale Pilots as vital input.

This Toolbox includes a **Technical Architecture and Reference Framework (ARF)**, with common standards, technical specifications, and guidelines, and a reference implementation of the Wallet. The ARF is not a legally binding document, but will be the foundation for the **implementing acts**, which will be the legal requirements on Member States' implementation. When the implementing acts are published, Member States and private companies will be able to develop applications that can rightfully be claimed to be EUDI Wallets.

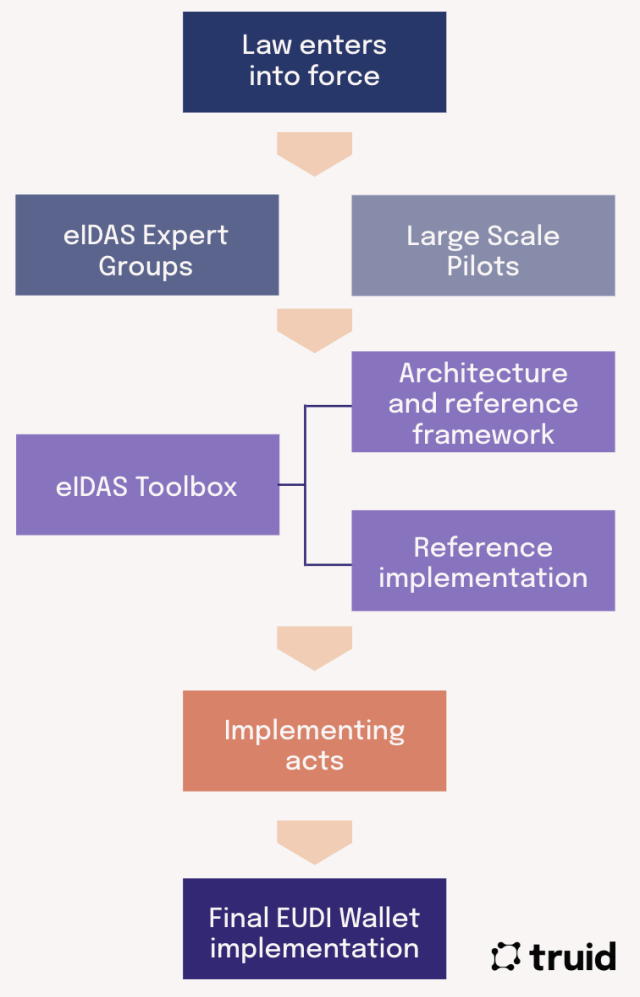


Figure 5. Overview of the EUDIW implementation process

When will the EUDI Wallet be available?

The work towards eIDAS 2.0 started in 2021, when the European Commission proposed a revision to the original 2014 regulation. As the initial timeline already has been postponed, many question whether the current deadline for full launch will hold. The implementing acts are to be published by November 21, 2024, which starts the 24-month countdown for Member States to make an EUDI Wallet available for all citizens.

Due to the tight time-frame of the implementing acts' publication, some experts doubt their completeness at launch. There will likely need to be further interpretation and work even after the deadline. Some have further speculated that the implemented acts will be postponed and not published until the spring of 2025.

Therefore, the final date for the provision of the EUDI Wallet will be delayed to the spring of 2027 at the earliest. The EU has boldly predicted that 80% of its citizens will be using the EUDI Wallet by 2030, but there is a considerable risk that reality will fall short of this prediction.

Who will develop the wallet?

Once the implementing acts are published, the Member states will have the Toolbox available as guidance for the development. There are three options for Member States to develop a wallet, either:

1. By the government
2. On behalf of the government through a public tender
3. By private companies licenced by the government

All three options will be seen throughout Europe, and it is possible to use a combination of them. One key consideration is that the licensing of a wallet only is valid in one country. For example, a wallet licensed in Sweden will not automatically be approved for use in Finland, even if both countries allow for licensing of private wallet providers.

The requirements for wallets will probably differ from country to country as well, making the scene quite unruly for private wallet providers who aim to deploy international solutions under the eIDAS 2.0 framework.

Figure 6. Timeline of the implementation

Large Scale Pilots (LSPs) – Deep dive

There are currently four Large Scale Pilots running, set up to test various use cases and implementations for the EUDI Wallet. Their findings will contribute to the ARF, and lay the groundwork for the individual Member States' wallets. Originally, the thought was that the technical groundwork would be ready before the LSPs launched. However, due to delays the LSPs had to spend more time than expected on doing the groundwork, instead of working towards their specific use cases.

Digital Credentials for Europe: This pilot focuses on integrating educational and social security credentials into the EUDI Wallet, enabling users to access digital versions of their educational qualifications and social security documents like the European Health Insurance Card (EHIC). With participation from 22 EU Member States, as well as Norway, Ukraine, and Switzerland, key players work together to achieve its goals. Sweden is represented by the Social Insurance Agency(Försäkringskassan) and eID provider BankID.

POTENTIAL for European Digital Identity: Centred on enhancing online procedures, this pilot explores use cases including e-government services, bank account opening, SIM card registration, mobile driving licences, Qualified Electronic Signatures (QES), and ePrescriptions. Involving 19 Member States and Ukraine, notable participants like Idemia, itsme, Thales, BNP Paribas, and GRNET contribute their expertise to streamline digital identity processes.

EU Digital Identity Wallet Consortium: Aiming to investigate travel-related functionalities, this pilot tests digital travel credentials, cross-border payments, and organisational digital identities. It boasts participation from all 27 EU Member States, along with Norway, Ukraine, the UK, and Switzerland. Significant contributors such as the Swedish Company Registration Office (Bolagsverket), Lcubed, Signicat, BankID, and Yubico drive the initiative forward.

NOBID Consortium: Focused on payment solutions within the EUDI Wallet framework, this pilot addresses both domestic and cross-border transactions. Countries like Norway, Denmark, Iceland, Latvia, Germany, and Italy participate, with industry leaders such as Signicat, SEB, Nets, DNB, and Norwegian BankID spearheading efforts to enhance digital payment processes.

How is it going? The current state of play across EU Member States

Implementation status of eIDAS 2.0

The progress among Member States is varied, as four have already released a first version of their EUDI Wallets while others have yet to announce their implementation strategy. Four countries, Belgium, Poland, Austria and Italy, have released their wallet applications already.

These still have limited functionality and are not yet fully fledged EUDI Wallets, but are confirmed to turn into EUDI Wallets over the next two years and could act as inspiration for other implementations around Europe.

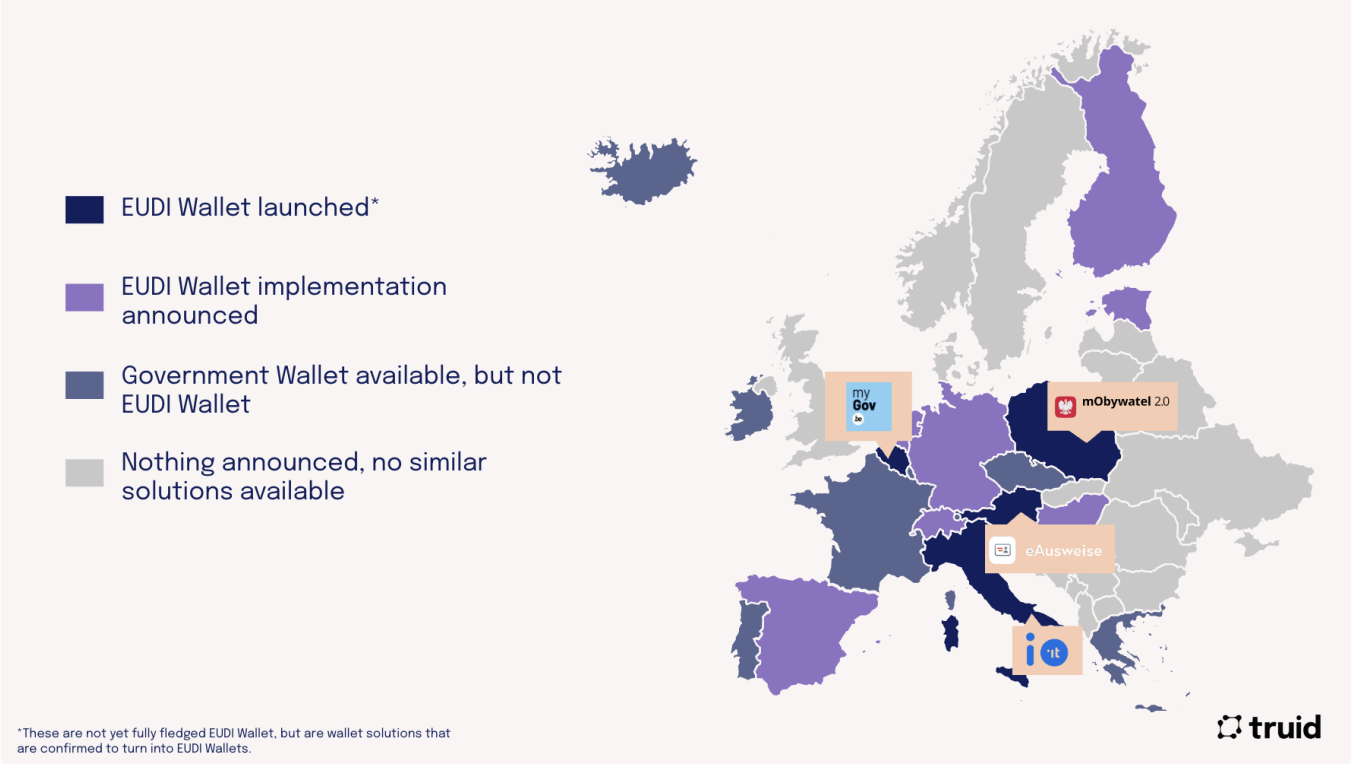


Figure 7. EUDI Wallet progress in Europe

Available Wallets as of now

	Name	Country	
	myGov.be	Belgium	• Launched May 2024 • Currently holds official documents and allows access to public services • mDL is coming 2025, EHIC is coming in 2026 • Tech from Cryptomathic is deployed
	mObywatel 2.0	Poland	• Currently supports digital ID card, and mDL • Already >18 million downloads
	eAusweise	Austria	• Launched in 2022 • Currently supports digital ID, mDL and more • Developed by private player Youniqx
	IO App	Italy	• Currently interface for all government interaction • Digital ID will be incorporated in 2025 • Installed on >37 million devices

Who are implementing the Wallets?

