

▲ Hochschule Harz

Hochschule für angewandte Wissenschaften

# Developing HEI/EDU Applications and Platforms with Standards and Security

**Hermann Strack**

▲ Hochschule Harz

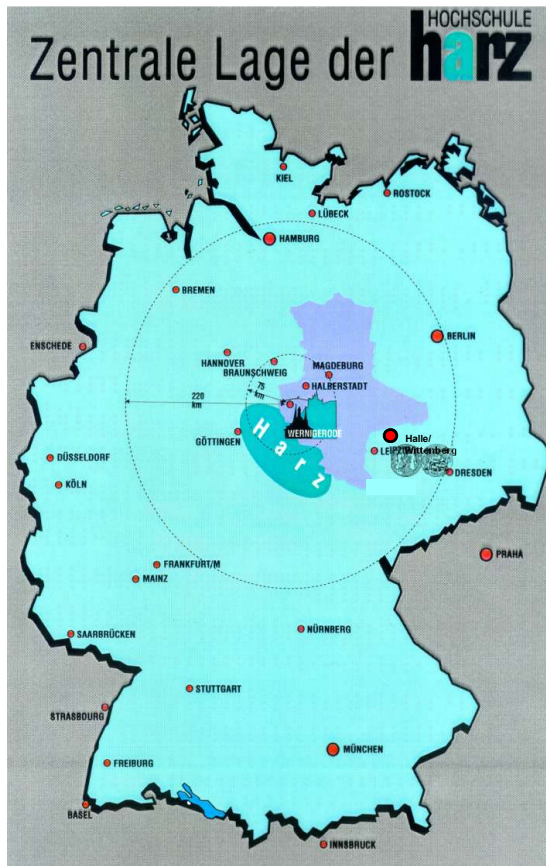
Hochschule für angewandte Wissenschaften

22.11.2021: Dev. HEI/EDU Apps and Platforms with Standards and Security

H.Strack

Netlab/Hochschule Harz

# HZU, MLU, OVGU, SfH



## - Uni. Faculties/Institutes/Research Groups:

- Automation and Computer Science (HZU/netlab)
- Institute for Computer Science (MLU/IFI)
- Workgroup Multimedia and Security (OvGU/AMSL)

## - Research Cooperation at IT & Cyber Security

- Cyber-Sec. (Saxony-Anhalt) joint research & coop. (EFRE 2019)
- Federal/Local State (Saxony-Anhalt) & EU Funding

## - Stiftung für Hochschulzulassung (hochschulstart.de)

- Allocation of university places in study programs with nationwide and local admission restriction



# Hochschule Harz

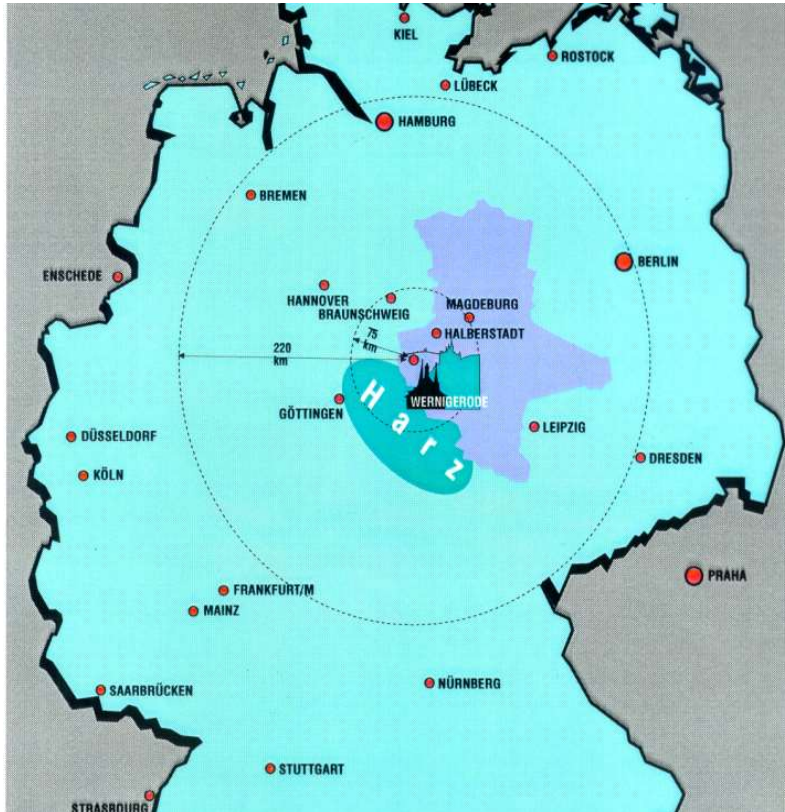


## – Fachbereiche Hochschule Harz:

- Automatisierung und Informatik (FB AI, Wernigerode/WR)
- Verwaltungswissenschaften (FB VW, HBS)
- Wirtschaftswissenschaften (FB W, WR)

## Kompetenzzentrum und F&E

## CyberSec-Verbund LSA (netlab, MLU, OvGU)



SACHSEN-ANHALT



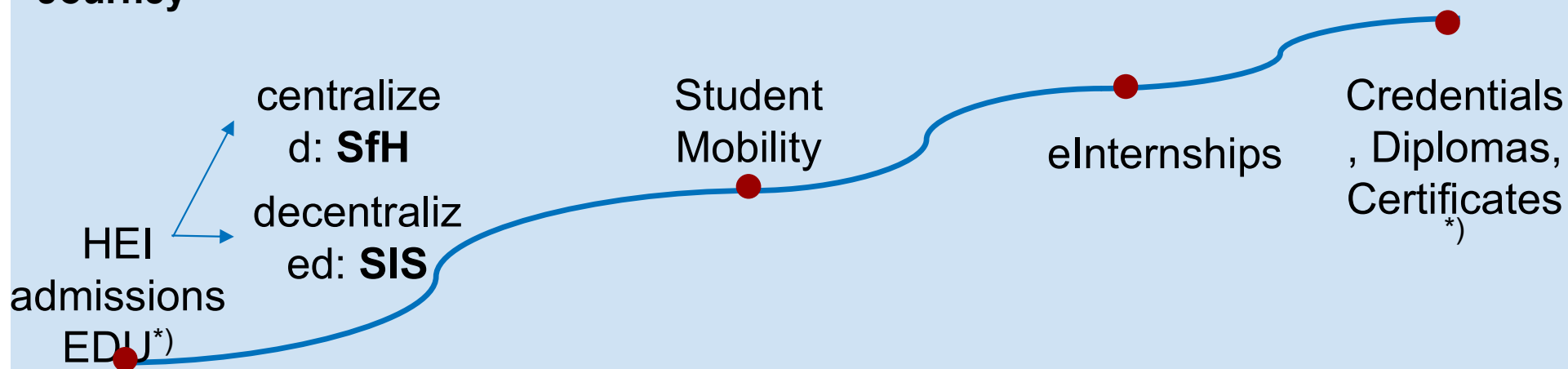
EUROPÄISCHE UNION  
**EFRE**  
Europäischer Fonds für  
regionale Entwicklung



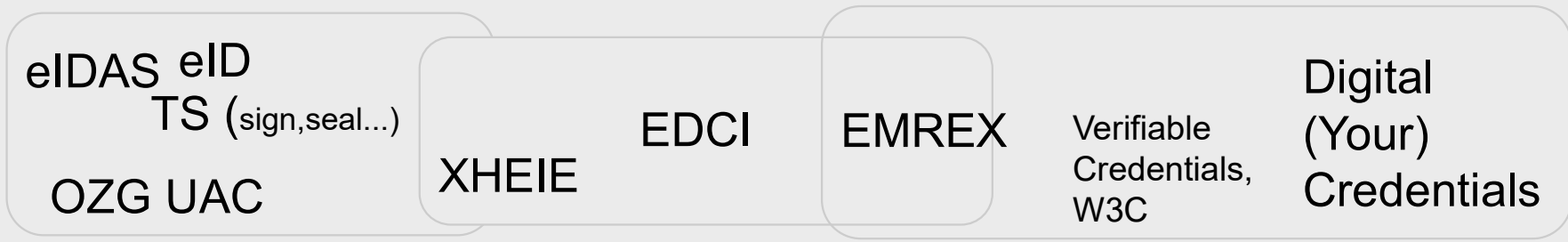
# Agenda

- Student Journey & Contexts (Legal, Security, Standards)
- eIDAS eID & TS & applications for HEI/EDU
- Interactions: security, legally binding, standards
- Projects (TREATS, StudIES+, CyberSec-LSA, SHIELD, Kolibri)

# Student Journey



## Infrastructure (selection)



## Legal Requirements



# eIDAS – building blocks (cross-boarder interop. eID + trust services (EU))

## eIDAS – eIDentität (interop.) & eSignatur/TS (Standards):

- eID: interoperabel (notified, 3 levels/LoA: high, medium, low)
- TS: trust services ((remote) eSignatur, eSiegel, timestamp,...)



