



European University Alliance for Global Health

eduTAP

Turning the European Student Card Vision into Reality

ECCA / DC4EU: Standardization in Digital Credentials for Education Workshop

September 21st, 2023 - Hybrid (online & U.Porto)

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“EUGLOH ESC Working Group”



- ✓ Vision of the European Commission: Towards a European Education Area
- ✓ The European Student Card Initiative (ESCI)
- ✓ European Charter for Higher Education (ECHE) of the Erasmus+ Program



A great vision!



European University Alliance for Global Health

9 Universities, 1 Goal: Building Europe's Campus for Global Health

*A vibrant, multicultural and inclusive inter-university campus.
Seamless mobility for students, staff and professionals – physical and virtual.*



European University Alliance for Global Health

9 Universities, 1 Goal: Building Europe's Campus for Global Health



EUGLOH 2.0 Consortium Partners



→ UNS & UiT are from non-member states of the European Union



15-20 % foreign students
40 % European citizens
60 % from other nations



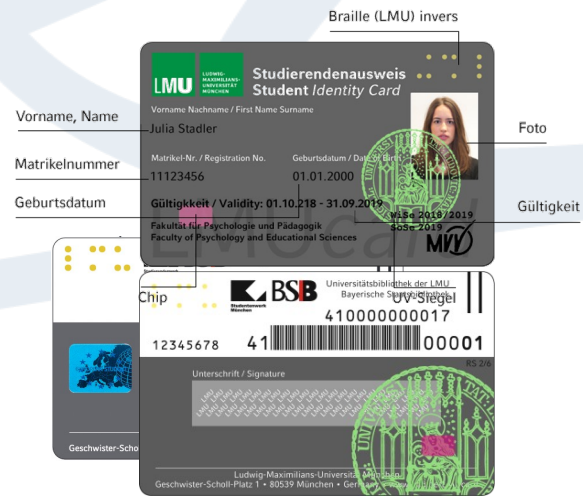
Key Goals

- Interdisciplinary Global Health programmes across universities – striving towards a joint European degree.
 - **A vibrant, multicultural and inclusive inter-university campus.**
 - **Seamless mobility** for students, staff and professionals – physical and virtual.
 - Strong links between higher education, research and local socio-economic ecosystems to prepare young people for the jobs of tomorrow.
 - Empowering future generations to find solutions for Global Health challenges.
- Interoperable services and identification → passes & service cards**

EUGLOH campus cards current state and connected services

→ Vision:

All university members should be able to use services of host university while on visit



Status of four core members (IT wise)

Ludwig-Maximilians-Universität München

- Legic CTC Cards (Legic Advant + Prime)
- Payment (Studierendenwerk München)
- Cloud-Printing and Scanning (Secure-Printing and Payment)
- Library
- Ticket for Public Transport System

Université Paris-Saclay

- NXP Mifare DESfire Cards
- Payment (izly – les Crous)
- Library
- Physical Access Control

Lunds universitet

- NXP Mifare Classic Cards
- Physical Access Control (online and offline)
- Login at copiers (for copy/print/scan)
- Library
- Several other services, but not any payment services

Universidade do Porto

- NXP Mifare Classic Cards / Java Cards with Mifare Classic emulation
- Library
- Physical Access Control
- Canteen & cafeterias
- Printing Service
- Attendance

Not compatible technologies

ESC - BUT



Interoperability ?

a hologram does not provide interoperability

security, privacy, ...?

ESC - BUT (legal aspects & IT-Security aspects)

- The European Student Card Project specification is not transparent,
- Today it does not reflect the state-of-the-art of technology
- Conflicts with GDPR requirements
 - → **Student IDs are not optional**; therefore, they could not be issued on consent (Article 7 - Conditions for consent, define when GDPR Art. 6 par. 1 lit. (a) did not apply)
 - Centralized Infrastructure conflicts with GDPR Article 24 & 25 – **new router does make it worse**
- Conflicts with competition law and procurement law
 - Not vendor neutral
 - Holograms for example exclusive by one provider
- IT-Security
 - QR-codes are not considered secure
 - **NEVER EVER** code an URL into QR-Codes → communicate Trusted Verification Apps or Websites
→ corona vaccination pass verification as best practice



→ not a specification that could be implemented by all HEIs

- ✓ Vision of the European Commission: Towards a European Education Area
- ✓ The European Student Card Initiative (ESCI)
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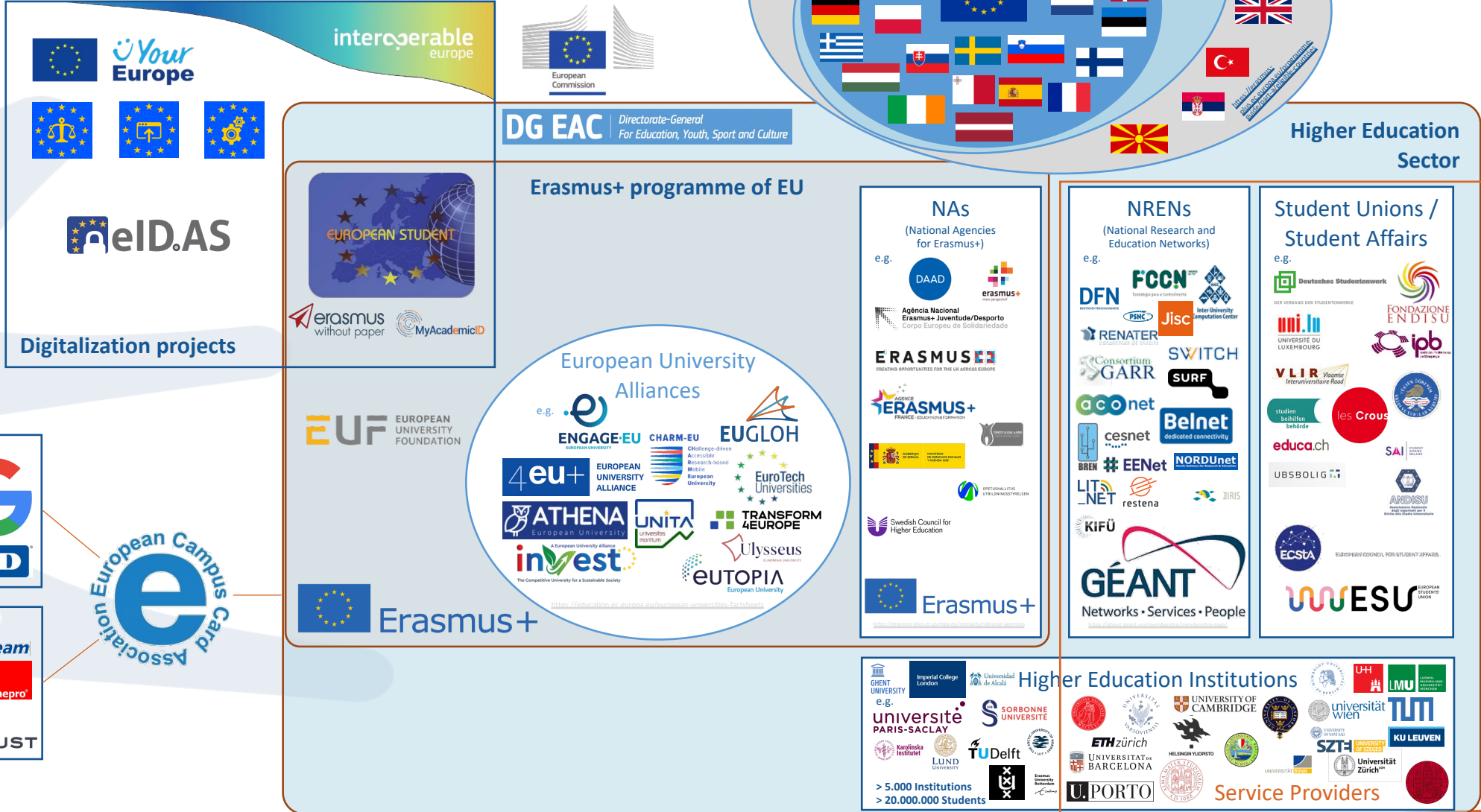


