Germany’s EUDI Wallet Ecosystem Development

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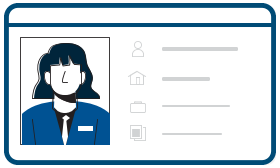
Shopping & Paying via App – but IDs and Birth Certificates still on Paper

Our most important documents – from birth certificates to ID cards – are still based on paper and plastic.

Everything digital and absolutely secure — right?

Video/Photo identification process when opening a bank account

Hold your ID and face in front of the camera



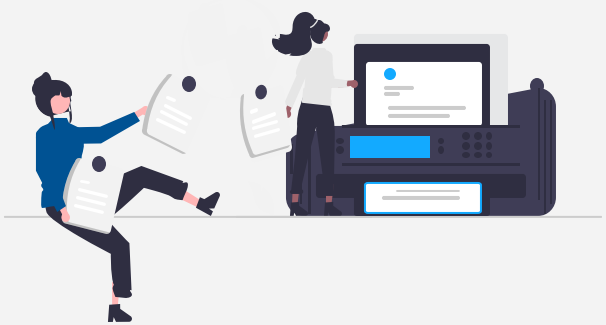
Recordings are archived

Scanned proof of qualification for job applications

Photographed ID card for holiday apartment booking

Sending sensitive credentials via email/messaging apps

Challenges for Users and Services



Cumbersome - Printing on paper, manual checks, signatures, scanning — over and over again

Inefficient - Significant loss of time and inefficiency due to repetitive manual processes

Media disruptions in end-to-end processes lead to **user drop-offs**

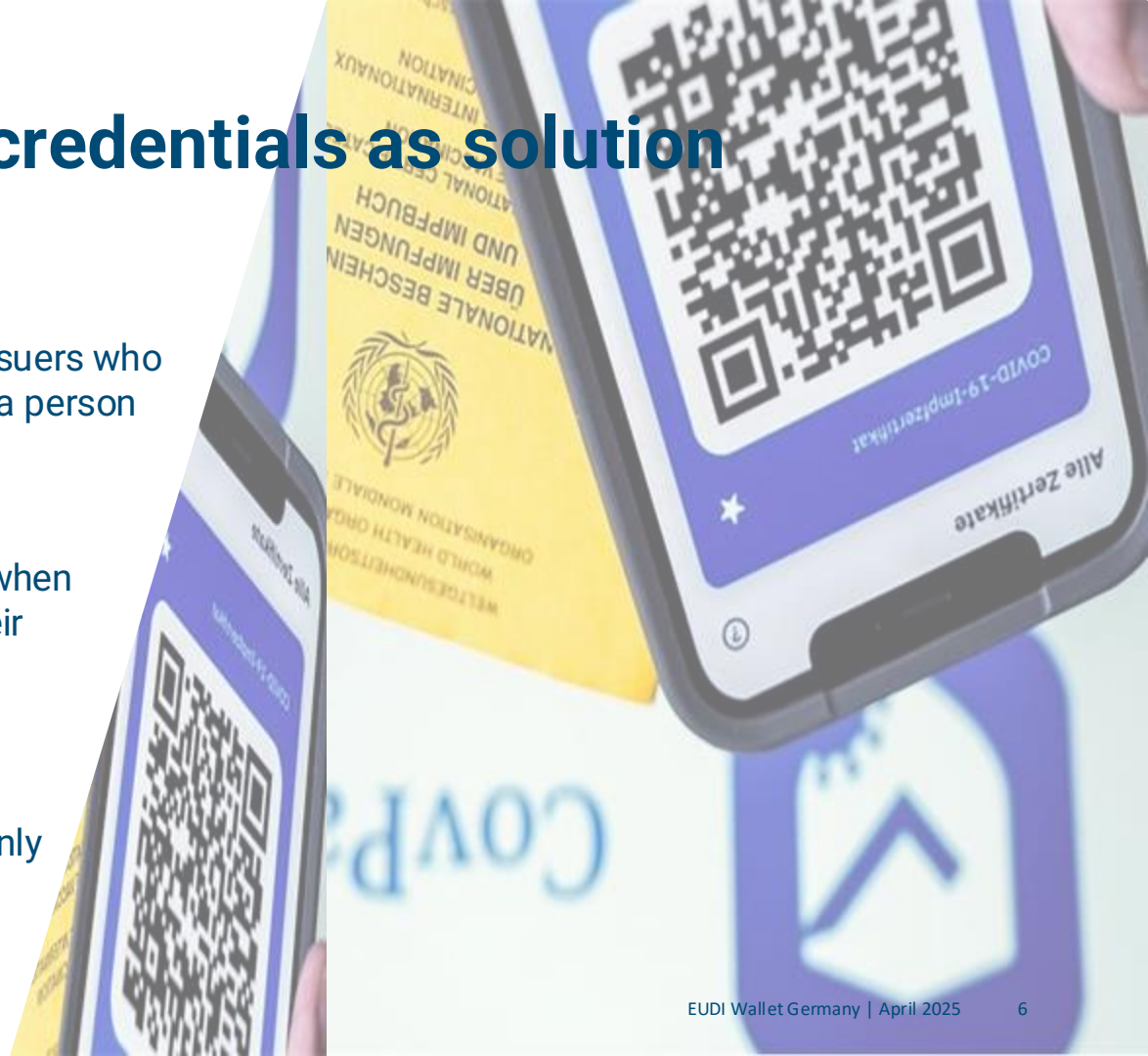
Insufficient security features and low data quality

Digitally verifiable credentials as solution

Trust-based
Relies on trusted credential issuers who confirm specific attributes of a person

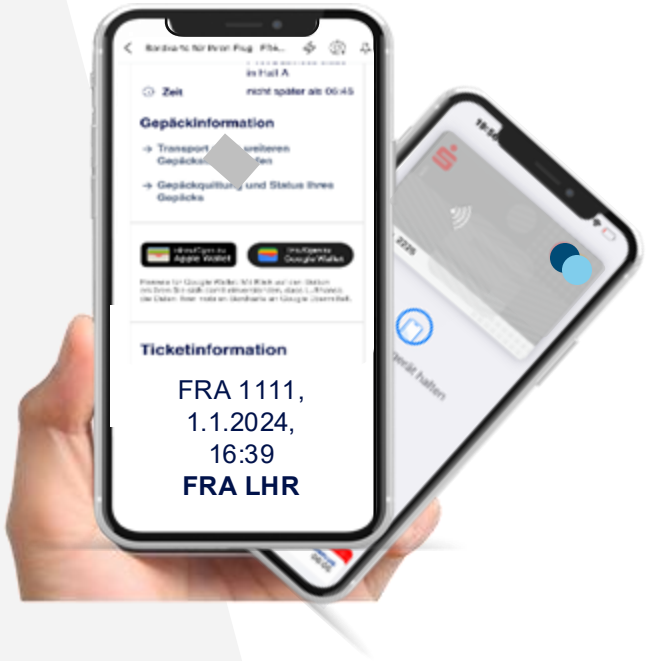
User-controlled
Users decide for themselves when and with whom they share their digital credentials

Tamper-proof & verifiable
Allows verification without unnecessary data sharing – only the essential information is transmitted.



The solution seems obvious: Wallets already exist on our smartphones

- **Credentials** are stored digitally
- **Intuitive use:** easy to handle, pre-installed
- **Accessible** to many



Wallets are on our phones — but they're not yet in our control

- **Limited functionality:** mostly for payments, flights, or concert tickets
- Use cases and technologies determined by the **Providers**
- **Lack of influence** threatens Europe's digital sovereignty

Every issuer could build their own wallet

Fragmented user experience
A separate app or wallet for every function leads to app chaos and extra effort for users

Low user acceptance
Nobody wants to download and maintain a new app for every use case

High costs
Developing, maintaining, and operating a wallet is expensive

The vision – By 2026, every EU citizen will have access to a digital wallet.

The European Digital Identity Wallet

The European Union plans to have **non-discriminatory, secure, and interoperable** wallets in place by the end of 2026.

Member states can **choose** how to implement this — whether they directly provide it, mandate an entity to do so or recognize wallet solutions.

The requirement: A uniform **certification** based on common standards.

EUDI Wallet Germany

Germany is developing a secure and user-friendly wallet ecosystem through a **transparent and public architecture and consultation process**.

Federal Ministry of the Interior and Community
SPRIN-D
Federal Office for Information Security
Fraunhofer AISEC
bdr. Bundesdruckerei
pwc

Germany's dual strategy: Promoting innovation while ensuring reliability

The Government-provided wallet

Ensures availability of EUDI Wallet:
Every German citizen or resident will be able to use a EUDI Wallet by EOY 2026.

Digital Sovereignty:
Germany is independent of market offers.

Basis for certification:
The Government-provided wallet serves as a 'reference model' for German certification scheme.

Open to alternative wallet providers

Freedom of choice for users:
Every user can choose from different certified and recognized EUDI Wallets.

Trust:
Users can pick the wallet provider they trust the most.

Innovation:
Competition fosters innovation (e.g. UX, form factors, additional services)

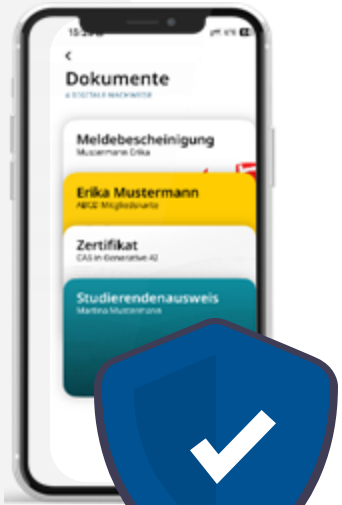
How do we guarantee digital security while ensuring sovereignty?

Strict certification of wallets

Providers must meet strict **requirements** and security standards in order to offer their product as an **'EUDI-compliant'** wallet.