Around half of the eIDAS 2.0 participants have launched government initiatives, of which a majority focuses on a government developed wallet. The divide between public tender and a state developed wallet is not always clear though, as governments use private companies to a various extent in the development.

Currently, more countries than not seek to allow private wallet providers through licensing, although none of those countries have announced the specifics of their scheme yet. Overall, there seems to be a positive attitude towards including the private sector in the development of the EUDI Wallet, and many private companies have been involved in the LSPs and the development of the ARF.

The two countries that have said not to allow private wallet providers are Belgium and Switzerland. The Belgian government has previously expressed discontent with the country relying so heavily on its private digital identity solution Itsme.

Meanwhile in Switzerland, the citizens voted down a government bill proposing to introduce a digital identity scheme that incorporated private identity providers in 2021, leading to a focus on government solutions this time around.

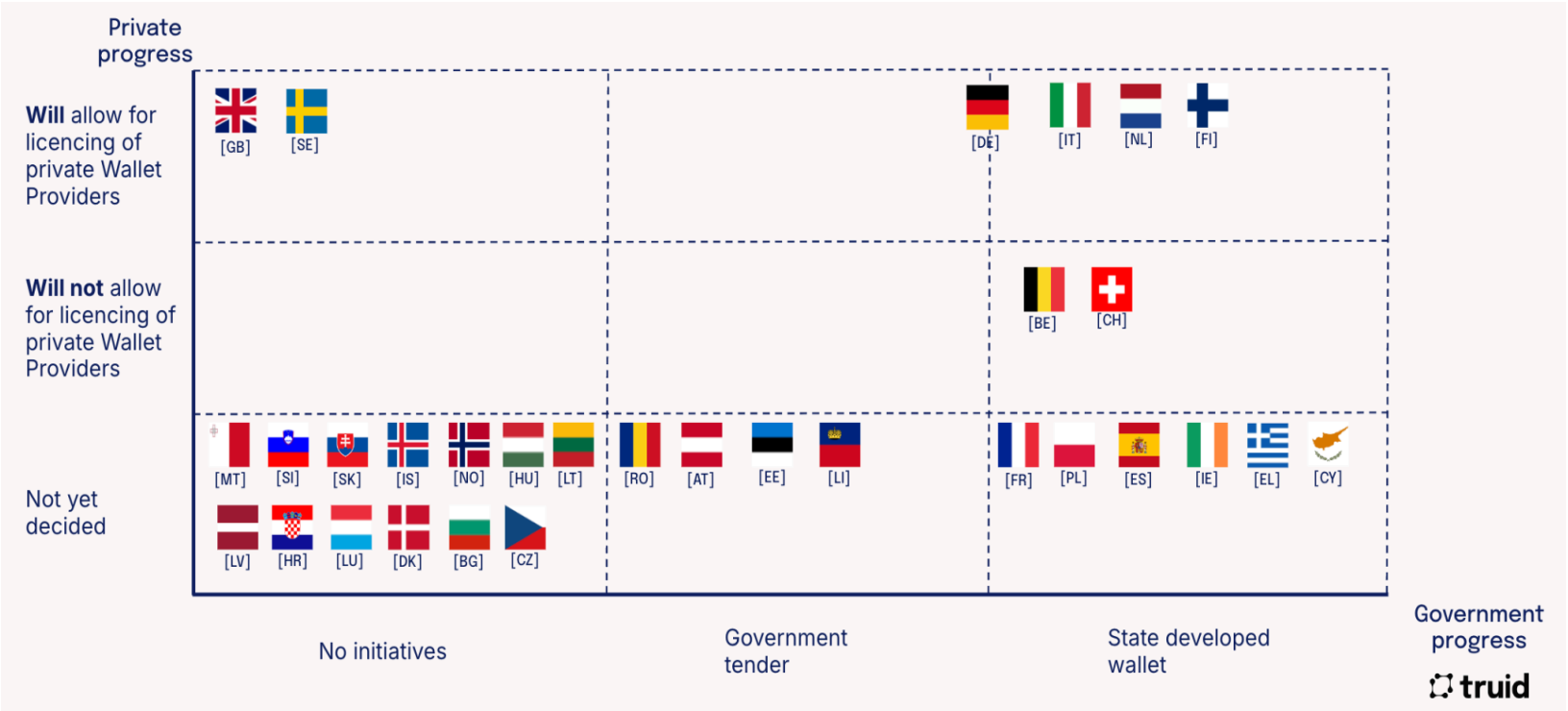


Figure 8. Announced implementation method

Challenges faced by the Member States in implementation

Although every country is unique and has their own conditions for eIDAS 2.0 implementation, there are broader challenges that are evident across Europe. The three major problems are discussed below:

Tough privacy laws

Countries such as Germany and the UK have tough privacy laws, with the former lacking national identification numbers and the latter lacking a national ID card scheme. These face questions connected to the unique identifiers in the EUDI Wallets, and additionally have populations that generally show less trust to the government. Convincing the citizens that the EUDI Wallet adheres to the highest privacy standards and offers greater value than current solutions is paramount for the success of eIDAS 2.0 in these countries.

Slow digitalisation and low eID adoption rates

Several Member States in Europe struggle with low digitalisation and slow adaptation of eIDs, including Romania, Bulgaria, and Greece. These countries have expressed their intent to use eIDAS 2.0 and the EUDI Wallet as a way to leapfrog digital development, and to get up to speed with the rest of Europe. Still, there is currently a major gap to the digital frontrunners, and the countries do not only need to find the competence to develop well functioning solutions but also educate and convince the population to use them.

Competition with highly adopted existing eIDs

On the contrary, there are countries with very successful eID schemes that have almost 100% adoption and that see high usage, such as Scandinavia and Benelux. These countries are highly digitalised, and the challenge here will instead be to convince the population that there is a superior value in the EUDI Wallet, in order to get people to switch from the well-functioning solutions already in place.

Analysis - will the EUDI Wallet come into place and when?

eIDAS 2.0 has been passed as an EU regulation, meaning it will become law and the EUDI Wallet will be available and used, but **in what timeframe and to what extent remains unknown**. Regarding the timeframe of the implementation, many experts believe that the deadlines for both the Implementing Acts and the EUDI Wallet itself are overly optimistic.

As already mentioned, it is not unlikely that the publishing of the Implementing Acts will be delayed until the spring of 2025. From there, there will be at least 24 months until Member States have to offer an EUDI Wallet. However, there will be EUDI Wallets available earlier than that. The four member states that have launched their solutions all aim at reaching full functionality and compatibility in 2025.

After the launch of the wallets, a key factor driving adoption is the number of use cases supported. eIDAS 2.0 stipulates that several players have to accept the wallet as an user authentication method:

- All public administrations of Member States
- All private service platforms that need strong user authentication, such as banking, financial services and telecommunications
- "Very large online platforms", which is defined as platforms reaching at least 45 million monthly active users, that need user authentication

These players will still be mandated to support other authentication methods though, as it should remain fully voluntary for a user to get an EUDI Wallet. The uptake of the EUDI Wallet will undoubtedly be boosted by forcing both private and public service providers to accept it as an authentication method.

However, the private market generally dislikes being forced, and one might wonder if the focus should have been on creating an attractive solution instead of pushing adoption through legislation. The EU's goal of reaching 80% adoption by 2030 is seen by many experts as unlikely given identified challenges.

Which countries will be first?

Countries with existing robust digital identity infrastructures are likely to lead the way in EUDI Wallet implementation. Nations like the Netherlands, Belgium, and Poland, which have a digitally savvy population and already established mature eID systems and, are well-positioned to adopt the EUDI Wallet relatively quickly, as evident in the graph below.

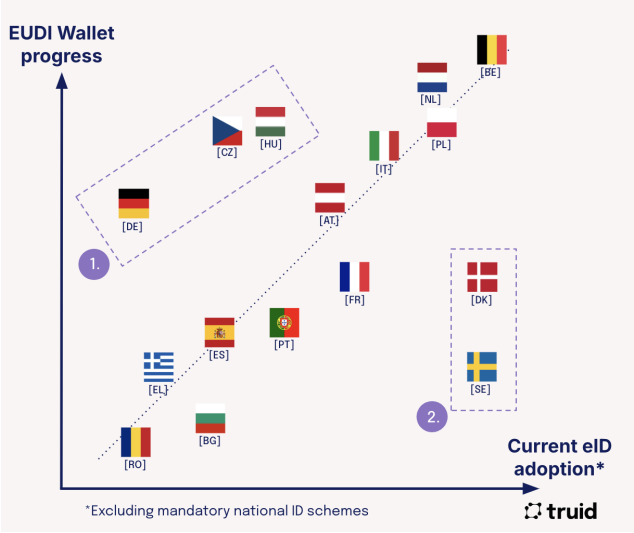


Figure 9. Wallet progress over eID adoption

However, there are two clusters of outliers. Cluster 1 consists of countries with an outspoken ambition to use the EUDI Wallet to accelerate national digitalisation. They are trying to position themselves as the next generation of digital leaders. Cluster 2 are instead Scandinavian countries with very high current eID adoption. They have been active in the expert groups and Large Scale Pilots, but have yet to communicate their national efforts.