**A great vision!
That does not work,
but is worth to be fulfilled**

Why does it not work?

*What is necessary to
make it happen?*

The Stakeholder-Landscape



Technology Provider

Solution Providers

e.g.



public transport providers. - cultural institutions (libraries, museums, theaters, cinemas). - shops

System design

A complex system that works is invariably found to have evolved from a simple system that worked. **A complex system designed from scratch never works and cannot be patched up to make it work. You have to start over with a working simple system.**

“Law of Gall” – John Gall – Systemantics: How Systems Really Work and How They Fail

→ Start over

→ Take the **vision from the European Student Card** Initiative and current state-of-the-art technology on credentials, identity management and cards, combined with current legal baseline and **make it work**

→ **eduTAP**

More Info's: <https://eduTAP.eu>

What is eduTAP

- Fulfill the interoperability vision of the European Student Card
- By being compliant, secure and trustworthy by design, but respecting legacy systems in the field
- Having a decentralized, scalable, secure and state-of-the-art system, without reinventing the wheel

→ for Europe and the world
eduGAIN online – eduTAP on-site

→ Make it work by a **change of perspective**

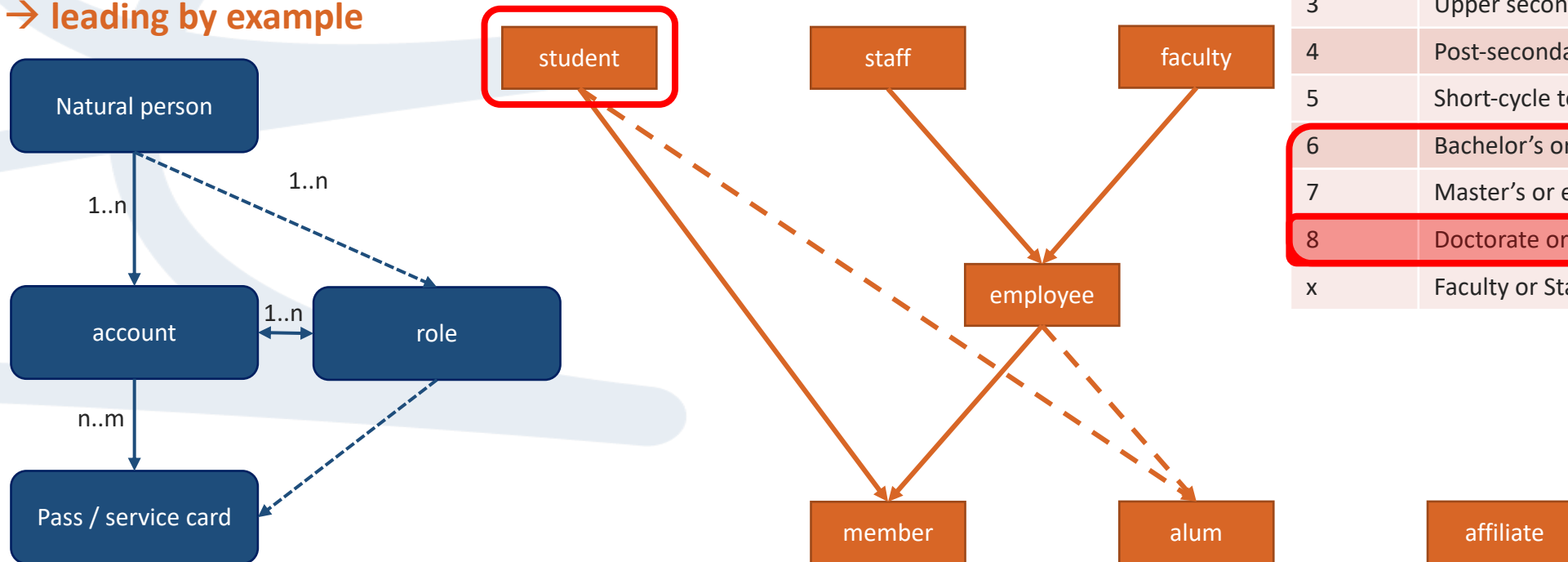
- Perspective of multiple different Higher Education Institutions and their audience, services and current situation
→ **user centric** (Digitalization with focus on the user) implementation

Audience: User Scope → For all persons @ HEIs

- Why focus on students and ISCED:2011 Level 6/7/8?
- It is about **providing services**
 - For users of the (home or host) institution
 - User incoming for a short-term or long-term mobility
- Staff / faculty members are more likely on short-term mobility than students
 → **leading by example**

ISCED:2011 Level

Level	Label
0	Early childhood education
1	Primary education
2	Lower secondary education
3	Upper secondary education
4	Post-secondary non-tertiary education
5	Short-cycle tertiary education
6	Bachelor's or equivalent
7	Master's or equivalent
8	Doctorate or equivalent
x	Faculty or Staff member of HEI



