



European University Alliance for Global Health

eduTAP

*Bridging online identity to mobile credentials for
reliable and trustworthy on-site service access
(in the educational sector)*



eduTAP – educational tapping

- ✓ tap to identify yourself,
- ✓ tap to claim a discount,
- ✓ tap to pay (open and close loop-payments),

TAP TO PAY



- ✓ tap to open a door,
- ✓ tap to lend a book,
- ✓ tap to take a campus shuttle.



eduTAP – mission:

- **digitizing cards** → passes in the smart device **wallets**
- leveraging the possibilities of smart devices for **interoperability**
- enable **easy service access on-site**

chip card / smart card

enable
transition



- enable HEIs and Service Providers to:
 - create, issue, and manage passes within the smart device wallet
 - interact with wallet passes to give access to services, identify, and verify the status of students and staff
- enable students and staff members to access services on-site, easy and consistent

Access Services → a question of interoperability

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



The European Student Card

- ✓ Vision of the European Commission: Towards a European Education Area
- ✓ The **European Student Card Initiative** (ESCI)
 - Students can get their **status verified** easily across Europe
 - **Access to on- and off-campus services**
 - **easier** access to student services at host universities on a **mobility** programme
- ✓ 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



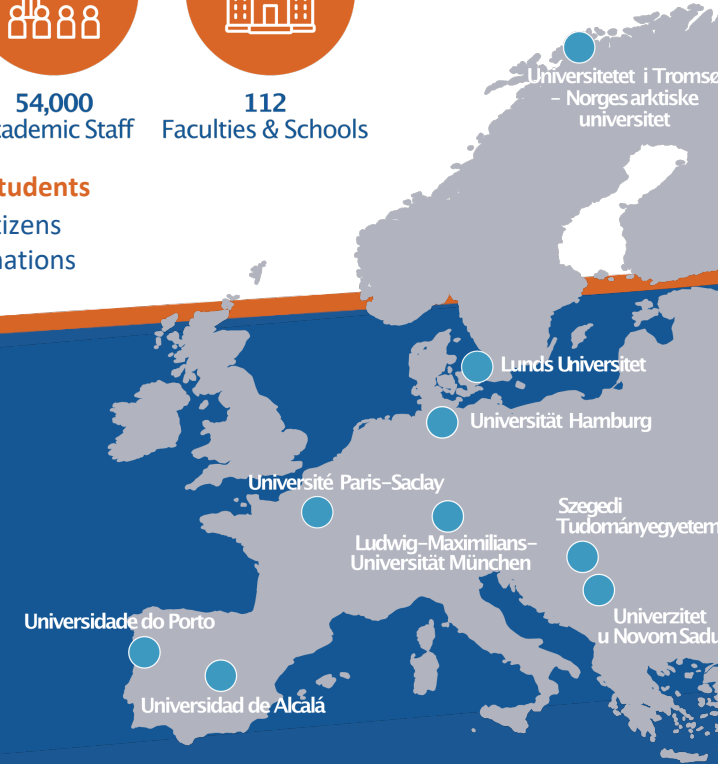
EUGLOH 2.0 Consortium Partners



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



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



Key Goals

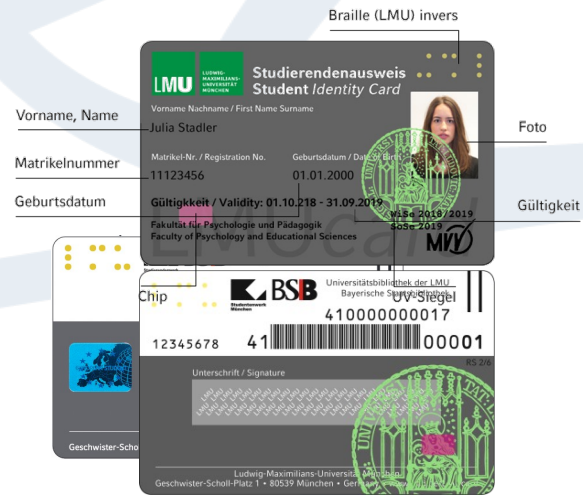
- Interdisciplinary Global Health programmes across universities – striving towards a joint European degree.
- A vibrant, multicultural and inclusive inter-university campus.
- Seamless mobility for students, staff and professionals – physical and virtual.
- Strong links between higher education, research 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

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

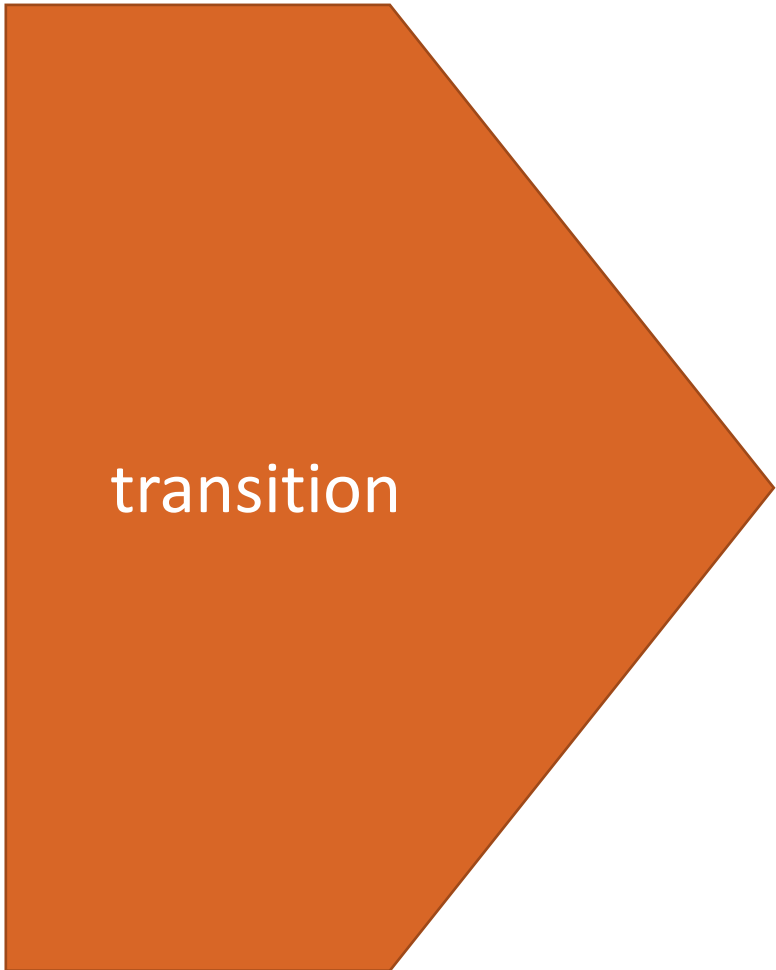
- NXP Mifare Classic Cards / Java Cards with Mifare Classic emulation
- Library
- Physical Access Control
- Canteen & cafeterias
- Printing Service
- Attendance