These might continue to rely on existing solutions, even after the EUDI Wallet goes live. Public acceptance and a well-executed communication strategy will be crucial factors in determining the early adopters. Countries that can effectively address citizen concerns about privacy, security, and the need for yet another digital tool will have a greater chance of successful implementation.

Furthermore, a phased approach with a focus on core functionalities can accelerate adoption. By initially offering a simplified version of the wallet, countries can gather valuable user feedback, build trust, and lay the groundwork for more complex features.

Ultimately, the race to become an early adopter of the EUDI Wallet will be influenced by a combination of technical readiness, public acceptance, and strategic implementation.

Will the EUDI Wallet solve the identity challenges of companies?

The final question is whether the EUDI Wallet will solve all the problems connected to identification and authentication of users for private businesses. Even though it seems like a compelling solution at first glance, there are several issues under the surface that remain unaddressed by the EU.

Insufficient fraud protection for many private use cases

Firstly, there is no clear compatibility for the EUDI Wallet with neither the EU's upcoming Anti Money Laundering (AML) Regulation, EU 2024/1620, nor current Know Your Customer (KYC) efforts. While many claim that EUDI Wallet will solve KYC/AML once and for all, its lack of fraud protection and focus on privacy seriously challenges this objective.

It is difficult to imagine that providers of sensitive services such as financial institutions will accept an authentication method that is unable to utilise efficient anti-fraud measures.

Even though the technology is built to be secure, it has failed to address the most common weakness in computer systems: humans. While the Wallet in itself is reliable, it is harder to be sure that the one accessing the Wallet is actually the holder of it, or that the relying party asking for authentication is the right party. Social engineering attacks will be especially difficult to manage given the current design of the EUDI Wallet system.

Risk of low adoption of public wallets

Secondly, there is a possibility that the solutions offered will be lacking and have weak adoption. As the regulation has practically made it impossible for private Wallet Providers to generate revenue from the wallet, citizens will have to adhere to government-provided options, or wallets that large private businesses offer as a value-added service to drive usage of other services.

These could turn out to be great options, but historically government solutions have often underperformed their private counterparts in user experience. It is evident that while governments are able to provide solid solutions to their citizens, the private sector is on average better at developing solutions that users like.

The mandatory acceptance of the EUDI Wallet at select service providers will boost the uptake of the wallet, but there is still a low probability that the goal of 80% adoption across the EU by 2030 will be achieved. The solution will face competition from national solutions that will coexist, and a rising worry for fraud will likely slow the progress. Even though both Switzerland and the UK have indicated an intent to connect to the ecosystem, it is unlikely that eIDAS 2.0 will make a mark outside its current adopters, and international companies will still have to rely on other solutions in addition to the EUDI Wallet.

One possible scenario for the EUDI Wallet is that it becomes an onboarding tool for other wallets and identity services with greater functionality.

As users own their data and EUDI Wallets, they are able to use it for what they want. By putting another wallet on top of the EUDI one, the user could potentially gain the benefits and access of the latter, while seeing broader usability and allowing for functions such as state-of-the-art fraud prevention.

While full user control is appreciated in general, many regular users could accept federation to a certain level, to get a smoother experience in return. The primary focus of the EUDI – full user control – could lead to more limited daily use, and it becoming a transfer point for other services.

Type	Google Play rating
Private solutions	4.4
Government solutions	2.8

Google Play store rating for digital identity solution apps, with > 1 million downloads

Glossary

ARF – Architecture and Reference Framework that lays the technical foundation for eIDAS 2.0 and the EUDI Wallet.

LoA – Level of Assurance is the regulated levels of how secure an authentication method is. eIDAS has three levels: “low”, “substantial”, and “high”

LSP – Large Scale Pilots are large projects funded by the EU to test various use cases of the EUDI Wallet.

mDL – Mobile Driving Licence

PID – Personal Identifier, which is personal data that identifies a person, including e.g. name and national identification number.

QEAA – Qualified Electronic Attestations of Attributes are digital documents that are issued by a Qualified Truest Service Providers and hold the same legal validity as physical documents.

QTSP – Qualified Trust Service Provider, a company licensed to provide Qualified Trust Services, including Qualified Electronic Signatures and Qualified Electronic Attestations of Attributes.

Relying Party – An entity that relies on electronic signatures or other trust services for its operations.

Service Provider – Someone who provides services. Could either be public or private organisations.

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Interviews and Personal Communications

Sebastian Elfors, Senior Architect, FIDO Alliance, Linux Foundation, W3C, ETSI, IDNow.

Stefan Liström, Project Manager, SUNET.

Appendix A: Overview by country

Austria

Overview

Austria rates above average in the EU regarding digitalisation, but still lagging in terms of eID adaptation compared to the Nordics and Benelux. The country recently remade their digital ID system with the launch of ID Austria, and continues to improve on their digital wallet solution eAusweis. Austria is well positioned and works proactively towards the full implementation of eIDAS 2.0.

Current Digital Identity Landscape

The Austrian government provides the ID Austria solution, which is connected to the eIDAS node. Its use cases are focused on login to public administration and electronic signatures. The solution has been struggling to gain traction among private service providers. Authentication is done either through an app called Digitales Amt, with a FIDO security key, or with a signature card. It claims a 34% adoption rate.

eIDAS 2.0 Implementation Outlook and Method

The method of implementation in Austria is yet unclear. The eAusweise application was launched in 2022, and achieved full ID validity in Austria in June 2024. The developers of the solution claim that the application is developed according to eIDAS 2.0 standards, and that it will merge into a EUDI Wallet.

Challenges:

- Currently lagging within eIDs compared to leading countries, which might slow EUDI Wallet adoption rate.
- No information announced regarding the implementation method published.

EUDI Wallet Initiatives

Government Initiatives:

- **eAusweise:** Government digital wallet launched in 2022, which currently supports mobile driving licence (mDL), digital registration certificate, digital proof of identity and digital proof of age. Developed by the private company Youniqx on behalf of the government. Youniqx claims that the wallet is ready for further integration within the eIDAS 2.0 standards. It will likely turn into the government supplied EUDI Wallet.

Private Initiatives:

No private initiatives announced.

Belgium

Overview

Belgium has currently one dominating eID solution, itsme, which has widespread adoption. The government recently (May 2024) launched a digital identity wallet MyGov.be, into which the Belgian Digital Identity (i.e. EUDI Wallet) will be integrated. There is already several use cases for the wallet, which will continue to be developed in preparation for the full implementation of eIDAS 2.0 in 2026. There has been some signs of lacking enthusiasm among the population though.

Current Digital Identity Landscape

There is a mandatory national ID card with eID functionality, but the main solution is an app-based solution called itsme. It is owned by a consortium of banks and telecom providers. Broad use cases towards both public and private service providers. >7 million registered users in Belgium, i.e. >60% of the total population. Solution has launched in other countries as well, including France, Italy and Portugal.

eIDAS 2.0 Implementation Outlook and Method

Belgium has launched the MyGov.be application, which will be the EUDI Wallet provided to the citizens. Even though it is not fully there, the application is available and will get added functionality along the way. Currently, there are no plans for the government to allow private wallet providers, according to the Digital Administration of Federal Public Service Policy & Support.

Challenges:

- MyGov.be will face competition from itsme.
- According to a study by Deloitte, Belgians lack enthusiasm for digital wallets with 71% of respondents claiming they did not want a digital ID on their smartphone. This might halt progress.

EUDI Wallet Initiatives

Government Initiatives:

- **MyGov.be:** Launched in May 2024, and was among the first EUDI Wallets to launch, albeit in a version with limited functionality. Currently supports holding official documents and accessing public services. Digital ID and mobile driving licence coming in 2025, and EHIC in 2026.

Private Initiatives:

- **itsme:** Even though the Belgian government is not planning to allow for private wallet providers, itsme has communicated an intent to be present in the EUDI Wallet ecosystem.

Bulgaria

Overview

Bulgaria is currently a laggard within both digitalisation and digital identity, and has a long way to catch up with the leaders in Europe. The country got their first national digital identity scheme last year, when the government notified the private player Evrotrust eID. Looking ahead, there is little communication on how the EUDI Wallet is planned to be implemented, but Evrotrust has mentioned building one, which might turn out to be the way forward.

Current Digital Identity Landscape

The former fully private company Evrotrust's eID solution was adopted as the country's official digital identity program in 2023, following an equity stake by the Bulgarian Development Bank in 2022. The solution is eIDAS-notified and connected to the Bulgarian node. It supports "substantial" and "high" levels of assurance. Remote onboarding available with both levels of assurance, through document scanning and video selfie. Use cases include both public and private service providers. There is no data on adoption, but app store downloads indicate that it is less than 20%.

eIDAS 2.0 Implementation Outlook and Method

There has been no information released regarding eIDAS 2.0 from Bulgaria. The country is lagging within both digitalisation and digital identity, and faces several challenges to catch up with the other countries in Europe. Without an announced plan for implementation, it is difficult to assess whether eIDAS 2.0 is regarded, as in Romania, like a golden opportunity to leapfrog the development in digital identity, or if the country will continue to be a laggard.

Challenges:

- Laggard within both digitalisation and digital identities, which might slow progress.
- The country will need to soon announce their implementation process in order to prepare both public and private organisations for the launch.

EUDI Wallet Initiatives

Government Initiatives:

- The government is releasing a new electronic ID, which may be connected to the plans toward an EUDI Wallet. However, the development of the app has been halted, even though there is a prototype ready.

Private Initiatives:

- **Evrotrust:** The provider of the main current digital identity solution, has noted that the EUDI Wallet could be a future business opportunity, but no further information has been provided.

