

Welcome to session 10.09

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



EAIE
2023

ROTTERDAM

26-29 SEPTEMBER

CONNECTING
CURRENTS



EAIE23.CNF.IO

- ▶ Navigate to <https://eaie23.cnf.io/> and tap the session titled "10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality"
- ▶ OR just point your phone's camera at the QR code to join directly



Meet the Presenters

Session Chair



Kristina Miolin

Lunds universitet
Project Manager, External Relations office

Special Guest:



Jeroen van Lent

NTT Data for DG EAC
IT Project Manager – European Student Card



Alexander Loechel

Ludwig-Maximilians-Universität München
Referent IT-Projekte



Jose Filipe Alves

Universidade do Porto
Information Security Officer



Morgan Persson

Lunds universitet
IT-Architect

Speakers

EAIE | ROTTERDAM
2023
26-29 SEPTEMBER

Agenda

- Introduction
- Vision and use-cases
- The European Student Card
- From ESC to a EUGLOH Project
- EUGLOH Project eduTAP
- Path to the Future
- Some technical details & Demo
- Summary and Questions

Disclaimer

We presenters are IT guys – Aliens to this type of conference

- We are good at finding technical solutions
- We are passionate about good solutions and technology (and may go into too much detail)
- We are not the best communicators
- We tell pain points, are direct and maybe not diplomatic
- We are lazy (positive laziness in a good sense - as all good IT people)
- And we do not have the patience to wait for a solution



European University Alliance for Global Health



Co-funded by the Erasmus+ Programme of the European Union

EUGLOH 2.0 Consortium Partners



UiT The Arctic University of Norway



Universität Hamburg DER FORSCHUNG | DER LEHRE | DER BILDUNG

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



338,500 Students



54,000 Academic Staff



112 Faculties & Schools

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





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.** } **Interoperable services and identification**
- 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.



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.*

Use-cases - Student

Charlotte (Master student at Paris-Saclay)

- Long-term mobility: complete an Erasmus programme at University of Porto
- Use public transport with local student discount
- Use the library



Use-cases - Student

João (Student at U.Porto & Student Ambassador for EUGLOH)

- Several short mobility
- Using WLAN at the Campus (→ eduroam)
- Get some food in the university canteens



Use-cases – Staff

Macarena (mobility manager at Paris Sacley)

- Has a lot of meeting with other universities and partners
- Requires WLAN (→ eduraom)
- Print or scan documents



Use-cases - Professor

António (Associate Professor at the Department of Informatics & Engineering at University of Porto (UP))

- Has a lot of short-term mobility meetings (conference) at other universities
- Needs to park his car on campus
- Wants to grab a coffee
- Print some papers or posters



EUROPEAN CAMPUS CARD CONFERENCE 2002

June 23 - 25

ACCESS CONTROL



BIOMETRICS

POINT OF SALE

ON-LINE VENDING



ELECTRONIC BANKING



PLANNING FOR THE FUTURE

PKI

CHIP TECHNOLOGY



HOSTED BY
WATERFORD INSTITUTE OF TECHNOLOGY IRELAND



ECCA CONFERENCE
WARSAW 2023

European Student eID

defining identification & authentication

European Campus Card Association Annual Conference 2023

May 9th to 11th
University of Warsaw, Poland



PLANNING FOR THE FUTURE . . .

We are all becoming conscious of the dynamic and rapid developments in technology, particularly card technology. I'm sure we are all beginning to recognise the importance and relevance of replacing our traditional ID card with an all-in-one multi-function card.



Today, we carry several cards in our wallets – each having their own specific function. But we must ask the question; why the need for so many cards? Can

Campuses worldwide now realise the advantages of a **single multi-function card**. There is no need to have a separate card for every service and function on campus.

But, naturally, we are slow to change, although, **sooner or later this change seems inevitable**. Many questions surround the installation and successful implementation of an all-in-one campus card. But

just want to learn more about what the technology can do for your campus or company, European Campus Card 2002, will assist you to access the opportunities that multi-function cards present.

Eugene McKenna
CONFERENCE DIRECTOR

CONFERENCE OVERVIEW

There is no denying the high impact being created by card technology. The reason is quite simple; they provide convenience, security and mobility so critical in this new and ever evolving technological age. Because of this, campuses are quickly replacing traditional student ID cards with cards that serve multiple functions. New functionality includes access, banking, library, dining, telephones, parking, vending, printing, photocopying and much more



But the campus card environment presents **challenges and poses many questions**. **What information should be stored on the card, how is privacy protected**, what information should the card have, what type of card is best and what is the business case for such cards? The purpose of the conference is to provide the solutions to these questions.

Europe and the U.S. In addition leading card companies and technology developers will provide workshops and exhibitions.

Sinead Nealon
CONFERENCE PROGRAMME MANAGER

Idea and motivation

- Moving to an Electronic Identification context
- Virtual and Digital
- Explore ways of using mobile devices to access services provided by HEIs
- Use of technology embedded in mobile devices to develop a prototype that can be seen as an alternative to smartcards in HEIs
- Credential lifecycle optimization and streamlining
- Service interoperability
- Improving the user experience



Adapted: autoidindia.com - 2020



Adapted: insidehighered.com - 2020

Digitized card / Digital credential / Student ID



Platforming

- More than 50% of web traffic comes from mobile
- Newer generations not only digital native - they are mobile first
- Mobile devices & Wearables
- “always on” feasible and a reality
- Improvement of user experiences (e.g. cashless stores)



Adapted from <https://apacbusinessheadlines.com/10-Most-Innovative-Wearables-for-Fitness-and-Sport/>

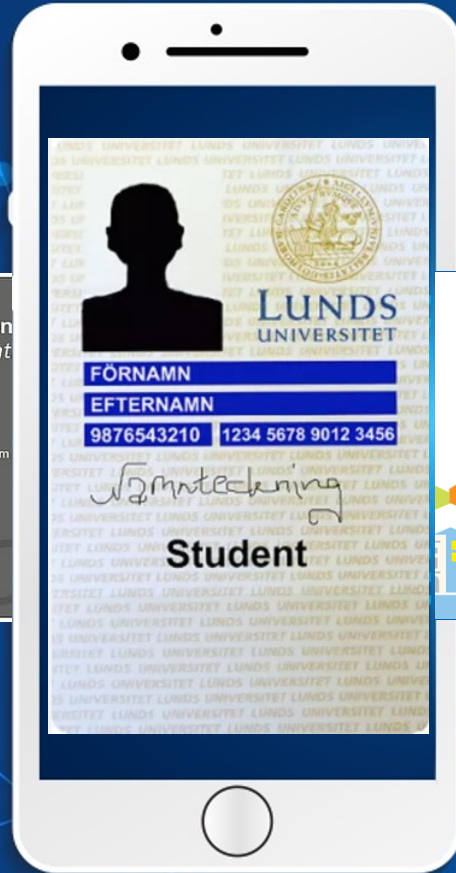
Self-Sovereignty Identity

- Decentralized Identity
- Privacy
- Verifiable claim
- Selective Disclosure (Zero Knowledge)
- Digital Wallets



Adapted from <https://ssi-ambassador.medium.com/digital-identity-wallet-a-place-for-your-self-sovereign-identity-5dfbd3d48a74>

Digitized card / Digital credential / Student ID



2023
2024
2025
2026
2027

- ✓ 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!

EAIE23.CNF.IO

- ▶ Navigate to <https://eaie23.cnf.io/> and tap the session titled "10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality"
- ▶ OR just point your phone's camera at the QR code to join directly



Live Content Slide

When playing as a slideshow, this slide will display live content

Poll: Do you have knowledge about the European Student Card Initiative?



European
Commission

EUROPEAN STUDENT CARD

EAIE Rotterdam, 2023

Erasmus+

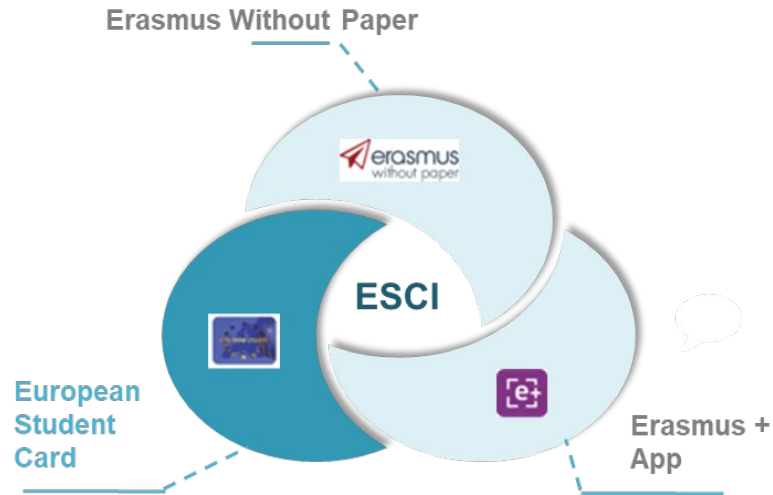
Enriching lives, opening minds.