Connecting Europe Facility  
TREATS (TRans-European AuThentication Services)

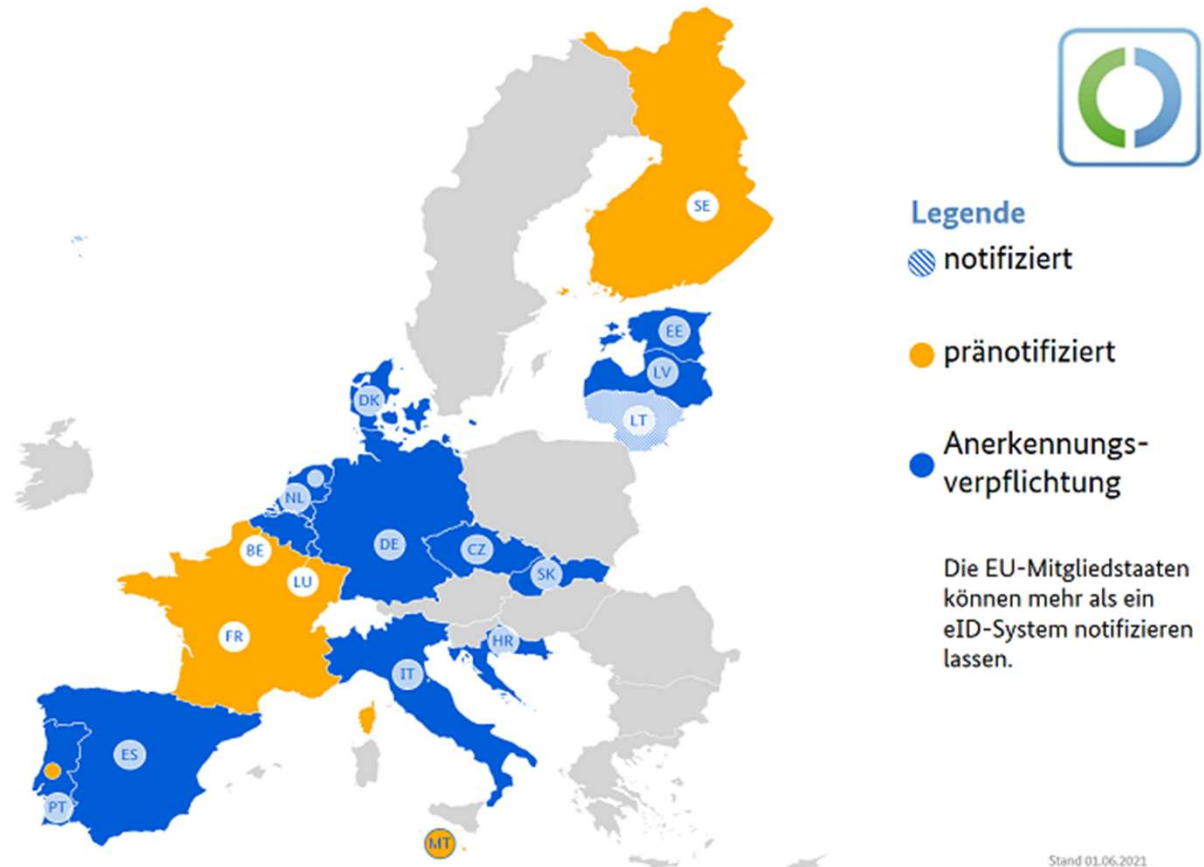
since 2012:  
eID@netlab



[Rohstock, TREATS-Workshop 2017]

