LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

IT-SERVICES

Can smarter IT ever pass the business-case test?

HESCA 26 :
Smart Technology for a Smarter Campus
2026-03-25 @ Brasenose College; Oxford

Alexander Loechel
Referent IT-Projekte · IT-Services · LMU Munich

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Smartex - Higher Education Smart Campus Association (HESCA)
Question to me

“Can smarter IT ever pass the business-case test?”

Question to me

“Can smarter IT ever pass the business-case test?”

Absolutely

YES, it can

"Can smarter IT ever pass the business-case test?"

Absolutely
YES, it can

*Wait, is that a **trick** question? Or do I as a non-native speaker **understand the question correctly**?*

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Question to me

“Can smarter IT ever pass the business-case test?”

Let’s take the question apart

- **smarter IT** (not smart IT or smart ICT) ← what is smarter IT?
  If smarter IT / ICT is about smart devices (“internet of thing”) or AI, automatization and predictive data analysis?
  - → We are at the HESCA (Higher Education Smart Campus Associtaion Conference)
  - → do we talk about “smart campus” and credentials
  - → what is smart**er**? Connected credentials / mobile credentials?
- **ever win** ← an absolute statement, not the more obvious ***“when will it win”***
- **business-case test**
  - → economic viability hurdle
  - → problem-solving

the philosopher's stone

→ *what is the **business problem** we try to address?*

→ *Why did someone ask me?* → I am a **technical person** (IT-Manager, ~ CTO-Level)

Smartex - Higher Education Smart Campus Association (HESCA)
Question to me → eduTAP and LMU digital credentials as an example

ECCA Conference 2025 - LMU München

Mikhail Strunkin · 1.
Global Physical Access Partnerships for Google Wallet at Google
1 Monat · Bearbeitet ·

That time of year again - when tech vendors and universities gather under the roof of ECCA - European Campus Card Association to tackle the never-ending puzzle of digitizing the European Student Card.

This year, it feels like Alexander Loechel might just be the one to finally crack the code!

Let's see if 2025 is finally the year we go fully digital at Ludwig-Maximilians-Universität München and other EUGLOH members.

I have some confidence, finally :)

#DigitalStudentID #ECCA2025 #eduTAP #GoogleWallet

Übersetzung anzeigen

EUNIS Conference 2025 Belfast, UK → EUNIS Elite Award

EUNIS
846 Follower:innen
3 Wochen ·

🏆 Celebrating Excellence at #EUNIS25! 🏆

We are proud to announce the recipients of this year's EUNIS Awards, recognizing outstanding contributions to digital transformation in higher education across Europe:

🏆 Best Paper Award went to Bernd Decker and Denise Dittrich (IT Center, RWTH Aachen University)
📄 Paper: "Cost Management for the Use of Generative AI in Higher Education: A Case Study from North Rhine-Westphalia"

🌟 Elite Award awarded to Simon Lund and Alexander Loechel (Ludwig-Maximilians-Universität München)
📄 Paper: "eduTAP Common ID – A Standardized Digital Identity Document for HEIs"
🎖️ Special Award on lasting achievement was granted to Ognjen Orel, Matija Kranjčina, and Mirna Imrović (University Computing Centre, University of Zagreb):
📄 Paper: "The Evolution of ISVU: 20+ Years of the National Student Management System in Croatia"

🔍 Dørup Award recognised the le Conservatoire National des Arts et Métiers team for their innovative work
📄 Paper: "When Virtual Reality Reinvents Training: The Cnam Bet with CAP'VR"
👏 Congratulations to Christian Cousquer, Maité SYLLA, Rebeca Garcia, Sohayb Khaoulani, Fanny Hauquier, Catherine Gomez, Vincent Caqueret, Marion Pommet, and the entire team!

🎓 Emerging Professionals Award
Awarded to HANBIT CHOI, Aksel Skullerud Fosaas, Zara Mudassar, Sander Garland Slinning, Arman Bulak Hagelia, and Eira Bjerkeng Scherjon (Sikt – Kunnskapssektorens tjenesteleverandør)
📄 Paper: "Beyond the Hype: Real-World Insights on AI Integration and the Value of Alternative Solutions"

👏 A huge congratulations to all winners for your innovation, dedication, and impact on the higher education IT landscape!

#EUNISAwards #HigherEd #DigitalInnovation #AI #VR #DigitalID #EUNISComi

Übersetzung anzeigen

“Can smarter IT ever pass the business-case test?”

Absolutely

YES, it can

Smarter IT does not fail because of technology.

It fails because we try to improve systems instead of outcomes.

Mobile Identity → Digital Identity
Transition of credentials into the Smartphone Wallets
The LMU Student ID (over time)

today

LMU Student ID till 2019

Dumb Campus
(conventional, analog, manuell processes)

transition

LMUcard Student ID 2019-2025

Smart Campus
(networked, IoT & smart cards; data silos, isolated systems)

transition

LMU Student ID 2025+

transition

LMU Student ID 2027+ ?

University ID
(Student / Staff / Affiliate ID)

- ✓ Verifiable Credentials
- ✓ Selective Disclosure
- ✓ Zero Knowledge Proofs
- ✓ Reflection of important Shibboleth attributes

Smarter Campus
(interoperability, personalization; AI and data analysis)

eduTAP & eduTAP@LMU

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Mobile Identity → Digital Identity
Definition of Service (ITIL)

Business-case test → what problem to solve?

A smart / smarter campus should **provide services**

*"A **service** is a means of delivering **value to customers** by facilitating **outcomes** that **customers want to achieve** without the ownership of specific **costs** and **risks**."*

ITIL Practitioner Guidance

→ We mostly focus on the offering, not the service

→ We made credentials smarter. But did we make services better?"

Mobile Identity → Digital Identity → Credentials (digital and physical) Campus Cards are about Accessing Services → Smart Campus → Access and Identity Credentials

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 (*events and conferences*)

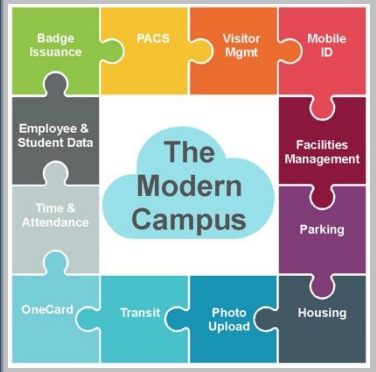
Physical Access Control
- Areas (*campus, parking lot*)
- Buildings
- Rooms
  - Classrooms
  - Labs
  - Computer rooms
  - Learning spaces
  - Offices
  - Accommodation facilities *(i.e., dorms)*
- Athletic facilities

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 / Proximity Use-Cases**
+ Online Services



providing service → create benefits

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Mobile Identity → Digital Identity
Key to all Services → Identification / Authentication

Accessing Services

→ Triple-A-System
- (Identification)
- **Authentication**
- **Authorization**
- **Accounting**

Authentication Factors

- **On-site services access** is about proving your entitlements and identity

- "*something you know*" as an authentication method for on-site service access is not very efficient,
  best combination: "*something we have*" + "*something we are*"
  → **Medium**: Smartphone **Wallet Passes** + authentication via biometrics

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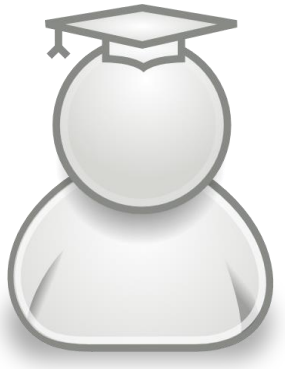
Mobile Identity → Digital Identity
Optimization for which audiance

STOP → to technically
Business-case test



Whose problem do we solve?

- The Organisations (University)
- The Consumers (Students, Staff, …)

→ **providing** services or **accessing** services

- University and campus facilities provide services
- Student and Staff members consume (access) services

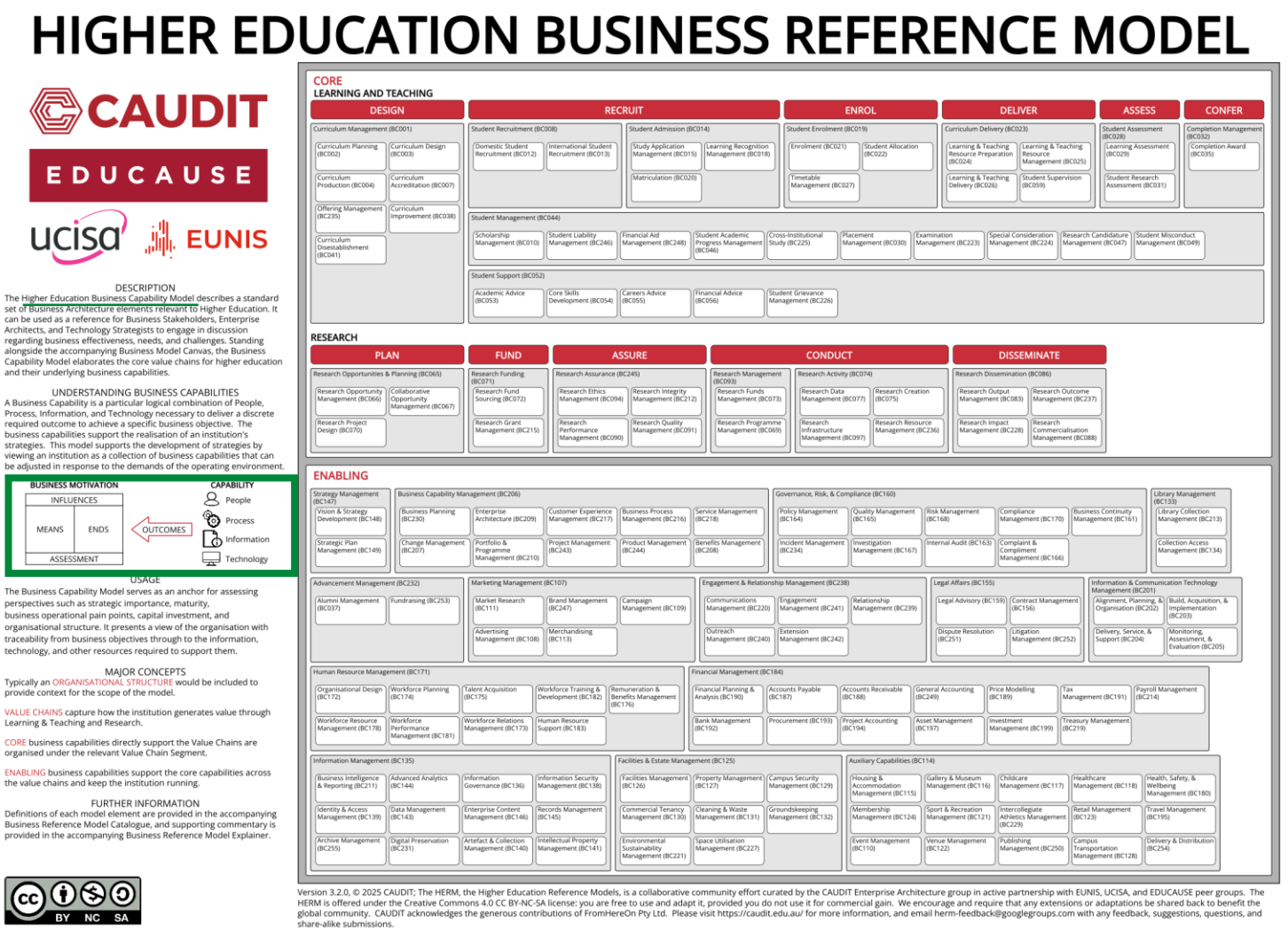
Mobile Identity → Digital Identity
EAM Scope → Business Motivation & Capabilities

Core-Business of a University:

- Lerning and Teaching
- Research
- Transfer

Services of a smart campus are all enabling capabilities

- ✓ giving access to rooms / campuses
- ✓ serving food in canteens or cafees
- ✓ access to library resources
- ✓ copying & printing
- ✓ attendance registration
- ✓ transport



Mobile Identity → Digital Identity
Stages of Digitalization – Period of Digital transformation

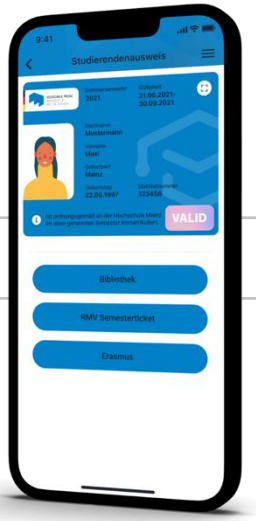
Digitalization 1.0

- Digitization – create digital versions of analog documents

→ Digitization vs. Digitalization (machine readable content / payload)

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

→ User Experience

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Mobile Identity → Digital Identity
The Mobile Credntial in the Smart Campus Context

If the Credential for Service Access is not playing a role in the **core business** of an organisation,

Does it benefit the Smart Campus?