Security through transparency and registration

Every service (Relying Party) that uses the EUDI-Wallet must officially register and disclose its **'Intended Use'.**



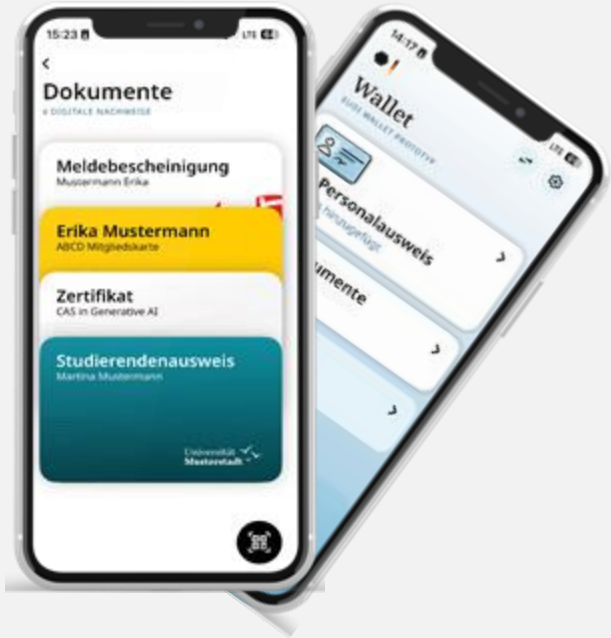
Full data control for users

Users decide for themselves which data they want to share – no transfer without consent. Credentials can be used anonymously and without traceability **('Non-Traceability').**

Consumer protection & complaint centers

All relying parties are listed in a **publicly accessible registry.** There are clearly defined contact points for complaints.

EUDI Wallet – More than just a digital ID



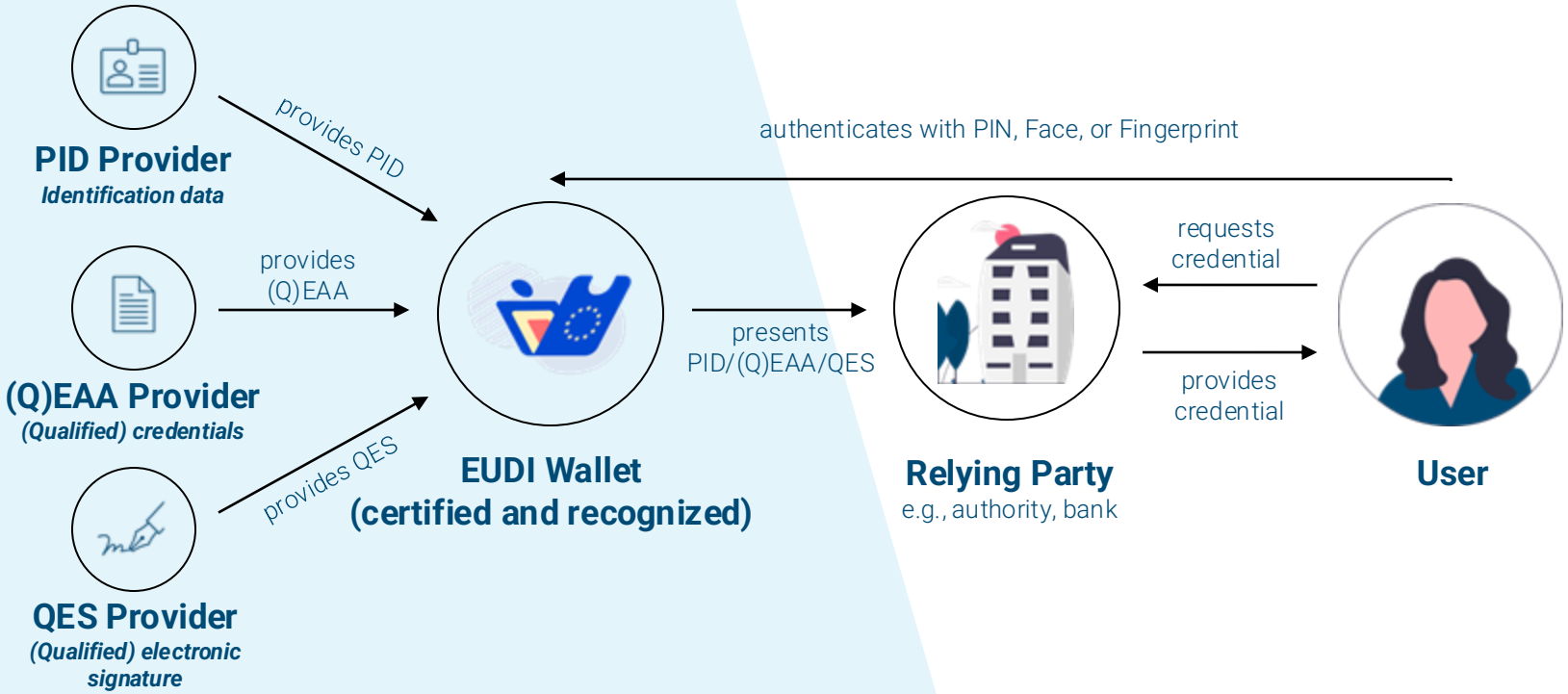
01 **Identification:** Secure verification using your ID card

02 **Digital Credentials:** Attestations of attributes: e.g., driver's license, etc.

03 **Electronic Signatures:** Legally binding signatures without paperwork

04 **Payments:** Authorizing payment transactions using the Wallet

The roles in the EUDI Wallet ecosystem



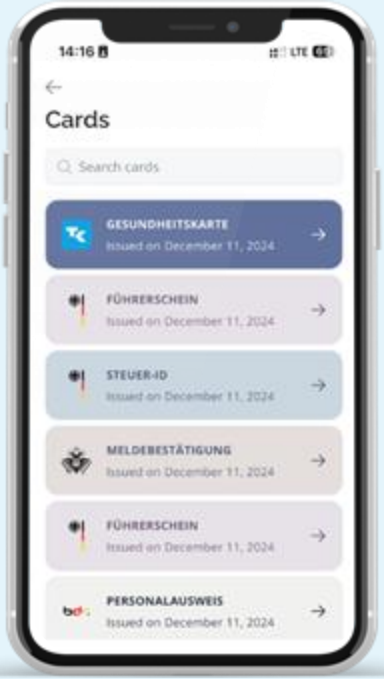
PID = Personal Identification Data | (Q)EAA = (Qualified) Electronic Attributes | QES = Qualified Electronic Signature

The physical wallet can stay at home.

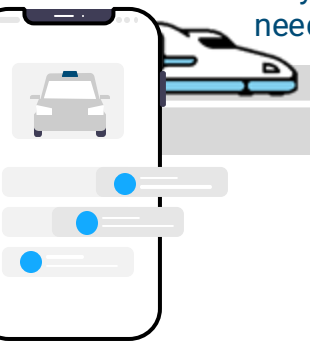
Convenience
Your wallet stays at home. Digital credentials (ID card, driver's license, health insurance card) are equivalent to their physical counterparts.

Data protection and security
Especially: Reduction of fraud and identity theft

Usable anytime and anywhere
Credentials can be used across Europe both online and on-site



Renting a car easily with the EUDI Wallet



Mary spontaneously needs to rent a car

EUDI-Wallet on your smartphone
Includes ID card, driver's license, debit card

Identification via wallet
She securely identifies herself with her digital ID

Chooses a car to rent
and starts the booking process

Attestation via wallet
She proves her driving privileges with her driver's license

Digital signature
She digitally and legally signs the rental agreement in the wallet

Authorizes payment
She easily pays rental charges via the wallet

Digital car key transferred to wallet

On arrival: Directly pick up the car and drive off

Public administration benefits from the EUDI Wallet through a unified system

Faster processes
e.g., address change notification or parental benefits application – fully digital & seamless

Efficiency
e.g., economic promotion through machine-readable, tamper-proof credentials

Increased citizen satisfaction
Through simple and straightforward access to public services

Fraud prevention
e.g., enrollment certificate and child benefits

The economy benefits as part of the ecosystem through the exploration of new markets

Growth
Through lower dropout rates (e.g., power of attorney), new products (e.g., fully digital car rental), and greater reach (across the entire EU)

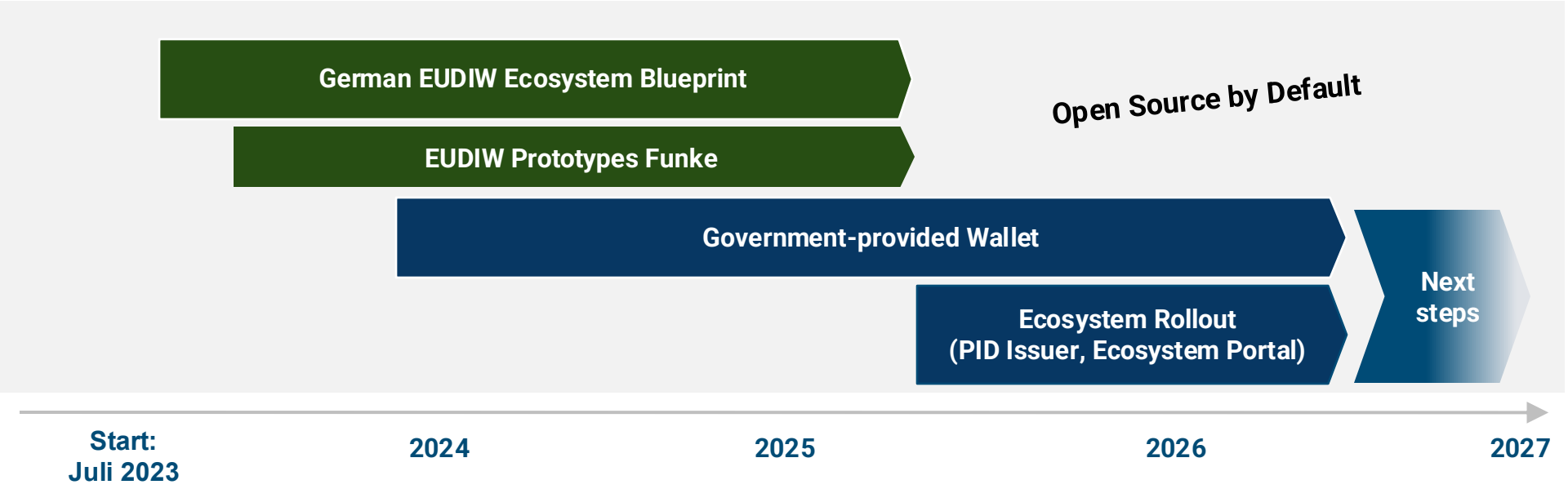
Higher efficiency
Automation, support for business use cases (e.g., power of attorney), replacement of card-based solutions