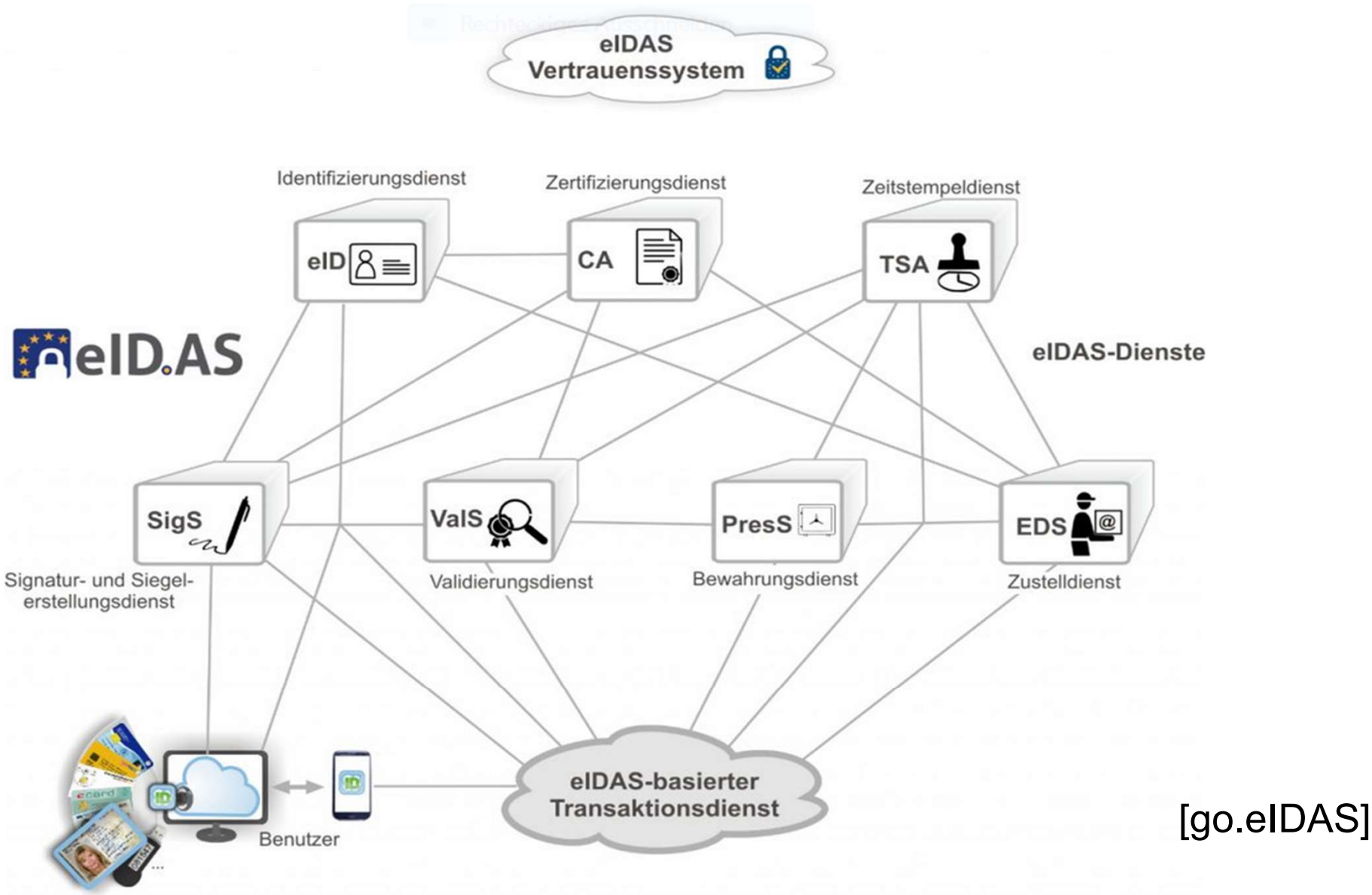
Seite 6

# Status of notification according to eIDAS Regulation on 01.06.2021

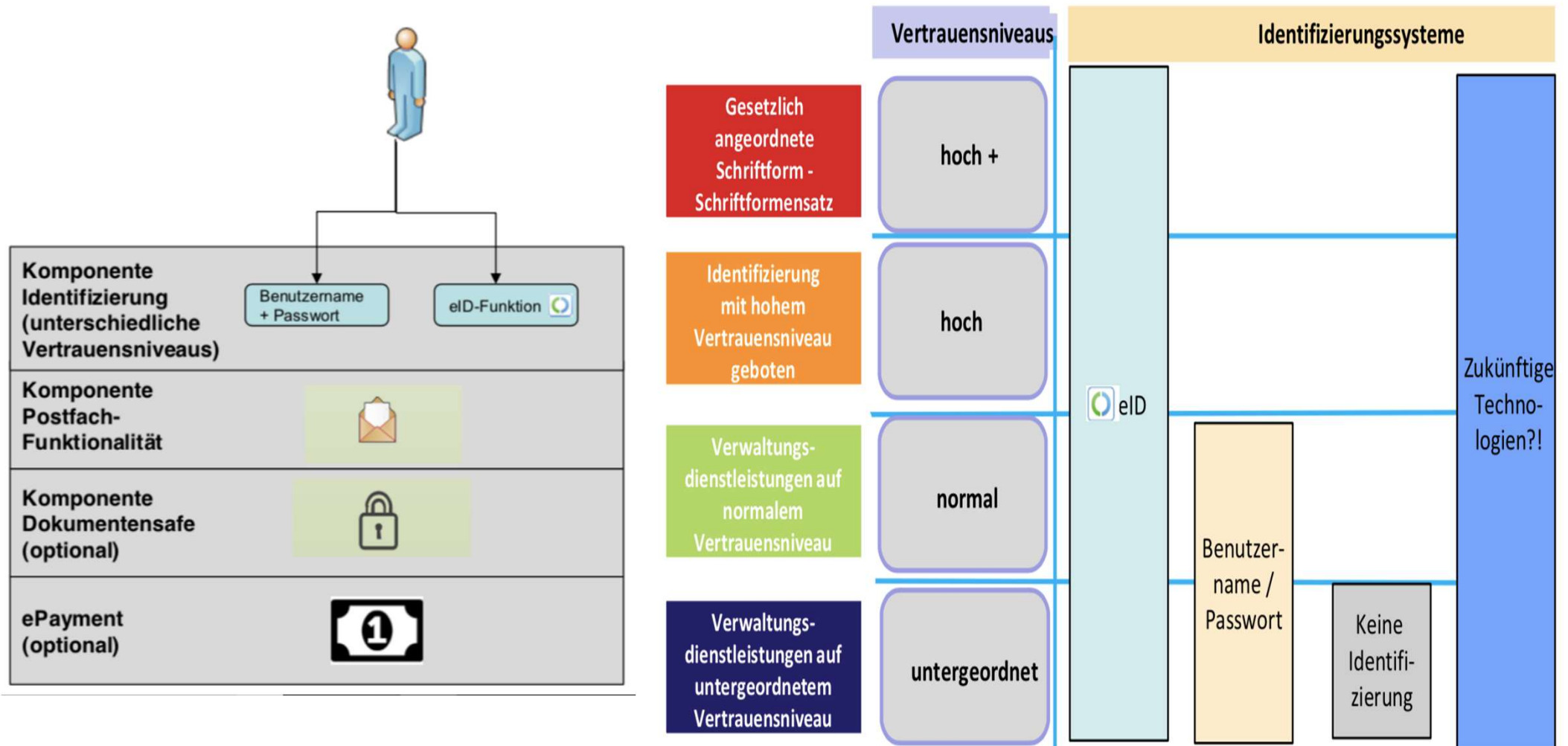


Quelle: <https://ec.europa.eu/cedigital/wiki/display/EIDCOMMUNITY/Overview+of+pre-notified+and+notified+eID+schemes+under+eIDAS>

# eIDAS - Overview

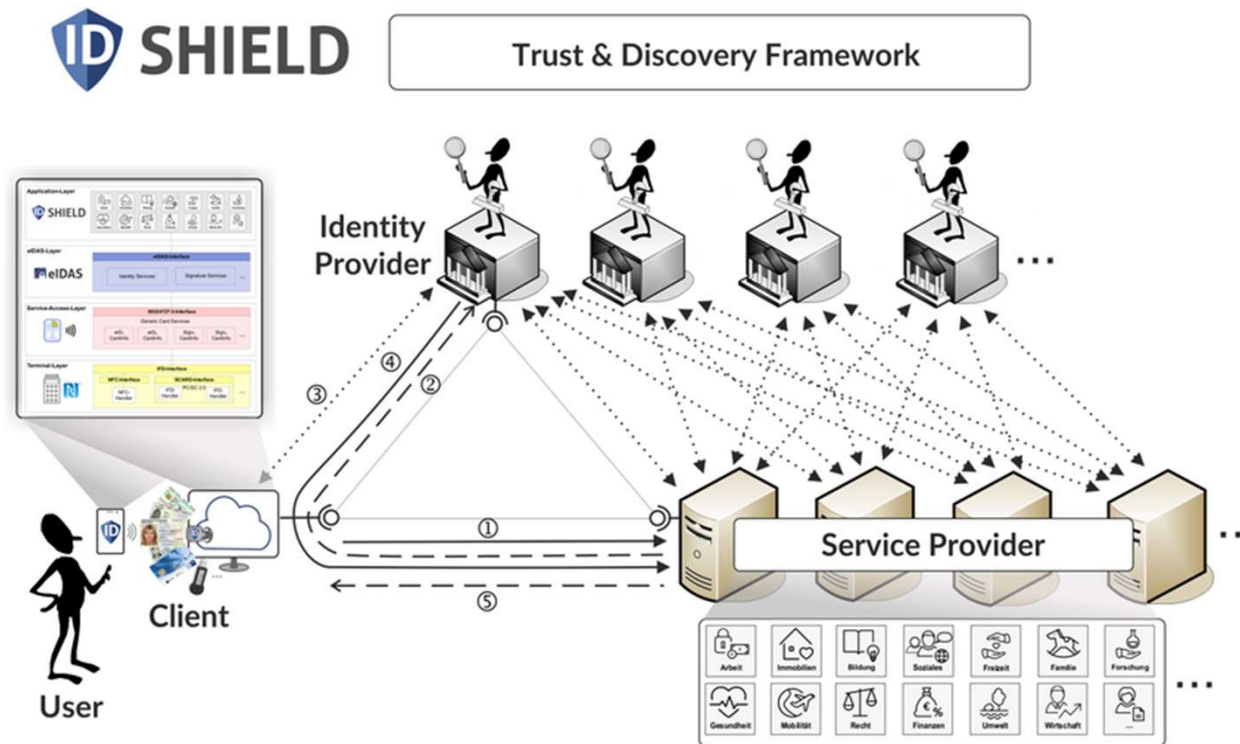


# OZG – Use Cases DE & Service Accounts (interop./federal 2022)



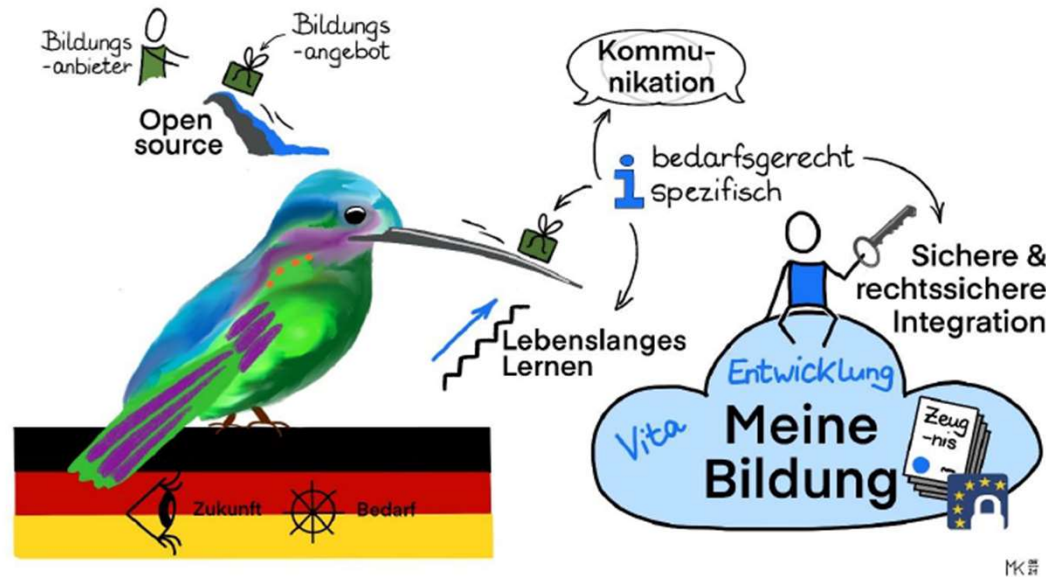
# BMW: SHIELD - secure eID for eGov. & eBusin. sectors

Ziel des in der FutureID-Arbeitsgruppe des go.eIDAS e.V. vorbereiteten **SHIELD** Projektes ist die Konzeption und Entwicklung eines **offenen Ökosystems** für **sichere digitale Identitäten** sowie die Konzeption, Entwicklung und Erprobung darauf basierender innovativer und breitenwirksamer **Mehrwertdienste** aus verschiedenen Anwendungsbereichen (z.B. im **kommunalen Bereich**, in der **Immobilienwirtschaft**, in den Bereichen **Mobilität**, **Tourismus**, **Gastgewerbe**, **Sport** und **Ernährung**, **Handel** und **Logistik**, bei **Sozial- und Gesundheitsdiensten**, in der **Telekommunikation** sowie bei **Banken**, **Versicherungen** und sonstigen **Finanzdienstleistern**, im **Bildungswesen** oder der **Industrie 4.0**).



# Kolibri - Communication, Open Source, life long Learning at HEI/EDU by legally binding & Security Integration

Bechtle (lead), dataport, univention, HS Harz:



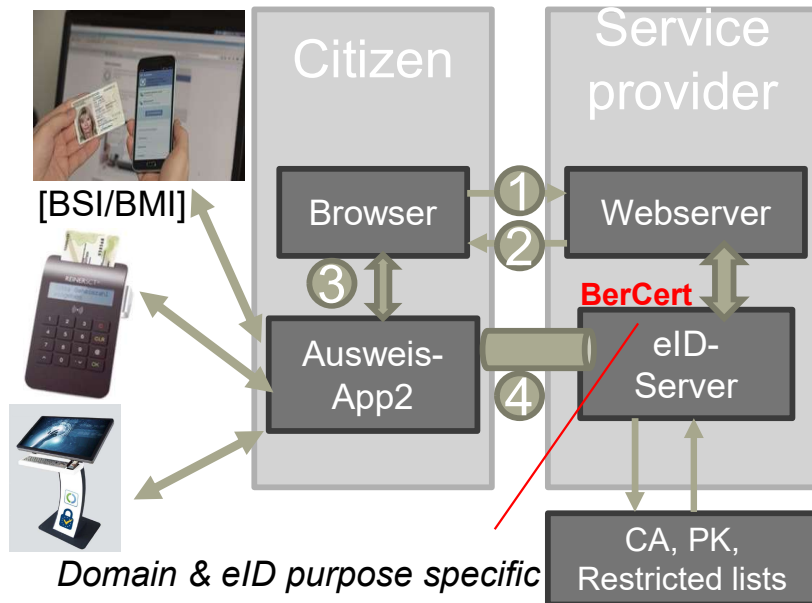
Federal Ministry  
of Education  
and Research

## BMBF Förderaufruf: Initiative Nationale Bildungsplattform

# (G)eID at University Management

## GeID skeleton, Motivation, national projects

German electr. Identity Card (GeIDC), Rollout ~2020



Domain & eID purpose specific certificate (Berechtigungszertifikat BerCert), control by Federal Agency BVA