Higher education

Erasmus+

EUROPEAN STUDENT CARD INITIATIVE

The ESCI is composed of **three building blocks**: Erasmus Without Paper, Erasmus+ App and **European Student Card**.



Green Erasmus+ Programme administration through paperless workflows – from application to transcript of records;

Digital Erasmus+ Programme through once-only principle and efficiency gains for mobility management

More inclusive Erasmus+ Programme through more ready made and more targeted communication with students;

Smoother mobility experience abroad for students and a sense of a European student identity;

Underpinned by **Erasmus Charter Higher Education** – commitment to digitalisation of all Erasmus+ participating higher education institutions.

The Vision of Erasmus+ and European Student Card Initiative:

- Spending time abroad to study and learn should become the norm
- People should have a strong sense of their identity as a European, of Europe's cultural heritage and its diversity
- Establishes a common European identity for higher education students
- Students can get their status verified easily across Europe
- Easier access to student services and simpler status recognition
- Access to on- and off- campus services



Simplify your mobility
for students and
Higher Education
Institutions in Europe

#EuropeanStudentCard

Erasmus+

Enriching lives, opening minds.

Higher education

THE EUROPEAN STUDENT CARD AND ITS BENEFITS

The European Student Card establishes a **common European Identity for higher education students** so that they can get their student status verified easily across Europe



Students

- **Access to on- and off-campus services** by affirming their student status recognition at other universities around the **Erasmus+ Programme Countries**



Card issuers

- **Avoid the need to issue a new student card** for mobility students
- **Validate the student status** for incoming mobility students securely

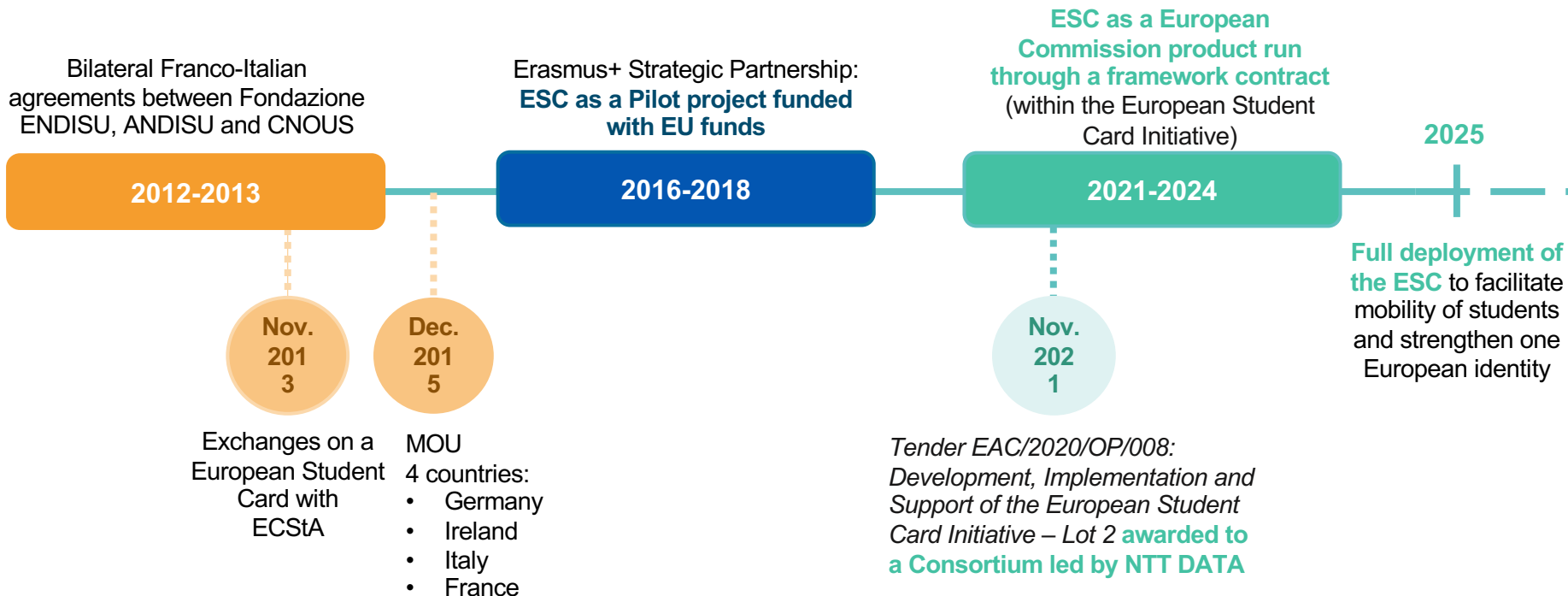


Student service providers

- **Streamline the verification process** of student status more quickly
- Gain certainty and a **wider network of users**

A HISTORICAL LOOK TO THE ESC

The journey of the ESC started as an EU funded project in 2016, and it became a **building block of the European Student Card Initiative** with the aim of fully deploying the ESC by 2025, to facilitate mobility of students and strengthen one European identity.



ESC TECHNOLOGY AND FEATURES

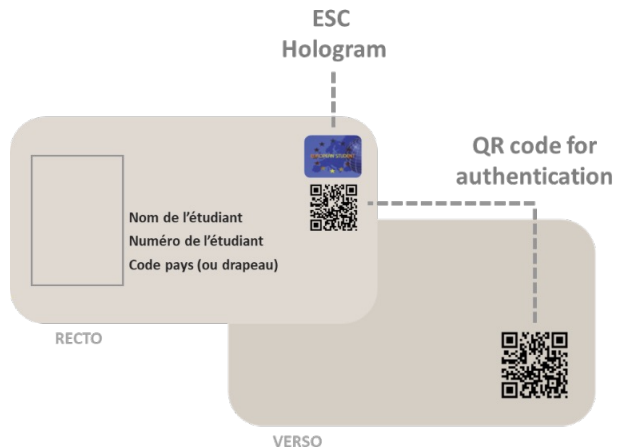
The European Student Card (1st Gen) is a **solution added to existing cards**, and implemented through a **centralised digital platform called the ESC Router** that allows participant institutions to **(1) generate student cards** and to **(2) validate student status**

ESCN - European Student Card Number

Unique card identifier of 16 bytes that serves to link a specific card to the specific HEI who produced it and to identify a card.

ESI - European Student Identifier

A digital identifier enabling students to uniquely identify themselves when they access student mobility services online.



European Student Card QR Code

Two-dimensional barcode printed on the ESC to ensure compatibility with any type of passive card and to automatically verify the data of the student's status.

European Student Card Hologram

Logo on the front of the European Student Card that certifies the authenticity of the card and serves as an identifier to access services at European level.

KEY MILESTONES AND STATISTICS



1.9M

Students with an active card*

229

Card issuers issuing active cards



712

Card issuers registered in the ESC-R



5.0M

Holograms requested

16 countries issuing active cards



Data from September 2023

* When a card is active the registration process has been completed and the Institution is issuing ESCs with both the hologram and QR code updated to the ESC-Router.

ESC ANNUAL ONLINE SURVEY

This is the **official online survey** that is conducted **yearly** with the aim to **validate the main project outputs** with potential target users and their representatives to ensure that they are **tailored to their needs** (i.e. potential expansion to online services, enhanced interoperability).