Croatia

Overview

Croatia is lagging in Europe when it comes to digitalisation, but offers many options when it comes to digital identities. However, many of these alternatives have fairly low usage and the primary method is to use bank tokens instead of the government-supplied eIDs. Looking ahead, the country has not released any information about their plan for eIDAS 2.0 implementation, but some locals fear that the government will keep their steady grip over the solutions; thus, slowing down progress by keeping smaller, private players away.

Current Digital Identity Landscape

NIAS is an authentication portal supported by the government that allows for a range of identity providers at both a “high” and a “substantial” level of assurance. Currently, use cases are limited to public authorities, although there has been talk of opening up for the private sector as well. There is a mandatory national ID card with electronic functionality that is connected to the portal. There is also an option to authenticate to the portal through one’s bank login, which seems to be widely used.

eIDAS 2.0 Implementation Outlook and Method

The development and implementation of the EUDI Wallet in Croatia has not been announced yet, although some people believe that the government will continue to hold a strong grip over the country’s identity solutions and not let smaller, private, actors contribute.

Challenges:

- Identyum CEO Robert Ilijaš has claimed that the digital identity scene has been concentrated on solutions from the government or other strong players, keeping smaller innovative companies away from the table.
- Croatia is also lagging within digitalisation, which might slow down progress.

EUDI Wallet Initiatives

Government Initiatives:

No government initiatives launched.

Private Initiatives:

- **Identyum:** Croatian startup offering ID Wallets and other digital identity services such as eSignatures. The wallet is claimed to be eIDAS 2.0-compatiable. The solution has been deployed and is available, but with few use cases.

Cyprus

Overview

Cyprus is lagging within both digitalisation and digital identity. The country was slow to notify an eIDAS eID, and struggles with low adoption and few use cases. Lately, Cyprus has been looking towards countries such as Greece and the UK to get inspiration for a government portal and a digital citizen app, where the latter is thought to be an early attempt at creating an EUDI Wallet. If the application is launched successfully, Cyprus has the potential to leapfrog the development and establish a strong position on the digital identity scene.

Current Digital Identity Landscape

There is a national electronic ID card that is mandatory for citizens above 12 years old. It is eIDAS notified and has a "high" level of assurance. The cards are provided by the German semi-government-owned company Veridos. Its use cases are limited, and even public administration has largely failed to integrate the solution.

eIDAS 2.0 Implementation Outlook and Method

Cyprus has been far behind most of Europe in digital identity until recently, and the Cypriot government is looking to accelerate the country's efforts. In April, they announced that eID with broader usability and support for electronic signatures is coming, alongside an updated government portal and digital citizenship app. The new government portal, gov.cy, went live in the summer of 2024 and is supposed to collect a wide range of government services in one place. The new eID will be used for login, and it will also support an "AI digital assistant". There are yet no indications whether the government will allow private wallet providers in the ecosystem.

Challenges:

- Cyprus has been lagging behind within digital identity, with several failed attempts to create innovative solutions.
- The country needs to communicate their implementation plan to keep up with the rest of the EU.

EUDI Wallet Initiatives

Government Initiatives:

- **Digital Citizen application:** Launching in September, with a fully digital identity card. Developed in collaboration with Greece and Estonia. It is not explicitly described as an EUDI Wallet, the functionality seems to align with eIDAS 2.0.

Private Initiatives:

No private initiatives announced.

Czechia

Overview

Czechia has been struggling with digitalisation and eID-adoption. However, it seems like the government sees the EUDI Wallet as an opportunity to get ahead in the progress and was among the first to launch a digital identity wallet, eDoklady, in early 2024. The application will not turn into an EUDI Wallet though. There might be an opportunity for Czechia to leapfrog the development and become a leader within digital identity wallets, if there is enough "buy-in" from both the population and service providers.

Current Digital Identity Landscape

There are currently many eID solutions provided both by the state and private players. Portál Identity Občana is the authentication portal for public administration, and supports several identity providers. The most adopted identity provider is mojeID, which is created by CZ.NIC – a Czech domain registration association. Supports all level of assurance, and has broad use cases including within the private sector. There are roughly 1 million active accounts.

eIDAS 2.0 Implementation Outlook and Method

Czechia has worked proactively to be prepared for eIDAS 2.0. In January 2024, the government released eDoklady which is a digital wallet and a first step towards a EUDI Wallet. The country has also signed a cooperation agreement with Denmark on the EUDI Wallet.

The plan is to share experiences between their national projects. Czechia has also sent a delegation to Estonia to study the digitalisation of its public administration system. Currently (August 2024), there is no information of the overarching method of implementation, but there is an "infoweb" that will go live soon with "more concise information regarding the EUDIW".

Challenges:

- Currently low digitalisation and low eID adoption, but the government tries to speed up efforts.
- eDoklady will not turn into an EUDI Wallet, forcing the government to find another solution.

EUDI Wallet Initiatives

Government Initiatives:

- **eDoklady:** Government wallet, will not turn into EUDI Wallet. Seen as a stepping stone.

Private Initiatives:

No private initiatives announced.

Denmark

Overview

Denmark is a leader within digitalisation and digital identities. The government option MitID is used by almost all citizens and is a role-model for implementation of government eID schemes around the globe. With the launch of mobile driving licences and digital health insurance cards in 2020 and 2021, Danish citizens are well-equipped for a digital life. The Danish government has not released a clear path for the implementation of eIDAS 2.0 however, and the question whether the population will feel the need for an EUDI Wallet remains highly relevant.

Current Digital Identity Landscape

MitID is a government-provided digital identity solution connected to the eIDAS node. It was developed by Nets on behalf of the Danish government. 98% of the population above 15-years of age have MitID, and 82% of users use it at least once a week. There are broad use cases within both public administration and the private sector.

eIDAS 2.0 Implementation Outlook and Method

Denmark is one of the leading countries when it comes to digital identities, but have not yet announced their plans for the implementation of the EUDI Wallet, other than that the Digitalisation Agency will be responsible for developing the application. In April 2024, the country released a statement that Denmark and the Czech Republic will cooperate with the development of the wallet. In 2020 and 2021 Denmark released a driving licence app and a health insurance card app. These were standalone, but still showcase the country's development in the area. Even though these applications will not turn into EUDI Wallets, similar attributes will be stored in the EUDI Wallet.

Challenges:

- Denmark will have to demonstrate superior value with the EUDI Wallet compared to MitID in order to boost adoption.
- The lack of private digital identity solutions might halter innovation.

EUDI Wallet Initiatives

Government Initiatives:

- **The Danish driving licence app:** Not an EUDI Wallet and will not turn into one, but a first step towards it. Released in 2020 and holds equal validity as its physical counterpart.

Private Initiatives:

No private initiatives announced.

Estonia

Overview

Estonia has a robust digital identity ecosystem with a high adoption rate. Estonia's approach to eIDAS 2.0 involves leveraging private sector innovation, with initiatives led by entities like Cybernetica under the supervision of the Information System Authority. Despite their advanced digital infrastructure, Estonia faces challenges such as ensuring future regulations do not hinder innovation and maintaining public interest in evolving eID solutions.

Current Digital Identity Landscape

The government-issued eID card, mandatory for citizens, offers a “high” eIDAS level of assurance and supports various functions including electronic signatures, e-voting, and e-prescriptions. Mobile-ID and Smart-ID, developed in collaboration with private sector companies, complement the eID card by providing additional flexible and user-friendly digital identification solutions, with 19% and 51% of the population using them respectively.

eIDAS 2.0 Implementation Outlook and Method

The Estonian government has been highly successful creating digital identity solutions together with the private sector. The eID, Mobile-ID and Smart-ID have all been developed by private companies, who also aim to deploy the same solutions internationally. The same approach will be taken in order to create a EUDI Wallet. The work going forward will continue to be done by private entities on behalf of the government, and Cybernetica received a four year contract in 2022 to develop an EUDI Wallet.

Challenges:

- eIDAS 2.0 has faced criticism from major Estonian players Cybernetica and SK ID-solutions, which might indicate a sceptic private sector.
- Estonia has a high adoption of current solutions, and will have to convince the population to switch to the EUDI Wallet.

EUDI Wallet Initiatives

Government Initiatives:

- **The Information System Authority (RIA):** Responsible for the implementation of the EUDI Wallet in Estonia. Have contracted Cybernetica for its development, who released a minimum viable product in June 2024.

Private Initiatives:

- **Cybernetica:** Having previously consulted towards the European Union Agency for Cybersecurity (ENISA) regarding eIDAS 2.0 and currently developing the Estonian Wallet, the company is and will continue to be a major player in the eIDAS 2.0 ecosystem.

Finland

Overview

Finland is leading in digitalisation in Europe and has a very high adoption of eID solutions. After having been deeply involved in drafting the eIDAS 2.0 regulation at an EU level, the country has launched their project to develop a national digital identity wallet, which will be available in 2026. The project is collaborating with the large scale pilots deployed across Europe, and will contribute to the Architecture and Reference Framework (ARF). Finland's intention is to also allow for private wallet providers.

Current Digital Identity Landscape

The Finish Trust Network (FTN) is the current main digital identity solution. It is an authentication portal established by the Finnish government, and supports several identity providers. The identity providers are either banks or mobile operators. Almost every eligible citizen uses FTN, and it has broad use cases within both the private and the public sector.

eIDAS 2.0 Implementation Outlook and Method

Finland is actively participating in shaping the EUDI Wallet. Beyond participating in the large-scale pilots Potential, EWC and DC4EU, Finland launched their own national wallet project in April 2024. There is a Toolbox group related to technical specifications that includes representatives from the Digital and Population Data Services Agency and the Finnish Transport and Communications Agency Traficom. Based on a market survey of wallet providers conducted by the Ministry of Finance, the Ministry has decided that the national wallet application will be produced by the Digital and Population Data Services Agency. Finland will allow for private wallet providers that meet the requirements of the Regulation.