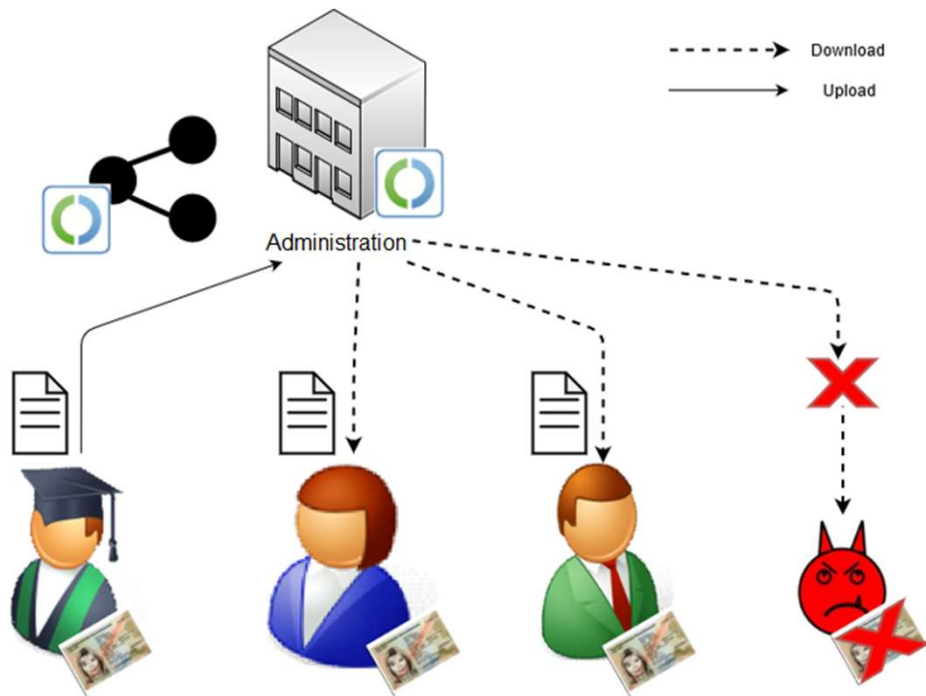
- **Security/LoA Lifting: 2-Factor-Authent./HW/end2end**
- nontracable eID / privacy
- BerCert mandates GeID fields for SP
- decentralized eID services/server
- Form filling access/upload by GeIDC at public SP: substitution for the QES Sign. Level
- **8/2017: GeID eIDAS notification, level „high“**



### Challenges HEI/EDU integration:

- Existing legacy HEI ID/credentials ?
- HEI/EDU cross domain extension ?
- **eIDAS cross boarder extension ?**
- credential/document standards & eIDAS

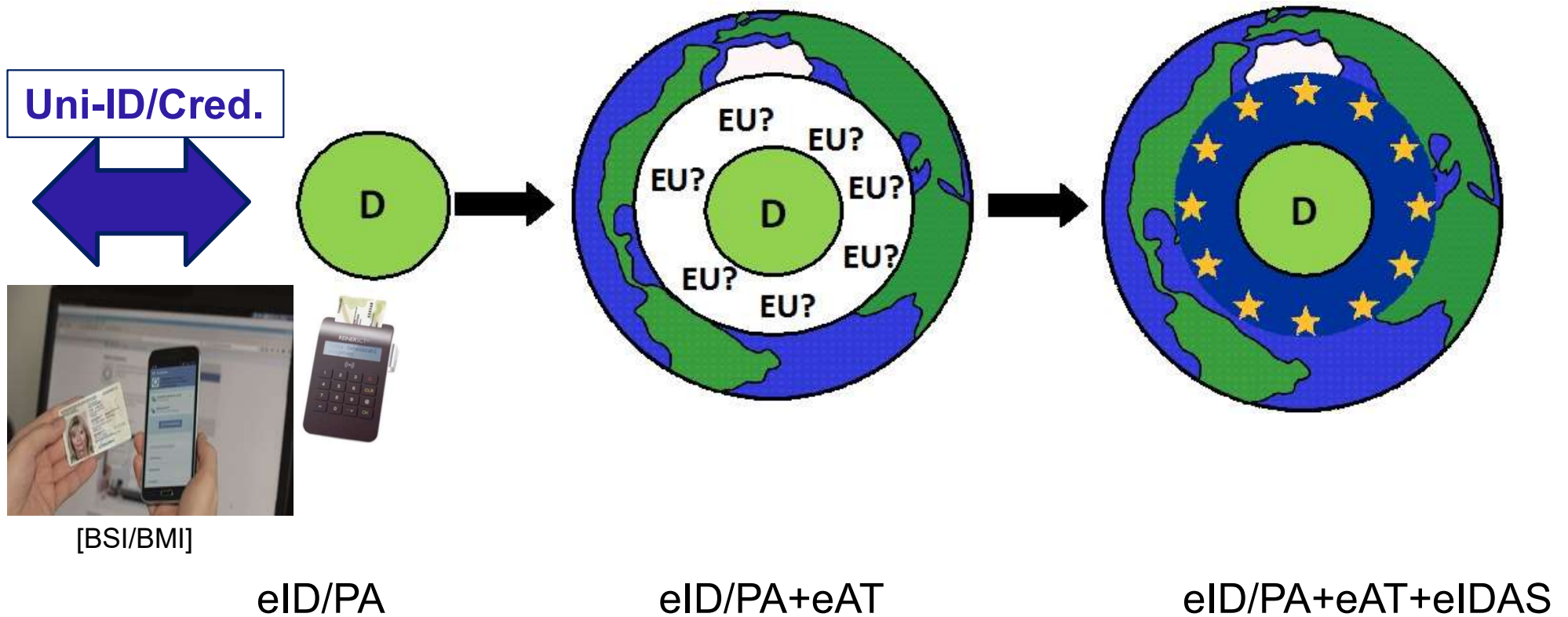
# eID/eIDAS-accounts & secure file sharing



- eID-based accounts
- Preparation of OZG account connection
- Highly secured file transfer between eID users (LoA "high"), eGov. legally binding
- for secure password & token distribution
  - MyCredentials
- NextCloud with eID
- Consulting for chambers/members (SMEs)

# eIDAS @ Universities – „saving the missing donut“ ?

Extension of the eID Access Topology (D): the cross-boarder way (EU, interop.)



# TREATS Consortium Partners - eID/eIDAS ready:

- MTG (media transfer AG)
- OpenLimit SignCubes GmbH
- Governikus GmbH & Co. KG
- HSH Soft- und Hardware Vertriebs GmbH
- SIXFORM GmbH
- Bundesdruckerei GmbH
- Harz University of Applied Science
- Anstalt für Kommunale Datenverarbeitung in Bayern (AKDB)

## Staatlicher Auftraggeber:

- Bundesinnenministerium  
vertreten und unterstützt durch das
- Bundesamt für Sicherheit in der Informationstechnik

### eID server



eID Serverhersteller

### Services and Applications



Anwendungen und Betreiber



Mentoring / Überwachung



Co-financed by the European Union  
Connecting Europe Facility

**TREATS 2017** (TRans-European AuThentication Services)  
Action-No: 2015-DE-IA-0065 (EU CEF)

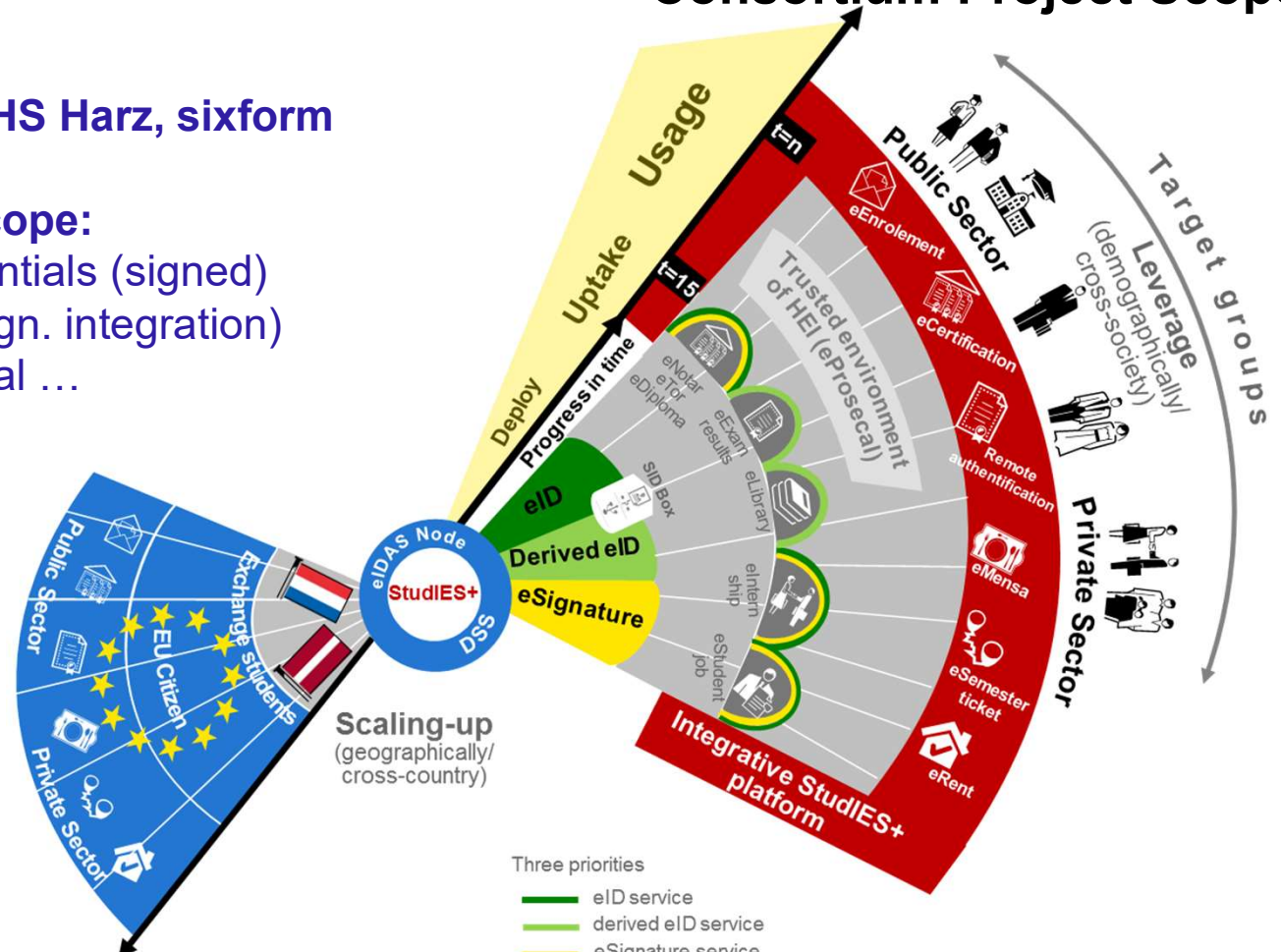
# StudES+ Scope & Overview – eID&TS/eIDAS ready