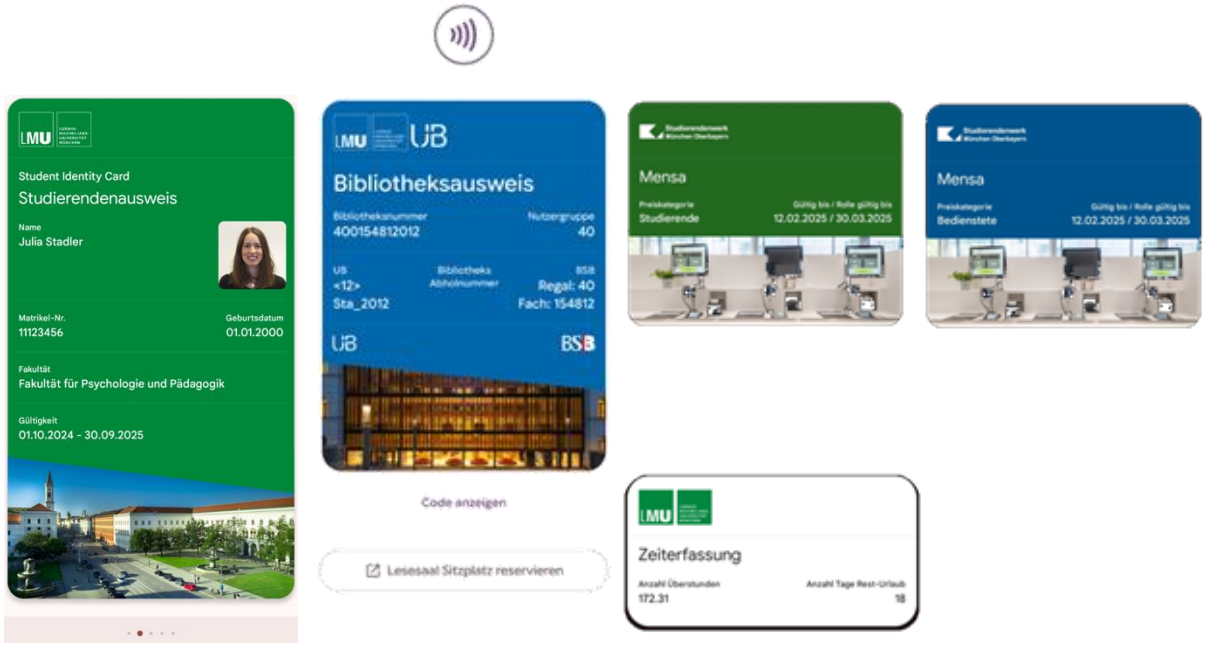
- ✓ In Identifing a Student / Staff-Member?
- ✓ On a cashless campus
- ✓ Interacting with a Physical Access Control (PAC) System
- ✓ At the library
- ✓ While using the transport system (Public Transport)
- ✓ Claiming dicounts off-site the campus

→ How does a mobile credential differ from a smart card?

→ Where can mobile credentials bring real benefits?

Mobile Identity → Digital Identity
Transition of credentials into the Smartphone Wallets
eduTAP Examples @ LMU Munich

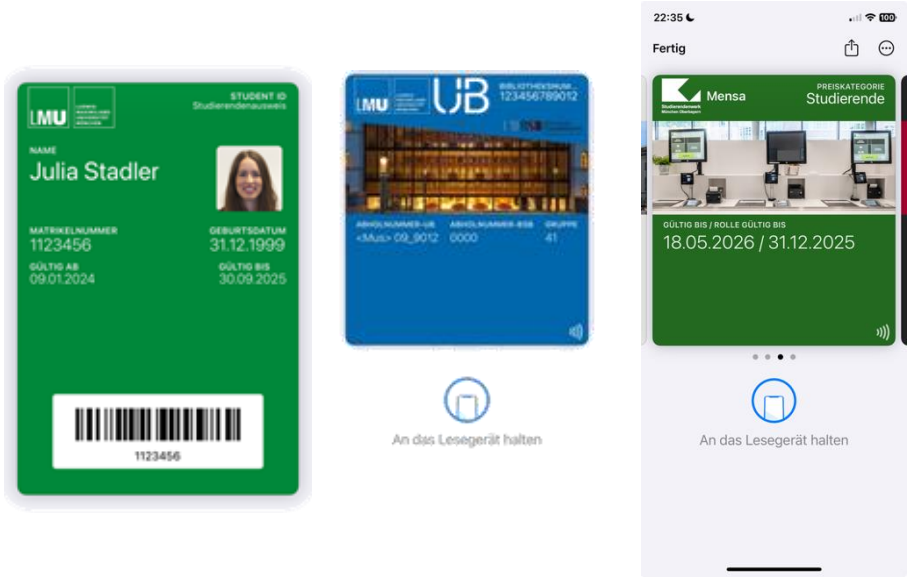
Google Wallet



→ all **NFC enabled**

Add to Google Wallet

Apple Wallet



→ **NFC enabled** where possible

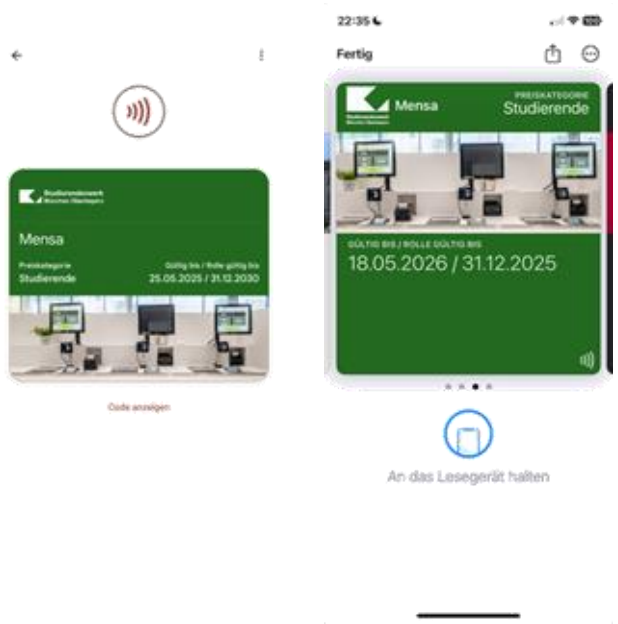
Add to Apple Wallet

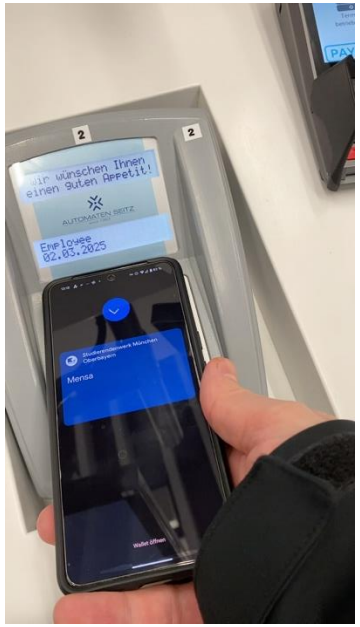
Mobile Identity → Digital Identity
Example: Tap to Pay - Discount-Pass for Canteens

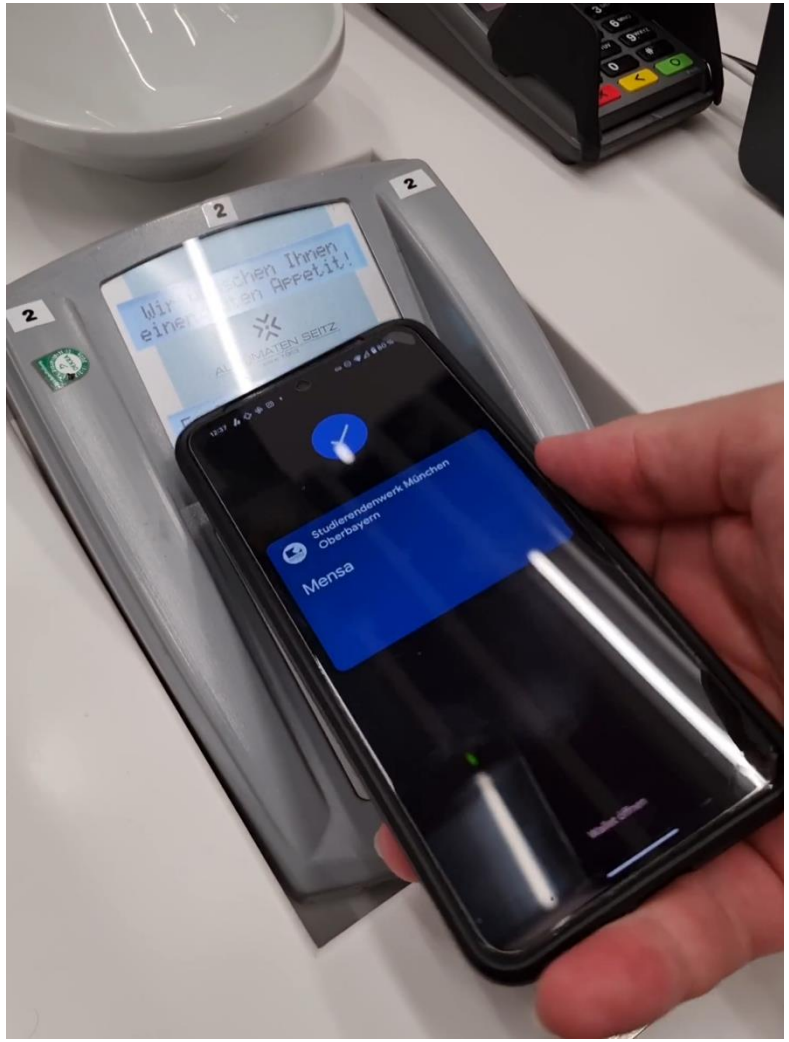
Payment Process in the Mensa

Double Tap:

1. Eligibility verification of status group (Student, Employee, Guest)
   → Discount will be applied
2. Pay with an Open-Loop Bank / Credit-Card