Challenges:

- Prepared to face implementation of eIDAS 2.0, with both high eID adoption rates and a clear path for implementation.
- Finland will need to demonstrate superior value with the EUDI Wallet to boost the switch from FTN.

EUDI Wallet Initiatives

Government Initiatives:

- **Eurooppalainen digitaalinen identiteettilompakko (DDV):** Government project to develop an EUDI Wallet, launched in 2024 and with a deadline in 2026. The Finnish Digital Agency is responsible for coordinating the work. Currently seeking to be in an active dialogue with both the private and the public sector to ensure high functionality. There is a Demo application live.

Private Initiatives:

No private initiatives announced.

France

Overview

France has made developments in digital identity with FranceConnect, a widely used authentication portal. However, it lags behind leaders in terms of digital identity maturity. The focus is on government services, with limited private sector adoption. While FranceConnect+ offers higher assurance levels, its uptake is slow. The government is potentially developing France Identité as a future EUDI Wallet, but the overall strategy for implementation has not been communicated.

Current Digital Identity Landscape

The primary digital identity solution is FranceConnect, a government-backed authentication portal used by around 45% of the population. It offers two tiers: a basic "low" assurance level and a higher "substantial/high" level through FranceConnect+. Limited private service providers.

eIDAS 2.0 Implementation Outlook and Method

France has historically been progressive and forward-looking regarding digital identity, but has yet to communicate an implementation strategy for the EUDI Wallet. The France Identité application will likely evolve into the state provided wallet, and there is no indication whether private Wallet Providers will be allowed.

Challenges:

- Limited private sector adoption of FranceConnect+.
- Government has not historically managed to develop user-friendly applications.
- No announced EUDI Wallet strategy.

EUDI Wallet Initiatives

Government Initiatives:

- **France Identité:** Government-developed app with potential to become the national EUDI Wallet. Currently supports FranceConnect+ and mobile driving licence. 1-5 million downloads on Google.
- **Potential Pilot:** France is the current co-lead in the European Potential pilot for EUDI Wallets.

Private Initiatives:

- **Talao:** A French startup focused on self-sovereign identity and EUDI Wallet development. Has demonstrated successful compliance with the eIDAS-Testbed. Presumably white label solution.
- **Thales:** A major French company offering digital identity solutions. Offers digital wallet, and claims to help “dozens of customers in Europe prepare for the eIDAS 2 regulation.”

Germany

Overview

Germany is lagging in digital identities, with low eID adoption and usage. The absence of a national ID number and privacy concerns have slowed progress. The government views eIDAS 2.0 and EU Digital Identity Wallets as a chance to advance and become a leader in Europe. Current efforts include an open-source reference project and a government-funded competition to drive innovation.

Current Digital Identity Landscape

The main digital identity solution in Germany is “Der Personalausweis” Card, which is an NFC-enabled ID card. The usage of the electronic functionality is low and use cases are mostly focused on public administration. The solution was a major effort by the German state and it will likely not be abandoned, but rather integrated into the EUDI Wallet.

eIDAS 2.0 Implementation Outlook and Method

Germany’s eIDAS 2.0 implementation is led by *GovLabDE*, focusing on a prototypical infrastructure for the EU Digital Identity Wallet. Germany will not adopt the reference implementation, preferring to incorporate existing smart card solutions into their EUDI Wallet.

Challenges:

- Low eID adoption and tough privacy laws hinder digitalization.
- Lack of a centralized national ID complicates EUDI Wallet development.
- Germany’s intent to integrate existing solutions may impede EUDI Wallet adoption.

EUDI Wallet Initiatives

Government Initiatives:

- **GovLabDE Digital Identities**: Open-source project led by the Federal Ministry of the Interior, focusing on public involvement, sustainability, and data protection.
- **FUNKE EUDI Wallet Prototypes Competition**: Government-funded competition with stages to develop EUDI Wallet solutions. Major participants include Samsung and Google.

Private Initiatives:

- **wwWallet by GUnet, SUNET & Yubico:** Open-source, FIDO-based web wallet architecture independent of major platforms. Participant of FUNKE Competition
- **Verimi**: Also developing a wallet, intended to comply with eIDAS 2.0. Despite significant backing from major partners, Verimi’s impact has been limited, with low public awareness and slow growth. Financial struggles are evident, with cumulative losses of €109M by 2022 and a reported €10M in revenue for 2023. Deutsche Bank is reportedly looking to divest its stake.

Greece

Overview

Greece has an eID adoption rate of 18% and ranks low in digitalization at 25th on the Digital Economy and Society Index. The government-issued Gov.gr wallet, launched in 2022, supports digital identity cards and mobile driving licenses but has seen slow adoption and is not yet connected to the eIDAS node. Efforts are focused on the EUDI Wallet through the large-scale pilot project Potential, although the country faces challenges such as a lack of private sector involvement and conspiracy theories related to new IDs. Despite these hurdles, there is ongoing development to enhance the Gov.gr wallet for advanced citizen services across Europe.

Current Digital Identity Landscape

The digital identity scene is underdeveloped in Greece. Since 2023, there is an electronic chip on the national ID card, but it does not seem to be used to any significant extent. The Gov.gr application is a government-issued digital wallet that supports digital ID and mobile driving licences, but currently does not support electronic signatures or online identification and authentication.

eIDAS 2.0 Implementation Outlook and Method

Greece has not clarified their method of implementing eIDAS 2.0. The country is actively involved in the large scale pilot Potential, and a director of GRNET (Greece University network) has stated that Greece intends to be a leader in the development of the wallet. The most probable scenario is that the Gov.gr wallet evolves into an EUDI Wallet.

Challenges:

- Bottom-tier digitalisation and poor eID solutions, might indicate lack of competence and knowledge among the citizens.
- Country has struggled with conspiracy theories connected to the launch of the national ID cards with an electronic chip, indicating a scepticism in the population.
- Lacking private players, which might hurt innovation.

EUDI Wallet Initiatives

Government Initiatives:

- **Gov.gr:** As mentioned above, government supplied digital wallet which supports digital ID and mobile driving licence. Presumed to turn into an EUDI Wallet. Developers of the Gov.gr wallet are participating in Potential, further supporting the presumption.

Private Initiatives:

No private initiatives announced.

Hungary

Overview

Hungary is currently lagging within digitalisation and digital identity solutions. However, the country is launching its DÁP mobile application, which is both an identity wallet and a touchpoint between the government and its citizens. With Hungary's Digital Citizenship Program, the government is trying to push the digitalisation forward and hopes to be proactive with the eIDAS 2.0 legislation. However, questions still remain of the compatibility between the two.

Current Digital Identity Landscape

The current main eID solution in Hungary is the eSzemélyi card, which is a national ID card with an electronic chip. It is not connected to the eIDAS node. Broad use cases within public administration and health services, but there are limited private service providers.

eIDAS 2.0 Implementation Outlook and Method

In January 2024, the Digital Citizenship Law entered into force. The law is a foundation for the country's Digital Citizenship Program (DÁP), and is an effort to digitalise the lives of Hungarians. The law bears many similarities to the eIDAS 2.0 regulation, but was drafted and released before its European counterpart, which puts its compatibility into question. The Digital Citizenship Program aims at making it easier and faster for citizens to manage their affairs through a single mobile application.

The application will allow users to prove their identity, settle their payments to the state with the touch of a button, and carry out most of their administrative tasks via their mobiles.

Challenges:

- Lagging digitalisation and lack of digital identity solutions might slow progress.
- There is no purely digital solution, which could lead to lower knowledge among the population.

EUDI Wallet Initiatives

Government Initiatives:

- **DÁP Mobile Application:** Launched in May 2024, with further functionality arriving in September 2024. Online identification will be provided by matching users' facial images with a government database.

Private Initiatives:

No private initiatives announced.

Iceland

Overview

Iceland is highly digitised, but has previously been lagging behind somewhat regarding digital identity. However, Iceland has mostly caught up recently with the success of the different digital identities provided by the company Auðkenni, which was acquired by the Icelandic government in 2022. Even though Iceland is not a member of the EU, the country has, similar to Norway, fully implemented eIDAS. The integration into EU's digital scene will continue with Iceland participating in LSPs, with the ambition of being a part of the eIDAS 2.0 ecosystem as well. The details of the implementation have not been released yet.

Current Digital Identity Landscape

There are three main digital identity solutions available in Iceland: an electronic ID card, an eID by phone or the Auðkennisapp, and all have a "high" level of assurance. The electronic ID card is separated from the national ID card and allows for authentication with a card reader. The eID by phone is enabled by the mobile SIM-card and the Auðkennisapp is a white-label solution based on the Estonian company SK ID Solutions' Smart-ID. Use cases are the same for all and include a broad range of private and public service providers. Adoption is high across all three solutions, and there is no data on individual usage.

eIDAS 2.0 Implementation Outlook and Method

Iceland, which is not a part of the EU, seeks to continue its collaboration and integration into Europe's digital landscape. By incorporating the original eIDAS regulation into local law, the country is connected to the rest of the EU already. Looking ahead, there are strong indications that Iceland will continue to align with the EU by implementing the updated eIDAS 2.0 regulation as well. An example is that Iceland is a part of the NOBID Consortium, which is researching the payment use case for the EUDI Wallet. Iceland has already launched a digital wallet inside of their island.is government portal application. The application was released in 2022; thus, probably not aligned with the new technical specifications, but is still a testimony to the country's willingness to adapt and innovate.

Challenges:

- The country has high adoption and usage of current solutions, which might either boost or halter EUDI Wallet adoption rate.

EUDI Wallet Initiatives

Government Initiatives:

No government initiatives announced.

Private Initiatives:

No private initiatives announced.