The main objectives of the survey are to:

- Keep a **yearly track** of the evolution of **what students and higher education institution want out of the European Student Card**
- Understand the stakeholders' **view on the use of student cards**
- Assess the **experience with the current ESC**

Four **main audiences** are targeted in the online survey:



STUDENTS



MANAGEMENT STAFF



IT OFFICERS



IROS

ESC SURVEY RESULTS 2022



5.703

responses received



31

Erasmus+ Programme countries covered



81% (4619)

STUDENTS



13% (717)

IROS



4% (241)

MANAGEMENT



2% (125)

IT OFFICERS



964 responses



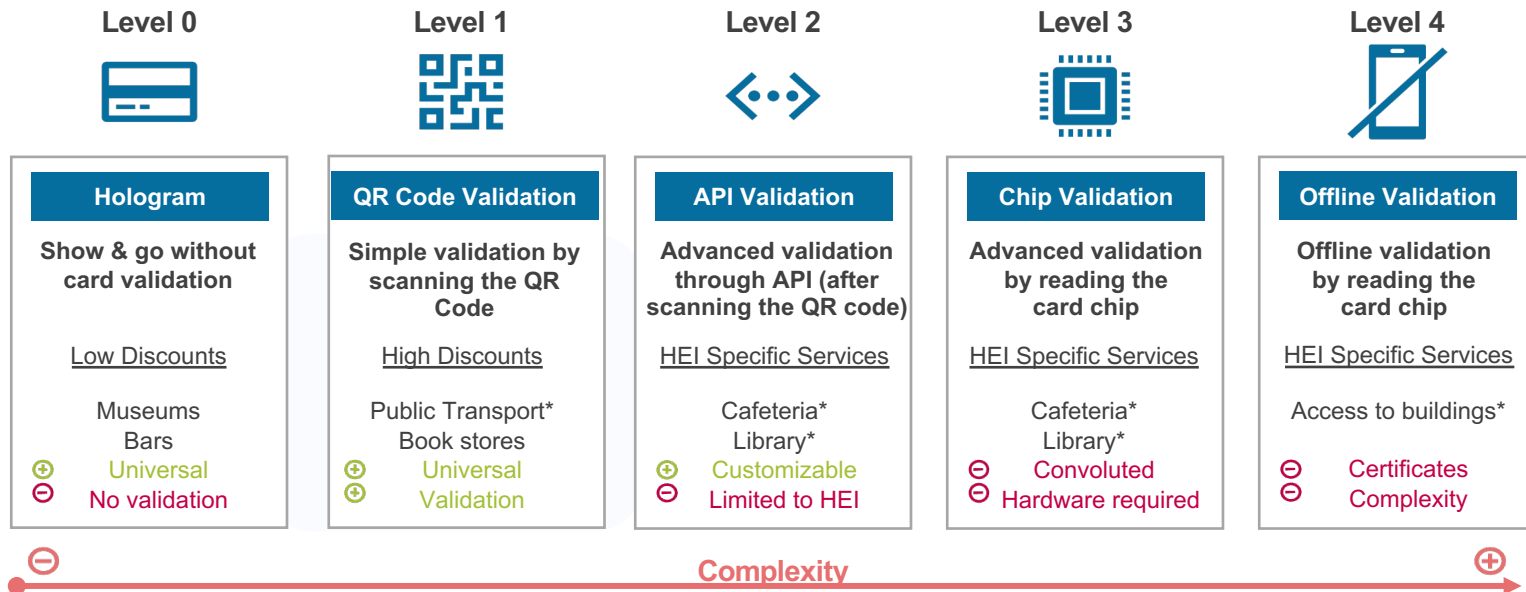
706 responses



540 responses

ESC-ROUTER MIGRATION AND ENHANCEMENTS

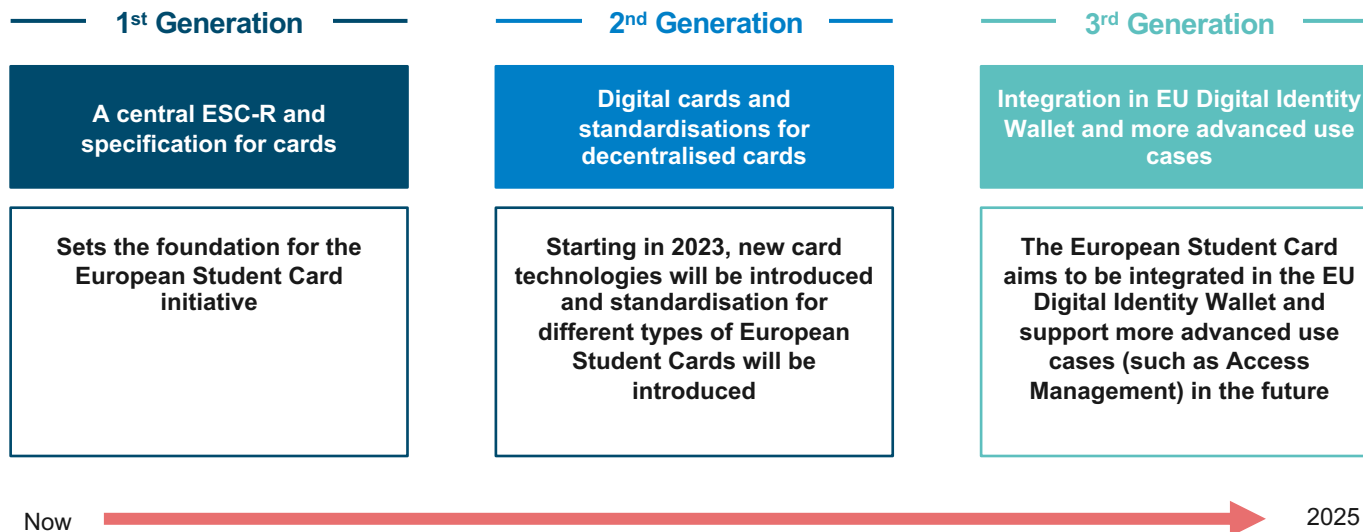
The functional objectives of the migrated ESC-R will be the validation of student status and enabling services of already issued ESCs. Different levels of validation will be foreseen in the ESC-R. In the first migrated version there will be only level 0 to 2 validation schemes.



*Depending on the HEI

FUTURE ESC CARDS

The ESC-R currently under development is just the first iteration of a European Student Card. Future work aims to diversify card technologies and introduce additional card types to enhance interoperability.





#EuropeanStudentCard

Erasmus+

Enriching lives, opening minds.

Simplify your mobility
for students and
Higher Education
Institutions in Europe



Higher education



For any further questions and support,
please contact us through our helpdesk.



ESC.support@nttdata.com

EAIE23.CNF.IO

- ▶ Navigate to <https://eaie23.cnf.io/> and tap the session titled "10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality"
- ▶ OR just point your phone's camera at the QR code to join directly



Live Content Slide

When playing as a slideshow, this slide will display live content

Poll: What do you think are important features for a European Student Card?

- ✓ 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!

- ✓ 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!
BUT



A great vision!
BUT
we do recognize the concerns



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.*

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 - challenging



Interoperability ?

a hologram does not provide interoperability

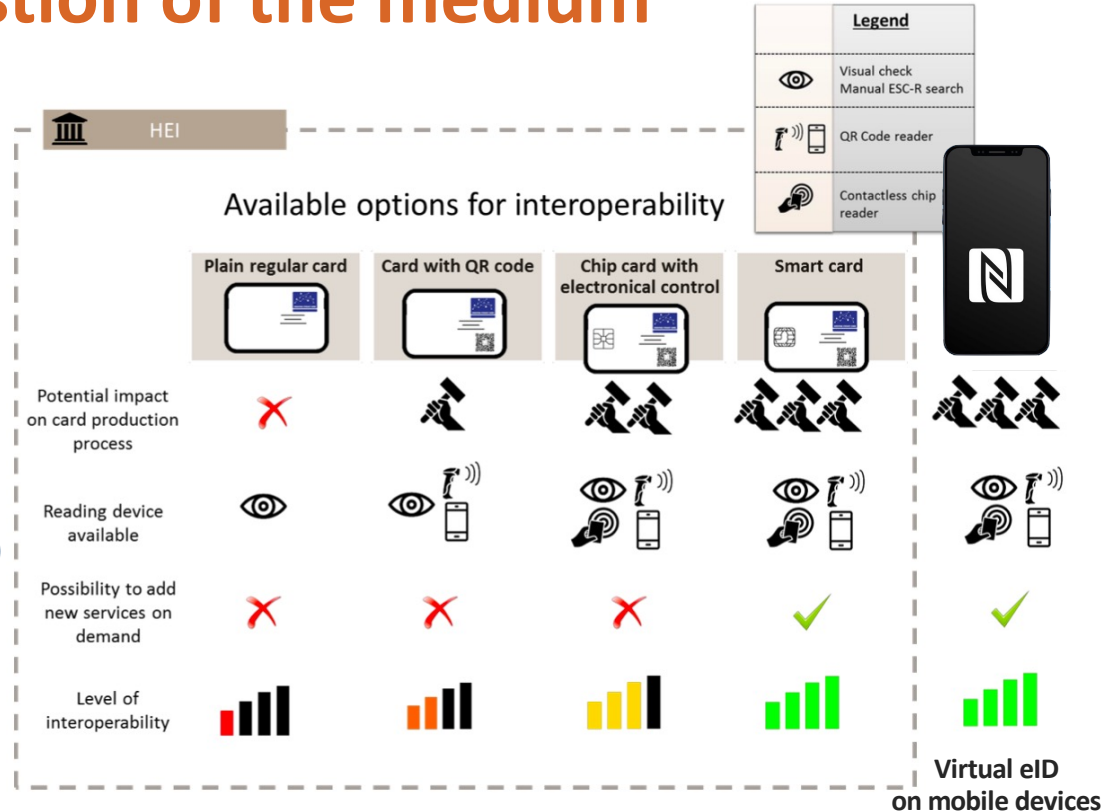
security, privacy, ...?