Fraud prevention
Reduction of legal risks, lower costs due to reversals

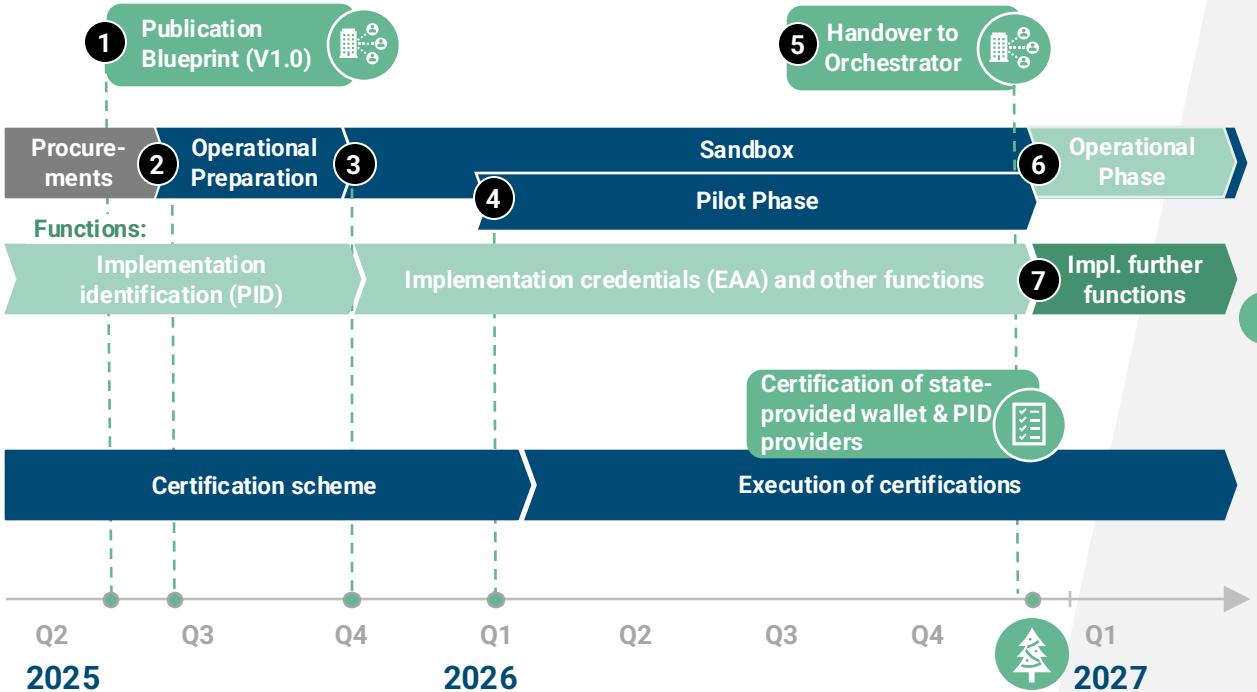
New market
Trust services, technology and solution offerings for integrating the wallet into processes, alternative wallet providers

Value creation through contributions to the operation of the ecosystem
Via tenders, e.g., wallet operation

Roadmap – The path to the German EUDI Wallet



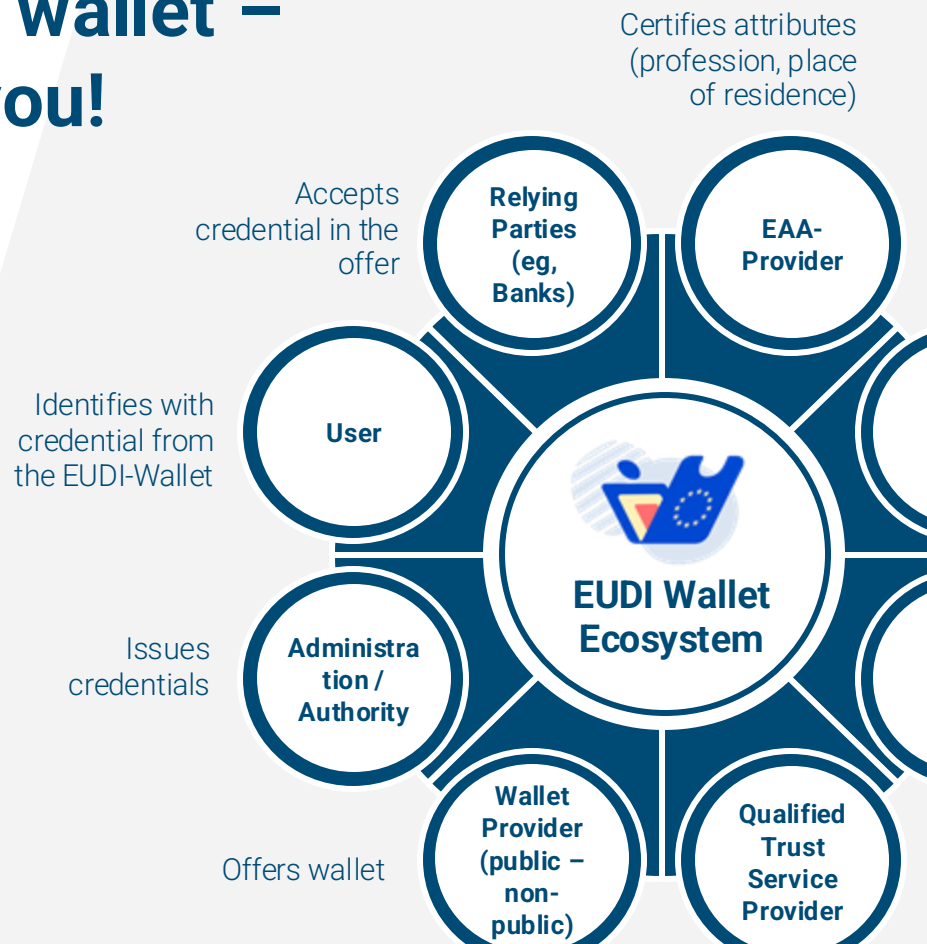
Roadmap – The way to the EUDI Wallet



1. **Blueprint:** The overall concept for the EUDI Wallet ecosystem is published.
2. **Procurements:** Key roles such as PID providers, wallet operators, and ecosystem management are commissioned.
3. **Sandbox Testing Environment:** RPs can integrate the wallet in a sandbox environment. A security bug bounty program is conducted.
4. **Pilot Phase:** All production-level processes are tested, including incident management, support recovery management, scalability, functional testing.
5. **Handover to Orchestrator:** SPRIND hands over to an orchestrator who takes over the operation of the wallet and ecosystem.
6. **Operational Phase:** State-provided wallet and ecosystem are rolled out to citizens and residents with PID and credential functionality.
7. **Further Functions:** To be developed iteratively from 2027 onwards: Free electronic signature, payment authorization, pseudonym login, wallet-to-wallet use between users, forwarding & sharing of credentials.

The ecosystem behind the wallet – the key success factor is you!

> Only when **all relevant stakeholders are on board – from authorities to businesses to citizens** – can the wallet be deployed successfully and nationwide!



From Europe to the World: EUDI Wallet as a Global Digital Identity Blueprint

1. **Strategic Investment**
   EU focus attracts top talent, innovation, and funding — setting a pace others will follow.

2. **Built for Trust**
   Highest security and privacy standards make the EUDI Wallet a global benchmark for trust.

3. **Scalable Architecture**
   Architected for interoperability across 27 member states — ready for global adaptation.

4. **Global Interoperability**
   EUDI Wallet sets a precedent for cross-border digital identity solutions.

EUDI WALLET ECOSYSTEM MANAGEMENT PORTAL

May 2025

Executive summary

The **EUDI Ecosystem Management Portal** is the **basis** for accessing the EUDI Wallet ecosystem

The portal comprises **seven core functions**, including the registration and identification of organizations to meet the new eIDAS requirements