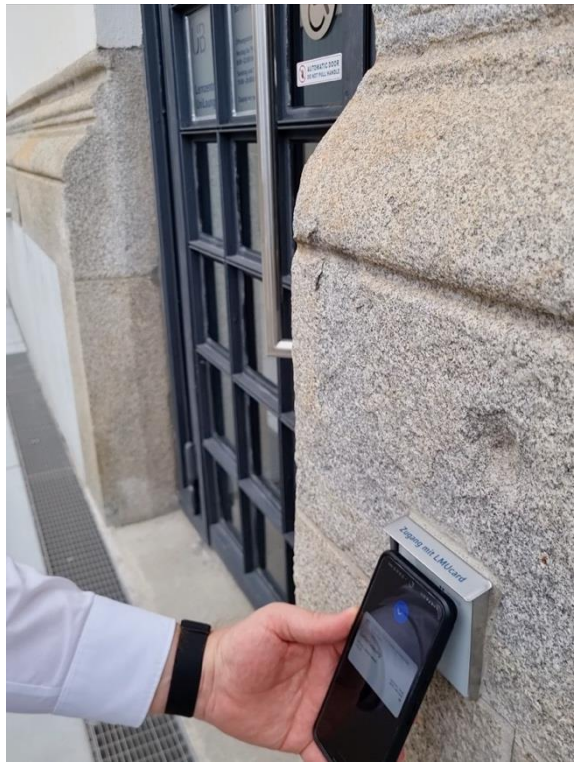




Mobile Identity → Digital Identity
Example: Tap to open a door (Physical Access Control)

Physical access to the learning spaces

LMUcard



Google Smart Tap

Apple Access

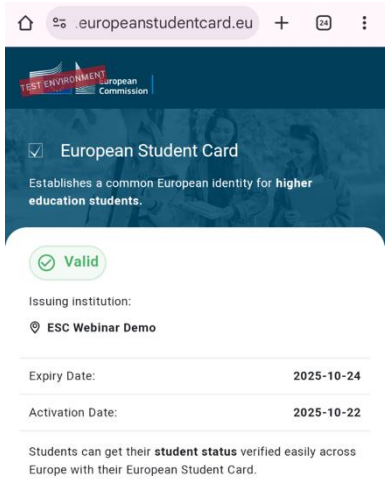
Mobile Identity → Digital Identity
Example: The European Student Card

The European Student Card (v1.1 new ESC Design)

Google

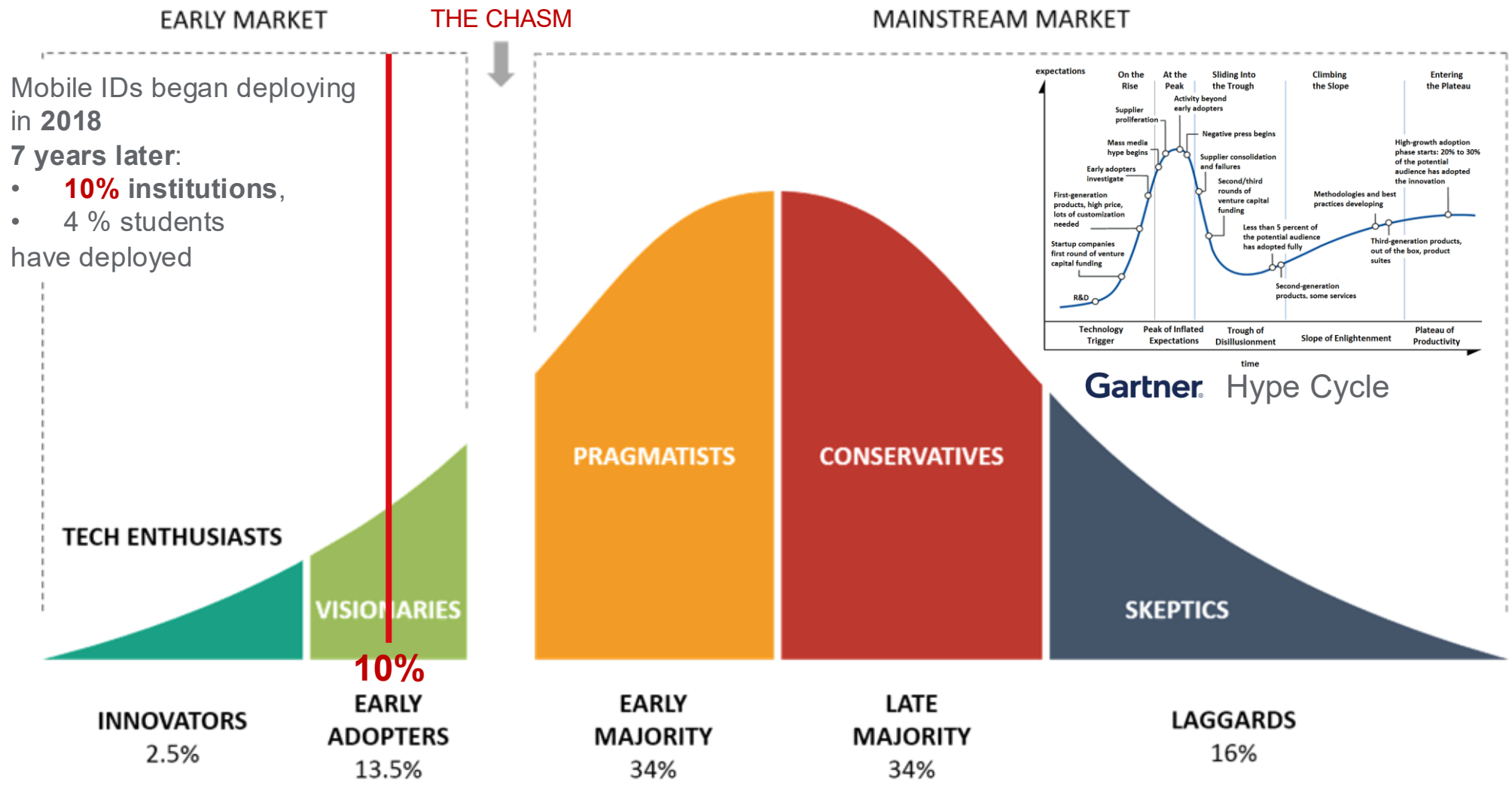
Apple

- ✓ Discounts off-campus
- ✓ European dimension → Erasmus+ marketing
- ✓ Online status verification



(v1.5)

Mobile Identity → Digital Identity
Mobile Identity in the U.S. – Adoption rates after 7 years



Mobile Identity in the U.S.
Adoption rates after 7 years

EARLY MARKET

THE CHASM

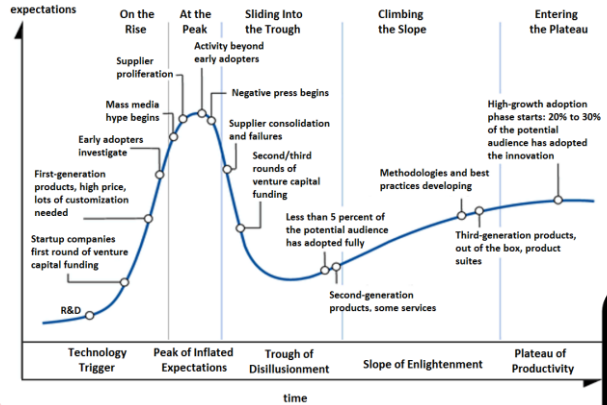
MAINSTREAM MARKET

Mobile IDs began deploying in **2018**

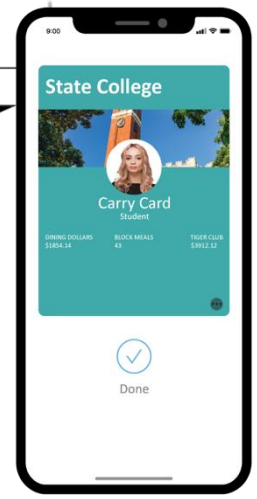
7 years later:

- **10% institutions**,
- 4 % students

have deployed



Gartner Hype Cycle



TECH ENTHUSIASTS

VISIONARIES

PRAGMATISTS

CONSERVATIVES

SKEPTICS

10%

> 40%

INNOVATORS	EARLY ADOPTERS	EARLY MAJORITY	LATE MAJORITY	LAGGARDS
2.5%	13.5%	34%	34%	16%

Why is adoption so slow?

→ Scaling problem

→ *ONE credential to rule them all does NOT work*

We have only looked at the credential medium

→ A Smarter Campus is not about a medium,
but **smarter processes**

→ ***What can you do while issuing digital credentials?***

→ ***And what can you do with modern credentials?***

Vision of the European Commission:

Towards a European Education Area

Erasmus+

It is in the shared interest of all EU Member States to harness the full potential of education and culture as drivers for job creation, economic growth and improved social cohesion, as well as a means to experience European identity in all its diversity.

The Commission is developing initiatives to help work **towards a European Education Area**.
The vision contained within this policy is that, across the EU:

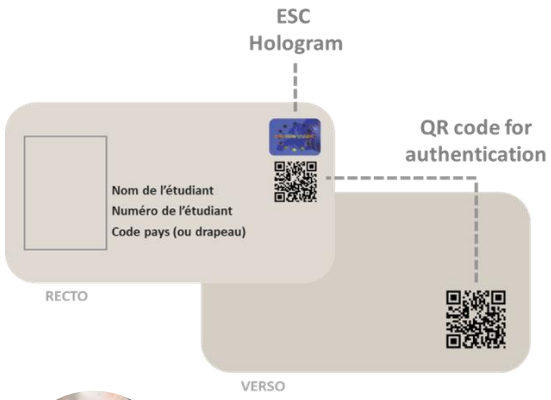
- ✓ **spending time abroad to study and learn should become the norm**
- ✓ school and higher education qualifications should be recognised across the EU
- ✓ knowing two languages in addition to one's mother tongue should be standard
- ✓ everyone should be able to access high-quality education, irrespective of their socio-economic background
- ✓ people should have a strong sense of their **identity as a European**, of **Europe's cultural heritage** and its diversity

Source: https://ec.europa.eu/education/education-in-the-eu/european-education-area_en

Mobile Identity → Digital Identity
The mobility use-case – The European Student Card (ESC)

The **European Student Card** – a project to add a **European dimension** to local Student IDs

✓ Securely **validate** the **student status**



Idea by →
Jean-Paul Roumegas
(les Crouse)

European Student Card logo

Combines the European identity (text & flag) with the QR code. It facilitates the implementation and recognition of the ESCs

ESCN - European Student Card Number

Unique card identifier that serves to link a specific card to the specific higher education institution who produced it and to identify a card

ESI - European Student Identifier

Unique identifier that allows to link a given student to a specific ESC. It is not recommended to be printed on the card.