Not compatible technologies

Path to an interoperable campus card

The image shows a collection of various student and campus cards, illustrating the current state of non-interoperable systems. The cards include:

- European Student:** A blue card with a map of Europe and the text "EUROPEAN STUDENT".
- UCC Student ID:** A yellow and white card for "John Doe" from UCC, with ID 111100982 and expiration date 30/09/2014.
- KIT Studenausweis:** A blue and white card for "Laura Musterfrau" from KIT, with ID 158012547832 and expiration date 12/2021.
- ESNcard:** A blue and white card for "Soledad Moreno Suárez" from ESN, with ID 25 04 9 1.
- Erasmus+ Card:** A green and white card for "University of origin LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN".
- ISIC International Student Identity Card:** A blue and white card for "B. Smart" from International University, with ID S 123 456 789 012 X.

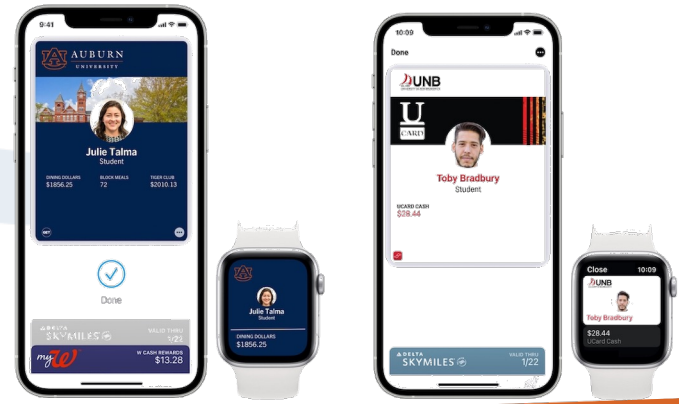
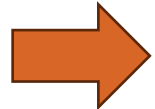
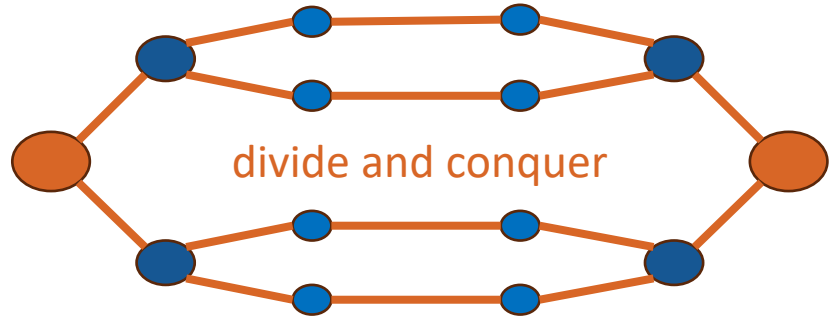
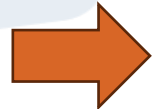
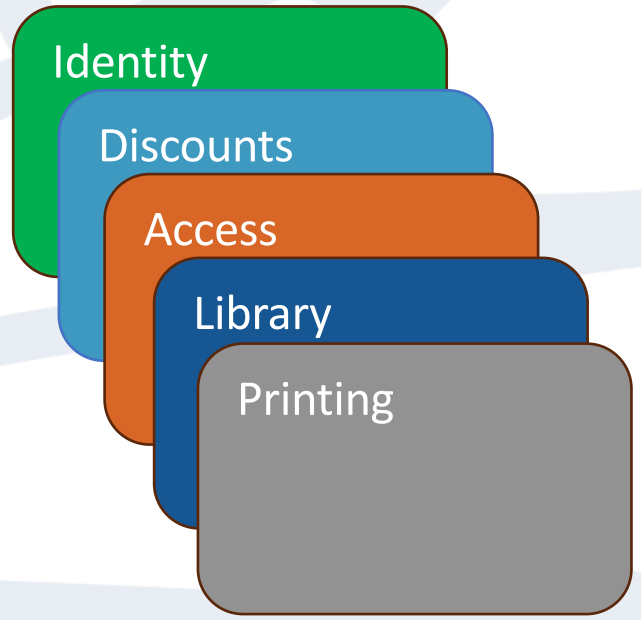


eduTAP

- ✓ state-of-art technology,
- ✓ secure and trustworthy,
- ✓ compliant to **GDPR**
- ✓ ensures interoperability

Trust-Level: NO-TRUST

Path to an interoperable campus card



Medium → Services

Identification

- Identification
- Status verification
- Proof of entitlement
- Single Sign On / 2FA / FIDO2
- Attendance check
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 - 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, audio and video)
 - E-media (book, audio and video)