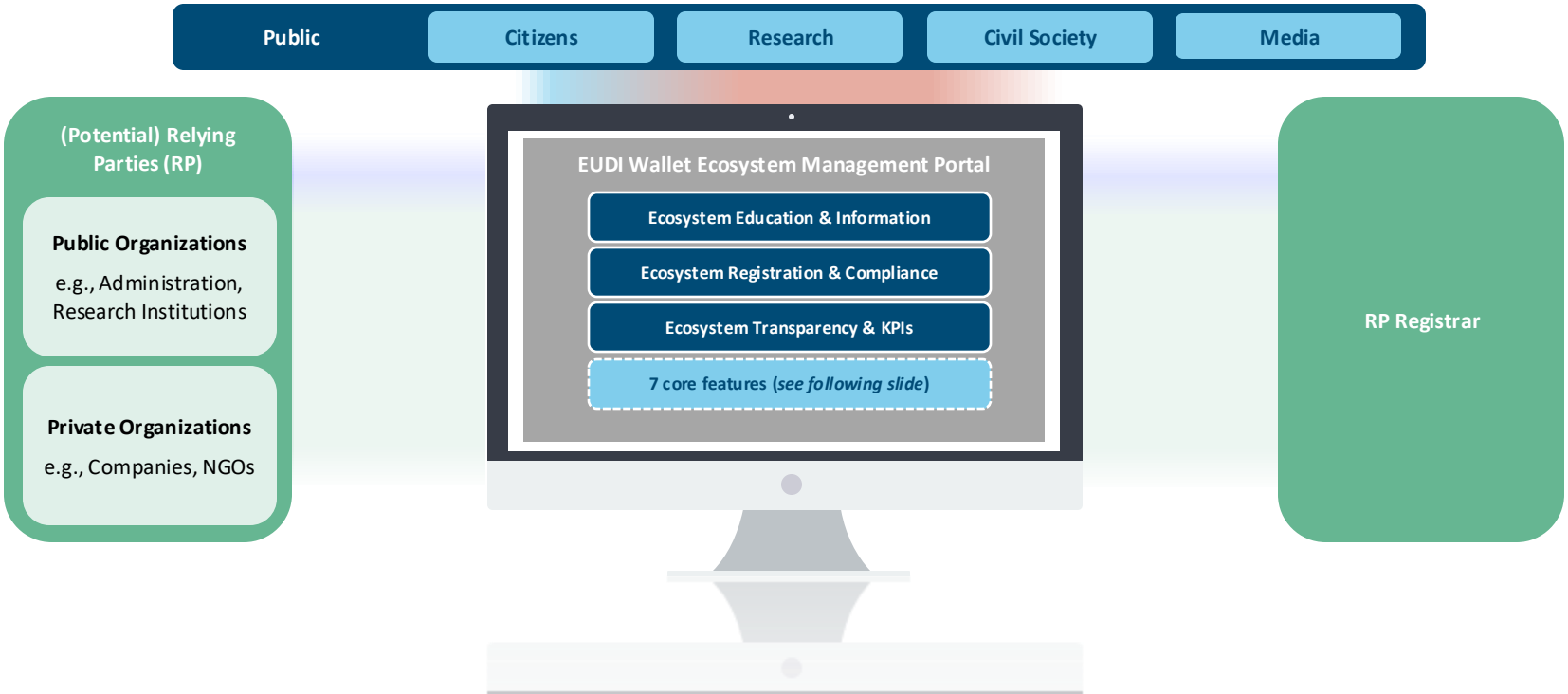
An **ecosystem orchestrator** provides the portal for the EUDI Wallet ecosystem, a possible reuse by other ecosystems is being evaluated

An ecosystem dashboard provides a public **overview of all interactions and key KPIs**

The portal covers all **legal, technical and commercial aspects** and is the central location for all information about the ecosystem

Development is **iterative** and takes place in three stages to ensure flexibility and support the ecosystem rollout

An eudi wallet ecosystem management portal is the central hub for ecosystem access and information



EUDI Wallet Ecosystem Management Portal: Target Vision of Seven Core Functions

RP registration bundled as self-service processes

- Registration steps are automated in self-service for fast and efficient access

Clarification of legal and financial matters

- Legal and financial issues are clarified and organized via the Ecosystem Management Portal

Organization account for the entire ecosystem

- Organizations can bundle all functions in one account and manage activities

Dashboard & Declared Intended Uses

- All organizational interactions with the EUDI Wallet are recorded in central KPIs and made transparent via a dashboard

Information about the EUDI Wallet Innovation Lab

- Interested parties can find information about the EUDI Wallet Innovation Lab test environment and ways to get involved

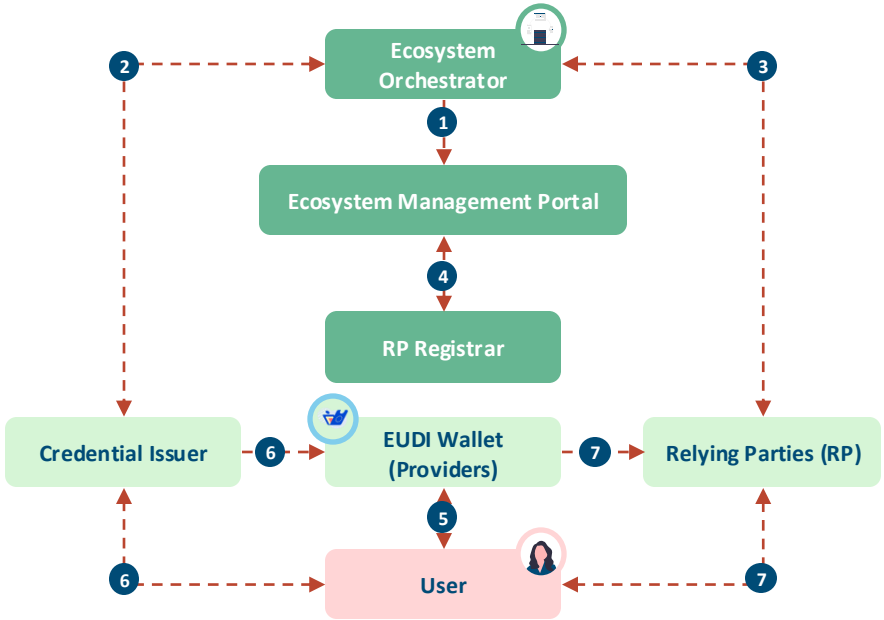
All information & overview of attestations

- Interested parties can find all relevant information about the EUDI Wallet ecosystem and, for example, existing attestations

Third-party interface

- A technical interface for integrating core functions into third-party solutions

The ecosystem management portal plays a central role in the rollout of the ecosystem



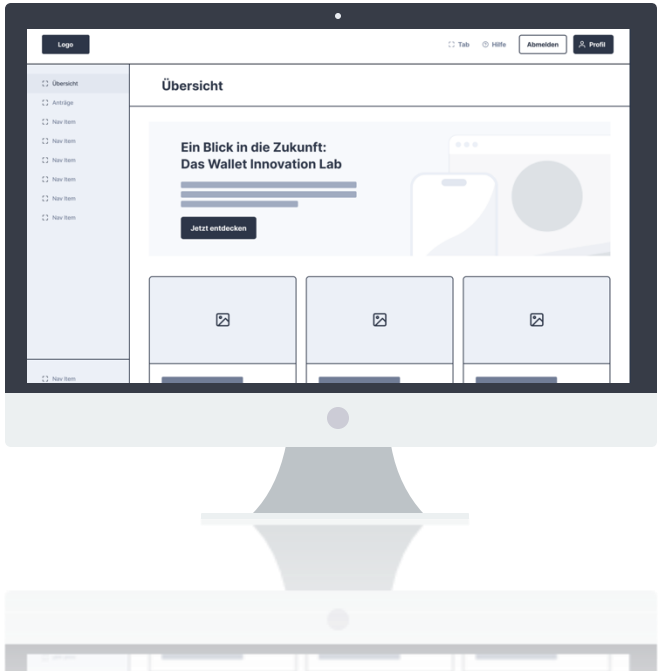
1. The Ecosystem Orchestrator is responsible for the Ecosystem Management Portal and operates it
2. All credential issuers, such as driver's license issuers, register and identify themselves in the Management Portal in order to be able to issue credential to the EUDI Wallet
3. All relying parties (e.g., banks or public authorities) register and identify themselves in the portal in order to obtain certificates that allow them to retrieve attestations from the EUDI Wallet
4. As the central supervisory authority, the RP Registrar can use the portal to check registration and access certificates and revoke them if necessary
5. Users select their EUDI Wallet provider, in whose wallet app they wish to store and manage their credentials
6. At the user's request, credential issuers issue the desired credentials to the selected wallet, e.g., educational qualifications or a health insurance card
7. At the user's request, the EUDI Wallet transfers evidence to relying parties, e.g., personal identification data when opening a bank account

Six design principles shape the development of the ecosystem management portal

- Easy target group-specific access & feature upgrades as needed
- Modular design & iterative development based on dynamic requirements
- Transparency & public control through Open Data by Design
- Open Source & reuse options for e.g., other EU member states
- Compliance with the emerging eIDAS 2.0 requirements for the EUDI Wallet ecosystem in the form of a user-centric end-to-end solution
- Privacy and security by design, as well as consideration of the requirements of public administration

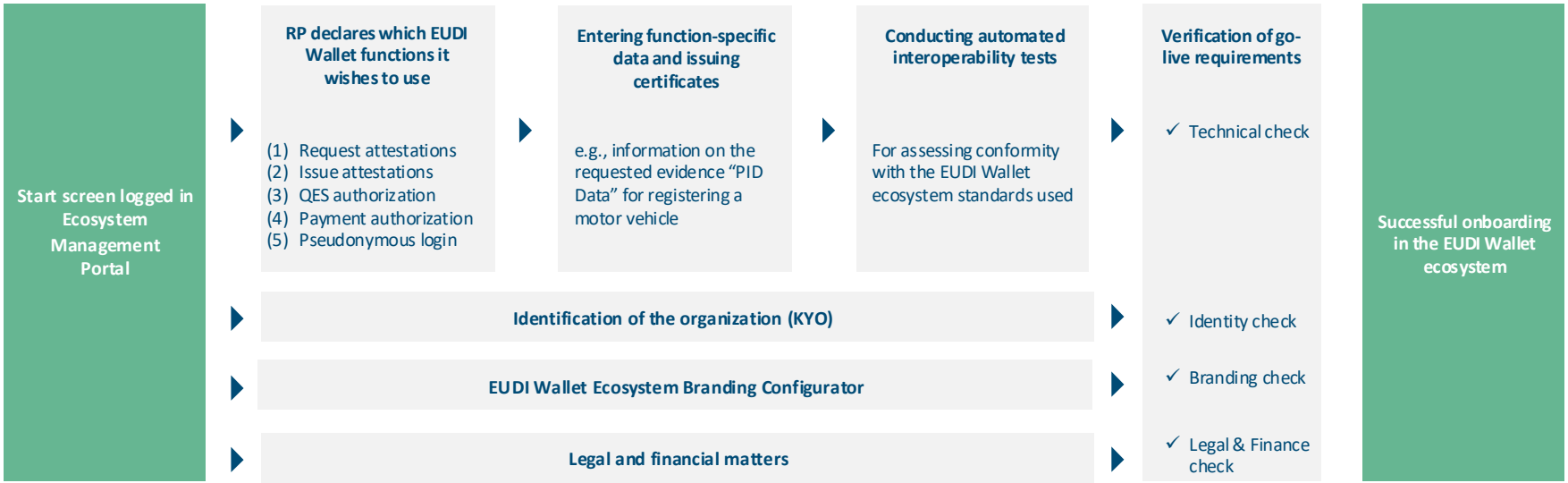
Users get easy access and organizations manage their interactions in one account