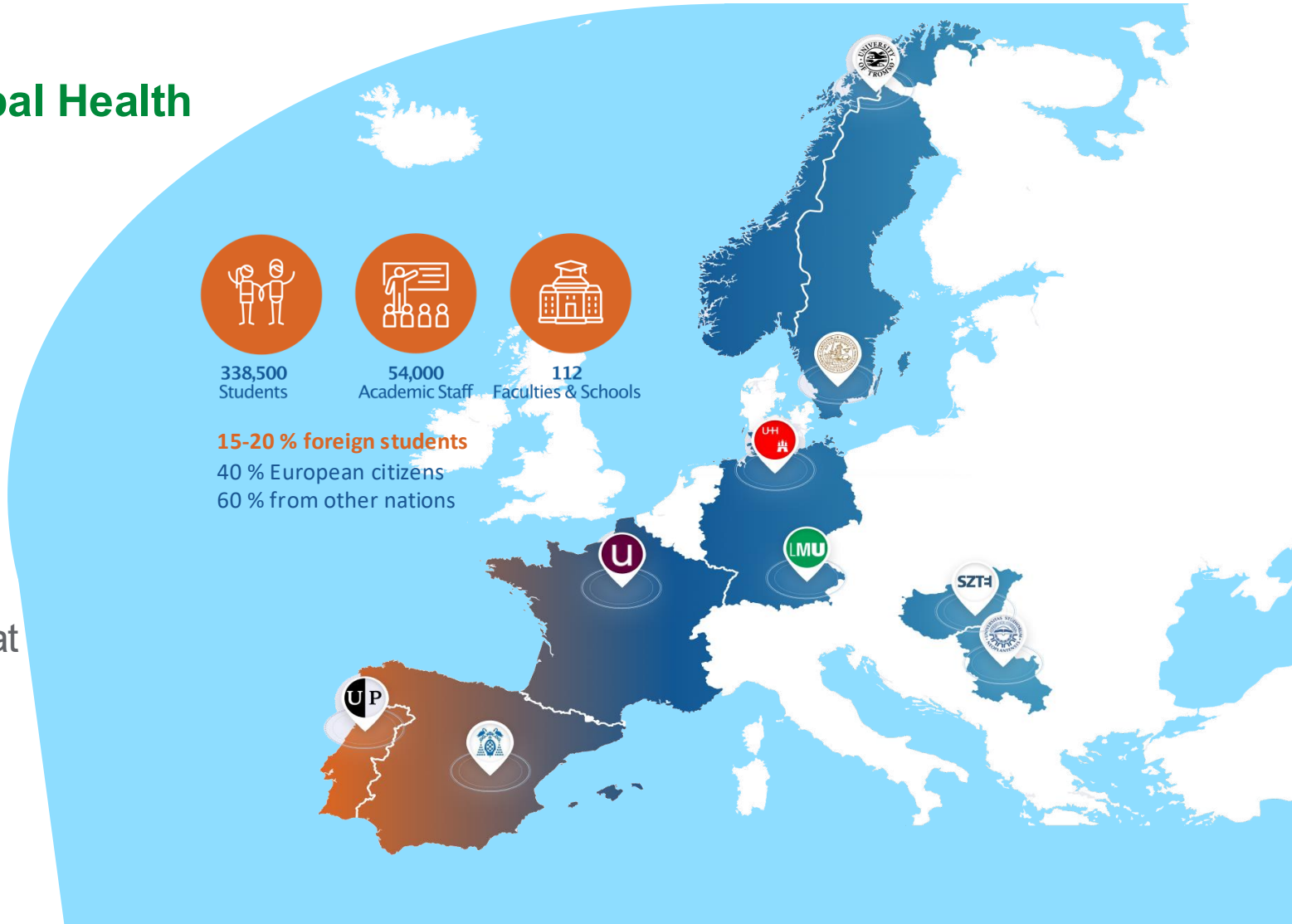
✓ A great vision

The European University Alliance for Global Health

9 Universities, 1 Goal

Building Europe's Campus for Global Health

- ✓ Equipping students and staff with the skills needed to shape the future of global health
- ✓ Creating a **seamless, inclusive European campus** that enables **mobility**, joint learning opportunities, and **shared infrastructure**
- ✓ Addressing pressing health issues through interdisciplinary, co-created education, research and innovation that engages with social needs



Mobile Identity → Digital Identity
A shared vision – seamless mobility

EUGLOH & the European Student Card have a shared vision

- ✓ **Seamless mobility**
- ✓ **Easy service access**

For:
- ✓ students,
- ✓ staff and
- ✓ professionals

EUGLOH ESC Working Group formed end of 2020:

All EUGLOH universities should adopt ESC and define services to share (Lead Paris-Saclay).

2022 LMU took over the technical lead

But differ in the audience and baseline technical requirements → real **technical interoperability**

Mobile Identity → Digital Identity
The mobility use-case

Access to services of a host university **on mobility**, the second you arrive

Campus Cards & eduTAP are about **Service Access** on site (on and off campus)

- For Member of the Higher Education Institution
- For **incoming members** of other Higher Education Institutions / Partners ← Mobility (short- and long-term)

For the Person **User Experience** is key, it should be as easy and simple as possible

Benchmarks:

eduroam
WLAN Access

eduGAIN
Login to Online Services

eduTAP
Authentication to physical (on-site) services

→ To access services on site it should be as easy as using the WLAN with *eduroam*

Mobile Identity → Digital Identity
The mobility use-case

- ✓ Issuing the Cards online
- ✓ No need for students or staff members to show up in a card office or receive the card via mail
  → having it available within seconds
- ✓ Request a card = getting the pass
  → Login with eduGAIN and download the pass
- ✓ Reduced Staff cost on site can focus on other services that provides benefits for the students

Mobile Identity → Digital Identity
Trust level / Assurance Level

eIDAS Login for credentials request / Self-Service issuing
→ Very important for **IDENTIFICATION & AUTHENTICATION**
→ 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
→ manual check of a government issued photo-ID

high

Authentication
- eIDAS compliant
  → eID of EU Citizen IDs
  → provided by HEI for foreign Students

Identity proofing:
→ officially confirmed
→ Identity document automated and technically checked to be genuine and represent the claimed identity

Mobile Identity → Digital Identity → Credentials (digital and physical)
Campus Cards are about Accessing Services → Smart Campus
→ Access and Identity Credentials

Identification
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Physical Access Control
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Discount and promotions
- **Discounts** on cultural activities
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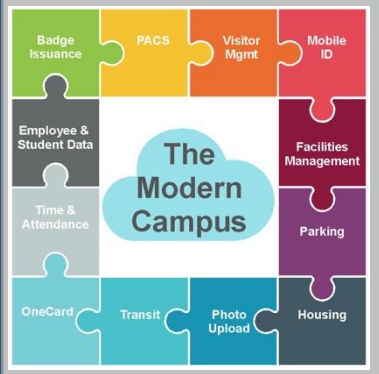
On- & Off-Campus → **On-Site Usage / Proximity Use-Cases**
+ Online Services



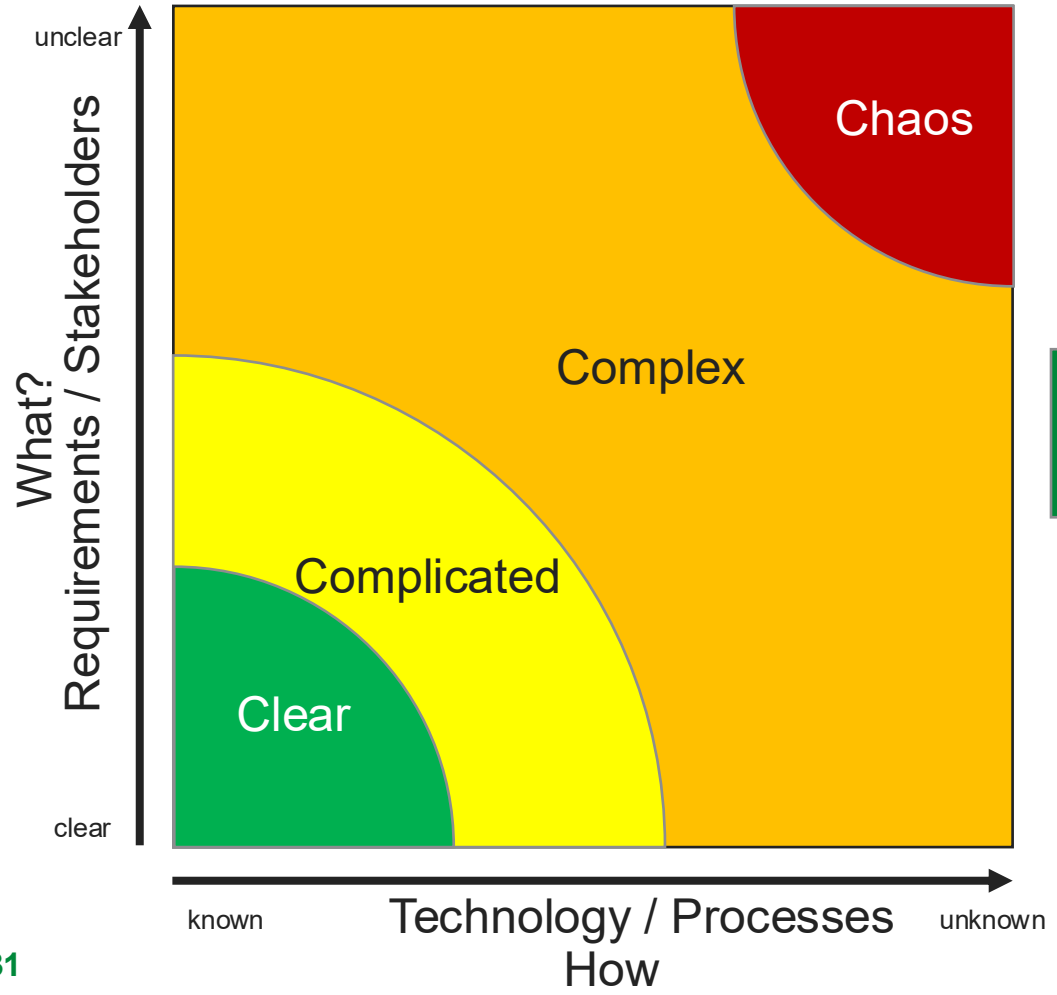
providing service → create benefits

Mobile Identity → Digital Identity

Key Considerations for Projects, IT Architecture, and Software Selection

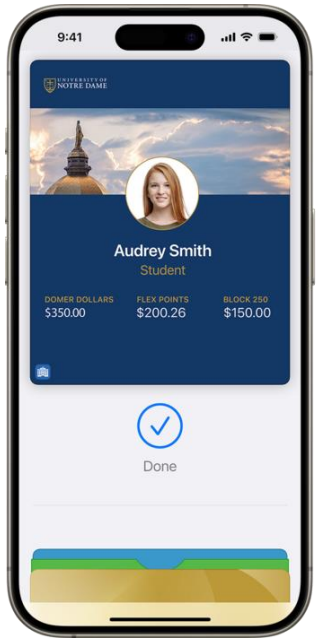
Success Factor – Understand the Complexity

→ Complexity management and possibilities to act – Stacey Matrix & Cynefin-Framework



How to KISS: Keep it Simple, Stupid

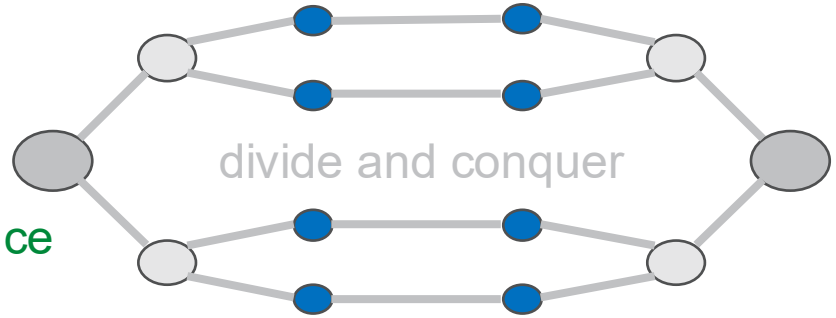
Mobile Identity → Digital Identity
→ Transition of Credentials (digital and physical)



Integrated Campus Card

- Identity
- Discounts
- Access
- Library
- …

→ Multiple Credentials
→ Micro Credentials
→ One Credential per service



eduTAP Concept
https://eduTAP.eu

Mobile Identity → Credentials (digital and physical)
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→ Access and Identity Credentials

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Electronic Payment / cashless campus

Physical Access Control
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- Buildings

Library services
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Transport
- On campus services (*university shuttle service*)

Discount and promotions
- **Discounts** on cultural activities
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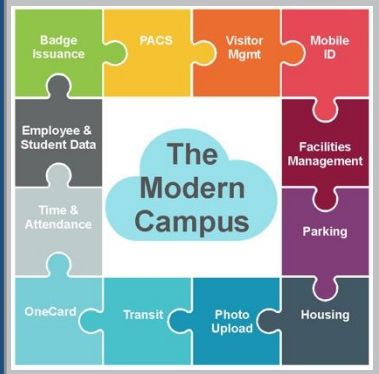
  - theaters
  - cinemas
- Shops
- Restaurants

Separate Service Passes
- Local Services
- Each service is associated with a distinct pass
- Providers can choose appropriate technology per pass

→ Working solutions by solutions providers

A **Common ID** Pass for all HEIs (ISO/IEC 18013-5 based)

→ **Identity Pass**



providing service → create benefits

eduTAP – educational tapping

tap to …

- ✓ identify yourself,
- ✓ verify your status,
- ✓ proof your entitlement,
- ✓ claim a discount,

tap to access a service on-site directly:

- ✓ tap to pay (open and close loop-payments),
- ✓ tap to open a door,
- ✓ tap to lend a book,
- ✓ tap to take a campus shuttle.