Francotyp-Postalia (lead)  
 Bundesdruckerei, FU Berlin, HS Harz, sixform

## HS Harz Part – Application Scope:

- MyCredentials ➔ YourCredentials (signed)
- ...eNotar-platform/services (sign. integration)
- ...eInternship, eToR, eProSecal ...

## Consortium Project Scope:



**Hochschule Harz**

**bdr.**  
 BUNESDRUCKEREI

**SIXFORM**

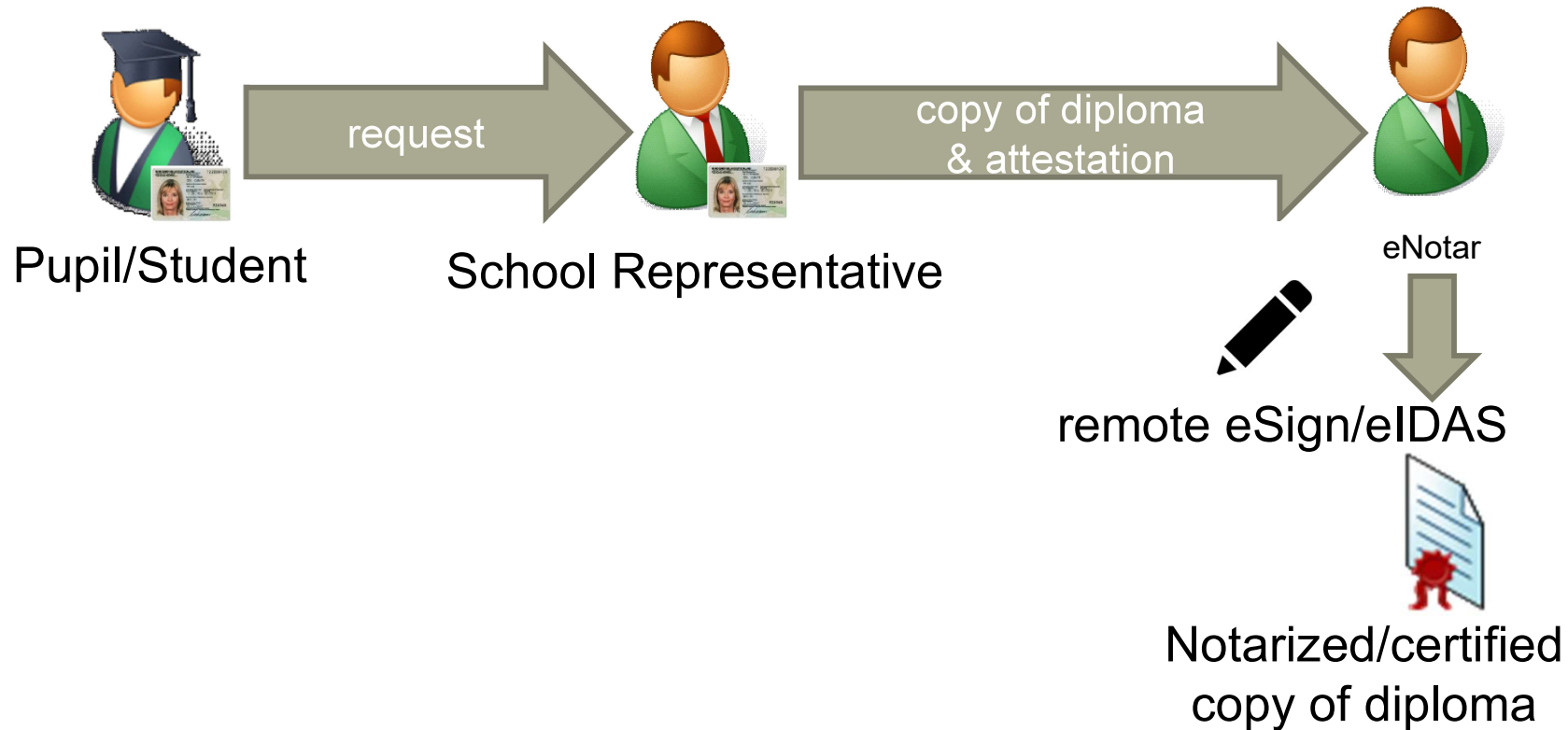
Freie Universität Berlin

**FP**  
 GERMAN MAILGENERING

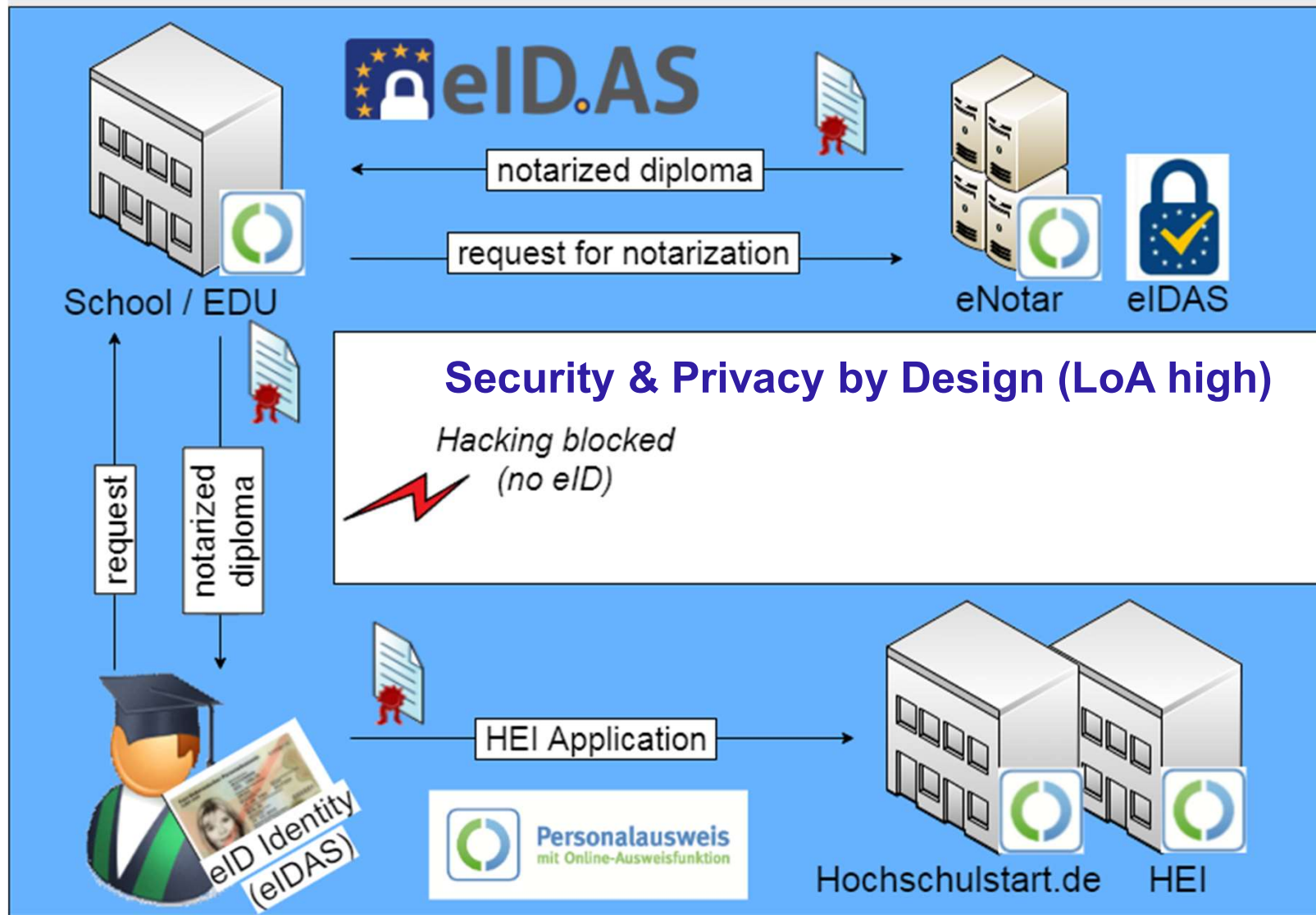


**Co-financed by the European Union**  
 Connecting Europe Facility

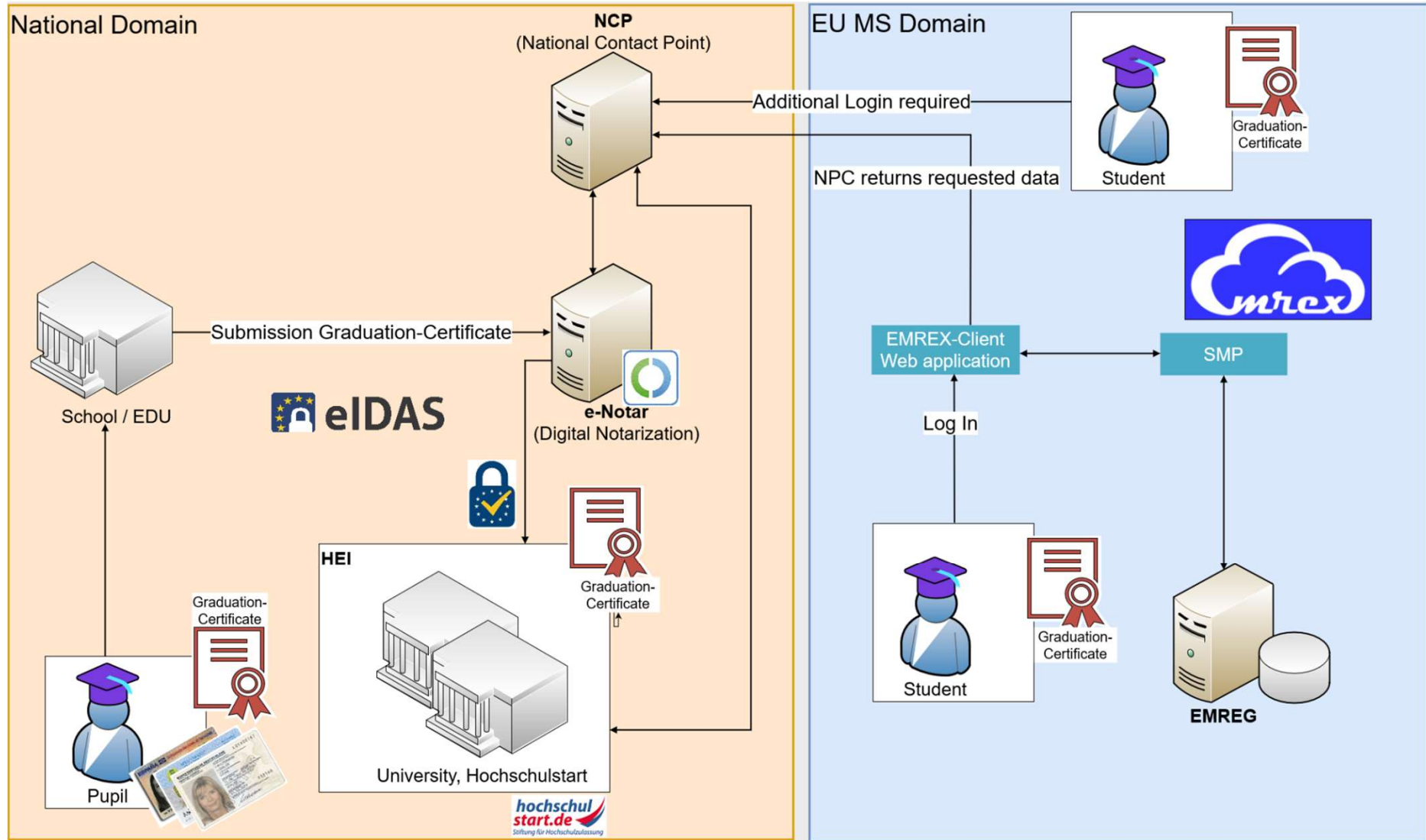
# eNotar workflow (HEI/EDU)



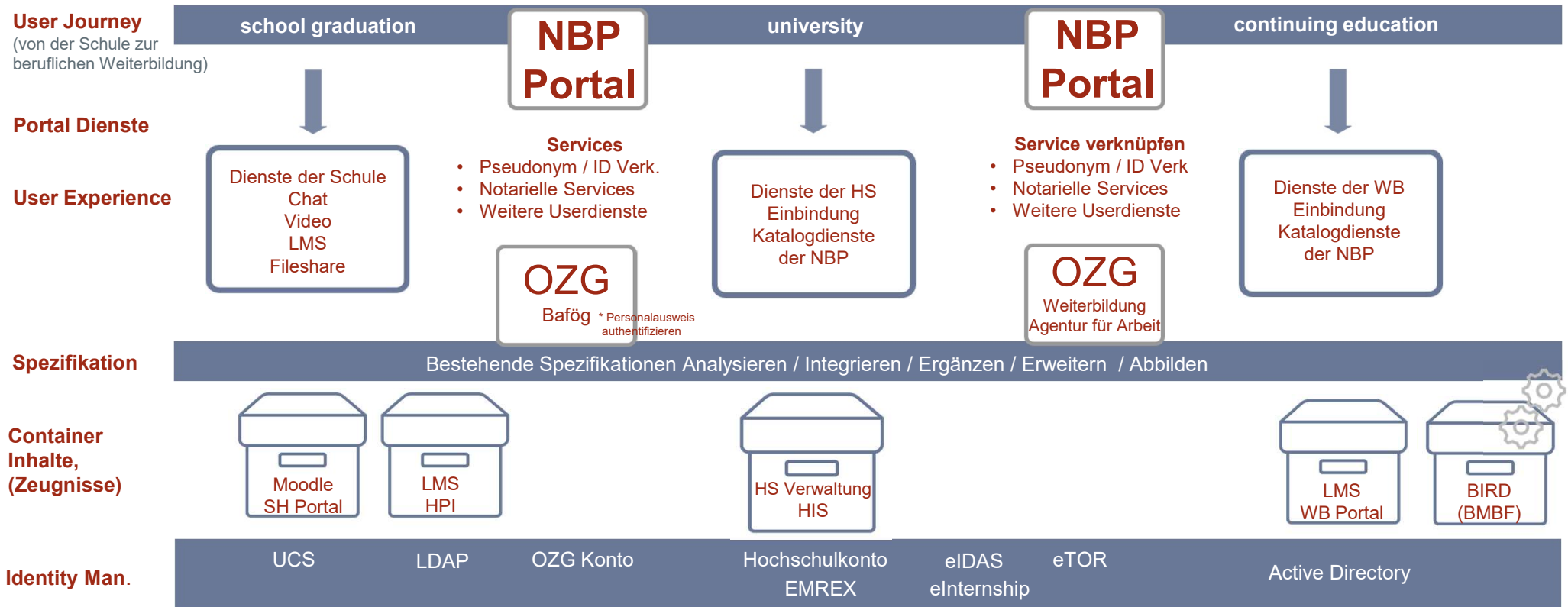
# eNotar 4 diplomas: eID/privacy protected data-/work-flows



# eIDAS/eNotar & EMREX 4 HEI/EDU @ netlab












# KOLIBRI Big Picture – Exemplary User Journey.



# Herzlich Willkommen in der Netlab Systemumgebung

## Home

**Achtung** Diese Webseite verwendet Cookies. Nähere Informationen finden Sie in unserer Datenschutzerklärung

 <b>eProsecal</b>  <a href="#">Lade Applikation</a>	 <b>eTor</b>  <a href="#">Lade Applikation</a>	 <b>YourCredentials2021</b>  <a href="#">Lade Applikation</a>
 <b>eNotar</b>  <a href="#">Lade Applikation</a>	 <b>eInternship</b>  <a href="#">Lade Applikation</a>	 <b>YourCredentials</b>  <a href="#">Lade Applikation</a>
 <b>MyCredentials</b>  <a href="#">Lade Applikation</a>	 <b>YourCredentials2</b>  <a href="#">Lade Applikation</a>	 <b>eKolloquium</b>  <a href="#">Lade Applikation</a>