Quick registration with email verification for easy ecosystem access for interested and active members of organizations



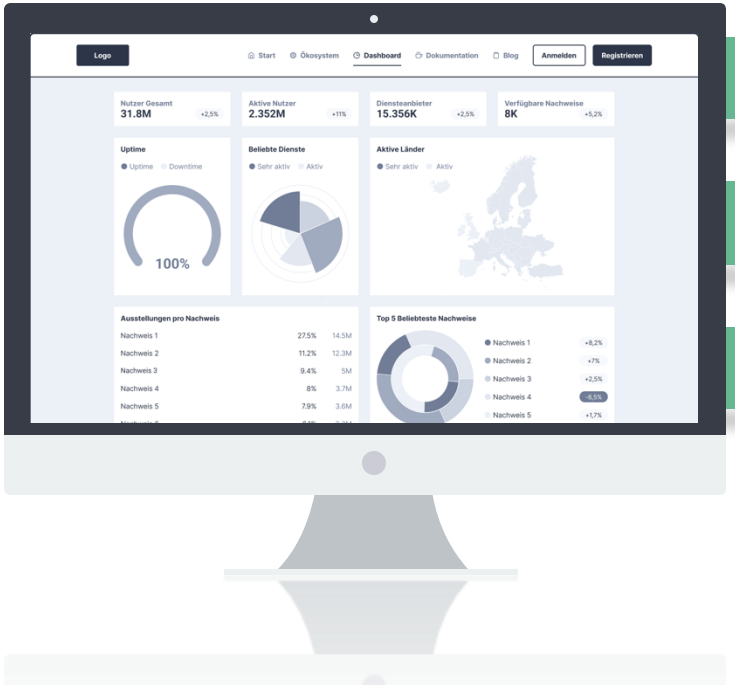
Upgrade to a custom organization account to **manage all features with a single organization dashboard**

All legal, technical, and commercial onboarding steps* are covered in a modular format



**Initial considerations, which may still evolve during development*

All organizational information and key KPIs are published in an ecosystem dashboard



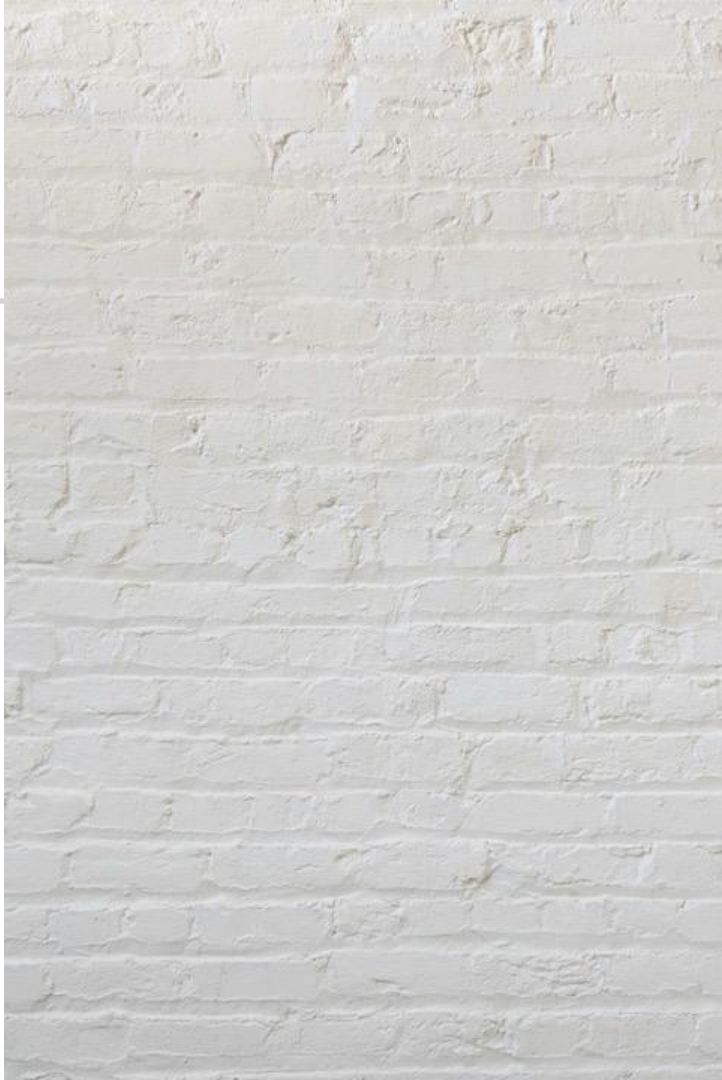
- Overview of EUDI Wallet ecosystem KPIs including operational status
- Information about organizations and their use cases with the EUDI Wallet will be published
- All data is published in machine-readable open data format

QUALITATIVE INTERVIEWS LEARNINGS END-USERS

THE EUDI WALLET CONSULTATION TEAM

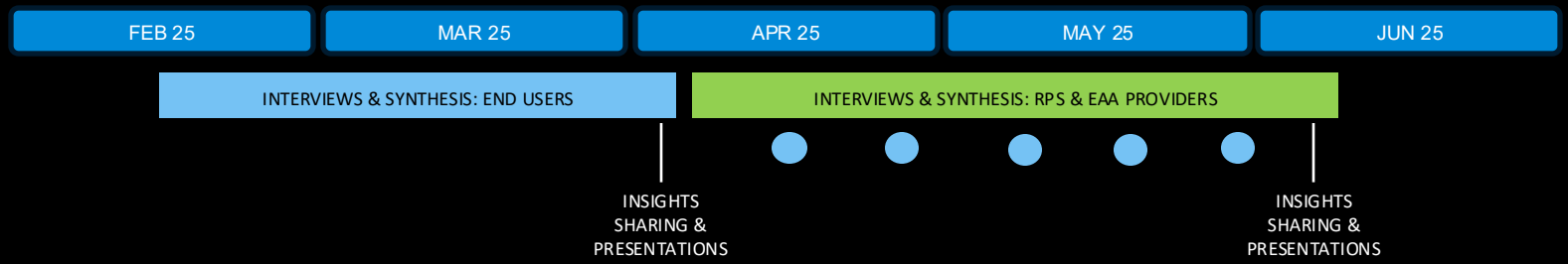
AGENDA

1. Purpose of Today
2. Value Proposition: End Users
3. Research Methodology: Qualitative Interviews
4. Wallet Operator Preferences
5. Interviews with End Users: Insights
6. How does this change the value proposition for end users?



1. END USERS

2. RELYING PARTIES & 3. EAA PROVIDERS
(BECAUSE THEY'RE USUALLY BOTH)



VALUE PROPOSITION:
END USERS

Value Proposition for Users

Comfort and efficiency

Intuitive and easy to use for all societal user groups

Control over Personal Data

Provide **transparency** on which data are shared with whom

Enhanced privacy

Support **pseudonyms** and hinder **overidentification**

High Level Security

Safeguard **personal information** from **cybercrime** and **fraud**

Better access to Services

Non-discriminatory access to **end-to-end digital** processes

Legal Recognition

Cross-boarder acceptance of electronic attestations

Free QES for non-professional use

Easily sign documents and **confirm** data

METHODOLOGY: QUALITATIVE RESEARCH

QUALITATIVE RESEARCH

Interviews are a form of qualitative research. This type of analysis enables us to **understand people deeply** – to identify their **behaviour**, understand their **context**, and understand what **values drive their behaviour**. The sample size is small, but this method is about going deep rather than broad.

Quantitative research is used to size a problem or market, and qualitative research is **used to understand and empathise with people**. Qualitative research is **not representative, nor does it correlate to a place's wider population**.

When possible, qualitative data can be further supported by relevant quantitative data as well as stakeholder information to provide better weighting and information reliability.

WE WON'T...

GIVE PERCENTAGES

GIVE DEFINITE YES OR NO CONFIRMATIONS

WE WILL...

PROVIDE LEVERAGE POINTS AND CAUTION SIGNS FOR EVIDENCE-BASED DECISION MAKING

INTERVIEWS WITH END USERS – SAMPLE

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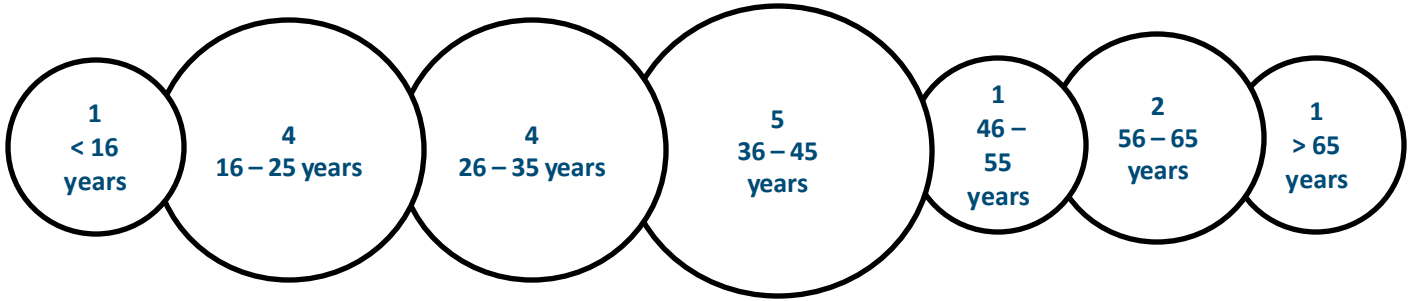


7 ♀ 11 ♂	Mostly academic background 3 non-academic background 1 high school student 2 retirees	Interviews were completed in person, online and by telephone from 10th to 23rd of March 2025