Interoperability: Question of the medium

Baselined on the ESC specification

Possible technological implementations:

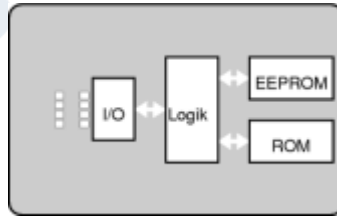
1. Plain Card with Hologram
2. Plain Card with **Hologram + QR-Code**
3. **Chip card** (with Hologram + QR-Code)
 1. Chip card technology neutral
 2. Mifare DESfire chip card with App
 3. Multi-technology chip card with App
4. **Smart card** (with Hologram + QR-Code + App)
5. **Virtual eID** (Smartphone)



Interoperability: Physical card side?

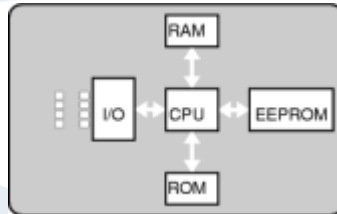
Chip cards → bind to one certain technology

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



Smartcards → expensive

- JCOP



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

- ✓ Sustainability
 - ✓ Interoperability
- } Responsibility

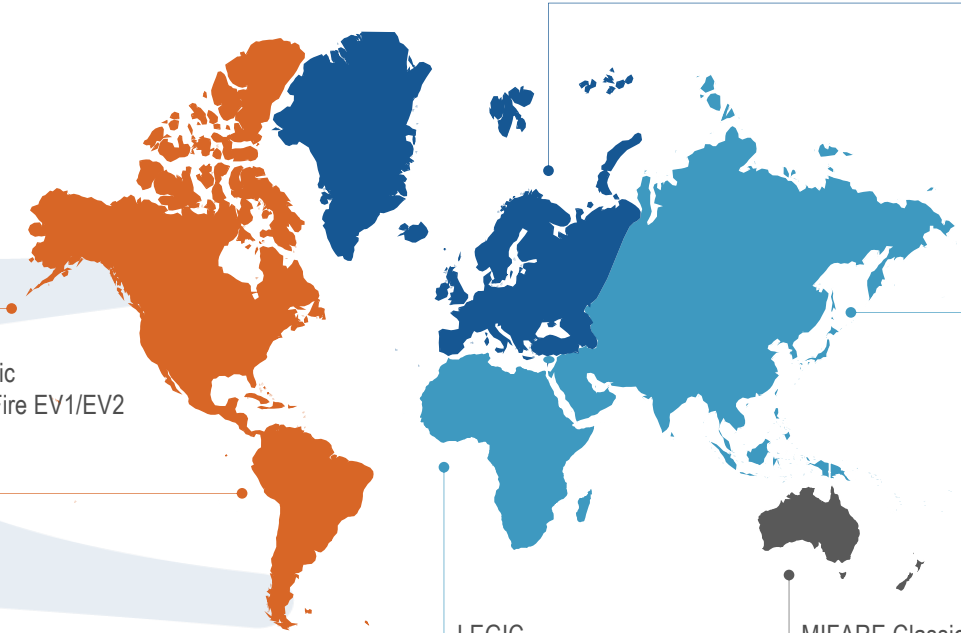
Interoperability: Cards – Communication Protokolls and Data / File Systems

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

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

- The European Student Card Project specification is not transparent,
- Today it does not reflect the current 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



A great vision!

BUT with challenges

**BUT it is also important to continue to support
all HEIs that already issues the ESC 1st Gen**

**Change in (a running) IT is
always a long-term migration
and not a big bang**

Reinvent the wheel vs. evolution of the wheel



and disruptive innovation

Stages of Digitalization – Period of Digital transformation

Digitalization 1.0

- Digitization – create digital versions of analog documents

Digitalization 2.0

- Digitalization with internal focus
- Optimize internal administrative processes – **organization centric optimizations** -
- Processing of data

→ Digital transformation (a hard shift)

Digitalization 3.0

- Digitalization with focus on the user – **user centric optimizations** -
- Optimization on how services are discovered and seamlessly used
- Flow of data

- Service oriented
- **Digital identity**
- Interoperability

- ✓ 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!

that does not work yet everywhere,

especially the interoperability and immediate access to service promise

but is worth to be fulfilled

Why does it not work everywhere?

What is necessary to make it happen?

The Future of interoperable Services

The best way to predict the future is to create it.

Peter Drucker

Interoperability: Question of the medium

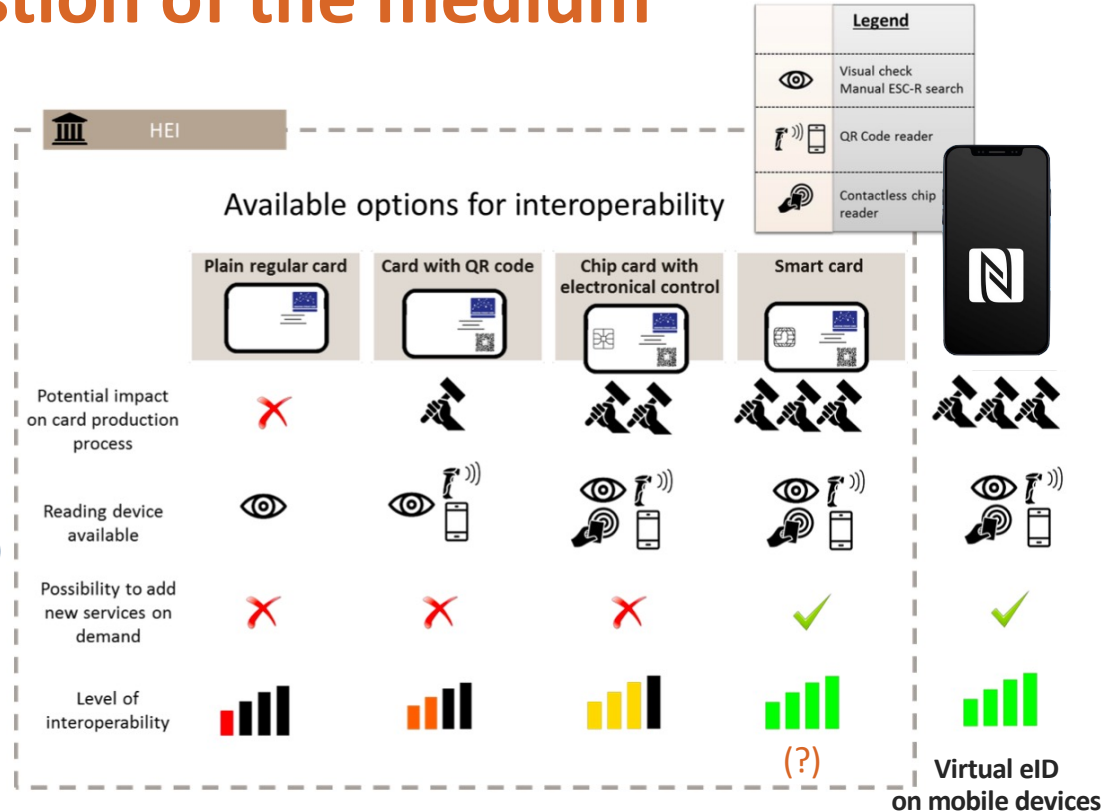
Baselined on the ESC specification

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 happens on the reader side, ... but with limitations

- Almost all readers in the market could **read more than one standard** (maybe a firmware upgrade necessary) but it is **hard to scale** to different technologies and security requirements
- QR-Codes are **not considered a secure** identification element (especially with an URL as content)



Lessons Learned from 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

→ If necessary, apply a **perspective change** → digitalization 3.0 vs 2.0

→ 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
eduroam for WiFi everywhere
eduGAIN online – eduTAP on-site

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

→ Feels like **ONE** consistent **“mobile” solution** from the user's perspective