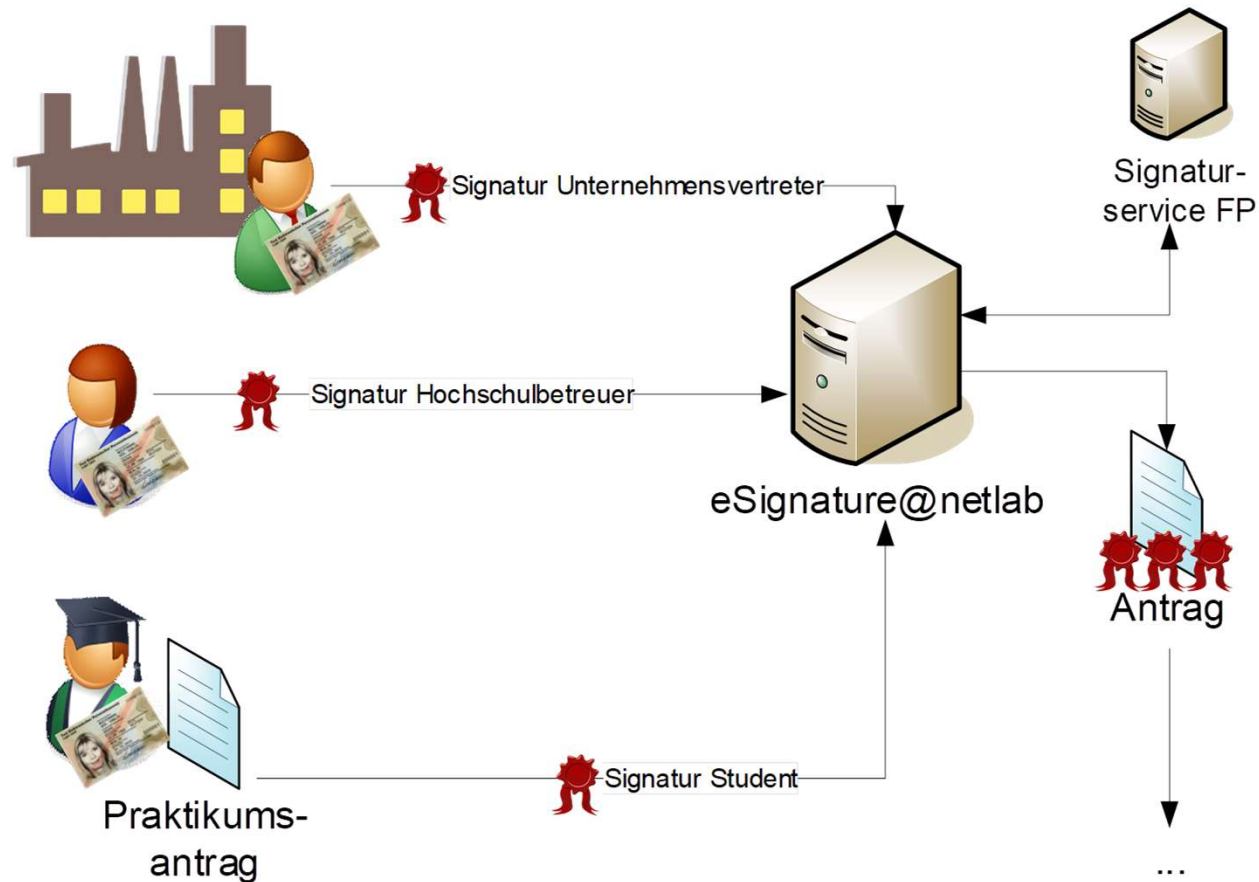
Challenge for Learning  
Faculty of 19 European Data



# eInternship (StudIES+) - - eIDAS-eID/eSignature

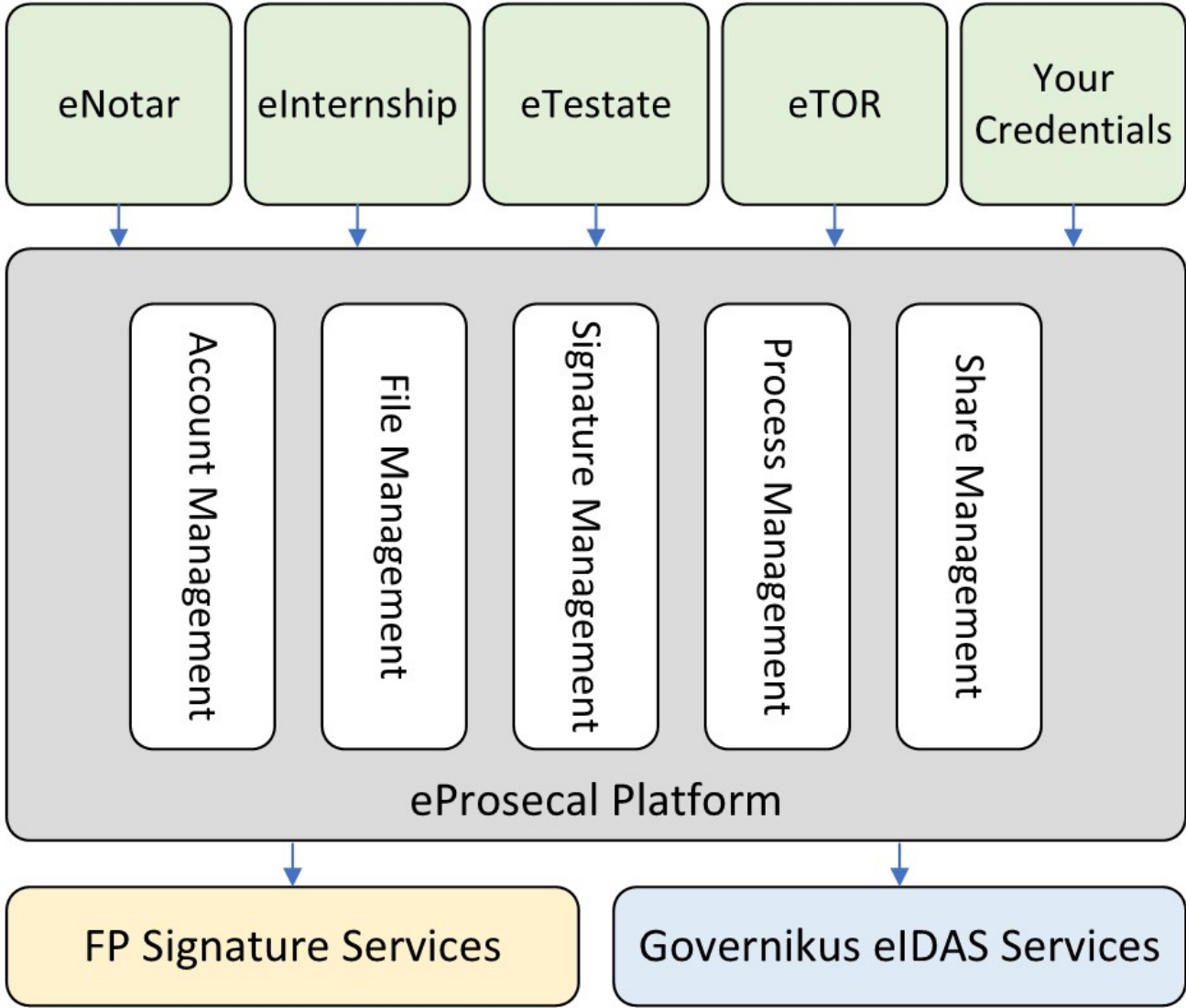


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Connecting Europe Facility



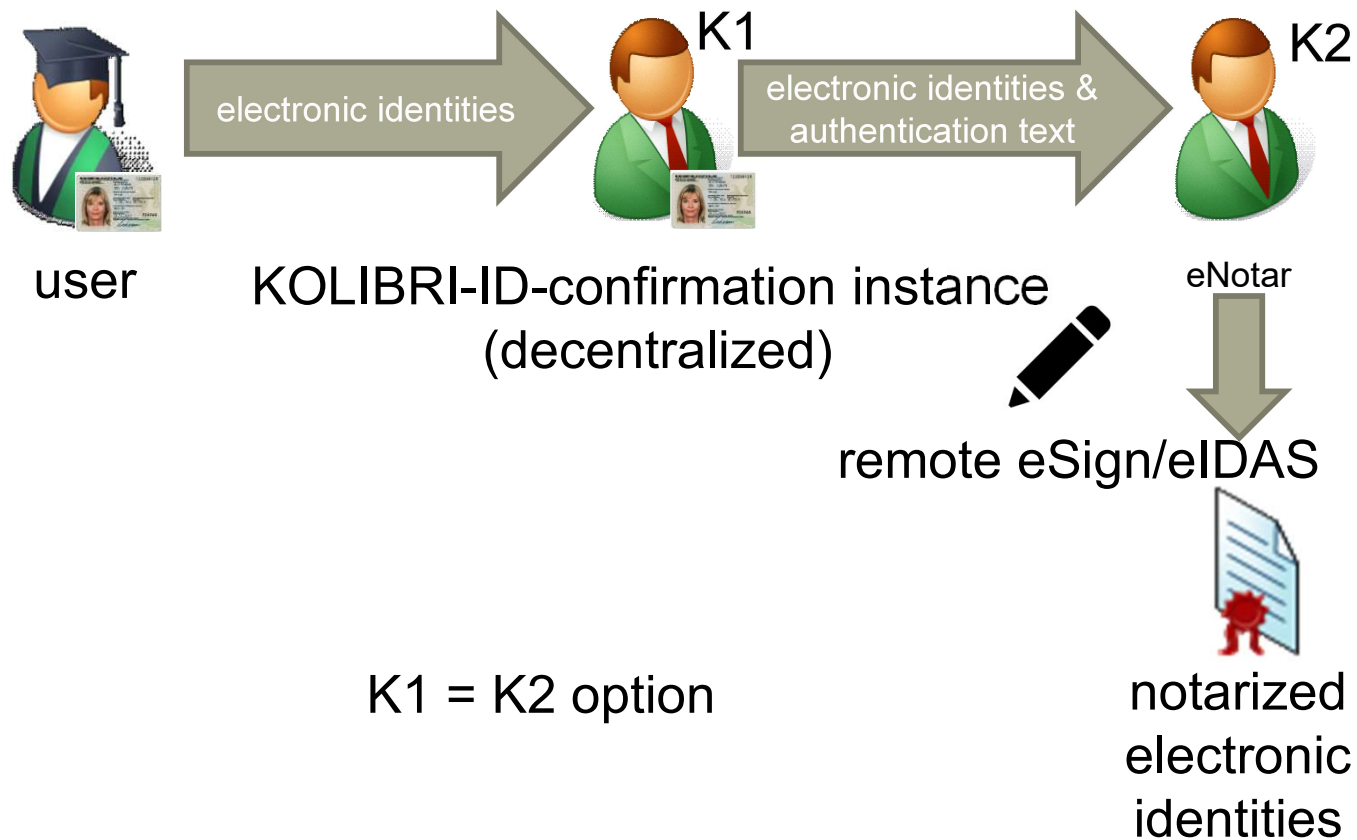
**StudIES+** (Student's Identification and Electronic Signature Services)  
EU CEF Action No. 2017-DE-IA-0022