Transport

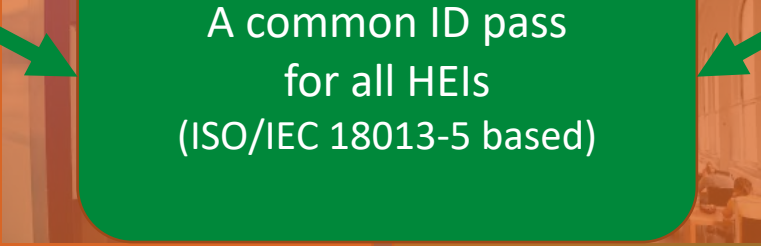
- On campus services (university shuttle service)
- Transport tickets
- "Proof of entitlement"
- "discount"

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

Digitizing cards vs. leveraging the possibilities of smart devices

→ Stages of Digitalization – Period of Digital transformation

Digitalization 1.0

- Digitization – create digital versions of analog documents

→ Digitization vs. Digitalization

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**

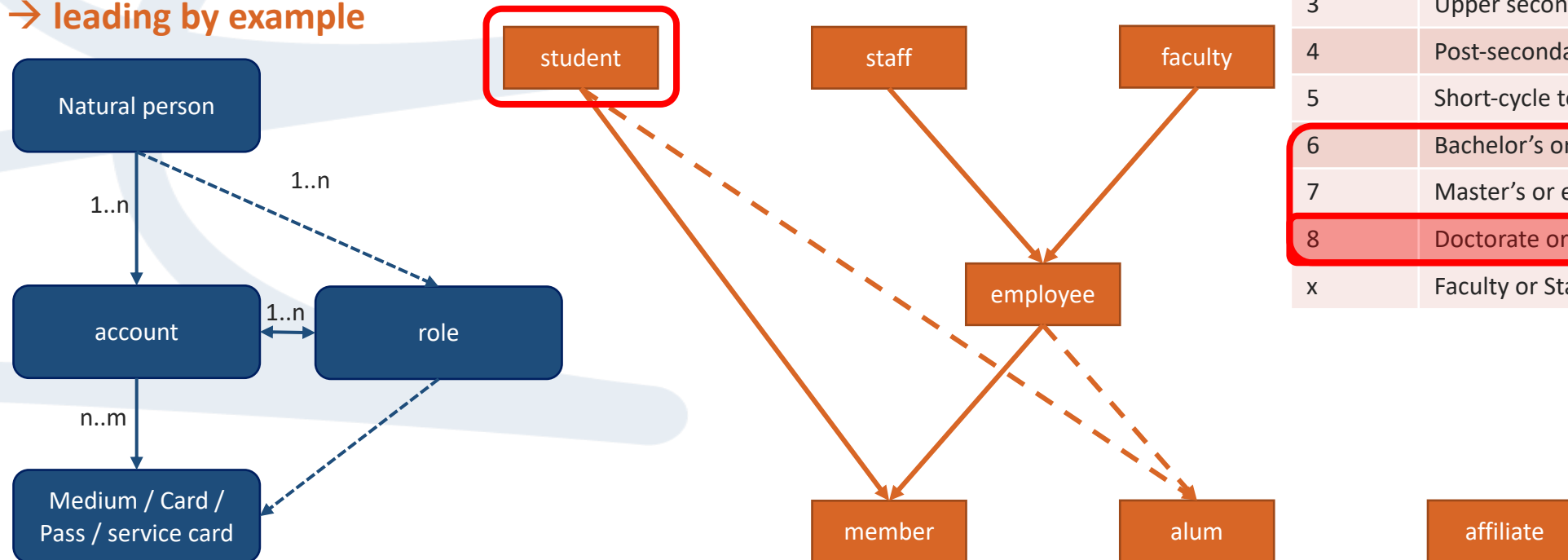
→ Interoperability

European Student Card → Services and Service Consumers

- 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



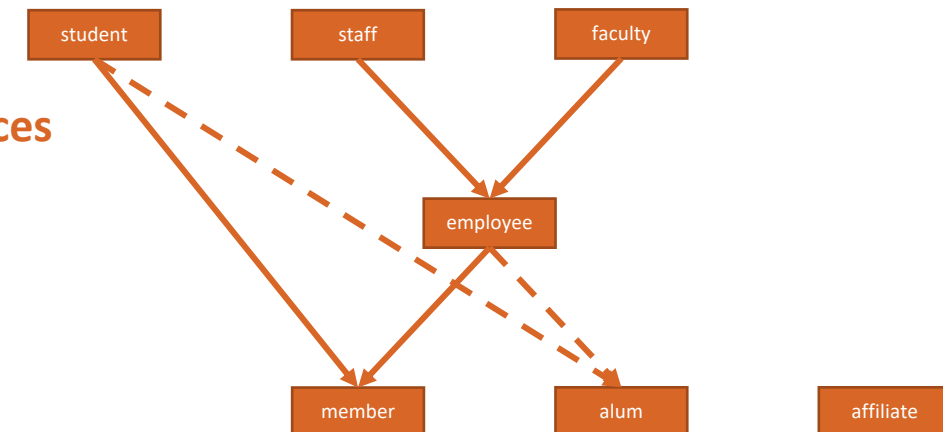
From eduGAIN & eduroam to eduTAP

- eduGAIN is an **inter-federation of identity-federations** in Higher Education
 - Each Member of a Higher Education Institution (HEI) should have a **user-account** that allows him to **access online-services**
 - eduGAIN uses **Shibboleth** (federated SAML2 or OIDC) and is an “**Authentication and Authorization Infrastructure**” (AAI)
 - All HEIs Identity Management Systems uses the same common set of LDAP-Schema (eduPerson & SCHAC + SAML)
→ shared set of Attributes and understanding of those Attributes
- eduroam (educational roaming) gives all HEI members **access** to a **WLAN service** with SSID eduroam
 - WPA2/3-Enterprise with a Radius Authentication Service (based on the eduGAIN user-account - login)
 - A common WLAN at almost all HEIs world-wide and public spots