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

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



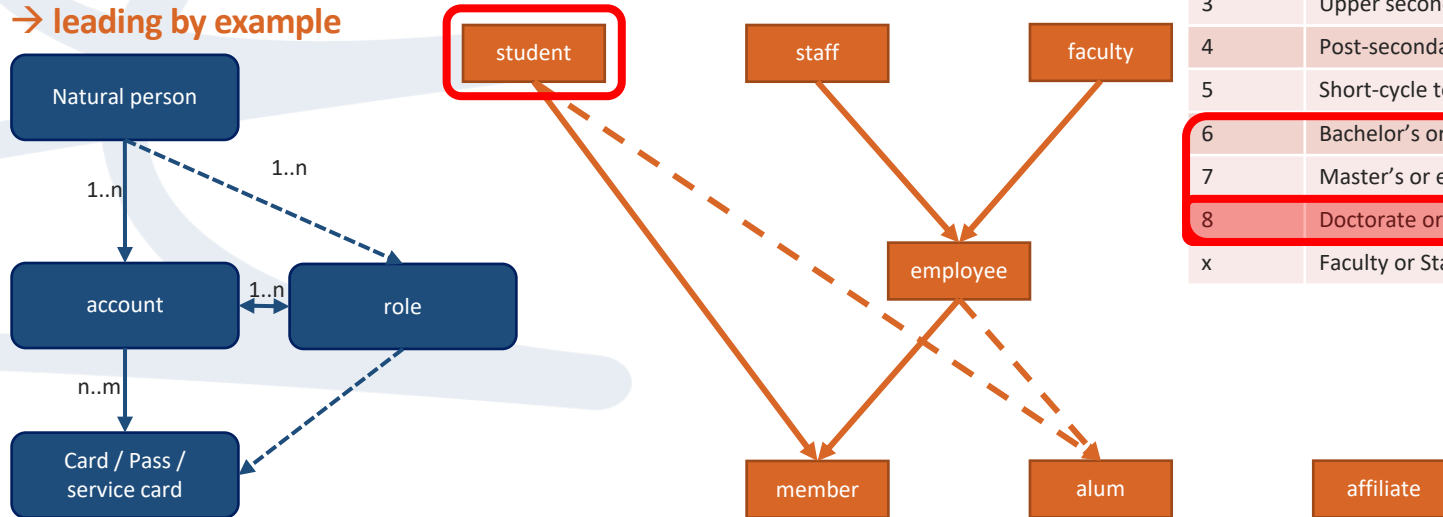
providing service → create benefits

Audience: User Scope → For all persons @ HEIs

- Why focus on students and ISCED:2011 Level 6/7/8 for ESC?
- It is about **providing services** → **eduTAP is for anyone**
 - 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



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

-  **eIDAS** 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**

EAIE23.CNF.IO

- ▶ Navigate to <https://eaie23.cnf.io/> and tap the session titled "10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality"
- ▶ OR just point your phone's camera at the QR code to join directly

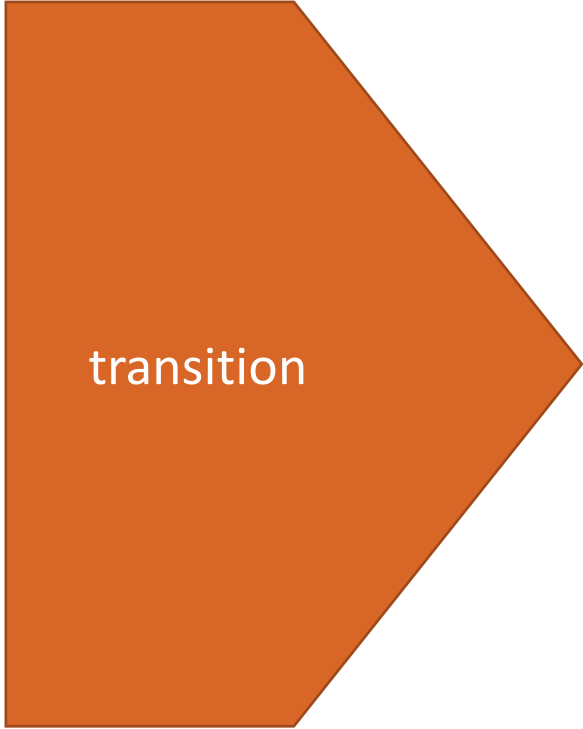


Live Content Slide

When playing as a slideshow, this slide will display live content

Poll: What phone do you have?

The path to an interoperable Campus Card



Trust-Level: NO-TRUST

Benchmark – Student IDs

The ISIC+ITIC Cards (International Student / Teacher Identity Card)

Both

- ✓ physical medium (card)
- ✓ virtual medium (native Smartphone App) available

Provided Data:

- Higher Education Institution (Name)
- Name
- Photo
- Date of birth
- Signature (back)
- Validity

Accepted by third party service providers **for discount and promotions**

Problem Trust Level: NO TRUST



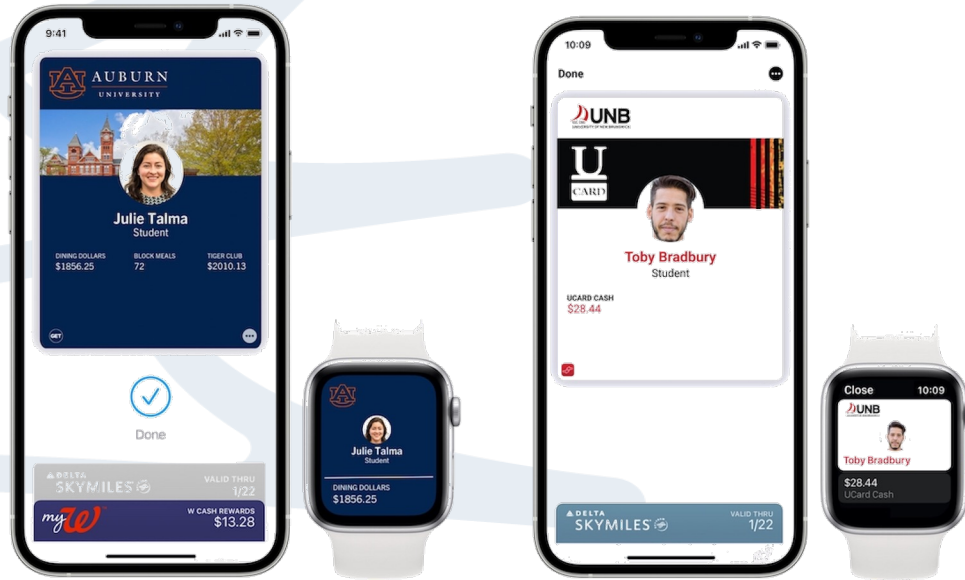
Benchmark – Users Expectations

- Don't stick to old technology if your user expects something modern
 - Integration and Interoperability
 - **Smartphone** is the essential working tool for younger generations
 - Higher Education Institutions should provide credentials in modern ways
 - **Student IDs / Campus IDs should be recognized and accepted anywhere**
-
- ✓ Be compliant
 - ✓ Be Secure → implement IT-Security best practices
 - ✓ Respect privacy
 - ✓ Respect self sovereignty and decisions of users



Student IDs – Enhanced Benchmark

- ✓ Sustainable & Interoperable Virtual eID on Mobile Devices in USA
- ✓ Fulfil User Expectations



Campus ID Solution by **cbord**
TRANSACTION

Features

- Physical Access Control
- Library
- Payment
- Printing and Copy, Vending, and Laundry
- On Campus Transport

→ The Difference:
Universities in the USA are campus universities, a clearly demarcated area, the universities act more commercially oriented as **full-service providers**