*no app, **just tap**!*

https://eduTAP.eu

eduTAP – educational tapping – What is eduTAP?

- **eduTAP** the concept
  - Splitting integrated campus cards into **dedicated service passes** and a **harmonized identity pass**
  - Leveraging the full potential of digital wallets
  - **Use existing**, secure and proven contactless **standards** – do not invent new standards

→ Focus on **User Experience** and **interoperability**

- **eduTAP** the software – to 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 members

→ **eduTAP** helps to fulfill the great vision of the European Student Card / the mobility use-case and enables interoperability and a better user experience

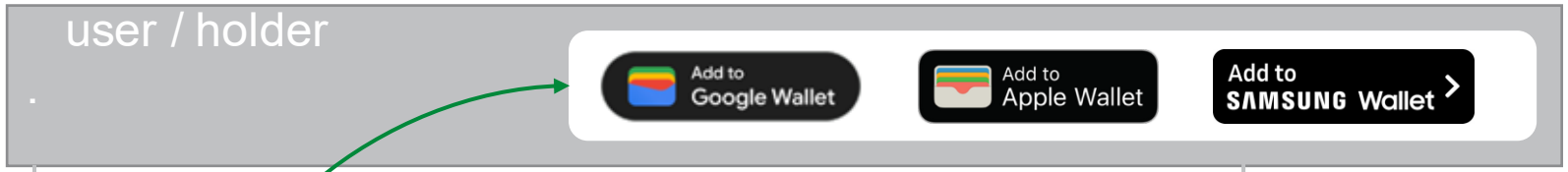
Mobile Identity – Digital Identity
Issuing process of wallet passes

Issuing process of wallet passes

→ importance for the users – always the same consistent process

- **Web-Provisioning**
- App-Provisioning
- Wallet-Provisioning
- *Push-Provisioning*

eduGAIN



Requests pass

Download of pass

Generates Download-Link

System of Credential Issuer

- IDM
- Website

generates
- Card Payload
- Card Bundle

API

HTTP JSON

API

OEM-Wallet Server

converts card payload / bundle into pass
Ensures security features

API

HTTP JSON

Credential issuer

OEM-Manufacturer Infrastructure

Device of credential holder

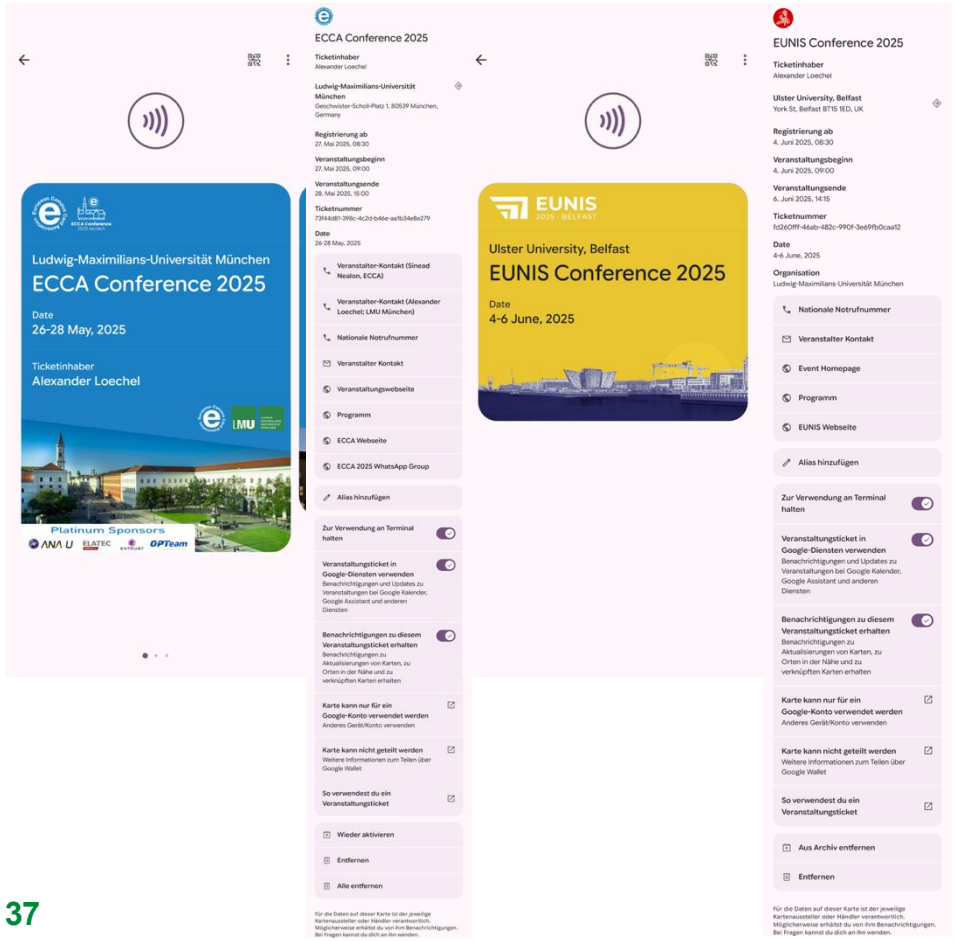
reedeming

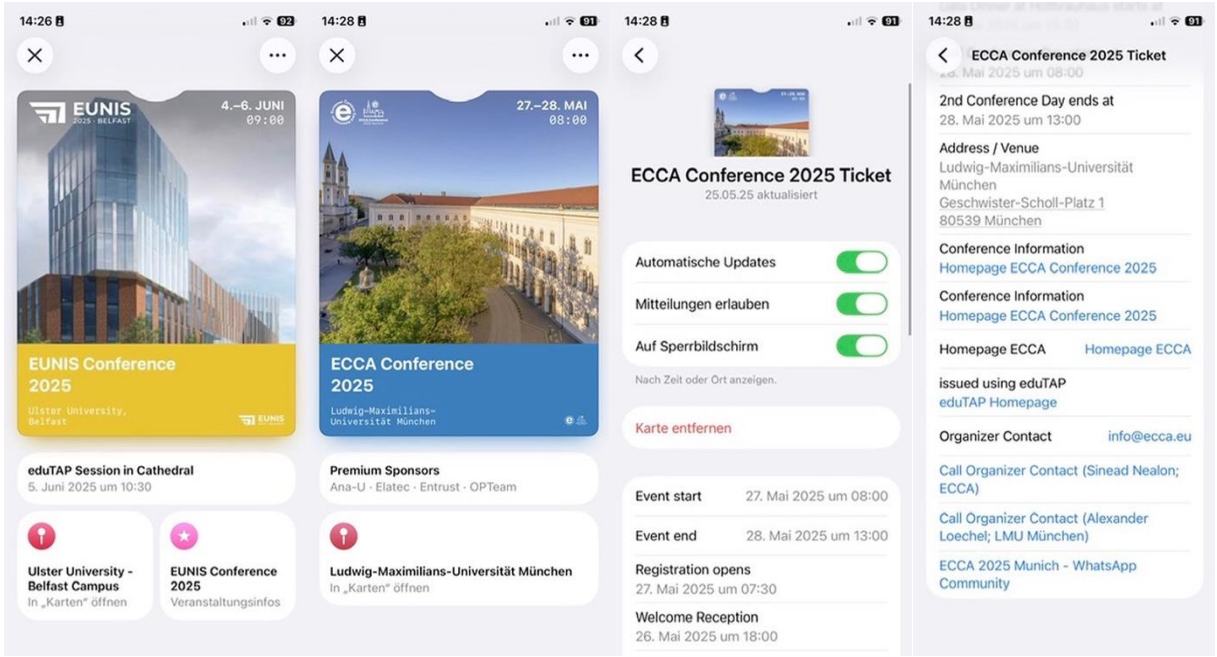
Service Provider (relying party)

→ User Experience

Mobile Identity → Credentials
Communicate with holders

- Wallet passes are updateable, revokable, and have communication channels
- The also have interactive elements

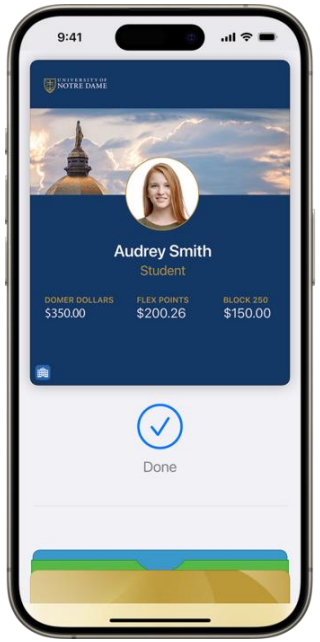




- Ability to send messages to a pass
- Pop-Up on time- or location bases events
- Geo-fencing of passes

eduTAP and the current Apple / Google Student IDs

How about the native, current **Student IDs** in Apple Wallet & Google Wallet (Mifare DESfire or HID based)?



- ✓ Fantastic integrated cards (**one card** for all services, perfect for **corporate**)
- ✓ *Should be used **for all** university services* (Apple's intention)

- → University / organisation-centric optimization
- → Does not support the "seamless mobility" requirement
- → Shared services, how about other users than own students?
- → **LESS secure** (if following the ESC data zone approach)
- → Not the required User Experience, and does not meet the legal requirements

This is a dead-end solution, it will not help or bring benefit,
it actually provides a WORSE User Experience

It does NOT support **Selective Disclosure** and **Zero Knowledge Proof**

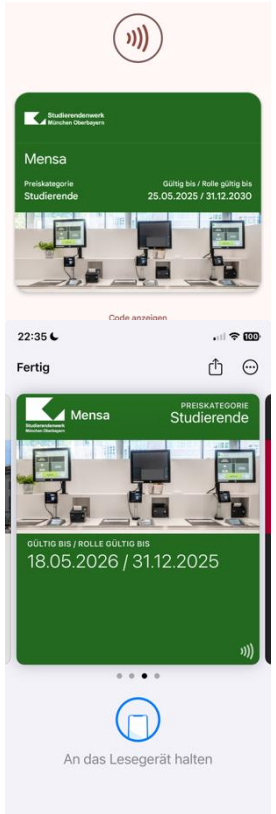
Apple and Google is aware of this and working on it!