WALLET OPERATOR PREFERENCES

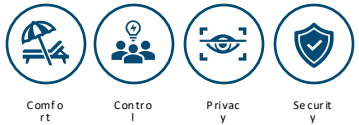
A GOVERNMENTAL WALLET

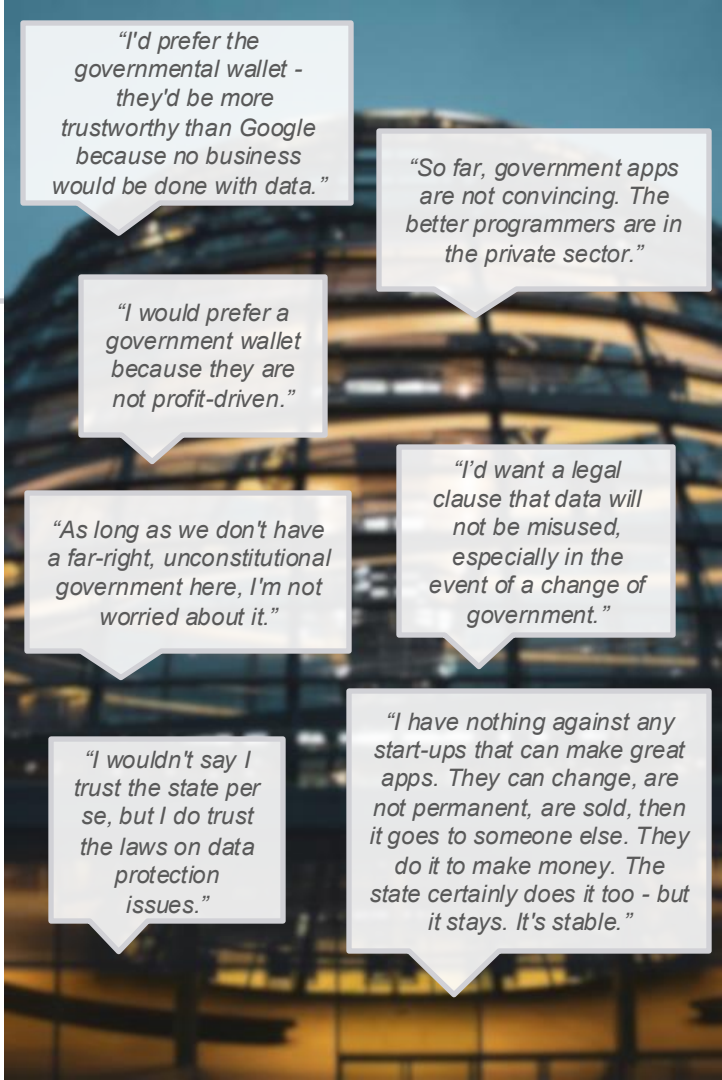
TRUST IN REGULATION BUT AN UNDERLYING MISTRUST IN TECHNICAL CAPABILITY.

For:
- Not profit driven
- Belief that it's better regulated and protected – trustworthiness
- A German operator in Germany would be more secure

Against:
- Past experience with bad governmental UX and apps
- Belief in a lack of government design and technical competency
- Rise in right wing politics – concerns that data could be misused in a governmental change

CHANCE: Potential to wow the public with good UX and tech!
How might we: ensure this stays cutting edge and up-to-date?



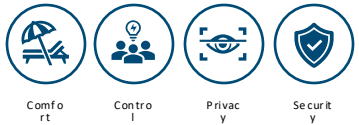


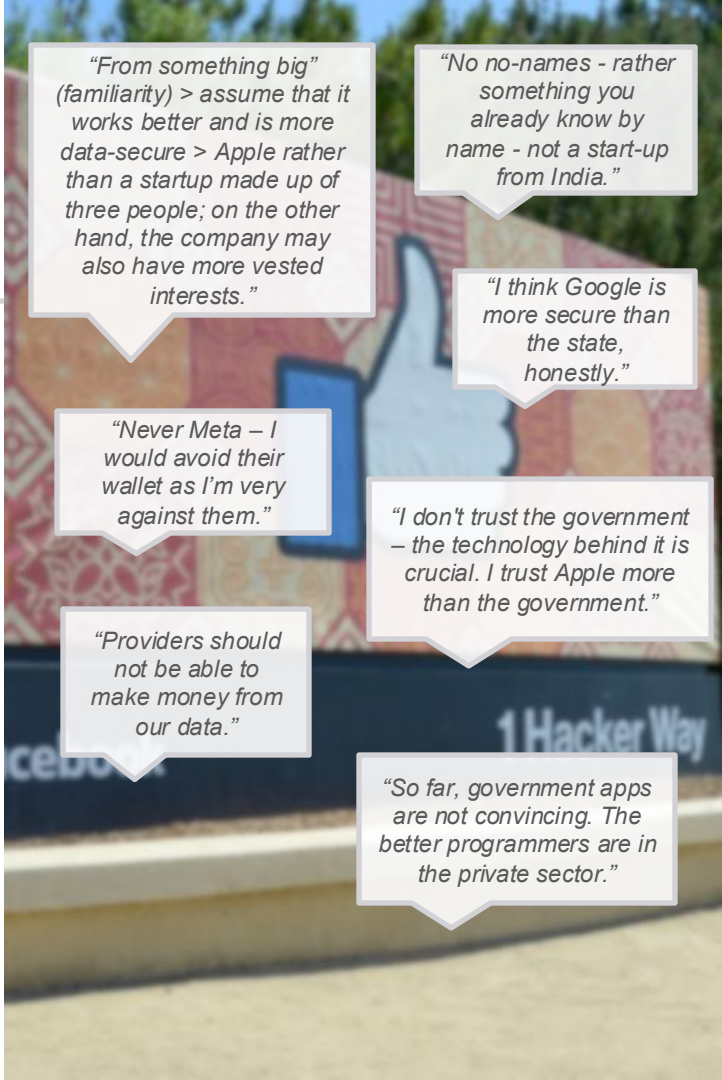
A COMMERCIAL WALLET

GETTING THE BEST DESIGN AND TECH AT THE POTENTIAL COST OF PERSONAL DATA.

For:
- Belief they are more technically up-to-date and cutting edge
- Belief that they have better security, design and UX
- Integration with existing services – e.g. Google and Apple

Against:
- Profit driven – other agendas
- Data as a business
- Private companies can be bought out by others
- Smaller unknown companies





DISTRUST FOR CERTAIN WALLET OPERATORS EVEN THOUGH ALL MUST FOLLOW THE SAME REQUIREMENTS.

- Some preference for a **neutral operator**, non-governmental and non-profit, such as an **official institution**
- More trust in the security of a **domestic operator**
- **Public private partnerships** can ensure the best of all worlds
- Expectations for **easy transfer between different wallets** – no feeling of being locked in and dependent on one operator

There is clearly no one-size-fits-all solution when it comes to wallet operator preferences. This reinforces the necessity to offer the option of multiple operators – but can there be too many?

INTERVIEWS WITH END USERS

INSIGHTS OVERVIEW

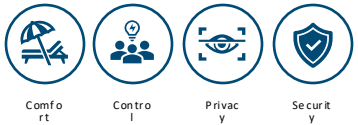
01: Comfort and efficiency outweigh concerns.

02: The EUDI wallet offers simple value to the less digitally savvy.

03: Longer setup for EUDI-wallet creates the perception of better long-term efficiency and security.

04: Digital must be simpler than analog alternatives

05: People feel powerless against data theft and security breaches.



06: End-users expect transparent continuous development.

07: For many, the real issue is the hassle of recovering from Identity theft and loss, not the theft itself.

08: Past experiences deeply shape mistrust. Without negative experiences, end-users behave naively.

09: There are individually different assessments of which data make up your personal identity and how it should be protected.

01: COMFORT AND EFFICIENCY OUTWEIGH CONCERNS.

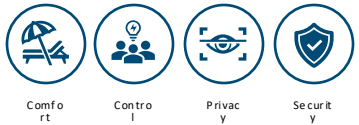
We believe this means…

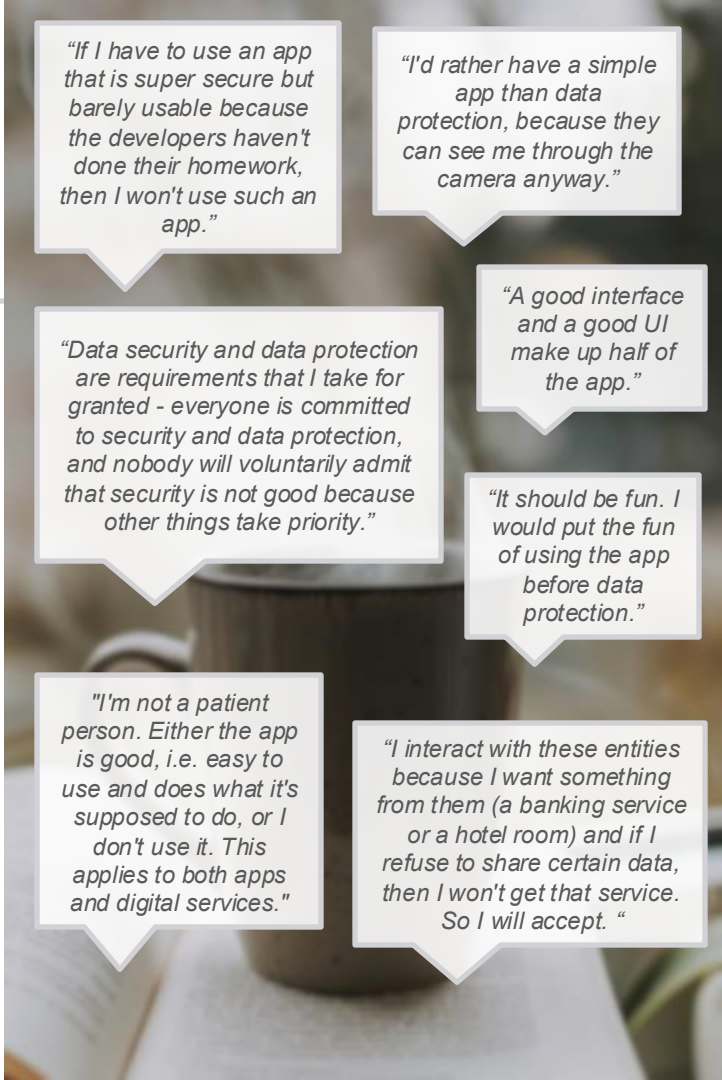
That **most people prioritise good useability, convenience, comfort and efficiency over data protection, security, and privacy** – whether they voluntarily admit it or are aware of it.