Ireland

Overview

Ireland is highly digitised, but still lacking in the digital identity space. The adoption of the government provided MyGovID is fairly low, and the solution is limited to use cases towards the public administration. The plans of also including private service providers have yet to be realised. The government has launched an EUDI Wallet initiative, simply called "The Digital Wallet", and which is piloted at the moment. However, the digital identity scene in Ireland is lacking private players, which may hinder innovation.

Current Digital Identity Landscape

The current main digital identity solution, called MyGovID, has a 32% adoption rate and its use cases are limited to public administration. There have also been plans of integrating private service providers, but no progress has been made on this yet. Authentication is done with a smart card.

eIDAS 2.0 Implementation Outlook and Method

There has been limited information on how eIDAS 2.0 will be implemented in Ireland. The government has announced the release of a digital wallet under the "Life Events" program, which aims at simplifying government processes connected to major life events. The digital wallet is likely to be the state-provided EUDI Wallet for Ireland.

There is still no information regarding private providers.

Challenges:

- Lack of private players within digital identity might hinder innovation.
- Current government solution has limited scope and few use cases, which might indicate a lack of prioritisation of digital identity.

EUDI Wallet Initiatives

Government Initiatives:

- **The Digital Wallet:** Will contain a range of personal government documents, including driving licence, age verification documents, birth, and marriage certificates etc. The wallet will rely on the identity created through MyGovID, and government officials have claimed that "[the wallet] will be compatible with similar initiatives across Europe", indicating that it will likely be Ireland's government provided EUDI Wallet.

Private Initiatives:

No private initiatives announced.

Italy

Overview

Italy's eID scheme SPID allows citizens to identify themselves in a broad range of applications, including both the private and the public sector. The country recently announced that their EUDI Wallets will be based on the open source infrastructure IT Wallet, which is currently under development. The government provided EUDI Wallet is the IO App, which has been released with limited functionality, and private Wallet Providers will be allowed.

Current Digital Identity Landscape

SPID is a government supported authentication portal/broker which supports all three levels of assurance, but "substantial" is the most widespread. There are both private and public identity providers available. 57% of the population used SPID in 2023. There is also an ID Card with eID functionality, called CieID.

eIDAS 2.0 Implementation Outlook and Method

The Italian EUDI Wallet solution, IT Wallet, will both have a public version available through the IO App, and available to private providers to build their solution on. A representative called the IT Wallet: "a strategic choice aimed at positioning Italy as a leader in the adoption of digital technologies and in compliance with the new European regulations on digital identity."

Challenges:

- Most SPID users only have a LoA of "substantial", and Italy is lobbying for the support of EUDI Wallet onboarding with a "substantial" eID, and some additional measures.
- Country faces some scepticism from private sector, having invested in SPID which may become obsolete

EUDI Wallet Initiatives

Government Initiatives:

- **IO App:** Project led by the Department for Digital Transformation, within scope for Digital Italy 2026 initiative. The release of full version is scheduled for January 2025. Currently, identification and authentication is done through SPID. However, this function will be integrated into the Wallet application instead

Private Initiatives:

No private players have announced their intention to build an IT Wallet.

Latvia

Overview

Even though Latvia is behind its Baltic peers regarding digitalisation, the country has a fairly strong adoption of both government and privately provided digital identity solutions. There are broad use cases, including many private service providers. Historically, Latvia was quick to align with the original eIDAS regulation and has a good outlook to do so with the updated regulation as well. However, no information on the planned implementation method and development of the EUDI Wallet has been released yet.

Current Digital Identity Landscape

The Latvian government supplies both a national ID card with electronic functionality, and the mobile digital identity application eParaksts mobile (eSignature mobile) Both have a “high” level of assurance and support a broad range of public and private service providers, as well as eSignatures. The Estonian solution Smart-ID is also widely adopted, with 58% of the population having it, and it sees higher usage than the eParaksts app.

eIDAS 2.0 Implementation Outlook and Method

No information about the implementation of eIDAS 2.0 has been released from Latvia. It is likely that the country will adopt a fairly standardized solution based on the reference implementation.The country should be well positioned for eIDAS 2.0 with digital identity usage in both the private and the public sector, even though the country is somewhat lagging behind its Baltic peers regarding digitalisation.

Challenges:

- Latvia needs to communicate their implementation method of eIDAS 2.0 in order to not fall behind the rest of the EU.
- eID adoption is still somewhat lower than for European leaders, which might either boost or hinder EUDI Wallet adoption rate.

EUDI Wallet Initiatives

Government Initiatives:

No government initiative announced.

Private Initiatives:

No private initiative announced.

Liechtenstein

Overview

Liechtenstein is a small country that is not part of the EU, although they are making efforts to become a part of the common EU digital identity landscape. The first step was the ratification of the original eIDAS into local law in 2018, and they are looking to do the same with the updated eIDAS 2.0. Currently, the main solution is the eID.li application, which supports both a digital identity and some wallet functionality. The country is yet to make any moves towards an EUDI Wallet, but one might speculate that the eID.li application will turn into one, as its developer, youniqx, is responsible for the development of Austria's EUDI Wallet.

Current Digital Identity Landscape

There is a government supplied digital identity application, eID.li, which supports both a "high" and a "substantial" level of assurance. The scheme is eIDAS notified. The solution is developed by the Austrian company youniqx. Use cases include both private and public service providers; however, the solution is not widely adopted among the former. In 2021, a third of the population used eID.li.

eIDAS 2.0 Implementation Outlook and Method

Liechtenstein is not a part of the EU but has, similar to Norway and Iceland, adopted the eIDAS regulation into local law. The same is presumed to be the case for eIDAS 2.0.

Liechtenstein has not released any plans for the upcoming implementation of eIDAS 2.0, and is not participating in any Large Scale Pilots. One possible solution is that the government will extend the current eID.li application to become an EUDI Wallet, more on this further down. No communication regarding the status of private wallet providers has been made either.

Challenges:

- As Liechtenstein has neither announced their implementation plans, nor is participating in the Large Scale Pilots, they do not seem to take active steps towards the EUDI Wallet.
- Currently, the private sector is showing a lack of enthusiasm towards digital identity solutions.

EUDI Wallet Initiatives

Government Initiatives:

- **eID.li:** Could potentially turn into an EUDI Wallet. The application, youniqx, is developing Austria's state provided EUDI Wallet eAusweise.

Private Initiatives:

No private initiatives announced

Lithuania

Overview

Lithuania is ranked in the middle in Europe when it comes to digitalisation, and has a strong adoption of digital identity solutions. The Estonian company SK ID's Mobile ID and Smart-ID have a dominant presence on the ID scene, and the country shares many characteristics with the other Baltic States. The private sector has widely adopted various solutions for identification and authentication. However, no plan for the implementation of eIDAS 2.0 has been released yet.

Current Digital Identity Landscape

There is a mandatory national ID card with electronic functionality used for authentication towards public administration, but the most used solution is the Estonian application Smart-ID. Smart-ID is developed by the private company SK ID Solutions, and has a 59% adoption rate in Lithuania. Use cases include authentication to both public authorities and a wide range of private service providers.

eIDAS 2.0 Implementation Outlook and Method

There is yet no information on the planned implementation of eIDAS 2.0 in Lithuania. The country has been quick to adopt digital identity solutions and to implement various options for private service providers. With a strong digitalisation, Lithuania should be well positioned to successfully deploy an EUDI Wallet.

Challenges:

- The government needs to announce their implementation plan in order to prepare private and public organisations for the launch of eIDAS 2.0.
- The country is currently relying heavily on imported solutions.

EUDI Wallet Initiatives

Government Initiatives:

No government initiatives announced.

Private Initiatives:

No private initiatives announced.

Luxembourg

Overview

Luxembourg boasts a strong digitalisation and strong position in the digital identity scene. There are several options available, and many private service providers use them. LuxTrust is the most used solution, and is a collaboration between the Luxembourgian government, POST Luxembourg and various large banks. Looking ahead, the country is well positioned ahead of eIDAS 2.0 entering into force.

Current Digital Identity Landscape

LuxTrust is a partially government-owned digital identity solution which supports a number of different authentication methods, including an app and a smart card. It has a "substantial" level of assurance and broad use cases within both the public and the private sectors. Adoption is high, with 95% of Luxembourg's active population using the service. There is also a national mandatory ID card with electronic functionality that seems to be used less than LuxTrust.

eIDAS 2.0 Implementation Outlook and Method

Luxembourg has announced plans to create a digital wallet available to all citizens. The wallet is described as an "interim solution while the EU works on a uniform platform". What this means is somewhat unclear, as other countries such as Belgium have launched their wallets described as an EUDI Wallet. It might hint that the country has the ambition to implement something closely resembling the reference implementation, once it becomes available. No release date has been set for the application. Previously, Luxembourg has been chosen as a location to run tests for the Large Scale Pilot POTENTIAL. There is no information of how the landscape for private providers will look in the country.

Challenges:

- The country needs to communicate their implementation plan to keep up with the rest of the EU.

EUDI Wallet Initiatives

Government Initiatives:

- **Government digital wallet:** As mentioned above. However, it will likely not evolve into an EUDI Wallet.

Private Initiatives:

- **LuxTrust:** Participating in the Large Scale Pilot POTENTIAL, but have not communicated any efforts to develop an EUDI Wallet. They have communicated an intent to expand their solution internationally, though, and will likely remain a strong player within Europe's digital ecosystem.

Malta

Overview

Malta is highly digitised but is lagging within digital identities. Without any alternatives outside public administration, the country has a long way to go to reach the rest of Europe. The agency responsible for the eID, Identita, has also in recent years experienced a number of scandals, including allegations of election fraud and of selling ID cards illegally to immigrants.