Apple and Google Access Platform are good for PAC and Payment passes
→ NOT for Student or Staff IDs
→ GOOD dedicated service passes

Wallet Passes are about a great User Experience

A **great User Experience** is key to adoption and usage

- ✓ Non-NFC Passes are **NO GOOD** User Experience
- ✓ Unnecessary passes should be avoided ← NO dedicated pass for simple eligibility verification (status, institution affiliation)



Is there a better solution?

transition

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

University Identity Student ID

- ✓ **Zero Knowledge Proof**
- ✓ **Selective Disclosure**
- ✓ **Zero Knowledge Proofs**

Service Domains: Identity and Discount

From a legal point of view, Identity Documents of public universities are **official state photo IDs**

- ✓ Legal requirements
- ✓ Security considerations
- ✓ High assurance level

→ **International standards** for HEI Identities → eduGAIN (incl. eduPerson, SCHAC)
e.g. European Student Identifier → routable information for course participation at other institutions (during mobility programmes)

Identity Documents (Student ID, Staff ID and Affiliate IDs) are used

On-Site (proximity use-cases)

Online

On-Campus

- ✓ Attendance at courses
- ✓ Check-in for exams
- ✓ Time recording
- ✓ Discounts in canteen & cafeterias
- ✓ Identification for university authorities (Student legal office and examination offices, campus security)

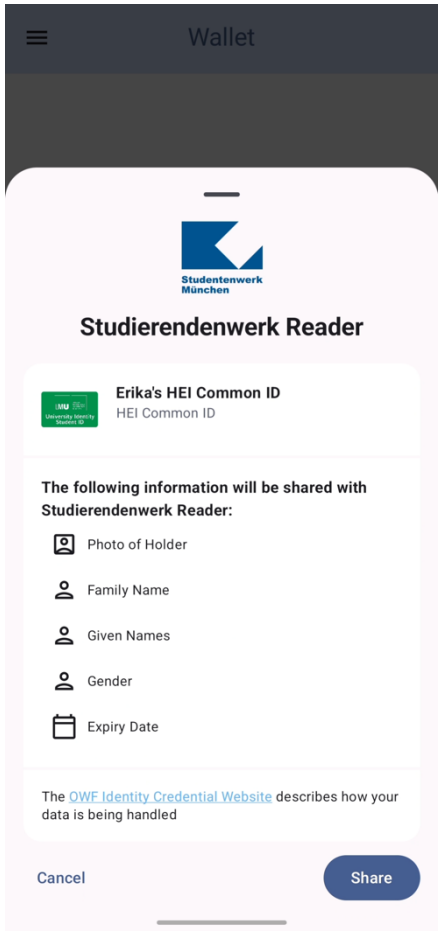
Off-Campus

- ✓ Identification for public authorities (e.g., police)
- ✓ Identification for third party (e.g., checkin at hostels)
- ✓ Eligibility verification for discounts and access (e.g., role-based, age-based, institution related)

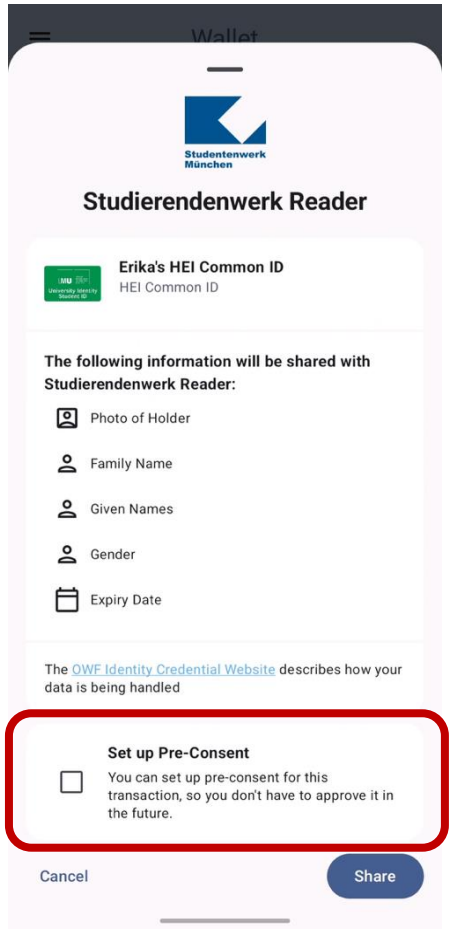
- ✓ As authentification factor

Mobile Identity → Digital Identity

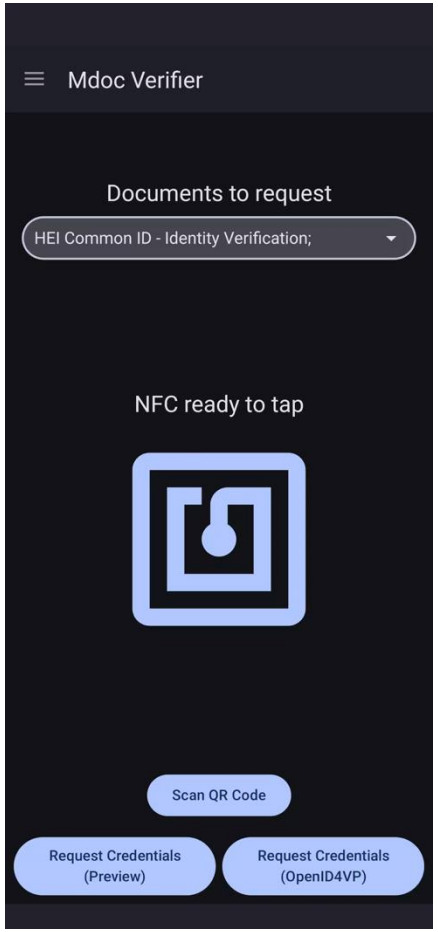
Identity Pass: Path to the best User Experience and Interoperability



Informed Consent



Informed Consent
+ Pre-Consent



Verifier App

A Common Identity Pass using the ISO/IEC 18013-5 model Digital Identity in the Wallet

Common Verifiable Credential Formats / Protocols for Digital Identities

- SD JWT (EU)
- ISO/IEC 18013-5 (mDL & mDoc)
- W3C Verifiable Credential Data Model

Issuing and Redemption Protocols

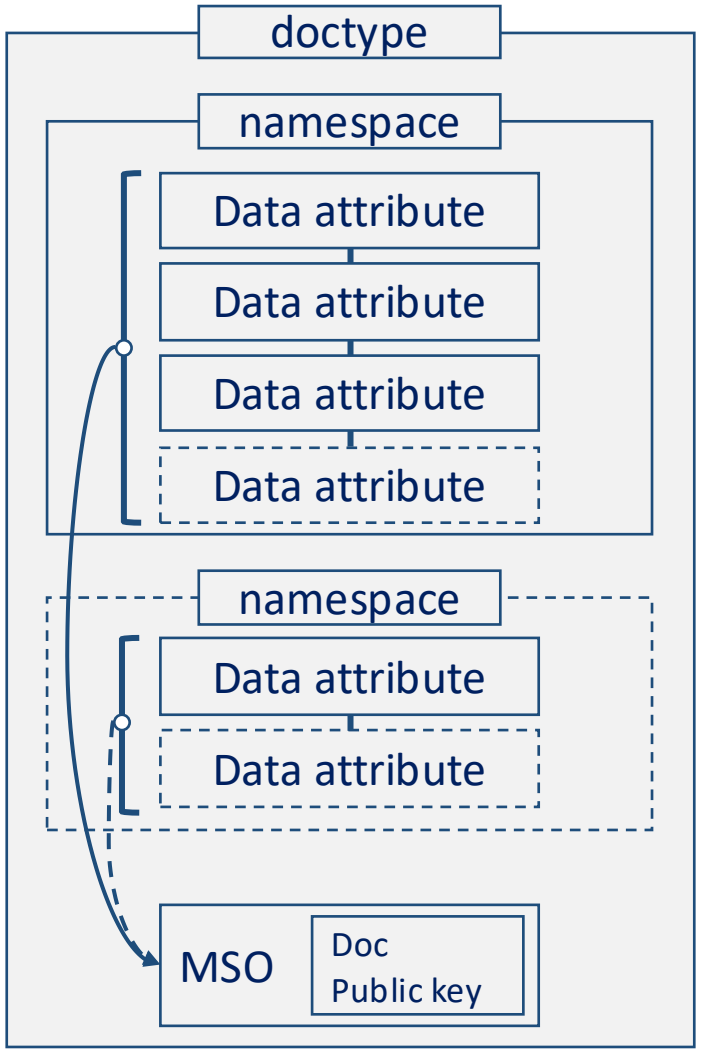
- OID4VC (OID4VCI and OID4VP)
- ISO/IEC 18013-5

For **proximity** use-cases **NFC / BLE transmission** is crucial

→Our choice ISO/IEC 18013-5 (mDoc) for Wallet credentials
DC4EU → SD JWT

Image Source: https://www.linkedin.com/feed/update/urn:li:activity:7333379048112361472/

A Common Identity Pass using the ISO/IEC 18013-5 model



Reuse of directory data (common eduGAIN attributes):

- portrait (photo, *mandatory for identification documents*)
- givenNames
- sn (surname)
- email
- eduPersonAffiliation / eduPersonScopedAffiliation
- eduPersonEntitlement
- eduPersonAssurance
- schacHomeOrganization
- schacPersonalUniqueCode → European Student Identifier (ESI) - MyAcademicID
- schacDateOfBirth
- schacYearOfBirth
- schacPlaceOfBirth
- schacExpiryDate
- …

eduGAIN

Shibboleth

works like a Shibboleth authentication
on-site → trained processes

see also DC4EU education ID
(https://code.europa.eu/ebsi/json-schema/-/tree/main/schemas/vcdm1.1/education/verifiable-education-id)

A Common Identity Pass using the ISO/IEC 18013-5 model

- The “ISO/IEC 18013-5 Personal Identification” model is designed to support
  - A protocol for two devices to establish a secure wireless communication channel and exchange structured request and response message
  - **Identification** of the credential holder (user binding)
  - Selective release of data elements by the credential holder (data minimization / consent)
  - **Pre-consent** mechanism for frequently repeated processes (e.g., discount payment at Student Affairs Unions)
  - A protocol to retrieve credential data directly from the mobile device of the holder, purely offline, facilitating availability and non-traceability
  - An optional protocol to retrieve additional data from the issuing authority
  - A mechanism to establish **integrity** and **authenticity** of the credential data
  - A mechanism to confirm device binding (signing at transaction time)
  - Multi-document and multi namespace aware ← extendable for other use cases

EU Digital Identity Wallet

- **Established governmental credential format that is already in use ← Following the ARF of EUDI-Wallet**
  → mobile driving licence / eu.europa.ec.eudiw.pid.1 (prototype of national eIDs in Europa)
- **Already supported** by the OEM-Smartphone-Manufactures (Apple and Google)
  → see: https://android-developers.googleblog.com/2020/11/privacy-preserving-features-in-mobile.html

Mobile Identity → Digital Identity
Verifiable Credential for HEIs (Prototypes)