Despite claiming how important they value data security and privacy; they conduct actions that contradict this **due to impatience or frustration**. Sometimes, they need or want a service enough that it **warrants a slip in their otherwise 'secure behaviour'.**

More benefit = more tolerance for less security.

What are your thoughts?





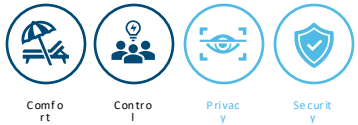
02: THE EUDI WALLET OFFERS SIMPLE VALUE TO THE LESS DIGITALLY SAVVY.

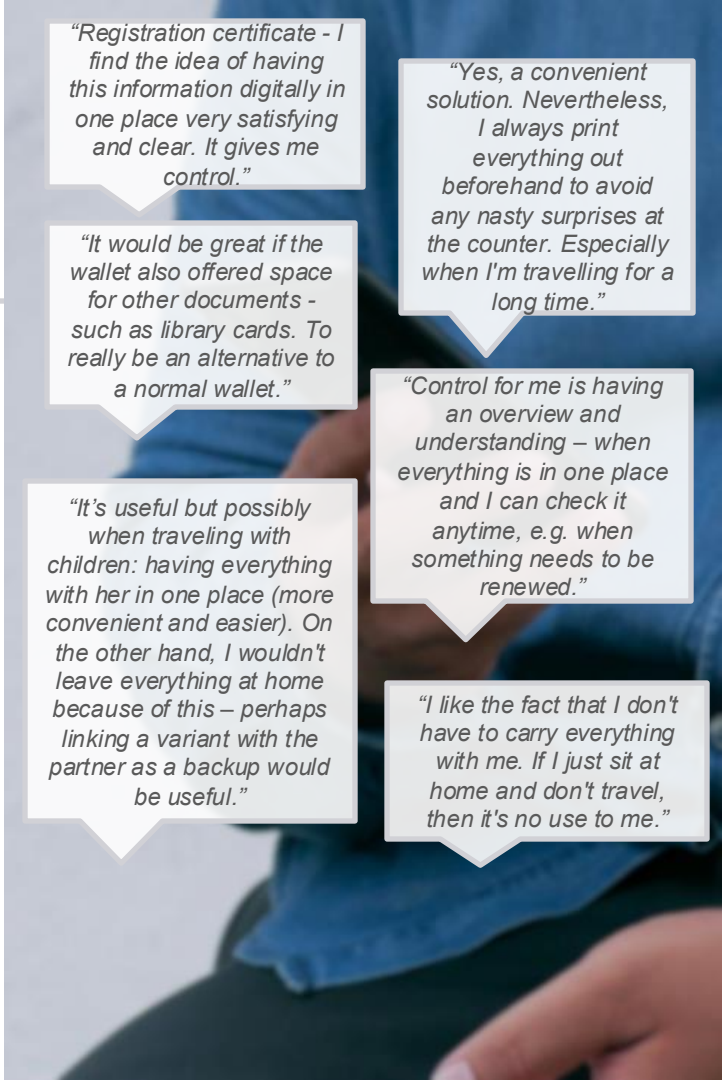
We believe this means…

Having all their **documents digitally accessible in one place and using it in an analogue way** (i.e. physically showing the screen) is the added value that many see as **relevant on a daily basis** – particularly the elderly, the less technical, and frequent travelers.

However, a lot of people are still **not willing to completely rely on digital** and will **bring physical printouts** with them as a form of back up. It's still not rooted enough in their daily lives to do things digitally.

What are your thoughts?





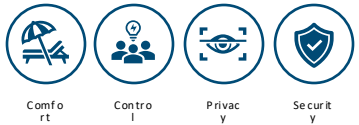
03: LONGER SETUP FOR EUDI-WALLET CREATES THE PERCEPTION OF BETTER LONG-TERM EFFICIENCY AND SECURITY.

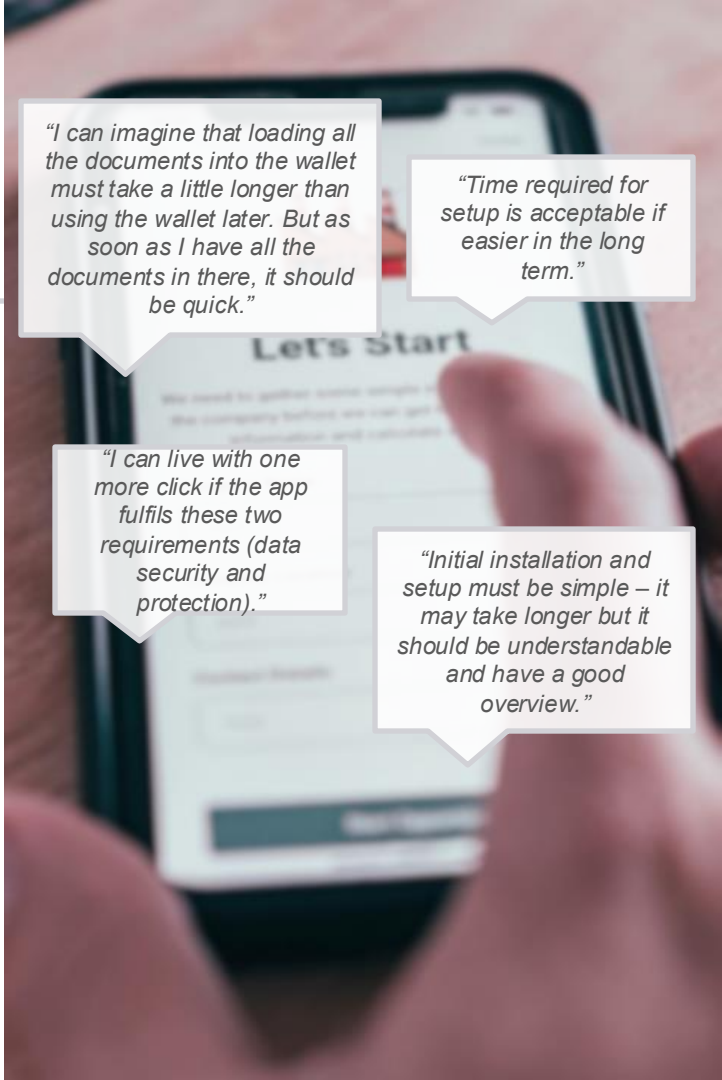
We believe this means…

Many expressed a certain level of **tolerance and understanding** if the EUDI-Wallet would require a **longer setup and onboarding processes**.

They seemed to associate the idea that the **extra time and effort spent in the setup correlates to more efficiency and security in the long term**. The question is, how much more time and effort is allowed to still be acceptable and even seen as advantageous?

What are your thoughts?





04: DIGITAL MUST BE SIMPLER THAN ANALOG ALTERNATIVES

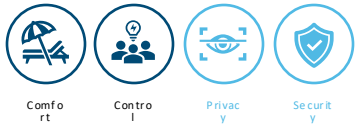
We believe this means…

There is **no tolerance** for digital to be **more cumbersome than existing analogue alternatives**. The expectation is that this will enhance ease-of-use and simplify processes – not complicate.

This is especially important in the analogue use of the EUDI-Wallet where any form of identity **needs to be quick and easy to retrieve**.

Physical breaks in the digital process, such as waiting for an activation letter by mail tend to also **leave a bad aftertaste**.

What are your thoughts?



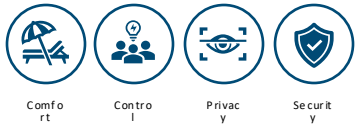
05: PEOPLE FEEL POWERLESS AGAINST DATA THEFT AND SECURITY BREACHES.

We believe this means…

People feel that they're at the **mercy of hackers, data leaks and breaches**. The lack of tangibility makes it hard to see and understand, resulting many to **blindly trust security standards or technologies they do not really understand**. They believe breaches are **inevitable** and it's too late worry about our personal data because it's already being used.

This leads to the choice that they can live in fear and stay behind or use a new service they want and **accept that s**t can happen**. But with the **German EUDI Wallet, users are less powerless** and this **needs to be communicated**.

What are your thoughts?



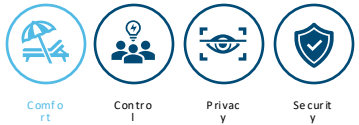
06: END-USERS EXPECT TRANSPARENT CONTINUOUS DEVELOPMENT.