Interoperability of Services

Identification

- Identification
- Status verification
- Proof of entitlement
- Single Sign On / 2FA / FIDO2
- Attendance check
 - Check-in for exams
 - attendance at courses
 - Time recording
- Electronic Signature (of legal documents)

Electronic payment / cashless campus

- Canteen & cafeterias
- Vending machines
- Printing / scanning (secure & follow me printing)
- Ticketing (secure & follow me printing)



Physical Access Control

- Areas (campus, parking lot)
- Buildings
- Rooms
 - Classrooms
 - Labs
 - Computer rooms
 - Learning spaces
 - Offices
 - Accommodation facilities (i.e., dorms)
- Sports facilities



Library services

- Access to / borrow
 - Physical media (book, audio and video media)
 - E-media (book, audio and video media)
- Learning spaces



Transport

- On campus services (university shuttle service)
- Public transport tickets & discounts



Discount and promotions

- Discounts on cultural activities
 - Museums
 - theaters
 - cinemas
- Shops
- Restaurants

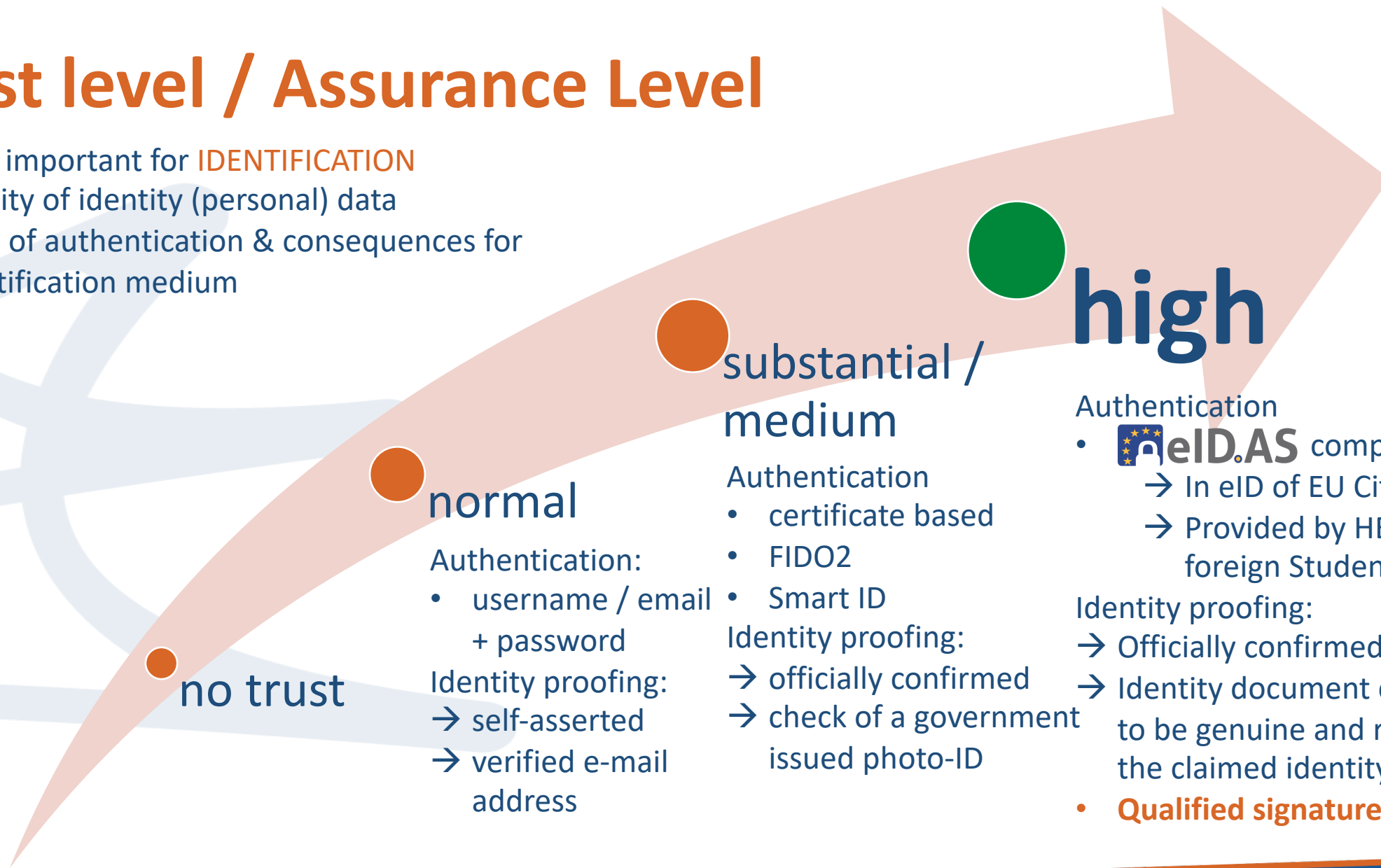
on- & off-campus → on-site usage
online services

providing service → create benefits



Trust level / Assurance Level

- Very important for IDENTIFICATION
- Quality of identity (personal) data
- Type of authentication & consequences for identification medium



no trust


normal

- Authentication:
- username / email + password
- Identity proofing:
- self-asserted
 - verified e-mail address

substantial / medium

- Authentication
- certificate based
 - FIDO2
 - Smart ID
- Identity proofing:
- officially confirmed
 - check of a government issued photo-ID

high

- Authentication
-  eID.AS compliant
 - In eID of EU Citizen IDs
 - Provided by HEI for foreign Students
- Identity proofing:
- Officially confirmed
 - Identity document checked to be genuine and represent the claimed identity
- **Qualified signature**