European Student Card as Verifiable Credential

DC4EU non-foundational Ids

Table with available schemes for non-foundational IDs

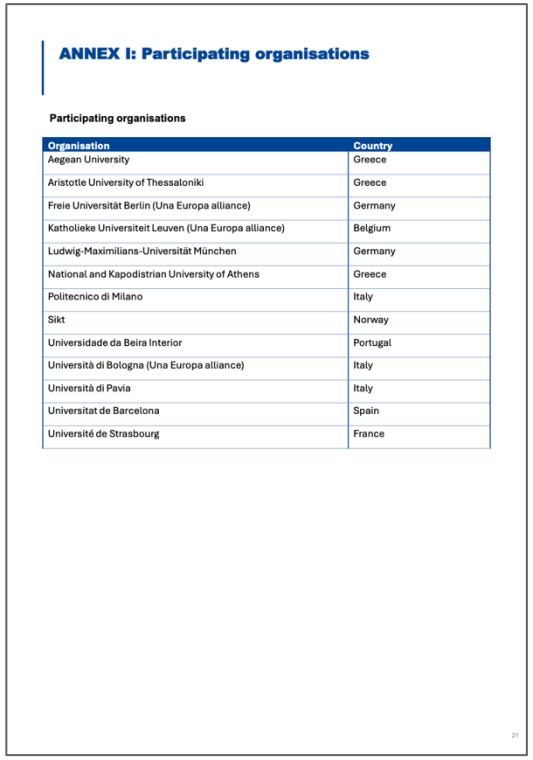
Scope	Data model name	Brief explanation	Status/ Detailed explanation	Schema URL	Registry URL
Non-foundational identity	EducationalID	Identifies the natural person in the context of an educational organisation, including national extensions	Available	Schema	Verifiable Data Registry
Non-foundational identity	AllianceID	Identifies a student or staff member as affiliated with a European university alliance	Available	Schema	Verifiable Data Registry
Non-foundational identity	EuropeanStudentCard	European Student Card for student mobility, based on DG-EAC's service	Available	Schema	Verifiable Data Registry
Non-foundational identity	MyAcademicID	Identity credential for student mobility, based on MyAcademicID and eduGAIN infrastructure	Available	Schema	Verifiable Data Registry
Non-foundational identity	ProfessionalID	Identity credential for , based on	Available	Schema	Verifiable Data Registry
Non-foundational identity	DoctorID	Identity credential for , based on	Available	Schema	Verifiable Data Registry
Non-foundational identity	EngineerID	Identity credential for , based on	Available	Schema	Verifiable Data Registry

https://github.com/dc4eu/educational-pilot/tree/main/sectorial-eaa-catalogue

Mobile Identity → Digital Identity
European Student Card Verifiable Credential Pilot Report

- W3C Verifiable Credential Data Model v1
- ELM (European Learning Model) Based Data Model – Attribute Structure

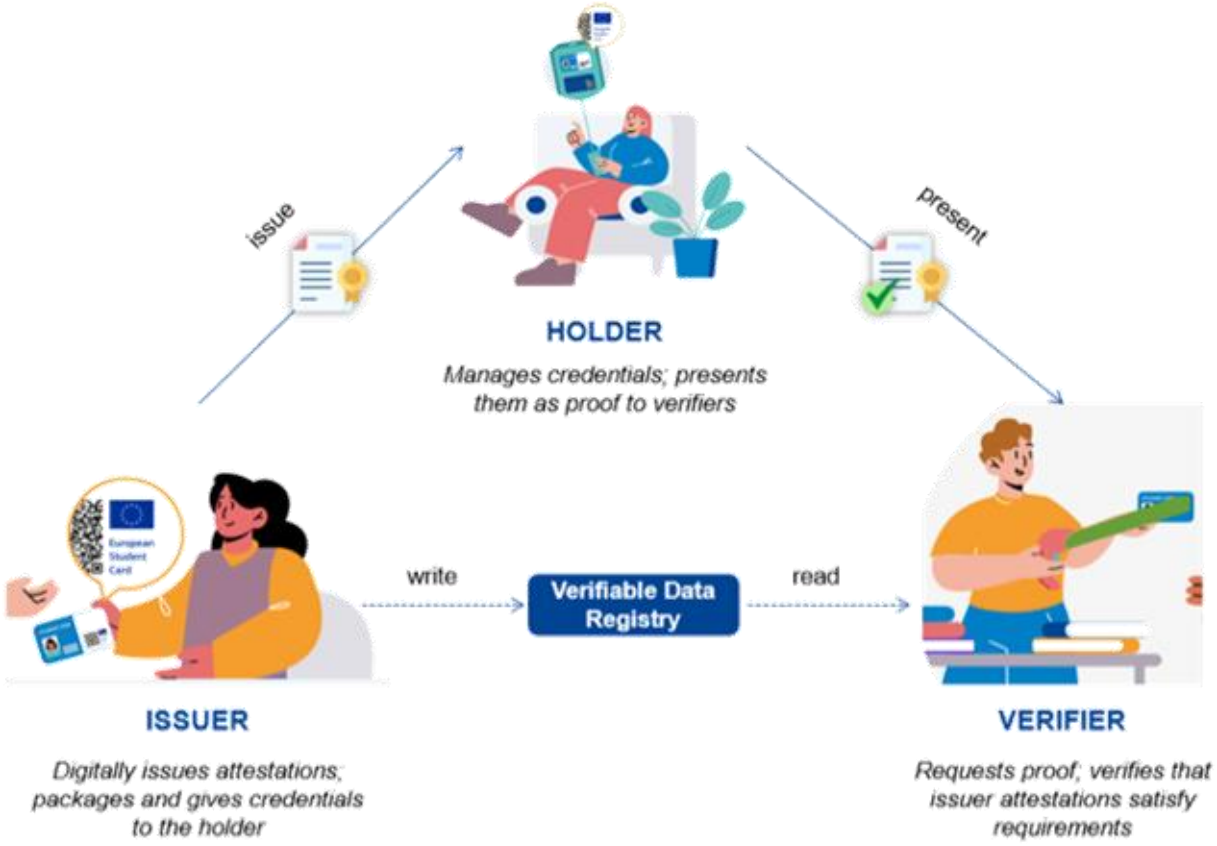
  → Revocation / Update Process required



ANNEX I: Participating organisations

Participating organisations

Organisation	Country
Aegean University	Greece
Aristotle University of Thessaloniki	Greece
Freie Universität Berlin (Una Europa alliance)	Germany
Katholieke Universiteit Leuven (Una Europa alliance)	Belgium
Ludwig-Maximilians-Universität München	Germany
National and Kapodistrian University of Athens	Greece
Politecnico di Milano	Italy
Sikt	Norway
Universidade da Beira Interior	Portugal
Università di Bologna (Una Europa alliance)	Italy
Università di Pavia	Italy
Universitat de Barcelona	Spain
Université de Strasbourg	France



https://erasmus-plus.ec.europa.eu/news/piloting-a-digital-european-student-card-as-a-verifiable-credential

A question of scale: Student IDs

European Union

- ~ **5,000** Higher Education Institutions (HEIs)
- ~ **18,800,000+** tertiary students (2022)

→ Organized in
National Research and Education Networks (NRENs)

Erasmus+ Countries

- Includes EU + Iceland, Liechtenstein, Norway, North Macedonia, Serbia, Turkey
- Significantly expands the European higher education landscape → ~ **20,000,000+** tertiary students
- **UK** is rejoining the **Erasmus+ programme**; going into effect 2027

Worldwide

- ~ **18,000** recognized HEIs across 180+ countries
- ~ **200,000,000+** tertiary students globally

→ It should work everywhere: seamless mobility & easy service access

→ a GLOBAL Student ID ←

Mobile Identity Digital Identity
Last years host of ECCA Conference – Connecting Technologies

https://ecca.eu

HESCA equivalent
in the European Union

https://conference.ecca.eu/
ECCA Conference 2026
25.05.2026 17:00 -
27.05.2026 15:00
Czech Technical University
Prague

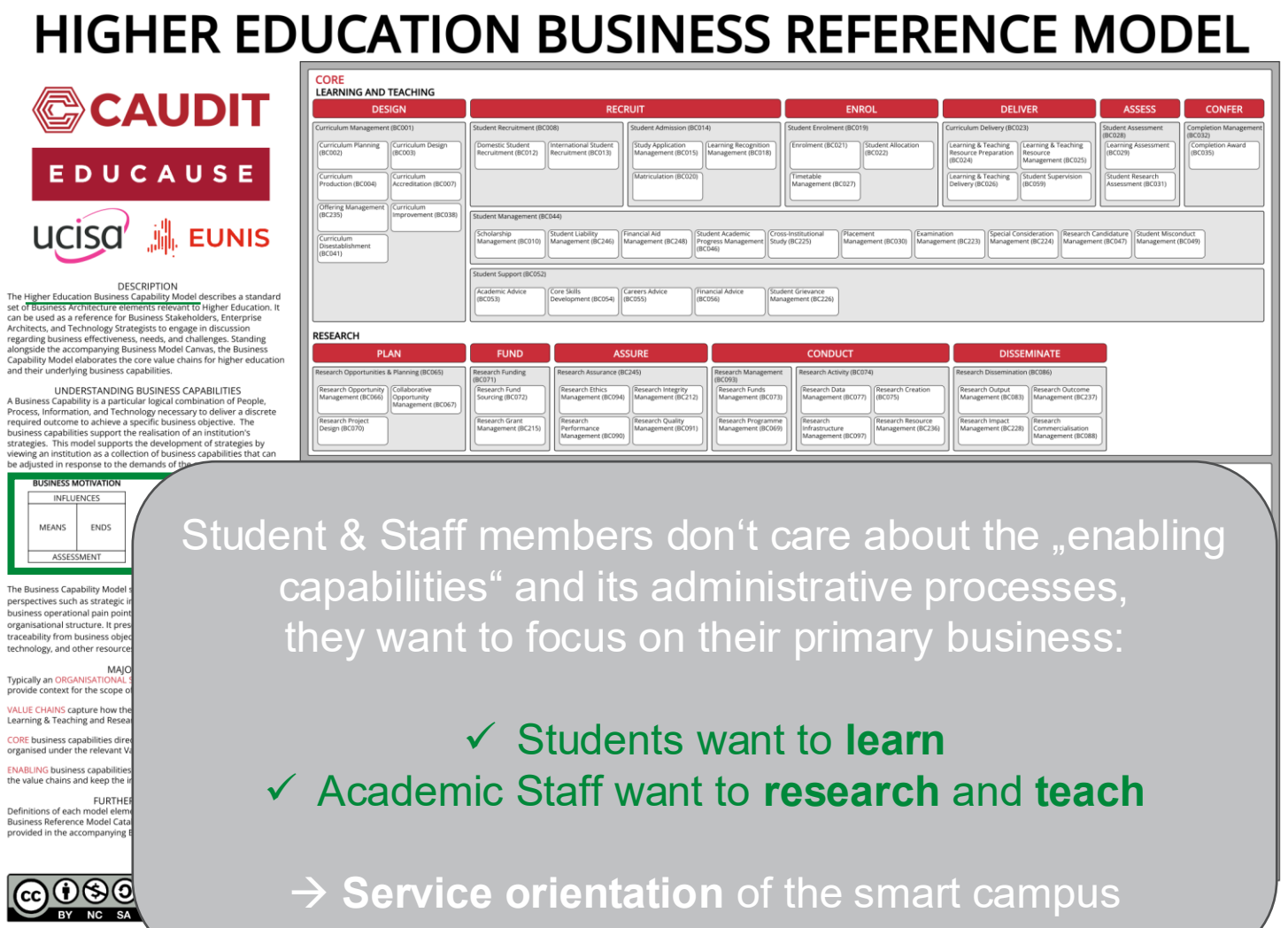
Mobile Identity → Digital Identity
EAM Scope → Business Motivation & Capabilities