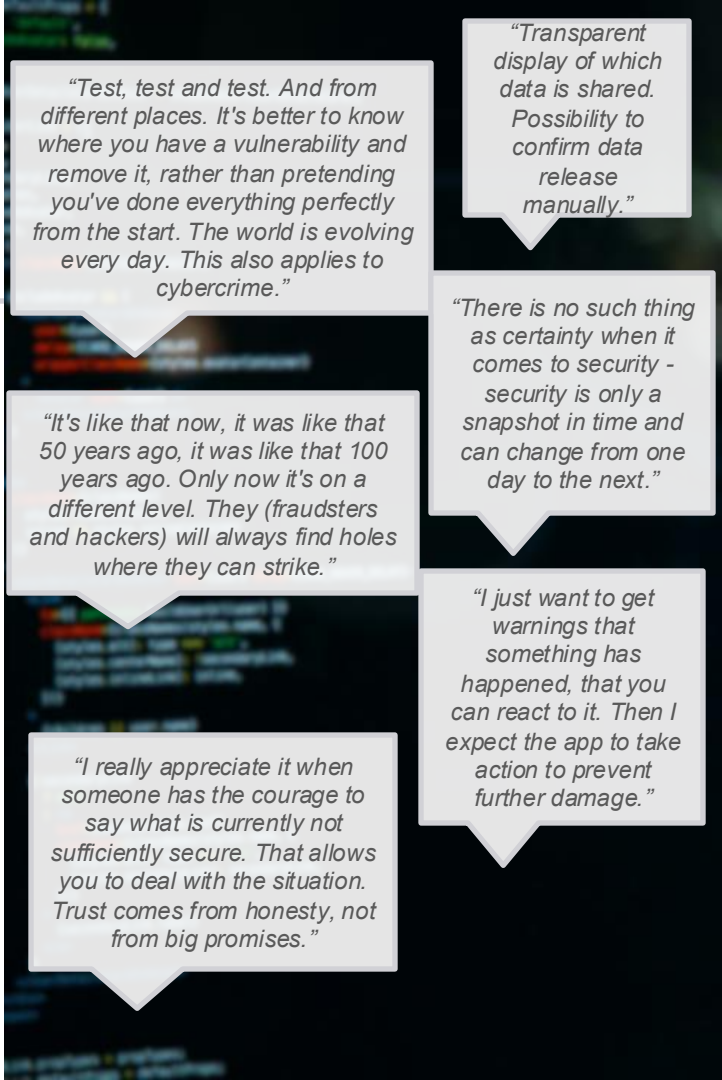
We believe this means…

Many people **understand** hackers, methods and technologies evolve and improve. They **expect that the EUDI Wallet also does the same**.

We need to **prove and communicate that today and in the future the German EUDI Wallet will be cutting edge** – which can **impact adoption and usage**. There needs to be a reaction to end users' complaints and a continuous improvement of the wallet.

What are your thoughts?





07: FOR MANY, THE REAL ISSUE IS THE HASSLE OF RECOVERING FROM IDENTITY THEFT AND LOSS, NOT THE THEFT ITSELF.

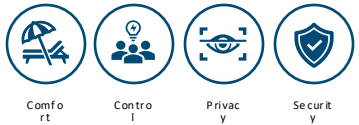
We believe this means…

Some are more concerned about the **inconvenience and the loss of access** they would have to **everyday services that make their lives easier**.

They are more deterred by the **complicated process and time-consuming bureaucracy** to regain and restore access than they are of somebody else walking around and taking actions in their name.

There needs to be a **kill switch** so that nothing can happen, but also a **quick and simple way to recover everything** for user.

What are your thoughts?



08: PAST EXPERIENCES DEEPLY SHAPE MISTRUST. WITHOUT NEGATIVE EXPERIENCES, END-USERS BEHAVE NAIVELY.

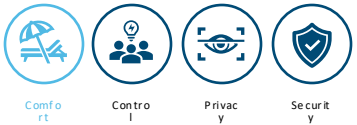
We believe this means…

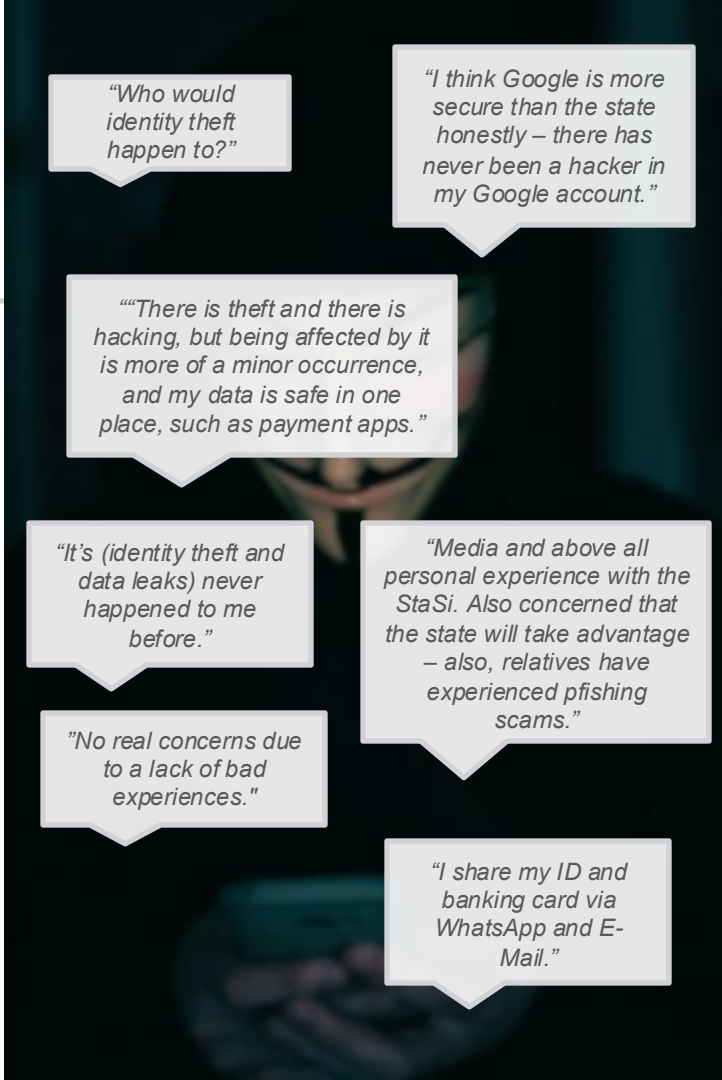
Those who know someone or had **personally experienced** identity theft, data leaks or being surveilled were **more skeptical** about security systems and **careful** with their online actions.

Conversely, those without such experiences are **more willing to take their chances** and **try new services.**

Making people aware of identity and data theft should be part of a future communication campaign.

What are your thoughts?





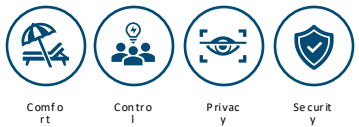
09: THERE ARE INDIVIDUALLY DIFFERENT ASSESSMENTS OF WHICH DATA MAKE UP YOUR PERSONAL IDENTITY AND HOW IT SHOULD BE PROTECTED.

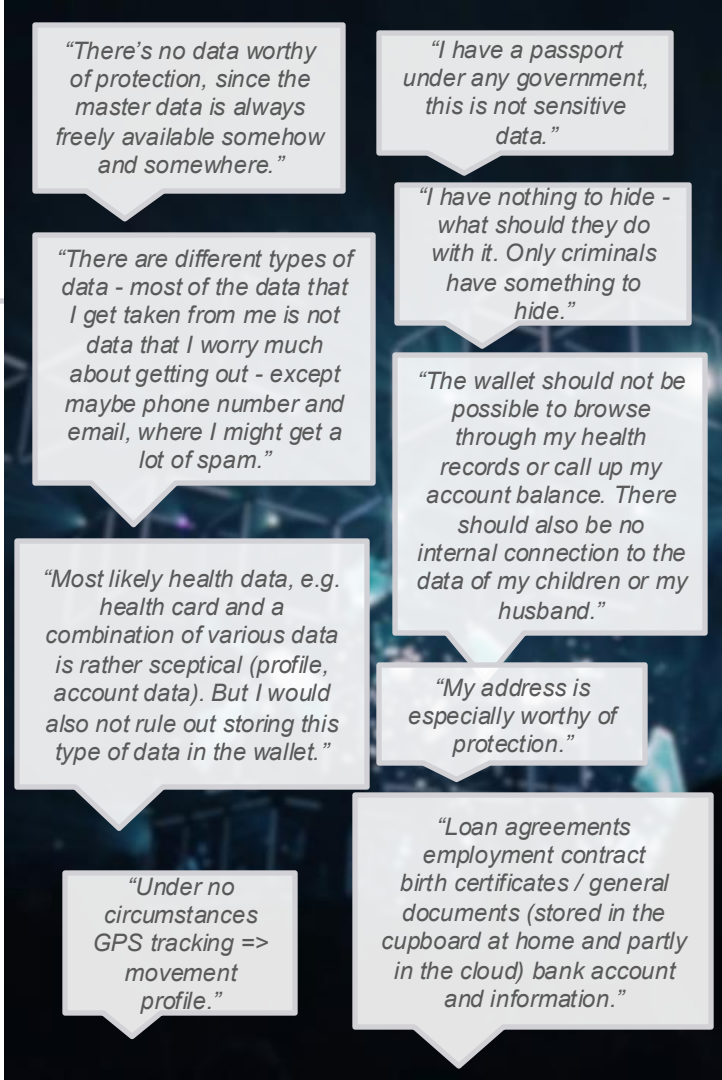
We believe this means…

There is **mixed understanding and value** regarding what data makes up each person's individual identity and is worth protecting. Essentially the most sensitive data is what people **identify their lifestyle** with and **can be used to create a profile, cause inconvenience or lead to discrimination and stalking.**

This has an impact on selective disclosure and influences the need for customization. It would be interesting if users could decide if they could put certain data on higher protection.

What are your thoughts?





HOW DOES THIS CHANGE THE VALUE PROPOSITION FOR END-USERS?

Value Proposition for Users (before)

Comfort and efficiency

Intuitive and easy to use for all societal user groups

Control over Personal Data

Provide transparency on which data are shared with whom

Enhanced privacy

Support pseudonyms and hinder overidentification

High Level Security

Safeguard **personal information** from cybercrime and fraud

Better access to Services

Non-discriminatory access to end-to-end digital processes

Legal Recognition

Cross-boarder acceptance of electronic attestations

Free QES for non-professional use

Easily sign documents and confirm data

Value Proposition for Users (Now)

Comfort, Convenience and Efficiency

Intuitive and easy to use for all societal user groups

Trust in High Level Security

Safeguard **personal information** from cybercrime and fraud

Control over Personal Data

Provide transparency on which data are shared with whom

Enhanced Privacy

Support pseudonyms and hinder overidentification

Better Access to Services

Non-discriminatory access to end-to-end digital processes

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Thank you for your attention!

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Questions & Answers