→ It is all about **accessing services**

→ eduTAP

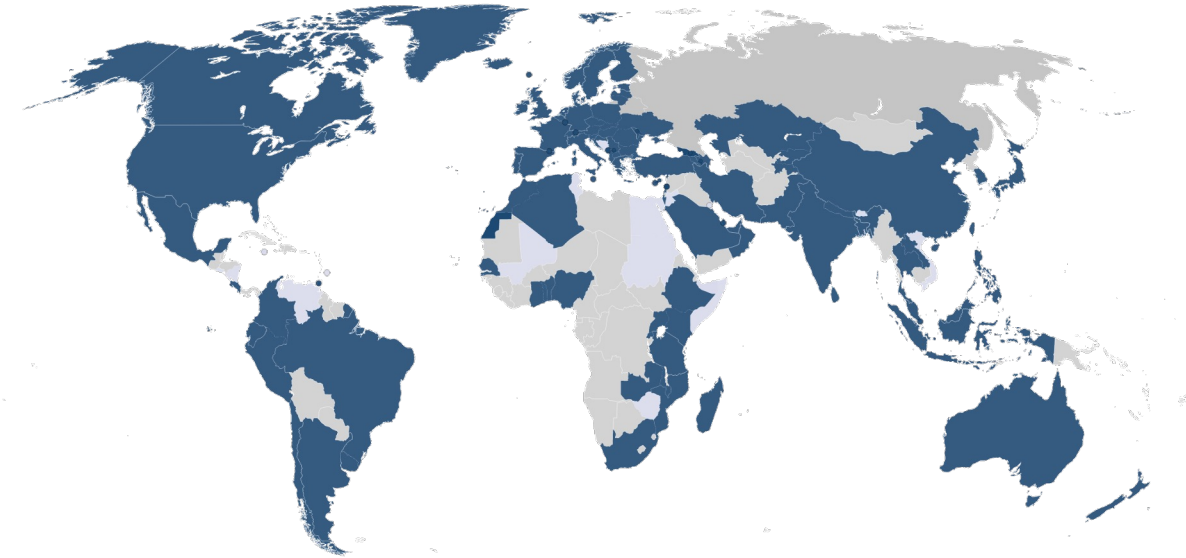
- identification / authentication / authorization to **access services on-site**
- uses eduGAIN and legacy system attributes for service access



eduGAIN & eduroam Member Countries

→ eduGAIN Federation Members

→ eduroam Service Providers

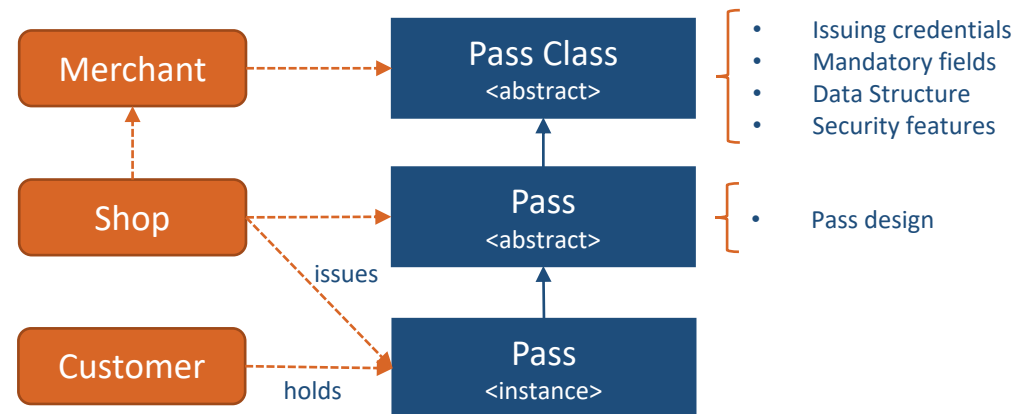


Technical details and features of Wallets / Passes

The wallet is a **container for multiple passes**

Technical features:

- **Smart / Quick Select option (Express-Mode)** ← reader selects the specific pass to interact with (if available)
- **Battery reserve** (important for keys, transit tickets, payment)
- Authentication requirements ← **security features**
- Groupable
- Validity dates
- Remote updateable / revokable
- **Offline usable** (→ non traceable)