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

One Technology Provider did not solve all problems

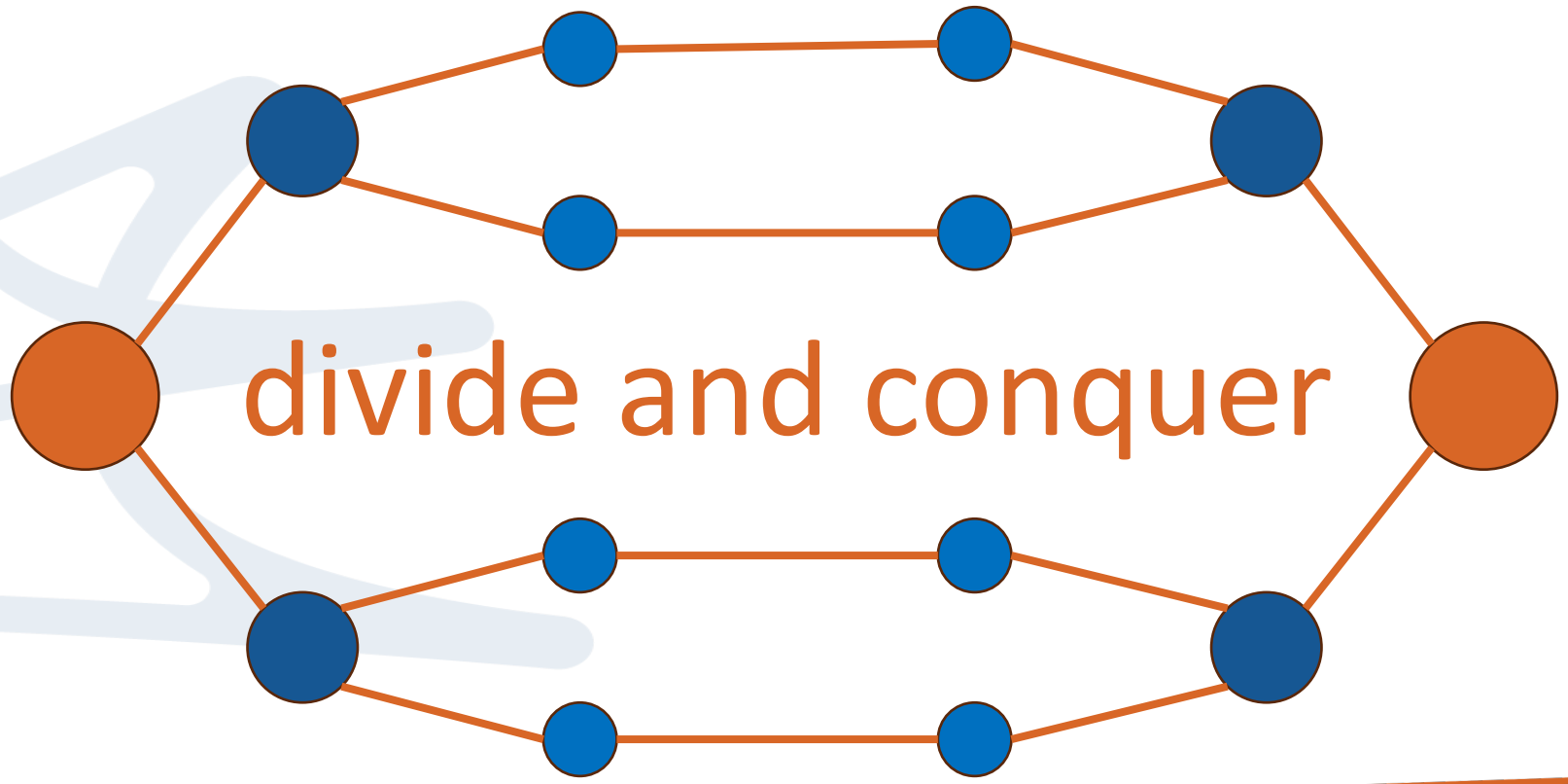
One size
does **NOT**
fit all.



ONE SIZE DOES
NOT FIT ALL



Solution



Medium → 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 & fast)
- Ticketing (secure & fast)

Physical Access Control

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

Library services

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

Transport

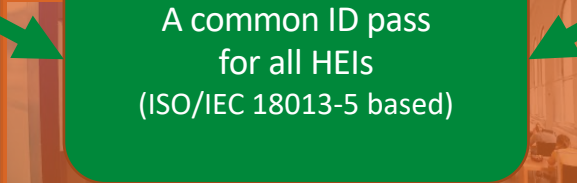
- On campus services (university shuttle service)

Discount and promotions

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

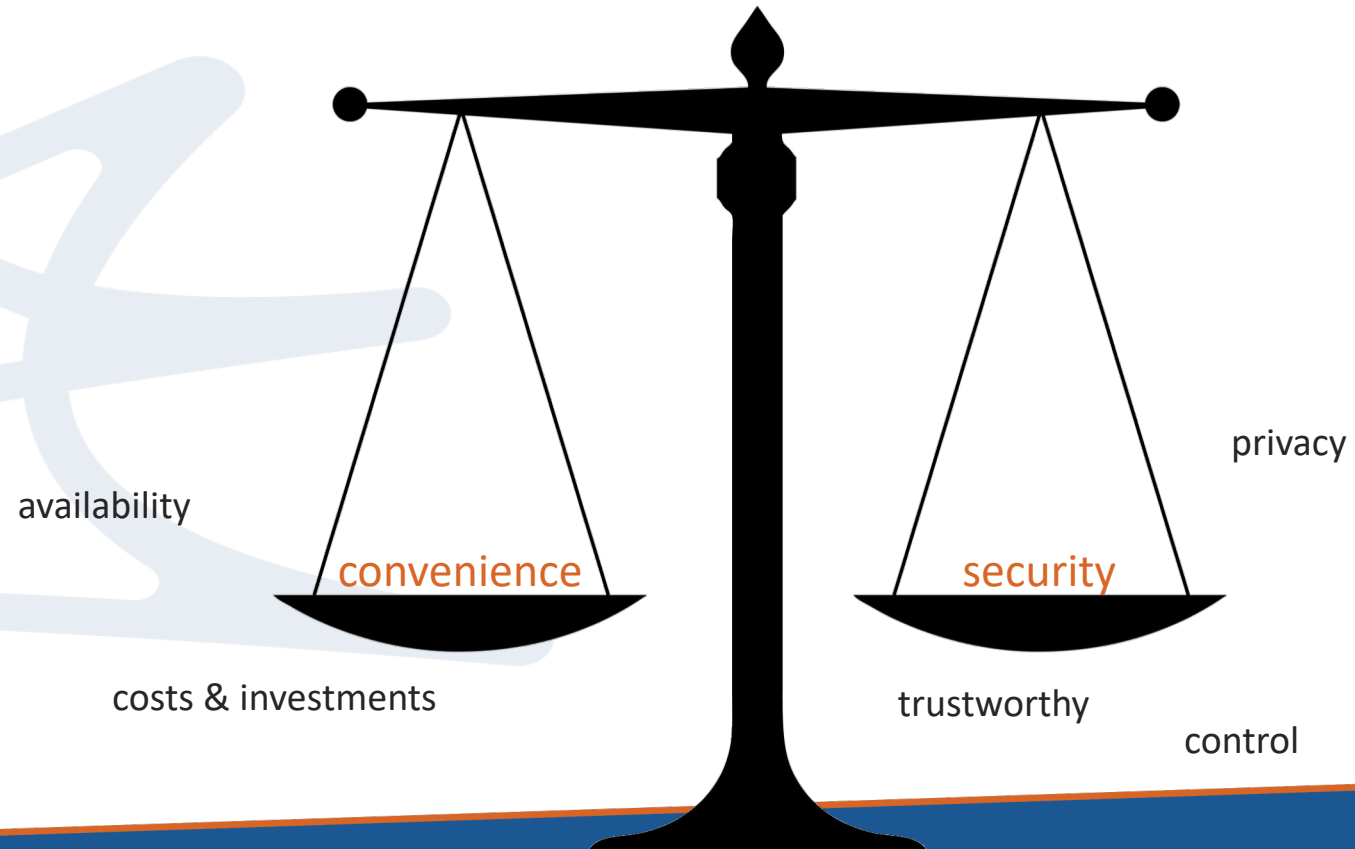
separate service passes
 (can chose appropriate technology)
 → Working solutions by solutions providers

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



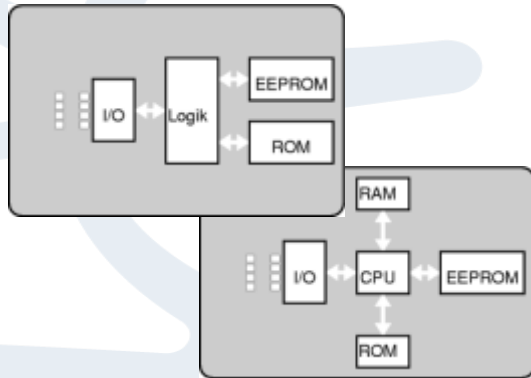
providing service → create benefits

balance of objectives



Final technology comparison and why wallets are the only practical way

Physical cards



vs.

Smartphone



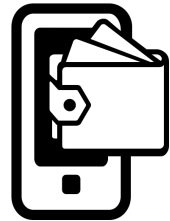
An own app / wallet-app would only be justifiable if the OEM-Wallets / EU-eID-Wallet would not be legally useable

App



An app is no solution that scales, otherwise it would be a wallet-app itself.