Interoperability: Question of the medium

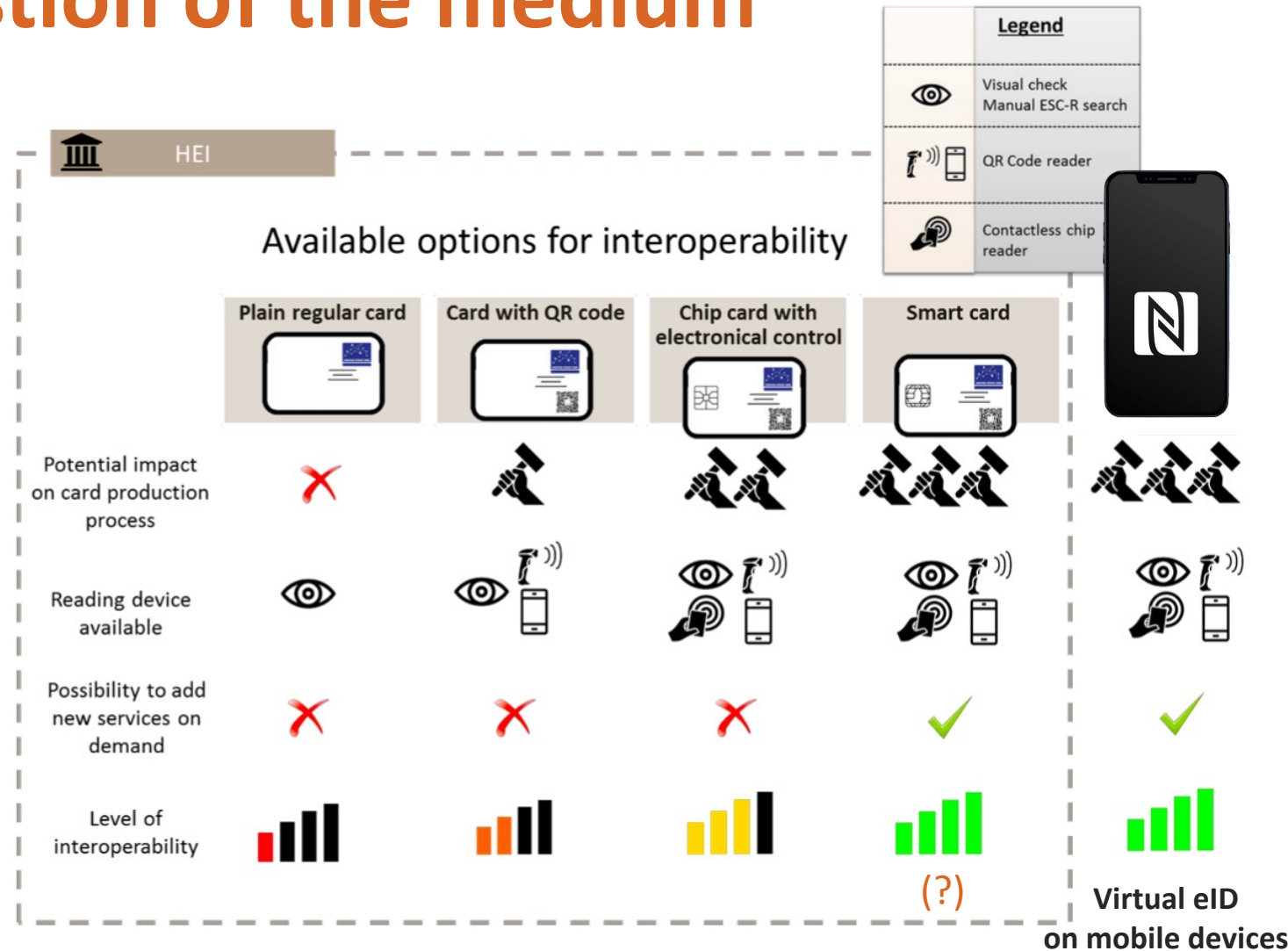
Baselined on the ESC specification

Possible technological implementations:

1. Plain Card with Hologram
2. Plain Card with Hologram + QR-Code
3. Chip card (with Hologram + QR-Code)
 1. Chip card technology neutral
 2. Mifare DESfire chip card with App
 3. Multi-technology chip card with App
4. Smart card (with Hologram + QR-Code + App)
5. Virtual eID (Smartphone) ✓

→ Costs are an essential point for decisions

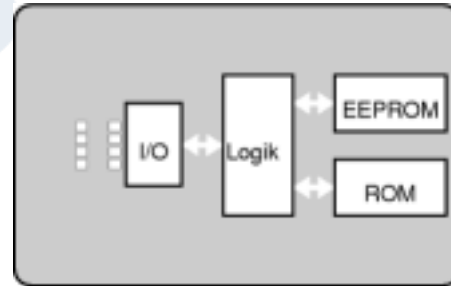
→ Smartphones are cheap for HEIs



Interoperability: Physical card side?

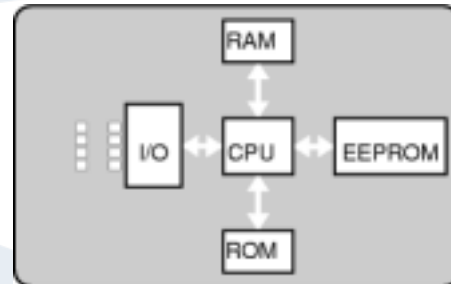
Chip cards → bind to one certain technology

- NXP Mifare DESfire
- Legic Advant
- HID iClass
- ...



Smartcards → expensive

- JCOP



→ Plastic cards are not the solution, so...

- ✓ Sustainability
 - ✓ Interoperability
- } Responsibility

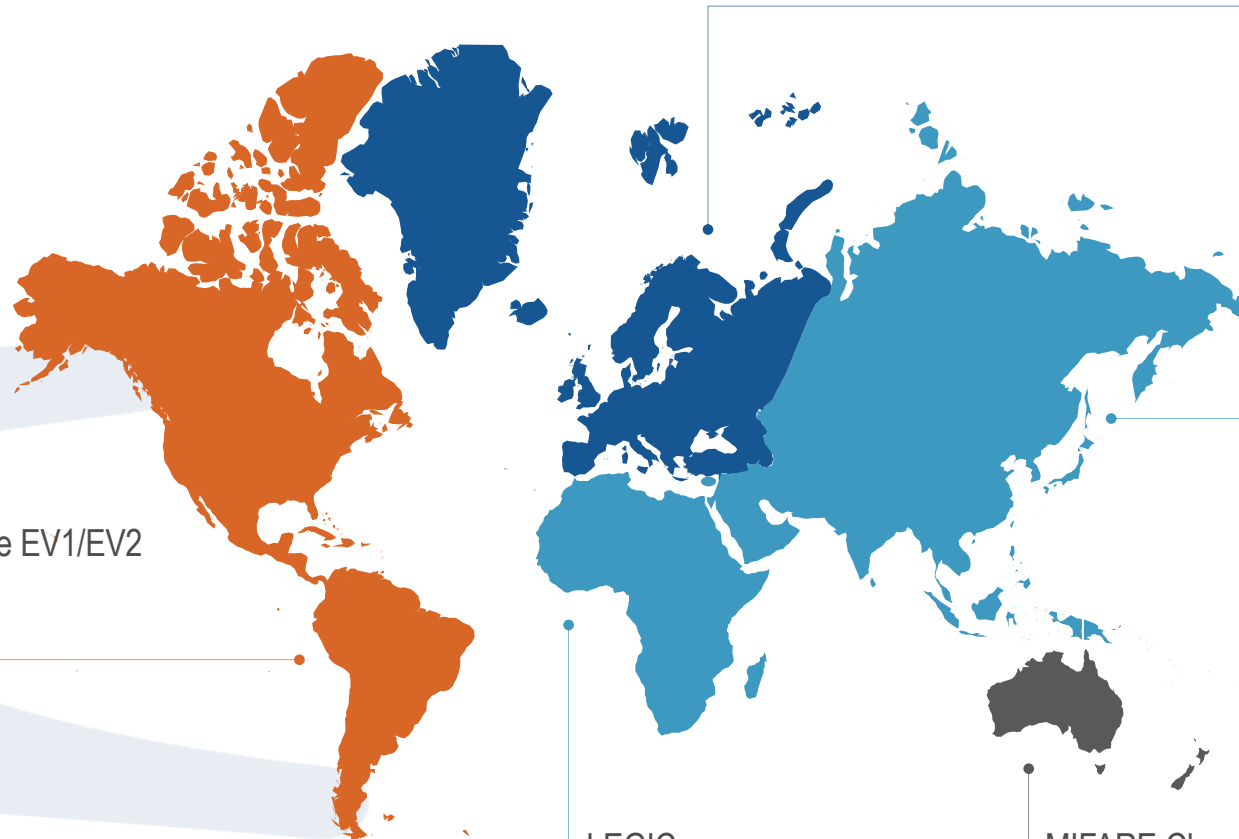
Interoperability: Cards – Communication Protokolls and Data / File Systems