Current Digital Identity Landscape

Malta has a mandatory national ID card with electronic functionality. It is connected to the eIDAS node and has a "high" level of assurance. There is a possibility to create an eID Virtual Account, and store the certificates found on the card on a computer. Otherwise, a card reader is needed for authentication. Its use cases are limited to public administration.

eIDAS 2.0 Implementation Outlook and Method

Malta has no announced plans for the implementation of the EUDI Wallet. The country has a strong digitalisation, but is currently lagging within digital identity. There are no private options, and the government solution is not available for private service providers. However, the EUDI Wallet could offer an opportunity to leapfrog the progress and build a strong digital identity solution.

Challenges:

- Lagging within digital identity, which could slow progress due to a lack of knowledge and competence.
- The private sector has no alternatives, which could either make the case for the EUDI Wallet or slow the process.

EUDI Wallet Initiatives

Government Initiatives:

No government initiatives announced.

Private Initiatives:

No private initiatives announced.

Netherlands

Overview

Netherlands is currently a solid player within the digital identity world. There are eID solutions for both individuals and companies, offered by both the government and private players. As the state has taken clear action towards implementing and launching an EUDI Wallet, private providers wait for clear directives on how the provider landscape is going to look.

Current Digital Identity Landscape

There are two government provided solutions: DigiD for natural persons and EHerkenning for organisations. Both see large adoption and uses, mostly focused towards public administration. There is a private solution, iDIN, controlled by Dutch Payment Association, which allows identification and authentication through bank login. High adoption and usage within private sector use cases.

eIDAS 2.0 Implementation Outlook and Method

The Dutch government is leading an open source project (NL Public Reference Wallet) which aims at developing a wallet and setting standards for further wallet-development. One of the main reasons for the specific development structure is to reduce the power of major tech companies. The intention is currently to allow for private wallet providers, although no decision or specifications have been made yet.

Challenges:

- EUDI Wallet might face competition from existing solutions.
- Have not communicated the specifics of private Wallet Provider licensing.

EUDI Wallet Initiatives

Government Initiatives:

- **EDI – NL Public Reference Wallet 2:** Open source project driven by Dutch government, which develops a wallet and sets standards for further improvements. The first “minimal viable product” was deployed March 2024. At least one EUDI Wallet will be available 2025 according to the government, but the project website claims that it will be available at the end of 2026. The first piloted use case is connected to mortgage application.

Private Initiatives:

No private initiatives announced.

Norway

Overview

Norway is highly digitised and a leader in digital identities. Even though Norway is not a member state of the EU, the country has implemented the original eIDAS into national legislation and is expected to do so with the updated eIDAS 2.0 as well. There are several eID solutions that have been eIDAS notified, with a couple focusing more towards professional services. ID-porten is the common authentication portal. Looking ahead at eIDAS 2.0 and the EUDI Wallet, there are a couple of potential initiatives, but no player has yet announced it officially.

Current Digital Identity Landscape

The Norwegian BankID is currently dominating the digital identity scene in Norway. It is provided by a consortium of banks, and is connected to the eIDAS node. There are broad use cases within both the public and the private sector, and it is connected to the government authentication portal ID-porten. Together with the government digital identity solution MinID, the country reaches almost 100% eID adoption.

eIDAS 2.0 Implementation Outlook and Method

Norway has not announced their method of implementation of eIDAS 2.0, nor publicly announced any major projects. The largest effort currently is the leadership of the NOBID Consortium, which focuses on payments by use of the EUDI Wallet.

Challenges:

- Highly digitised and strong eID adoption, but the government has lost some initiative to the private sector. They will need to demonstrate clear superior value with the EUDI Wallet in order to make people switch from current solutions.
- The country has not announced their plan to develop and implement the EUDI Wallet, which they need to do soon in order to not fall behind.

EUDI Wallet Initiatives

Government Initiatives:

- **The Norwegian Digitalisation Agency (Digdir):** Launched a new eID strategy for the public sector in 2023, which does not mention eIDAS 2.0, but seems to align fairly well with it.

Private Initiatives:

- **BankID:** The provider of BankID, BankID BankAxept AS, has announced plans for a digital identity wallet. The first step was the launch of a digital ID within the current app in March 2024. Due to their current strong position, they will likely continue to play a significant role in the ecosystem.

Poland

Overview

Poland has a strong eID adaptation rate of 60%, supported by both government and private sector solutions. The mObywatel 2.0 app, with 18 million users, is set to become the government-provided EUDI Wallet by September 2024, replacing physical IDs in many institutions. The private eID solution MojeID is accessible to 98% of electronic banking users. Despite this progress, Poland faces challenges in digitization.

Current Digital Identity Landscape

There are several digital identity solutions. The most widespread is MojeID, provided by the clearing house KIR, which allows users to identify themselves with a wide range of public and private service providers through their banking identity. Accessible to 59% of the population. There is also a national ID card with electronic functionality used with the app eDO App, and a Trusted Profile (Profil Zaufany) that is used towards public administration.

eIDAS 2.0 Implementation Outlook and Method

mObywatel 2.0 will be Poland's government-supplied digital wallet, and the application is among the leading in Europe. The application launched in 2023 and already sees use across the country. Poland has not communicated their standing regarding the possibility of private Wallet Providers, but the high adoption of the private solution mojeID might suggest that the private sector will have a role in the future digital landscape of Poland as well.

Challenges:

- Lagging in digitalisation.
- Have not communicated how they will handle the private sector.

EUDI Wallet Initiatives

Government Initiatives:

- **mObywatel 2.0:** Will become the government provided EUDI Wallet. Currently supports digital ID and mobile driving licence. Already seen >18 million downloads. Was recently criticised at Security Fest for having security flaws.

Private Initiatives:

- **Authologic:** Polish start-up. Not focused on developing an EUDI Wallet, but focuses on KYC and AML procedures, by offering a wide range of authentication/identification through one API. Might play a role in the future of digital identity in Poland. Backers include Y Combinator.

Portugal

Overview

Portugal has below average eID adoption, but there are several options available for both natural and legal persons. The country was among the first to release a digital wallet, and digital IDs and mobile driving licences have the same legal status as their physical equivalents since spring 2024. There is still little official information about the country's implementation of the eIDAS 2.0, but it is possible that the provided EUDI Wallet will be a development of the current id.gov.pt application.

Current Digital Identity Landscape

There is a national authentication portal called Autenticacao.gov that supports several identity providers, all controlled by the state, and used by both public administration and the private sector. The most widely used identity provider is called Chave Movel Digital (CMD), and authentication is done with user credentials and OTP by SMS or with a mobile application.

eIDAS 2.0 Implementation Outlook and Method

Little information about the eIDAS 2.0 implementation has been released from Portugal. Being early releasing a digital identity wallet has previously positioned Portugal far forward within digital identity, but the continued development is difficult to assess. One might speculate that the id.gov.pt application will develop into an EUDI Wallet, and it has a couple of things going for it.

Through the identification via CMD, it already has an eIDAS "high" level of assurance, which is required, and bolsters some of the usability envisioned for the EUDIW. Still, the road for full compatibility seems far.

Challenges:

- Low eID adoption and somewhat slow digitalisation slow development.
- No announced plans for implementation.

EUDI Wallet Initiatives

Government Initiatives:

- **id.gov.pt:** Government provided digital wallet that launched in 2019, as mentioned above. Is not likely to evolve into an EUDI Wallet, as it was launched before eIDAS 2.0 was even discussed.

Private Initiatives:

No private initiatives announced.

Romania

Overview

Romania has a low eID adaptation rate and ranks last in the Digital Economy and Society Index. The government-developed ROeID solution, funded by the EU, has faced delays and currently has limited use focused on public administration. The country is focusing on the SOTERIA project, funded by EU Horizon 2020, to pivot towards developing EUDI Wallets, with testing ongoing in areas such as online voting, e-health, and e-exams. Despite the challenges, there might be potential for Romania to leapfrog directly to EUDI Wallets, bypassing widespread adaptation of traditional eIDs.

Current Digital Identity Landscape

There has been a lack of digital identity solutions in Romania previously. Now, the EU-funded mobile application ROeID supports a “high” level of assurance, and is eIDAS pre-notified. Use cases limited to public administration and adoption is <20%, with the goal of reaching 45% by Q2 2026. Romania has announced an upcoming eID card, but it has been delayed several times and not yet launched.

eIDAS 2.0 Implementation Outlook and Method

The country is launching an EUDI Wallet, but little information has been released yet regarding the specifics of the development and implementation. There are some indications that it will be a public tender. The country sees eIDAS 2.0 as an opportunity to leapfrog within digitalisation, and jump ahead 3-4 years in the development by looking at other countries digitalisation efforts to find what works and what does not. However, the country seems to be struggling at many different levels and questions if this effort will succeed remains unanswered. There is not any information whether private wallet providers will be allowed through licensing or not.

Challenges:

- Lagging in digitalisation, being last in the Digital Economy and Society Index among EU members.
- Have struggled with implementing government initiatives, evident in the delayed eID cards.

EUDI Wallet Initiatives

Government Initiatives:

- **SOTERIA:** Funded by EU Horizon 2020. Focuses on remote identity proofing. Test case in Romania is online voting, and took place between March and June 2024. Smaller in scope than LSPs.

Private Initiatives:

No private efforts launched.

Slovakia

Overview

Slovakia is lagging in digitalisation, but is pushing to reach 100% eID adoption and has made good progress. Although the usage of the digital functionality of the ID card remains unclear, the government has released a mobile application which greatly simplifies the process of authentication online. Looking ahead, little to none information has been released regarding eIDAS 2.0.