Wallet



EAIE23.CNF.IO

- ▶ Navigate to <https://eaie23.cnf.io/> and tap the session titled "10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality"
- ▶ OR just point your phone's camera at the QR code to join directly



Live Content Slide

When playing as a slideshow, this slide will display live content

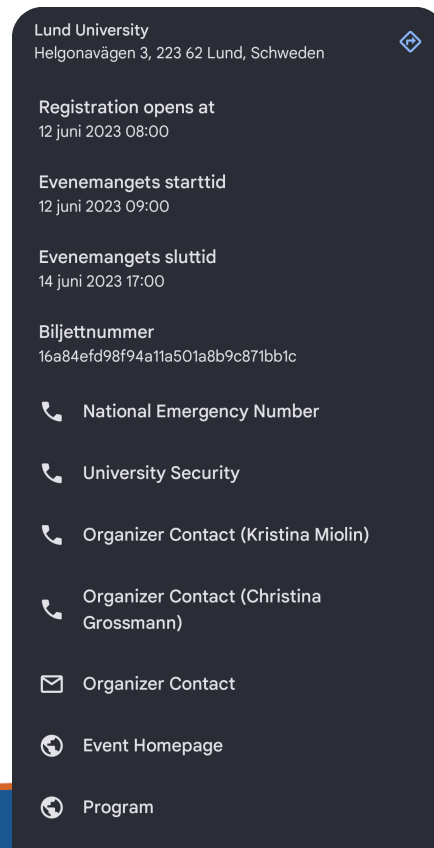
Poll: Would you prefer to use?

We tried this at the EUGLOH Annual Summit 2023 in Lund



- It's possible to add additional information
- The information can be updated
- Even revoked if needed

Scan this to test yourself



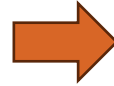
Technical details and features of Wallets / Passes

- The user taps the phone at the reader (instead of a card)
- The reader can ask for a specific pass in the wallet (a card in the phone is called a pass)
- If more than one card could be used, the user gets a selection of compatible cards
- It's possible to control who can read a pass
- Can be used offline (the issuer of the pass doesn't know where it have been used)
- I can work even if the phone is out of power

Scan this to test yourself



Technical details and features of Wallets / Passes



Scan this to test yourself



Our solution is based on

- Multiple passes in the mobile wallet
 - Different systems using passes could have different technical solutions
 - We can move system by system to the mobile
- We use Google Wallet / Apple Pay
 - But it's wallet agnostic
- It's still work in progress
 - And it will be for a while
 - Our work will be published as open source



What's next

- Please share the presentation / information with the appropriate people at your university. We think the IT department might be interested.
- Keep calm
 - But keep us in mind if you plan any larger projects that involve your campus card.
- More information can be found at <https://edutap.eu>
 - Feel free to send questions to us.
- We are not the European Student Card Project (the physical card).
 - But we try to help the same vision, in what we think, a better way.



Questions / Demo

*How does Features of a Wallet work
And why that solves our problems*

We'd love to hear from you!

Get in touch:

EUGLOH Work Package – Campus Life /
EUGLOH ESC Working Group (IT people):

heis.it.wp5.eugloh@up.pt

- Alexander Loechel (LMU Munich)
- José Filipe Alves (UPorto)
- Morgan Persson (LU)
- Pierre Gabrielle (Université Paris-Saclay)

Follow us on social media:



@eugloh19



@eugloh_network



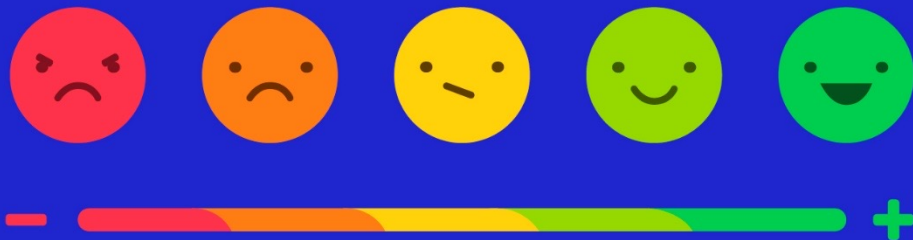
@eugloh



@eugloh

www.eugloh.eu





HELP US IMPROVE

You will receive an evaluation via email
in the coming days

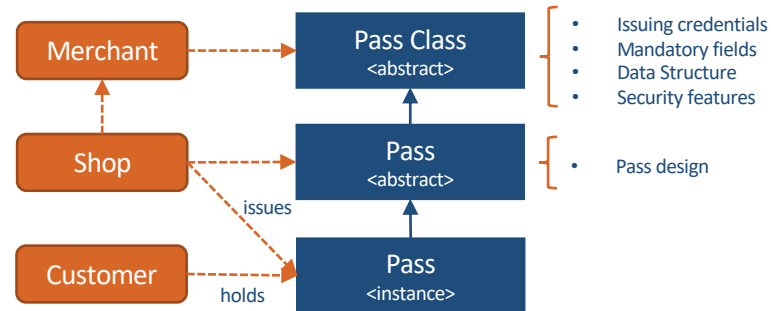
Live Content Slide

When playing as a slideshow, this slide will display live content

Session Evaluation for 10.09 One Europe, one mobile solution: Turning the European Student Card vision into reality

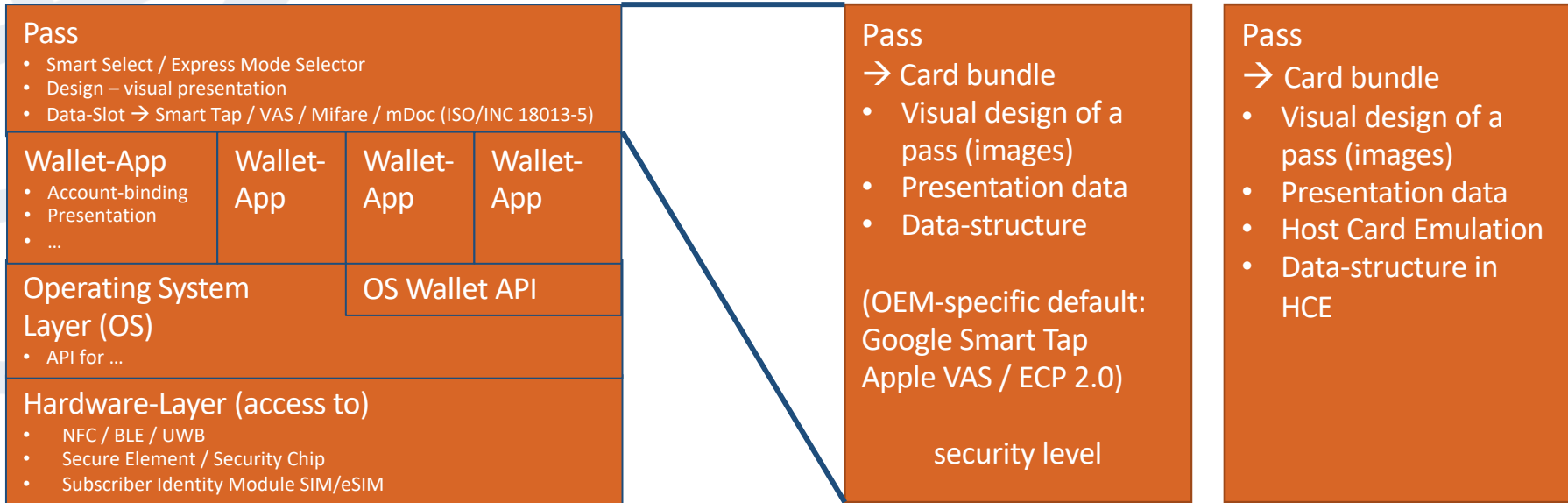
Technical details and features of Wallets / Passes