Different standards of Transponder technologies – “standards” – NOT Compatible to each other

MIFARE Classic
 MIFARE DESFire EV1/EV2
 HID iCLASS
 HID Prox
 Indala
 ioProx
 AWID
 Keri
 CASI-RUSCO

MIFARE Classic
 MIFARE DESFire EV1/EV2
 HID Prox
 EM4102

ISO 14443A ECM-340
 ISO 14443B ECMA-352
 ISO 15693 ISO 11784
 ISO 18000 ISO 11785
 ISO 18092 NFC Tag Types 1-5



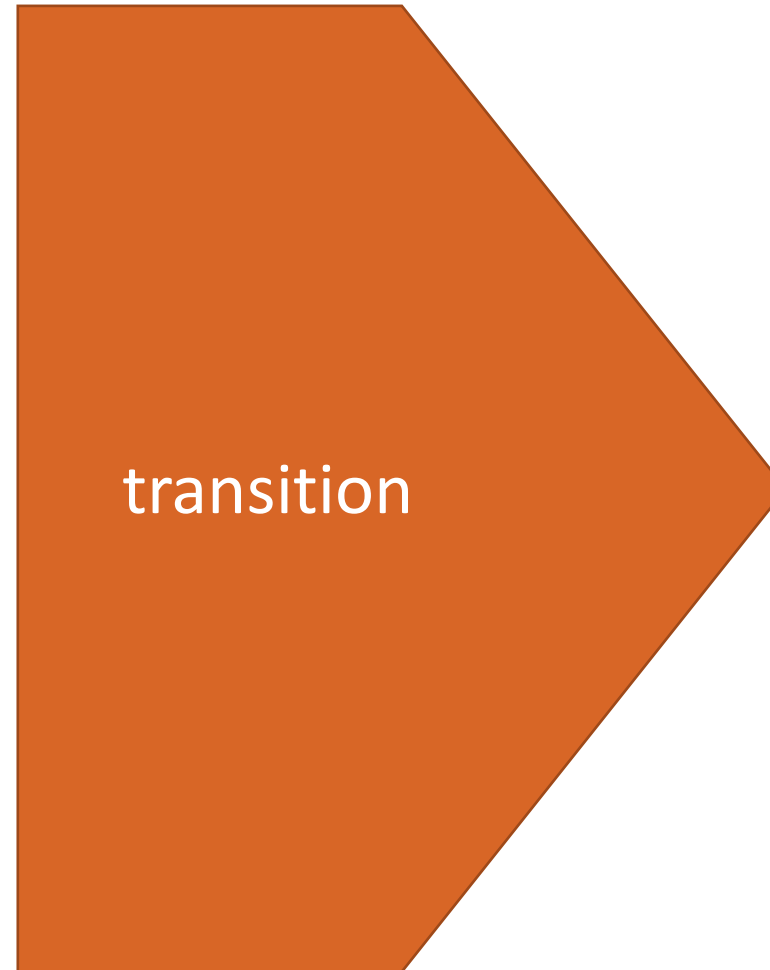
MIFARE Classic
 MIFARE DESFire EV1/EV2
 LEGIC
 Calypso
 Moneo
 Oyster
 HID Prox
 EM4102

LEGIC
 MIFARE Classic
 MIFARE DESFire EV1/EV2
 SONY Felica
 TIRIS
 CEPAS
 Octopus
 EM4102