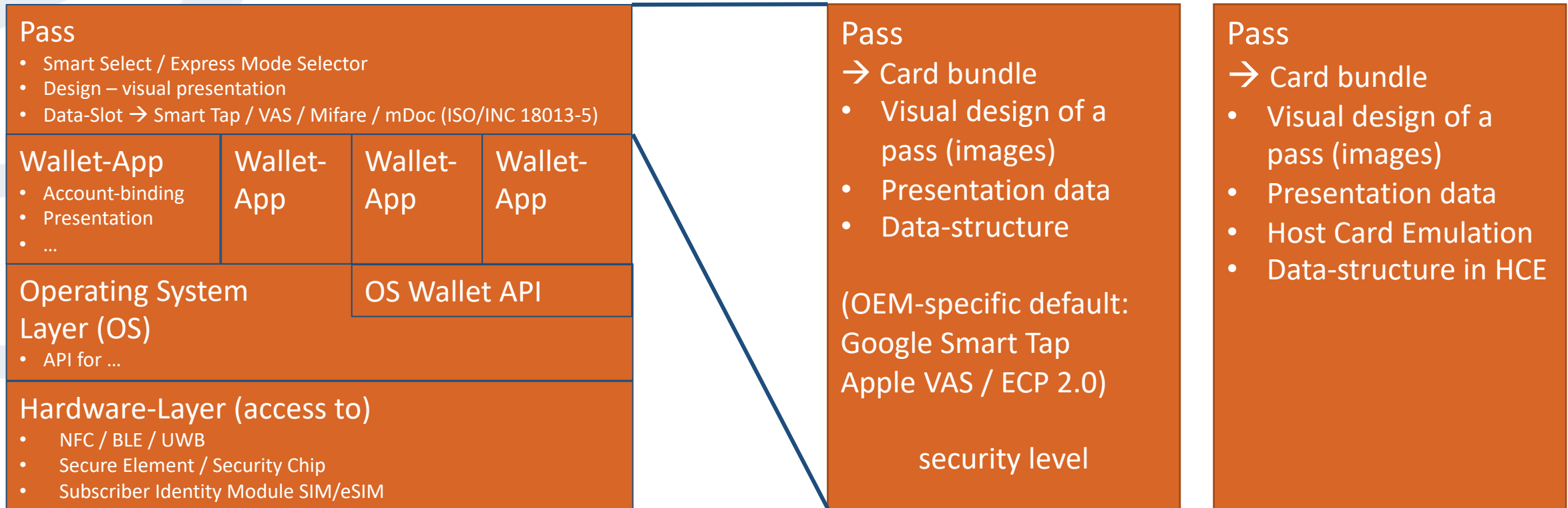


- *Host Card Emulation possible*

Technical details and features of Wallets / Passes

- ✓ Technical details and features of Wallets / Passes → Path to an **interoperable** campus card
- ✓ if each pass (technology) can be individually selected and leveraged, and the Pass in the Wallet can be selected by the reader (**Smart Select**)

→ **one pass per service**



Technical details and features of Wallets / Passes

Detail view on the Wallet

Pass <ul style="list-style-type: none"> • Smart Select / Express Mode Selector • Design – visual presentation • Data-Slot → Smart Tap / VAS / Mifare / mDoc (ISO/INC 18013-5) 			
Wallet-App <ul style="list-style-type: none"> • Account-binding • Presentation • ... 	Wallet-App	Wallet-App	Wallet-App
Operating System Layer (OS) <ul style="list-style-type: none"> • API for ... 		OS Wallet API	
Hardware-Layer (access to) <ul style="list-style-type: none"> • NFC / BLE / UWB • Secure Element / Security Chip • Subscriber Identity Module SIM/eSIM 			



Necessary to issue passes to
all relevant wallets

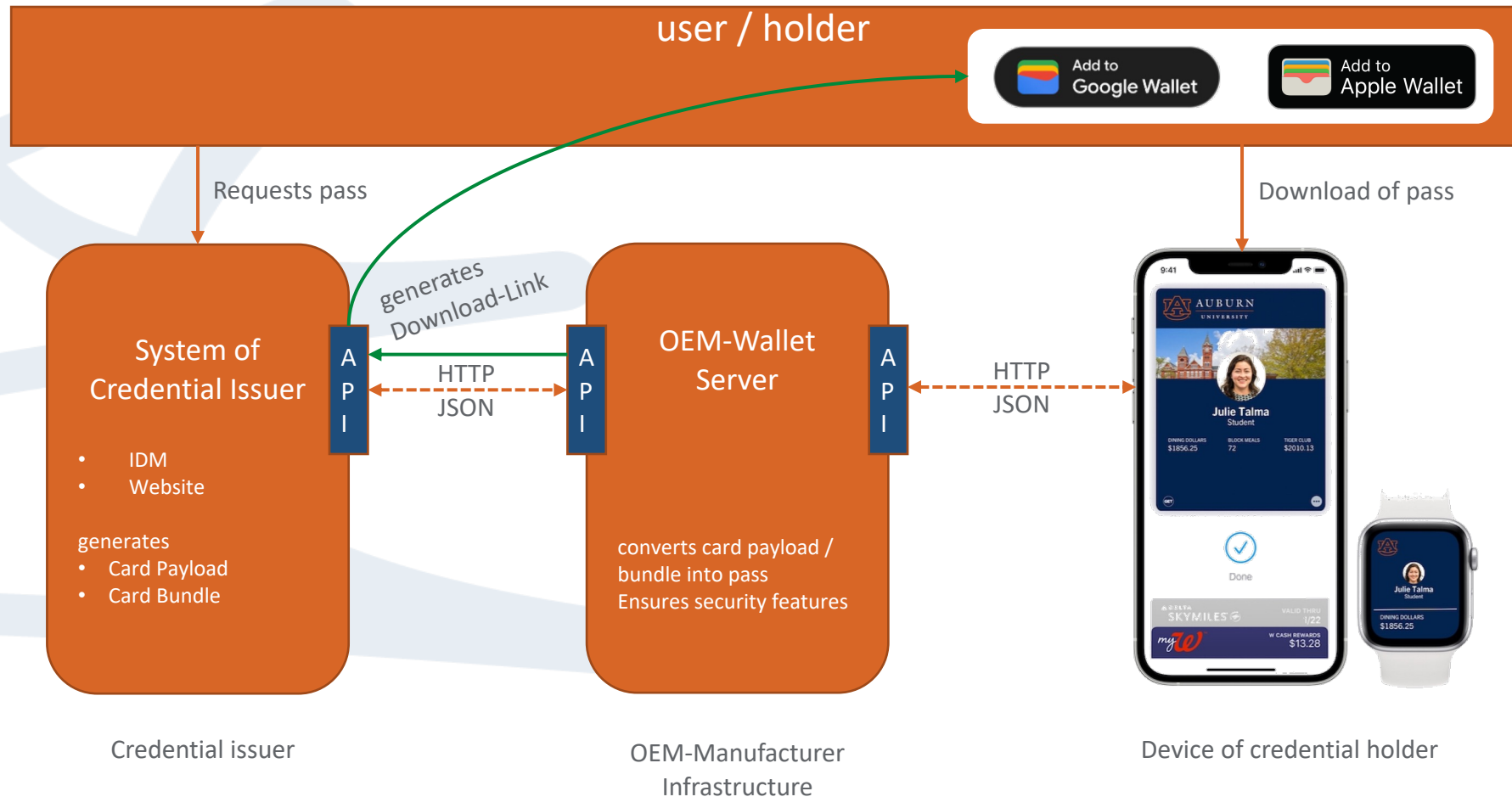
→ The eduTAP solution is wallet **agnostic**, not bound to a specific Wallet provider or company