- **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



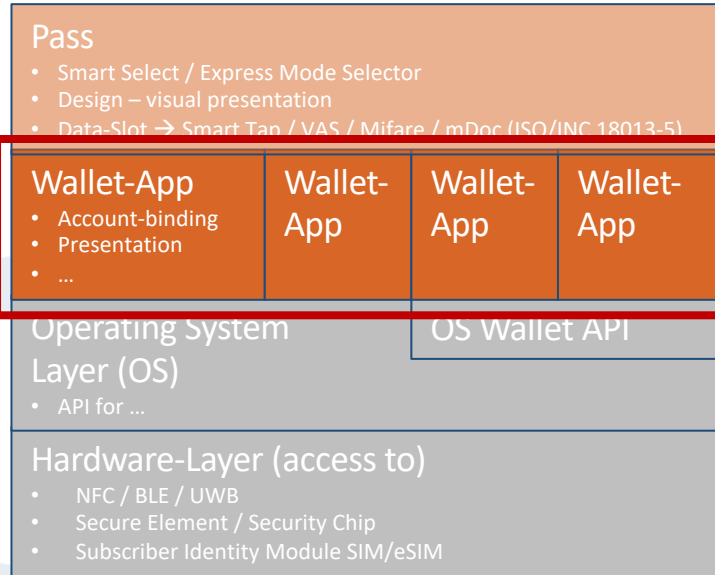
Technical details of Wallet passes

Detail view on the Pass



Technical details of Wallets / Passes

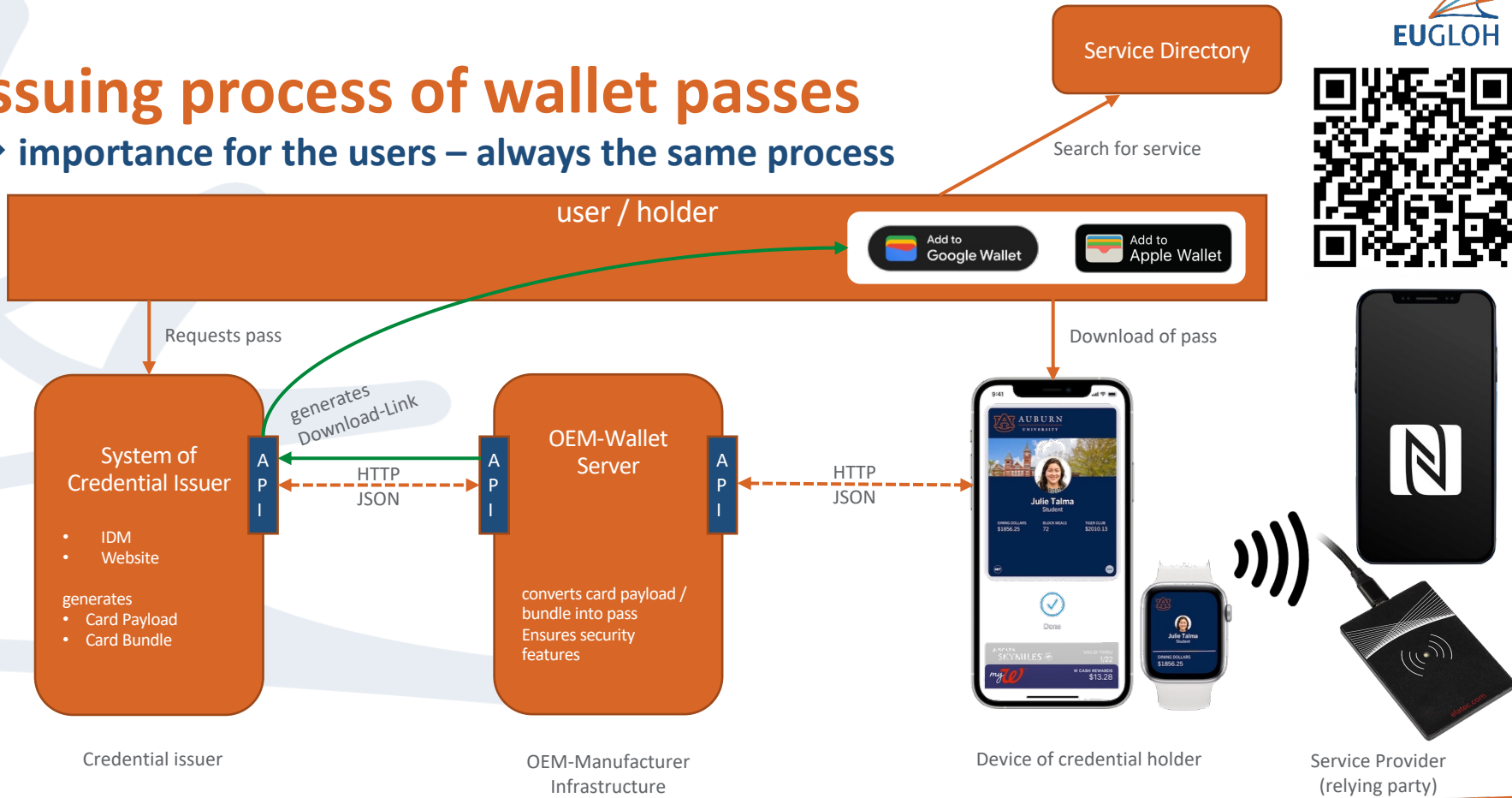
Detail view on the Wallet



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

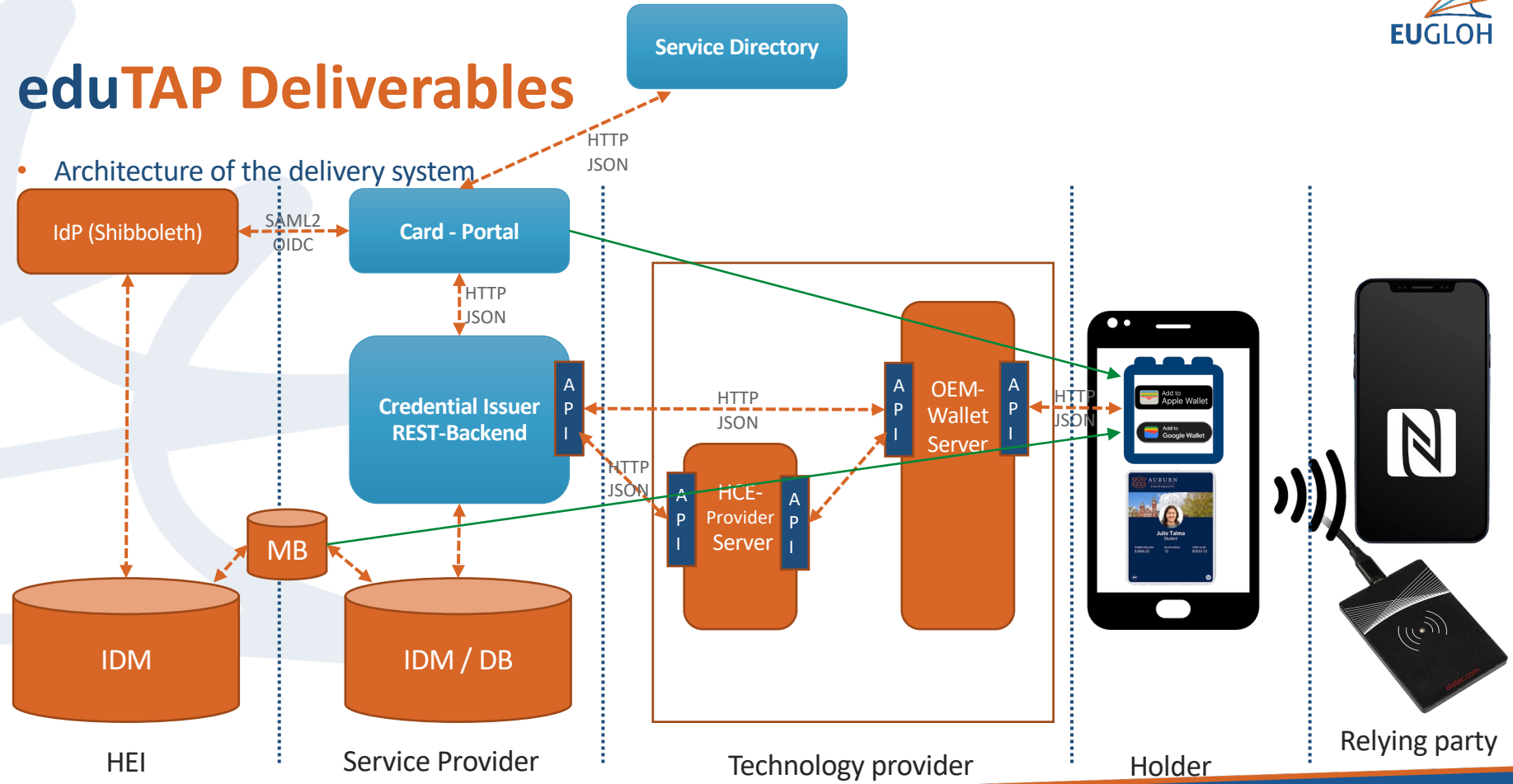
Issuing process of wallet passes

→ importance for the users – always the same process



eduTAP Deliverables

- Architecture of the delivery system



Key take aways

- The vision of the European Student Card is great
- The interoperability vision is possible and will be fulfilled



eduGAIN online – eduTAP on-site

- Share this information (slides and URL <https://edutap.eu>) with your IT people
- Show them the pass and spread the word