LEGIC
 MIFARE Classic
 MIFARE DESFire EV1/EV2
 EM4102

MIFARE Classic
 MIFARE DESFire EV1/EV2
 HITAG
 HID Prox

The path to an interoperable Campus Card



Trust-Level: NO-TRUST

One Technology provider did not solve all problems

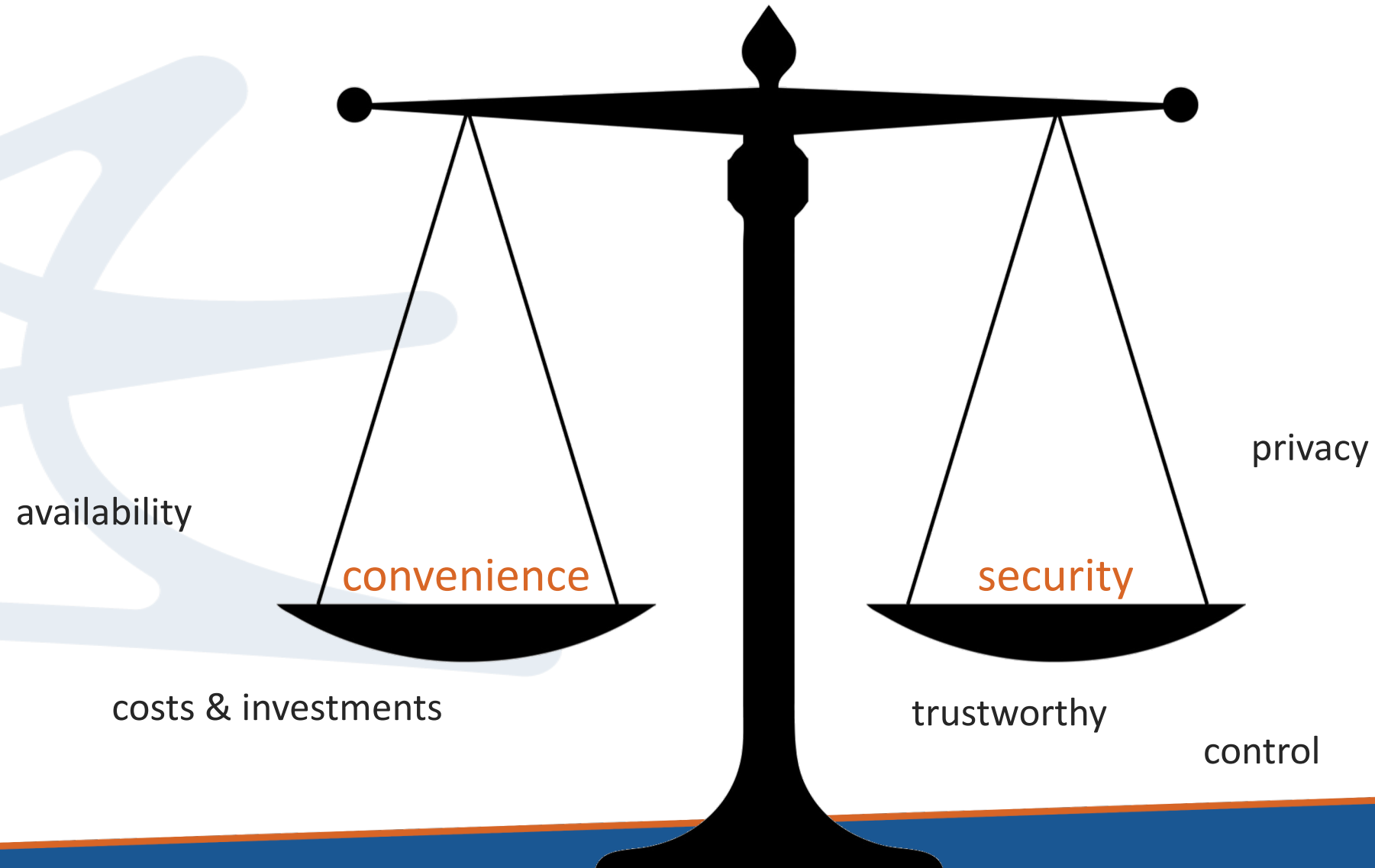
ONE SIZE DOES
NOT FIT ALL



One size
does **NOT**
fit all.



balance of objectives



Medium → Services

Identification

- Identification
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Electronic Payment / cashless campus

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Physical Access Control

- Areas (campus, parking lot)
- Buildings
- ROOMS
- Classrooms

Library services

- Access to / borrow
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 - E-media (book, audio and video)

Transport

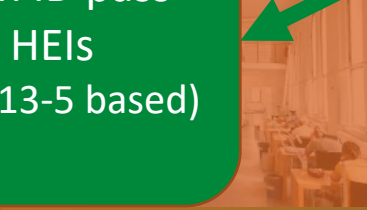
- On campus services (university shuttle service)
- "Proof of entitlement" for transport tickets
- "discount"

Discount and promotions

- Discounts on cultural activities
 - Museums
 - theaters
 - cinemas
- Shops
- Restaurants
- Special case of "Identification" / "Status verification" / "Proof of entitlement"

separate service passes
 (can chose appropriate technology)
 → Working solutions by solutions providers

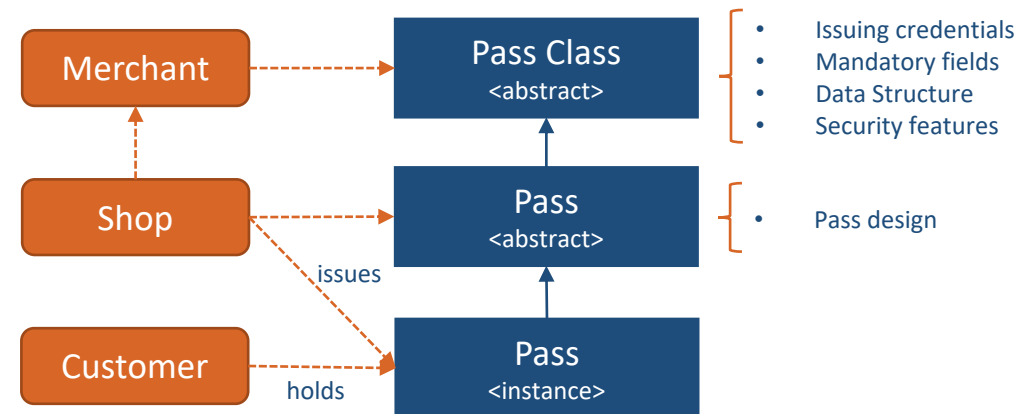
A common ID pass for all HEIs (ISO/IEC 18013-5 based)



providing service → create benefits

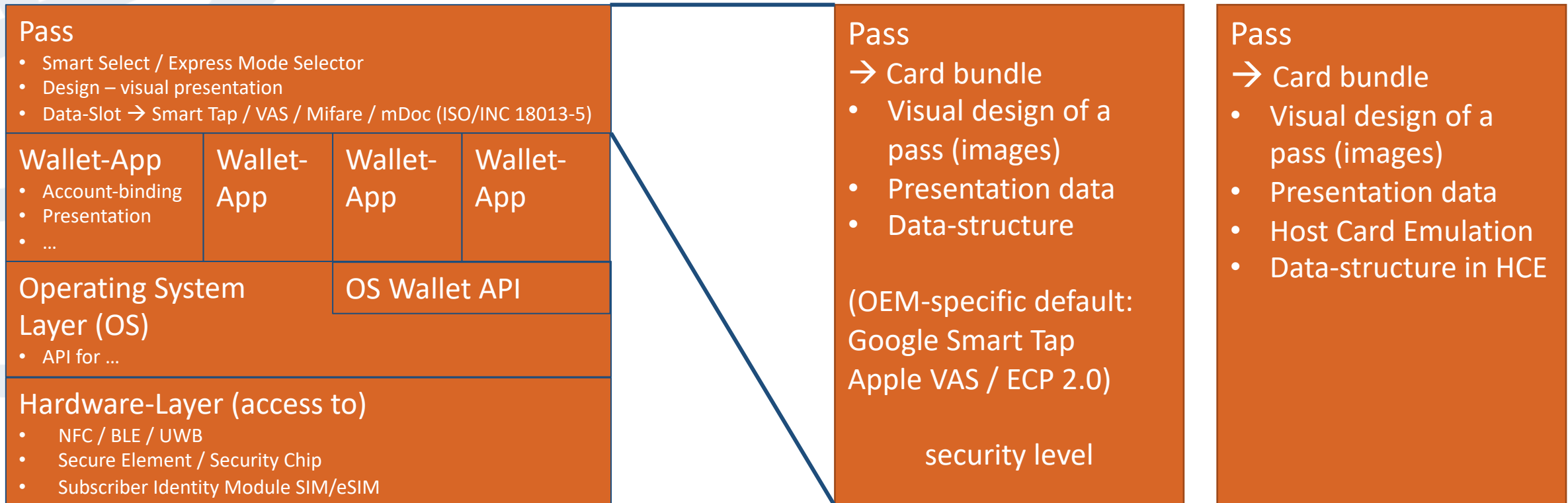
Technical details and features of Wallets / Passes