Current Digital Identity Landscape

Slovakia has an eID card called Slovak Citizen eCard, which is connected to the eIDAS node with a “high” level of assurance and has a 72% adoption rate. Authentication is made with a card reader and a PIN and use cases are limited to public administration. There is also a government-provided app, Slovensko v mobile, which allows for remote onboarding with the Citizen eCard and has similar functionality as the card, but can be used standalone.

eIDAS 2.0 Implementation Outlook and Method

Although the Slovak government has not announced their plan for development and implementation of eIDAS 2.0, there has been moves in the private sector. Ardaco, a Slovak information and communication company, has released their Ardaco QSign Wallet, which they claim to comply with eIDAS 2.0 technology and standards.

There is a possibility that the Slovak government will use Ardaco’s wallet for their official state provided wallet. However, no official announcement has been made.

Challenges:

- Slovakia is lagging within digitalisation, but has managed to accelerate their efforts within digital identity, which is a positive sign looking ahead at the EUDI Wallet launch.
- Currently, there are no digital identity solutions available to the private sector, which could slow down progress in terms of limited knowledge and competence.

EUDI Wallet Initiatives

Government Initiatives:

No government initiative launched

Private Initiatives:

- **Ardaco QSign Wallet:** Developed by the Slovak company Ardaco, designed to comply with the eIDAS 2.0 regulation. It currently supports qualified electronic signatures (QES), and Ardaco claims to be prepared to offer the solution to state organizations and private entities.

Slovenia

Overview

Slovenia bolsters an above average digitalisation, but is lagging within digital identity. The solutions are provided by the government and do not support private service providers. Looking ahead, there is little information on the implementation of eIDAS 2.0, and the country's efforts seem to be limited to participation in the Large Scale Pilot POTENTIAL. The government will need to step up in order to not fall behind.

Current Digital Identity Landscape

The main eID solution in Slovenia is SI-PASS, which is a single account enabling online registration for a number of different electronic service providers. The portal supports several identity providers with various levels of assurance. Google, Facebook, and Microsoft accounts are supported but with a lower level of assurance. Use cases include login to various services within public administration and health services, and electronic signatures. There is also a national eID card that is connected to SI-PASS, which can be used together with the app eOsebna to authenticate. Limited data on adoption and usage of the solutions.

eIDAS 2.0 Implementation Outlook and Method

As the final method of eIDAS 2.0 implementation is yet to be decided, Slovenia focuses their efforts on the Large Scale Pilot POTENTIAL where SI-TRUST participates. The Ministry will set up a European wallet on a pilot basis and test its use for accessing e-services on the eUprava and SPOT portals, which are e-government services. Further information regarding the status of private wallet providers and the development of the wallet has not been released yet.

Challenges:

- Even though Slovenia is fairly digitalised, there has been a lack of private initiatives within the digital identity scene, which might slow innovation and development.
- The country also needs to announce their implementation plan to keep up with the rest of the EU.

EUDI Wallet Initiatives

Government Initiatives:

No government initiatives announced.

Private Initiatives:

No private initiatives announced.

Spain

Overview

Spain is currently lagging within digital identity, with eID solutions that appear cumbersome, with low penetration. Without a clear agenda, there are many question marks regarding the implementation of eIDAS 2.0 in the country. Spain is the coordinator of the large scale pilot DC4EU, and is releasing an early version of their EUDI Wallet in September 2024. The private player Veridas claims to have released an eIDAS 2.0 compatible identity wallet as early as February 2024.

Current Digital Identity Landscape

The main digital identity solutions are government controlled, and use cases are limited to public administration. Cl@ve is a solution that works through an app or OTP via SMS. DNI is the national ID card with eID functionality. CERES is a digital certification software, which is "probably the most widely-accepted type of digital identification" (source).

eIDAS 2.0 Implementation Outlook and Method

Spain has launched a multi-faceted digital ID plan, which focuses on digitised renewal of physical and digital national identity documents (DNI). Alongside, the government announced in July 2024 the development of a digital wallet that will have age verification as its first use case and will turn into the government provided EUDI Wallet. There is no information whether private Wallet Providers will be allowed.

Challenges:

- Poor eID solutions with low adoption currently.
- Tries to leapfrog the development by releasing a EUDI Wallet early.

EUDI Wallet Initiatives

Government Initiatives:

- **Digital Wallet Beta/Cartera Digital Beta:** Announced in July 2024, early version due to release in "end of the summer". The first functionality will be online age verification for accessing adult content online.
- **SOTERIA:** Project funded by EU Horizon 2020, with focus on AI enabled identity proofing.

Private Initiatives:

- **Veridas:** Spanish digital identity and biometrics company. Released their wallet **Nexus** in february 2024, which they claim to "align perfectly" with eIDAS 2.0 regulation. Leads two projects together with public administration connected to the integration of Nexus.

Sweden

Overview

Sweden is a leader within digital identity and has several solutions with widespread adoption. BankID is currently dominating the market. As the country seeks to keep its front position, the government will have to show initiative and create solutions that can compete with the private counterparts. Even though the eIDAS 2.0 implementation has not yet been decided on, the outlook is that there will be both a government solution and an option for private provider licensing.

Current Digital Identity Landscape

The Swedish BankID has an adoption of 99.4 percent of citizens between 18 and 64 years. It is provided by a consortium of banks and has a “substantial” level of assurance. Broad use cases within both public administration and the private sector. Other solutions include Freja eID, which has around 1 million onboarded (although not all active) users and is connected to the eIDAS node.

eIDAS 2.0 Implementation Outlook and Method

The method of the EUDI Wallet implementation in Sweden is still in progress, but there has been a proposal handed to the Minister for Civil Service Affairs. The proposal suggests that the Agency for Digital Government (DIGG) should develop a wallet, and that private options should be available through licensing.
The licensing of private options is proposed to be managed by DIGG, who also would be responsible for issuing PID.

DIGG is currently tasked with creating an electronic ID for private individuals with a “high” level of assurance. The project went live in January 2024, and the solution is to launch in 2026.

Challenges:

- Pioneer within digital identity, but has not announced their plans for the EUDI Wallet.
- Will have to demonstrate superior value with the EUDI Wallet compared to the widely adopted private solution BankID.

EUDI Wallet Initiatives

Government Initiatives:

- **DIGG:** Will likely develop the state provided Wallet.

Private Initiatives:

No private initiatives announced.

Switzerland

Overview

Switzerland, which for the most part is highly digitalised, has been lagging with eIDs. One explanation is that in 2021, there was a proposal to establish a national digital identity provided by private players. The proposal was voted down by the population largely due to privacy concerns, as people did not want private corporations to handle their identities.

Recently, things have changed. In 2023, the government launched a new state-run digital identity scheme, which it aims at launching in 2026. It is not outspokenly an eIDAS 2.0 EUDI Wallet, but it is a national digital identity wallet with ambition to have interoperability in Europe.

Current Digital Identity Landscape

The eID landscape has been fragmented in Switzerland, with some cantons launching their own digital identity, some using private identity providers and some not using eID schemes at all. The current largest eID provider is Swiss ID, which was a private option that was bought by the Swiss Post in 2021. It has around 39% adoption rate, and supports service providers in both public administration and the private sector.

eID Act

The eID Act was adopted in 2023 and is a government project to create a digital identity that follows the principles of self-sovereign identity (SSI), privacy by design, data minimization and decentralized data storage. The plan is to create a wallet that can store confirmation of residence, business register extracts, diplomas, tickets and membership cards as digital credentials.

The plan seems to be very much in line with the EUDI Wallets stipulated by eIDAS 2.0. The final decision on the technology enabling the eID is not made yet, but according to the GitHub page, the plan is to follow eIDAS 2.0 standards in order to allow for interoperability further ahead.

The Swiss government recently released a tender for the online verification of the identity of persons applying for the state eID.

Challenges:

- Public scepticism towards digital identity solutions, evident in the 2021 vote.
- No clear path towards integration in the EUDI Wallet ecosystem.

United Kingdom

Overview

The UK is a unique player in the identity landscape. The country does not have a national identity card system, and has abandoned plans to implement a national digital identity scheme following the unsuccessful launch and later scrapping of the Gov.uk Verify solution. Currently, the citizens rely on private schemes, which have not reached widespread adoption. Due to the lack of digital identity schemes, Britain has consistently ranked top in Europe regarding frauds and money laundering. Currently, the KYC and AML procedures are manual, slow, and cumbersome, and require in-person visits to submit physical documents. The government's solution is a proposed trust framework called DIATF.

Current Digital Identity Landscape

There is a government single-sign-on (SSO) solution called Gov.uk One Login, used for login to public administration, but that has limited adoption. The private company Yoti has developed a somewhat widespread solution, with around 10% adoption. It has broad use cases towards private service providers. It is also provided as a white label solution used by Post Office EasyID and Lloyds Bank Smart ID.

The UK Digital Identity and Attributes Trust Framework (DIATF)

The UK left the EU officially in 2020, but has incorporated many of the regulations regarding digital identity and cybersecurity into national legislation, e.g. the UK GDPR and the UK eIDAS. Parallel to the EU's development of eIDAS 2.0, the UK has developed their own digital identity framework: the UK Digital Identity and Attributes Trust Framework (DIATF). A key feature of the DIATF is that the government will not provide a digital identity, but rather, certify trusted private parties to do so.

The UK DIATF is currently under processing, and the latest version, beta 0.3, was released in July 2023. The framework was due to become law in May 2024 under the Data Protection and Digital Information Bill, but the latter failed to pass the House of Lords during the wash-up prior to the UK general election. However, organisations are already able to obtain certification against the UK DIATF.

The framework bears similarities to eIDAS 2.0, but they are still completely disconnected. The UK is monitoring the development of eIDAS 2.0, and it is expected that the UK will achieve some level of integration across the EU and vice versa. However, the extent of this alignment is yet still unclear.

Challenges:

- Has previously failed to implement government digital identity schemes.
- A lack of national ID cards complicates the development of digital identity solutions.