→ eduTAP just enables HEI and Service Providers to easily **create** and **issue** wallet passes

Issuing process of wallet passes

→ importance for the users – always the same process

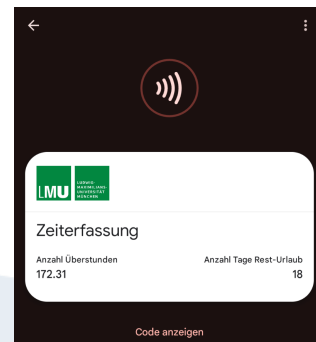
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Transition of credentials into the Smartphone Wallets

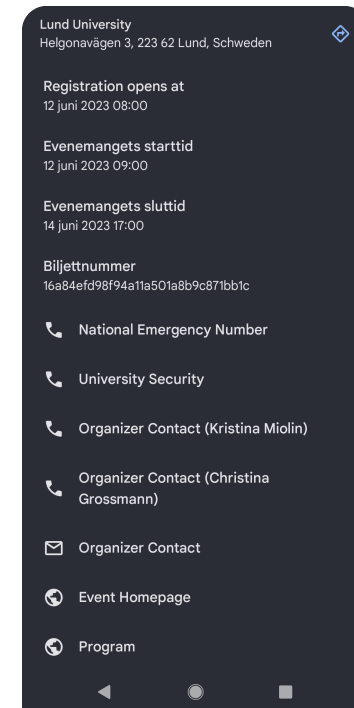
Examples:

potential IDs for LMU Munich

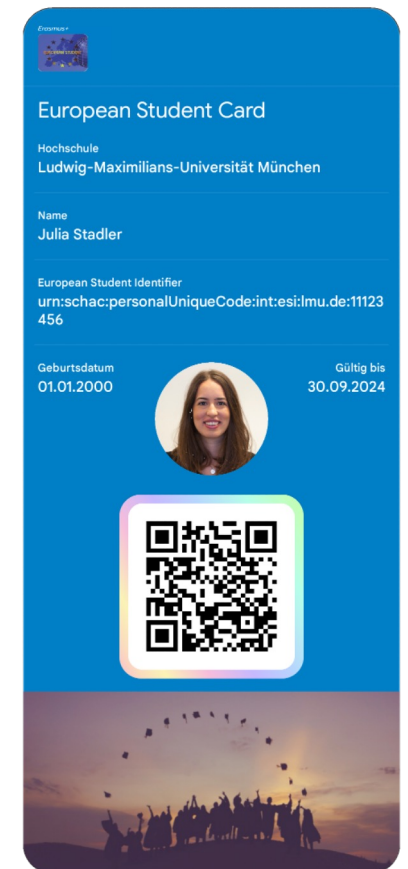


→ all NFC enabled

Event-ticket for EUGLOH Annual Summit 2023 in Lund

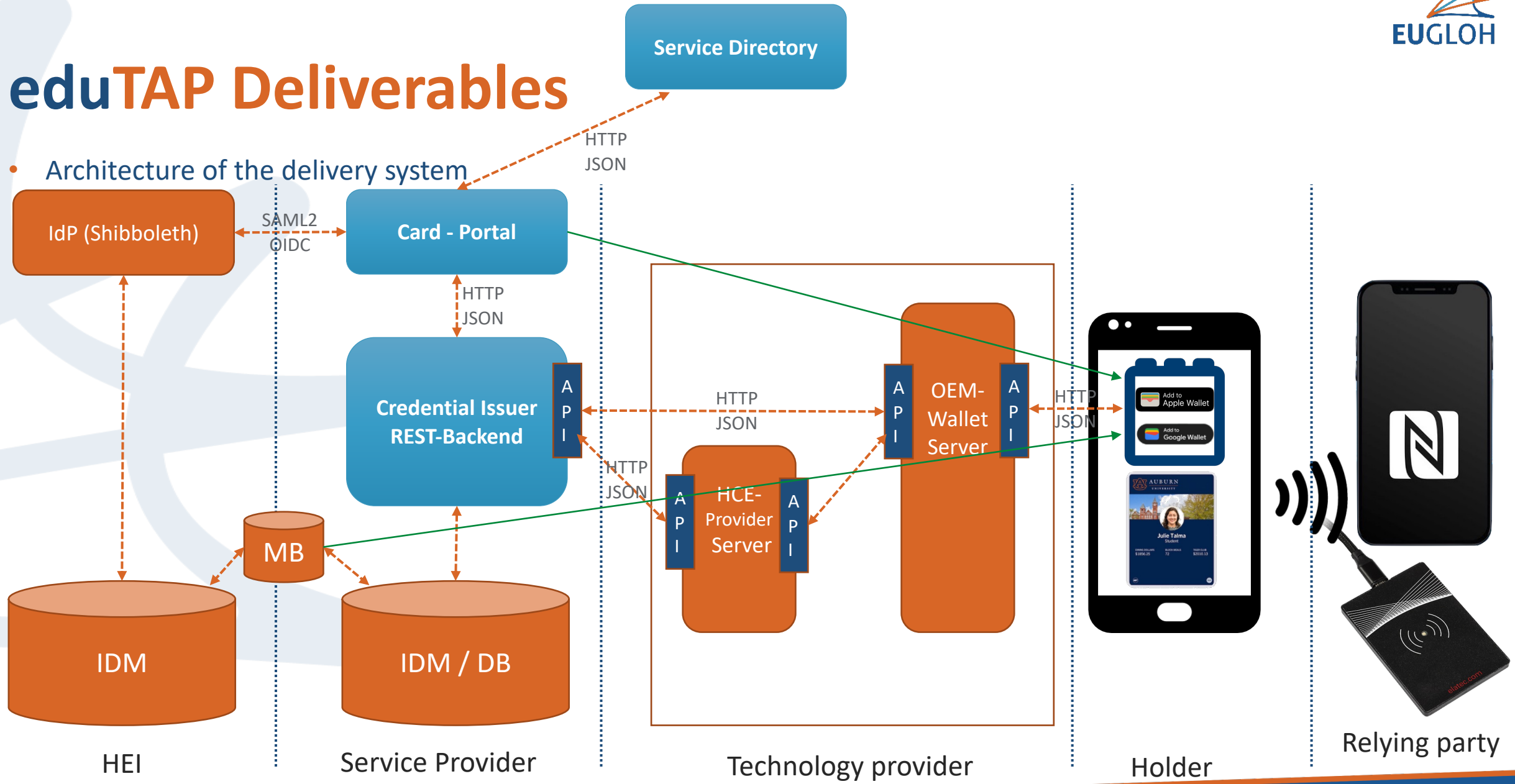


European Student Card



eduTAP Deliverables

- Architecture of the delivery system



eduTAP Deliverables

The eduTAP project and community implements

- eduTAP core → generic libraries and tools; everything to create, issue and manage passes in the wallets
- eduTAP libs → generic libraries and tools; everything to interact with and process data from a wallet pass
- eduTAP docs → Information about eduTAP and Wallets
- Central Service Directory → find service and obtain a service pass if necessary
- Infrastructure and Deployment helpers

HEIs and Service Providers that want to adopt and use eduTAP needs to implement or configure

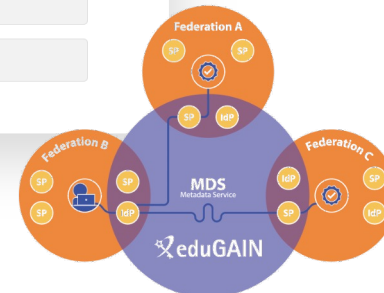
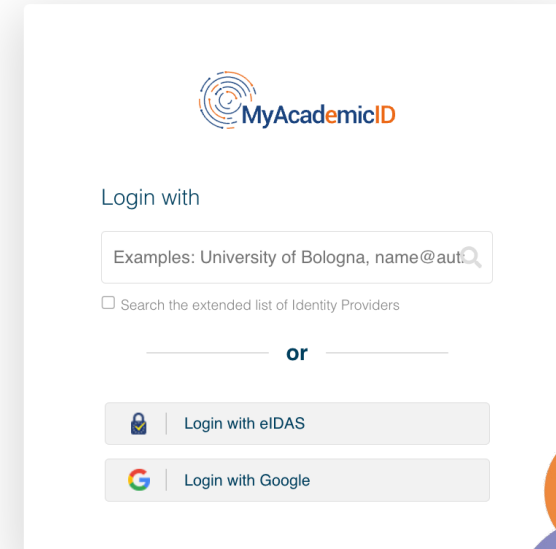
- Mandant Specific Applications (MasA) → eduTAP@institution implementation

eduTAP is community open source

More Information's → <https://eduTAP.eu> • <https://docs.eduTAP.eu> & <https://github.com/edutap-eu>

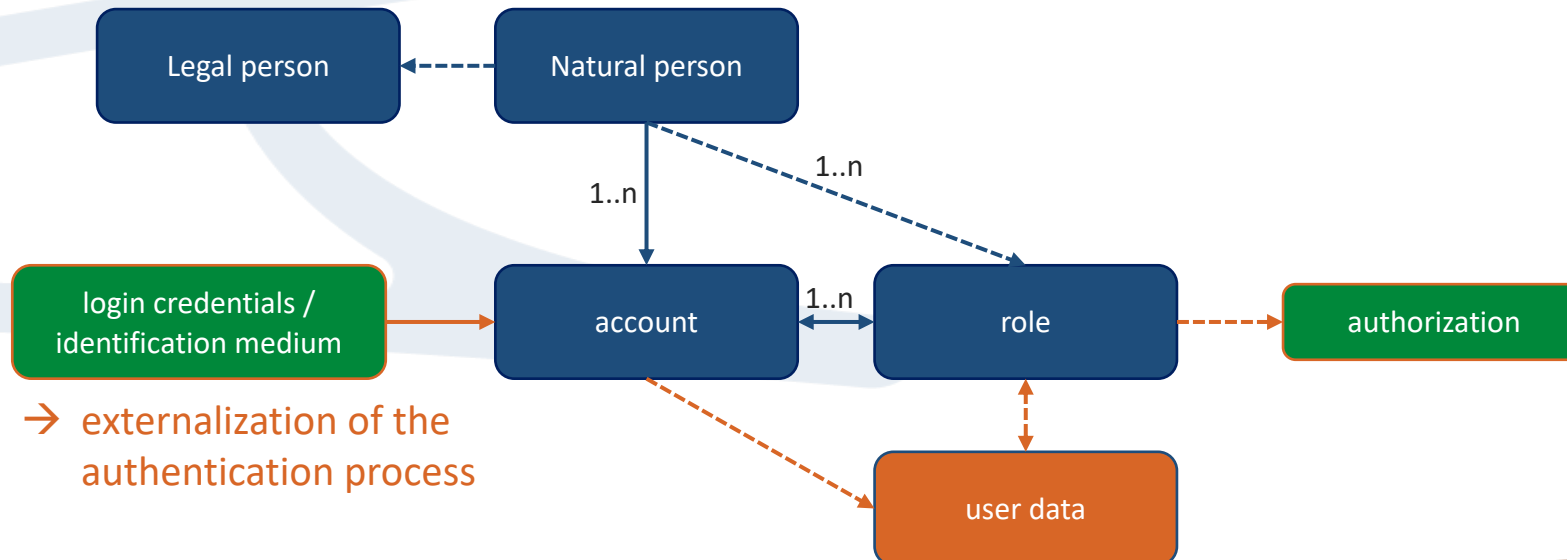
Identity Linking → reduced amount of logins