- **Smart / Quick Select option (Express-Mode)**
- **Battery reserve** (important for keys, transit tickets, payment)
- Authentication requirements ← **security features**
- Groupable
- Validity dates
- Remote updateable / revokable
- **Offline usable** (→ non traceable)
- Host Card Emulation possible



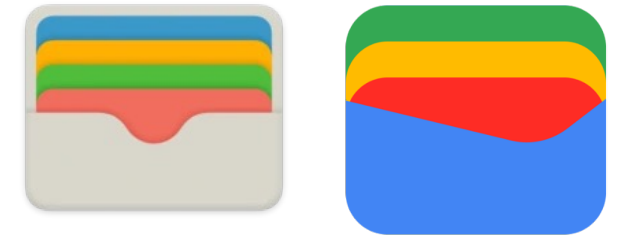
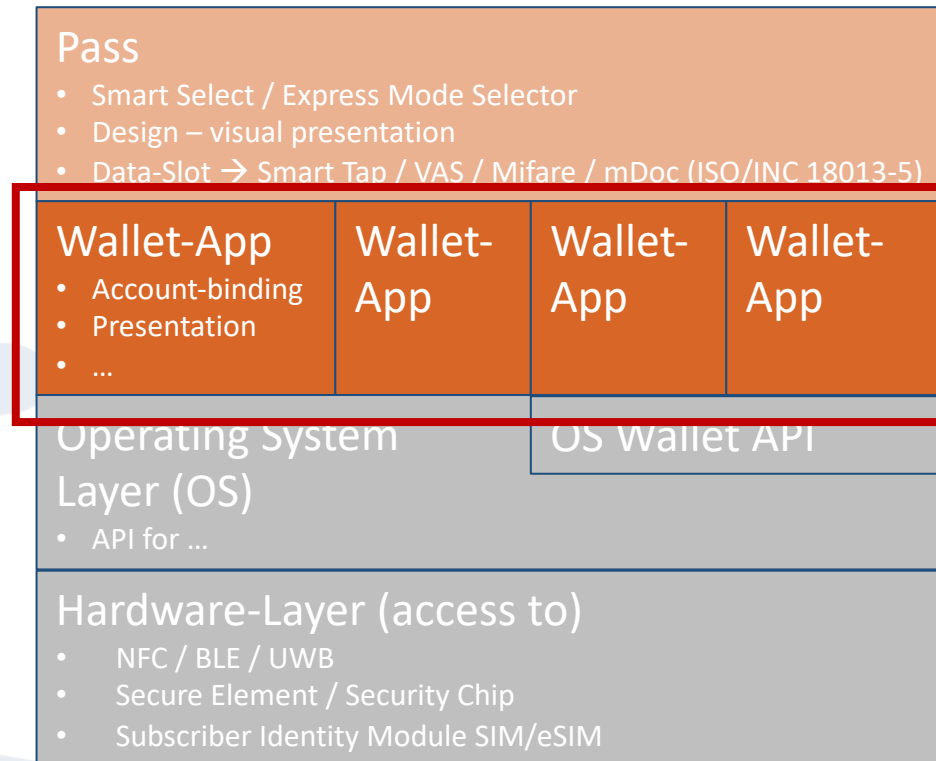
Technical details of Wallet passes