Core-Business of a University:

- Lerning and Teaching
- Research
- Transfer

Services of a smart campus are all enabling capabilities

- ✓ giving access to rooms / campuses
- ✓ serving food in canteens or cafees
- ✓ access to library resources
- ✓ copying & printing
- ✓ attendance registration
- ✓ transport



Student & Staff members don‘t care about the „enabling capabilities“ and its administrative processes, they want to focus on their primary business:

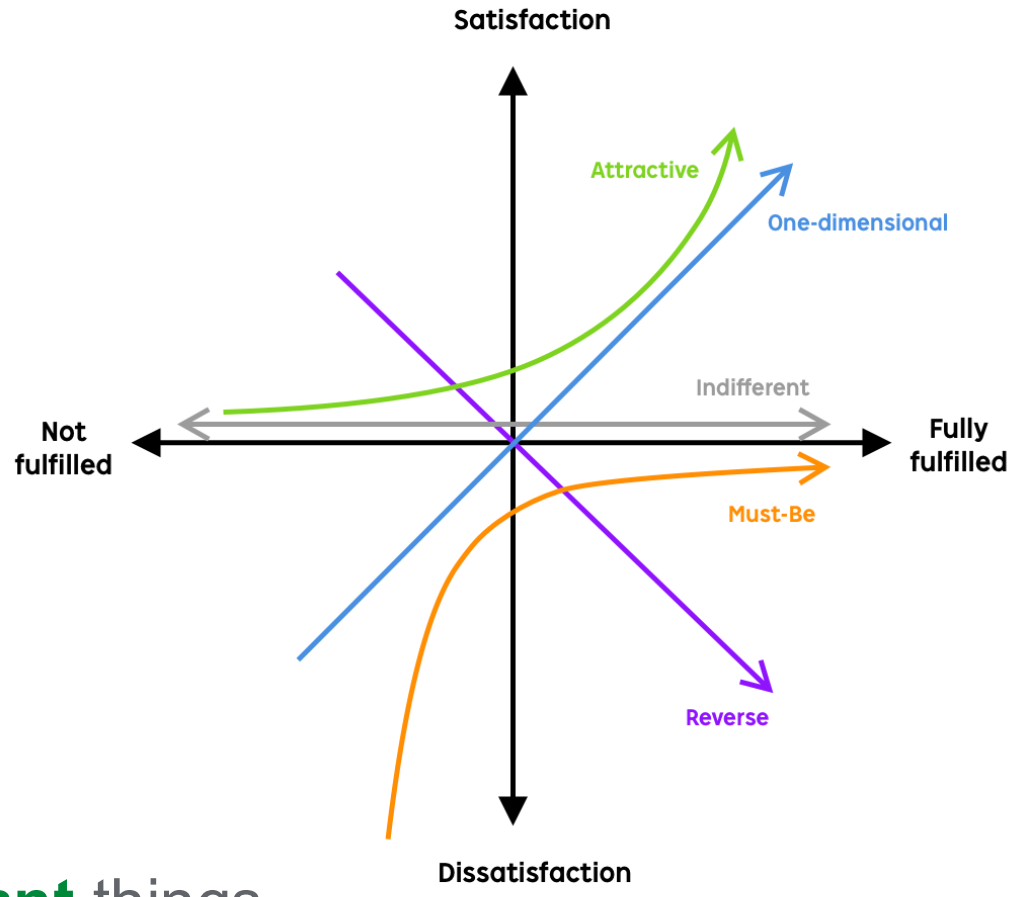
✓ Students want to **learn**
✓ Academic Staff want to **research** and **teach**

→ **Service orientation** of the smart campus

Mobile Identity → Digital Identity
Kano-Model – Systematic for User Experience & User Statifaction

Adoption of a Technology depends on

- Does it solve the users / customers needs
- Is the User Experience good enough

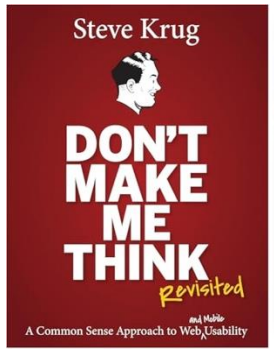


Every company gets about three innovation tokens.

Source: Dan McKinley, "Choose Boring Technology"
http://mcfunley.com/choose-boring-technology

"Boring" is a good thing - **"Boring" let you get things done**

Same is true for people, if you **need to think** to get something done
it costs effort, and energy for other more important things



Don't make me Think

→ User Experience is important

You should **NOT** need to care about
"boring" and "un-important" stuff

You should be able to
focus on the important things
(*studying, learning, researching, teaching, …*)

Mobile Identity → Digital Identity
The economic viability factor

Business-case test → economic viability hurdle

Costs for a smart campus vs costs for a smarter campus?

At LMU we have:

- 15 Card Issuing Printers, 60 Validation-Printers
- Cost per Reader: 150 – 350 € depending on use-case (Desktop-reader vs. PAC-Reader)
- The smart Campus Infrastructure costs do not differ, as our Readers are fully compatible with Wallet Passes in the First Place.
- LMU is in full ownership of all credentials and smart campus devices, we do not depend on any single vendor

~ 840 Professors
~ 6,250 Academic Staff (Faculty)
~ 10,500 Non-Academic Staff (Staff)
~ 20,000 Medical Staff at the University Clinic (Affiliates)
~ 55,000 Students (Student)

~ 70,000 active LMUcards (Student & Staff)
~ 200,000 Library Users (different card)

→ cost difference is on the medium

Mobile Identity → Digital Identity
The economic viability factor

credential related costs:

- ✓ LMUcard (LEGIC CTC4096-MM): ~13.50 € / issued card (durability ~ 3-5 years ~> 1-2 card per student) — ~ 20.00 € / Student
- ✓ Digital Credentials in the Wallet: — vs
  - ✓ Apple VAS / Google Smart Tap: 0,15 €
  - ✓ Apple Access Passes: ~ 2.00 € / per User and Year — ~ 10.00 € / Student

→ Wallet Passes are cheaper,

but you won't get a fully digitalized card / pass usage in the first years.

→ double costs and lost of scale for card procurement;

→ infrastructure overhead rises per card.

→ But even if it is cheaper, does it support the students? If it is about costs, you already lost the argument.

→ What about reputation, the non-monitary elements of a university?

Smartex - Higher Education Smart Campus Association (HESCA)
Question to me

“Can smarter IT ever pass the business-case test?”

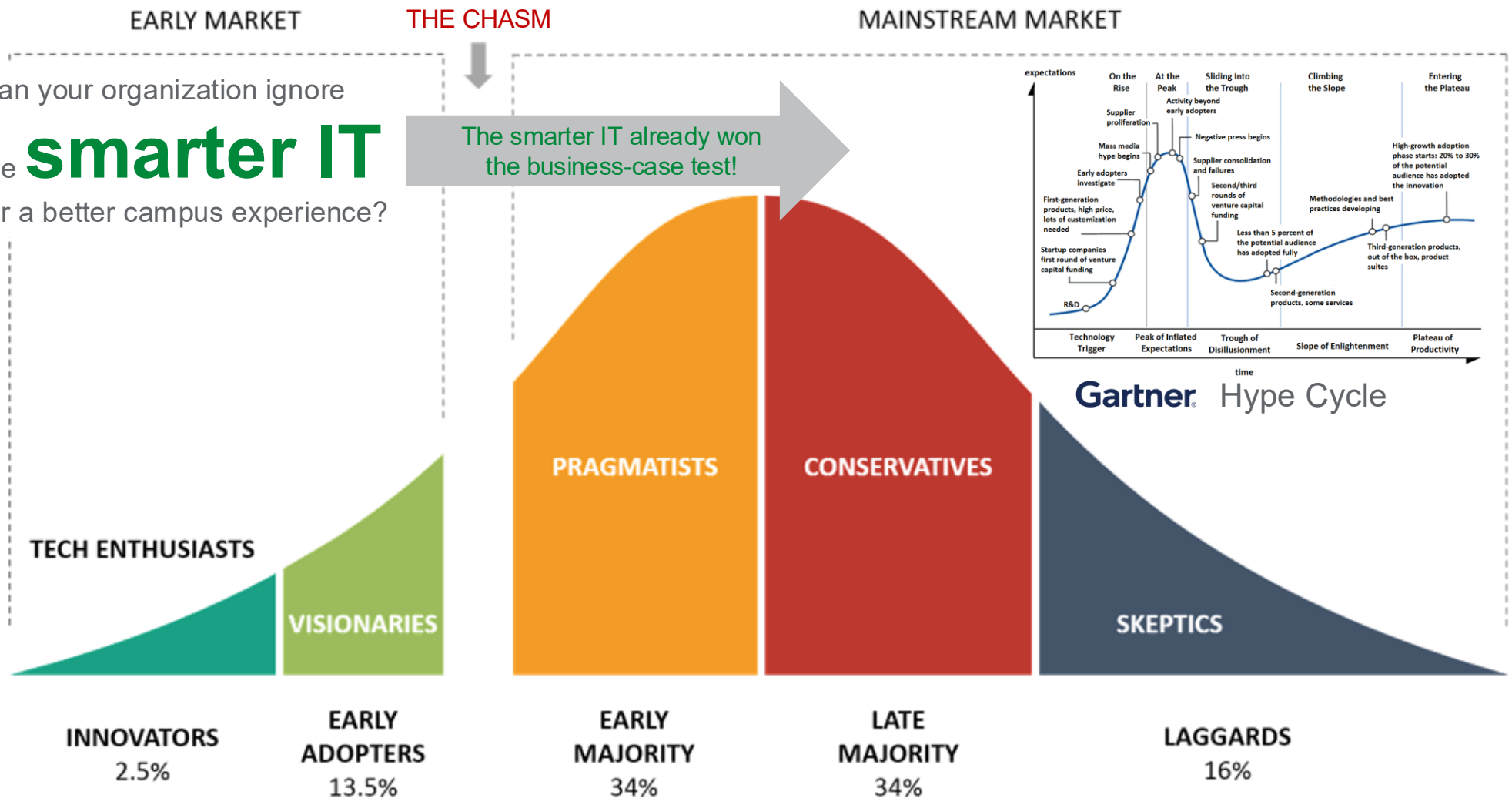
Absolutely
YES, it can

Smartex - Higher Education Smart Campus Association (HESCA) Question to me

Can your organization ignore

the **smarter IT**

for a better campus experience?



"Can smarter IT ever pass the business-case test?"

Absolutely
YES, it can

But only when it is no longer about smarter technology – and finally about smarter institutions.

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Smartex - Higher Education Smart Campus Association (HESCA)
Question to me – Summary

1. **Smarter Technology ≠ Better Outcomes**
   Making IT smarter does not make the institution better.
   It only makes the technology more advanced.

2. There is **no business case without a service**
   If you cannot clearly define the service and the outcome,
   there is no business case – only technology deployment.

3. The real business case is **organizational change**
   Smarter IT passes the business-case test,
   only when it changes how the institution operates –
   not just how it authenticates or connects.

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Alexander Loechel
Referent IT-Projekte
IT-Services Division · Ludwig-Maximilians-Universität München
Martiusstraße 4 · 80802 München · Tel. +49 89 2180 9831
Alexander.Loechel@lmu.de · www.lmu.de