- Utilization of decentralized / federated Authentication and Authorization Infrastructure
 - Less login credentials – higher assurance levels
 - Data flow



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GÉANT – The IT provider for Higher Education in Europe

The GÉANT Association is the collaboration of European National Research and Education Networks (NRENs)

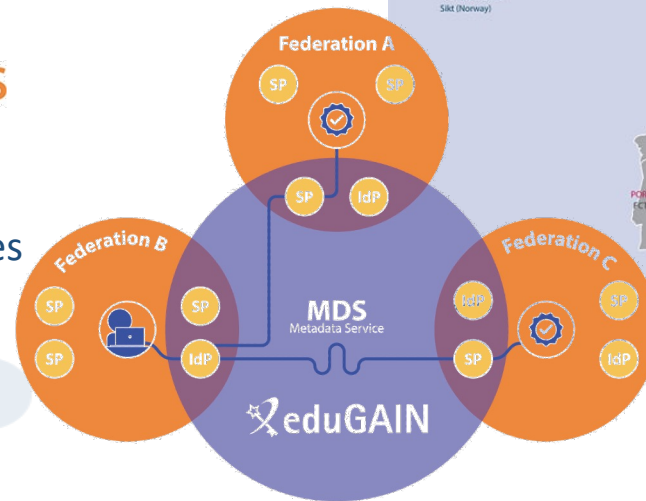
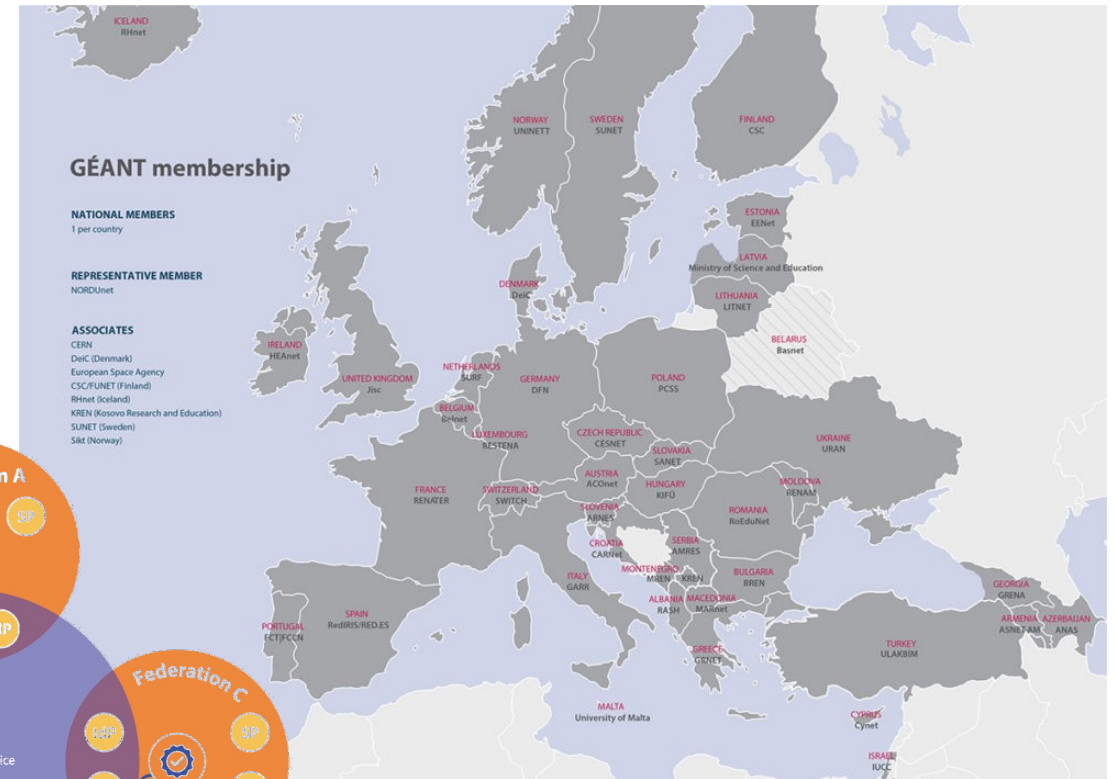
- Non-Profit Organization
- Service-Provider for IT / e-infrastructure services for the European Higher Education Sector

• Key Services:

- GÉANT Trust & Identity Services



- GÉANT Network and Connectivity Services
- GÉANT Security Services
- GÉANT Cloud Services
- Procurement Agency for EU-HEIs



→ eduTAP fits perfectly into GÉANT Trust & Identity Services and compliments eduGAIN for offline on-site identity use-cases