Detail view on the Pass



Technical details of Wallets / Passes

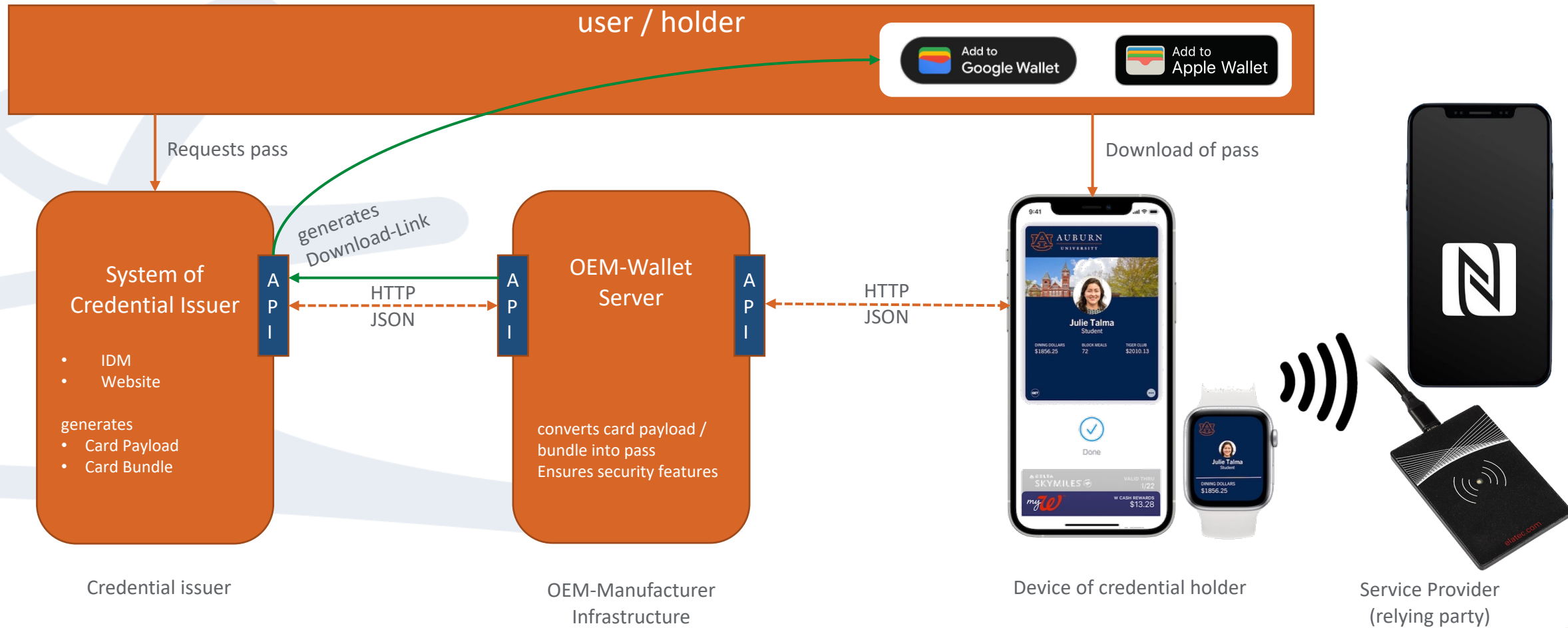
Detail view on the Wallet



→ The solution is wallet **agnostic**, not bind to a specific Wallet provider or company

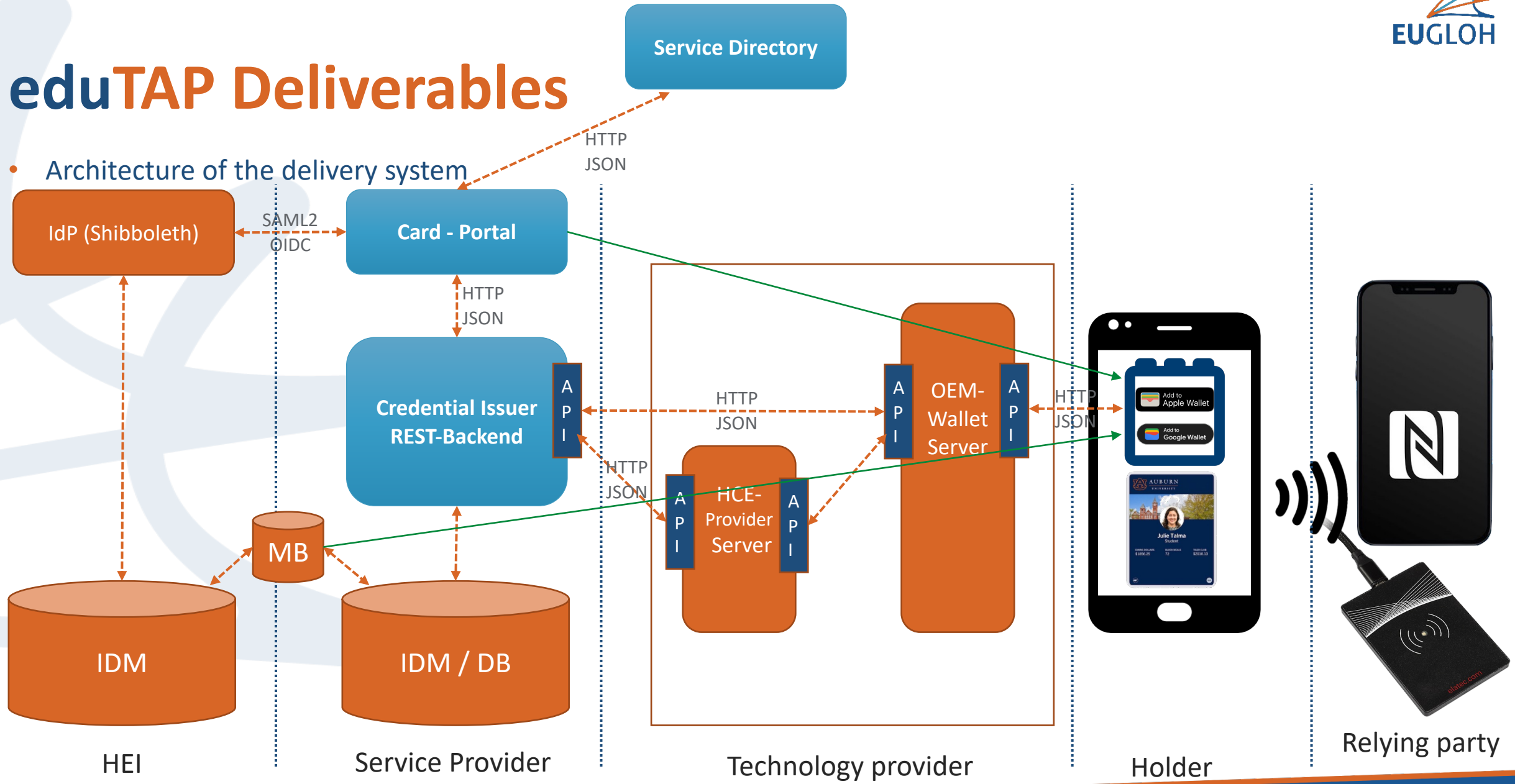
Issuing process of wallet passes

→ importance for the users – always the same process



eduTAP Deliverables

- Architecture of the delivery system



Advantages of EUGLOH & eduTAP in the context of digital credential projects

- **eduTAP** is **independent** and not externally funded
 - we spent our own money / budget of EUGLOH members
 - because we believe in the vision and the need for a secure & interoperable solution
 - we do not need to please anyone
- We do **NOT** develop new protocols or standards, we just **filling the gap** by documenting and putting together existing technologies → a working baseline
- EUGLOH is an **excellent playground to test interoperability** in the real world
 - Different technologies currently in use
 - Different countries and legal background
- **eduTAP** will be completely open source and **free of charge**, for all HEIs and SPs

Further Information's

We will present a more policy-based presentation at EAIE 2023 in Rotterdam

Session 10.09

**One Europe, one mobile solution:
Turning the European Student Card vision into reality**

Friday 29 Sept. 2023 - 10:30-11:30



<https://www.eaie.org/rotterdam/programme/programme-overview/activity/174.html>

We'd love to hear from you!

Get in touch:

EUGLOH Work Package – Campus Life /
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- Alexander Loechel (LMU Munich)
- José Filipe Alves (UPorto)
- Morgan Persson (LU)
- Pierre Gabrielle (Université Paris-Saclay)

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