# StudIES+ eIDAS stack

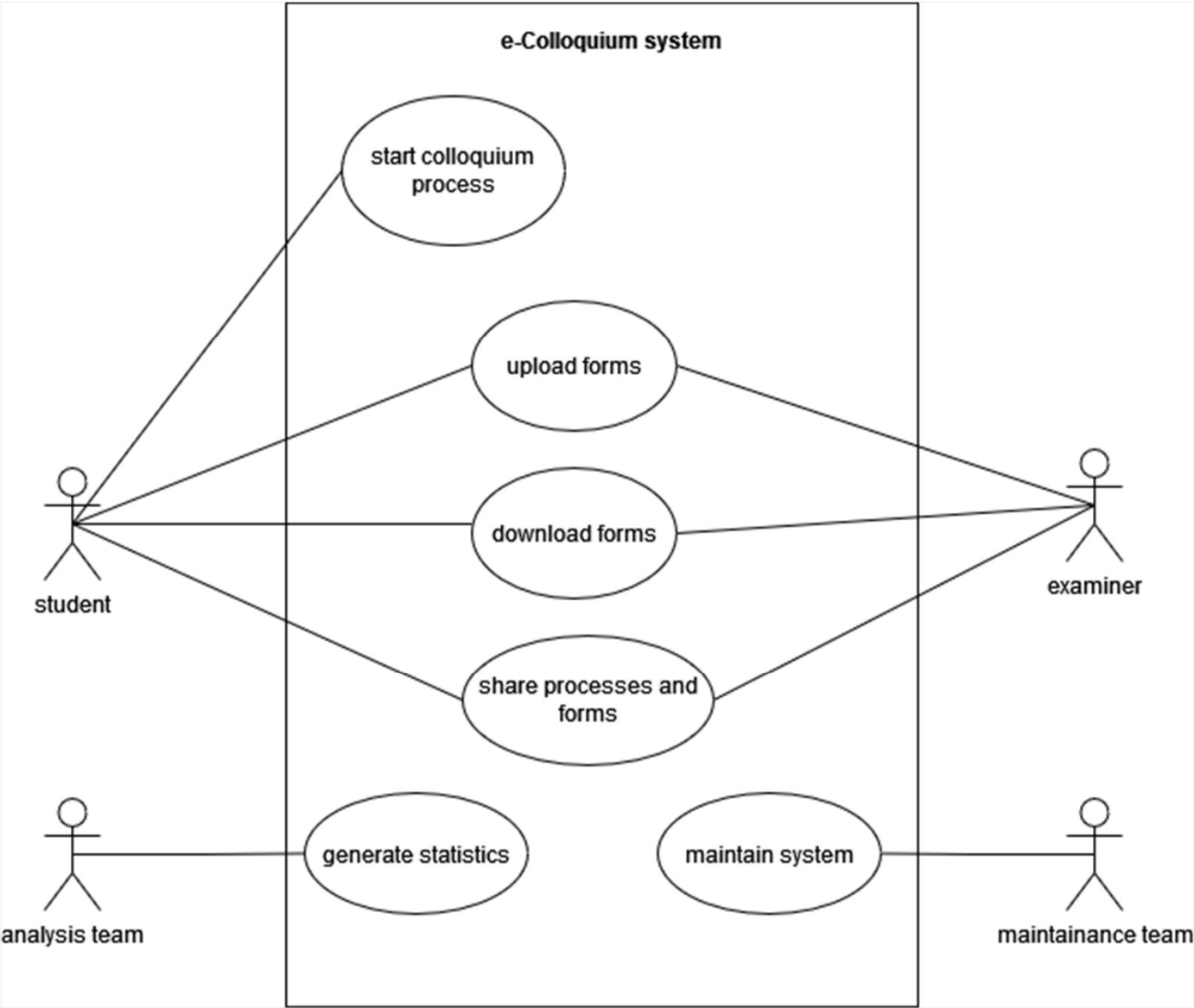




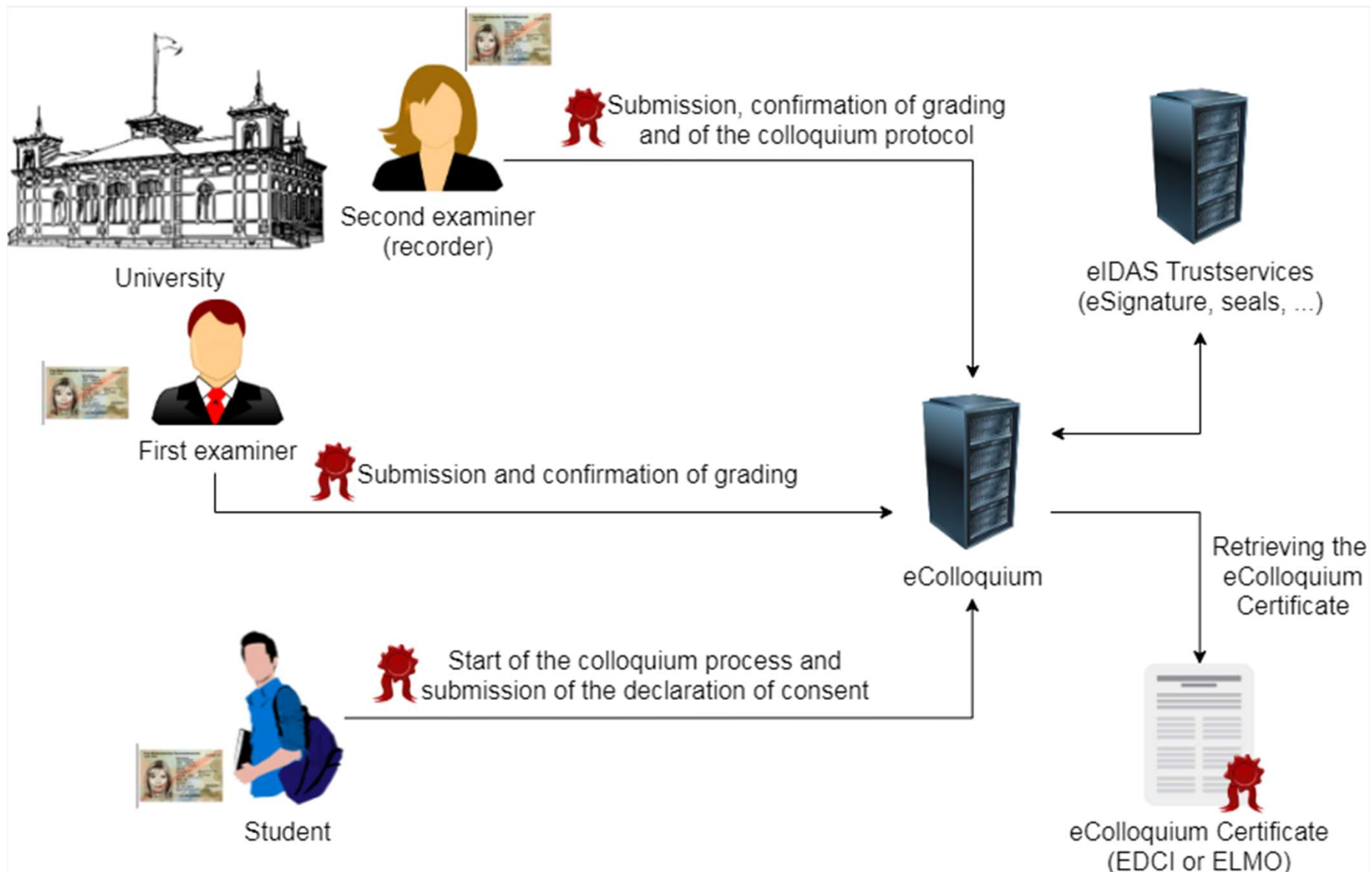
# YourCredentials – notarized (derived) identities



# E-Colloquium Use Cases



# Digital colloquium process (eIDAS)



# Conclusions/Outlook

- eIDAS extensions of eID/eSign. Infrastruct. & Applicat. for HEI/EDU (TREATS/Studies+, EU CEF; SHIELD, CyberSec-LSA, Kolibri)
- Use Cases at HEI/EDU DE & at public/private Sector, eg. eNOTAR for eDiploma/eExam/eCert/IDs
- eInteroperability for Student Mobility Services by eIDAS / EMREX / EDCI, integrating ID & TS attributes at service & document level
- interoperable eServices (eIDAS) by Law DE (OZG, ~ 2022)



# eID – eExamPlacing / eLabCert mobile electronic control via eID (hybrid)

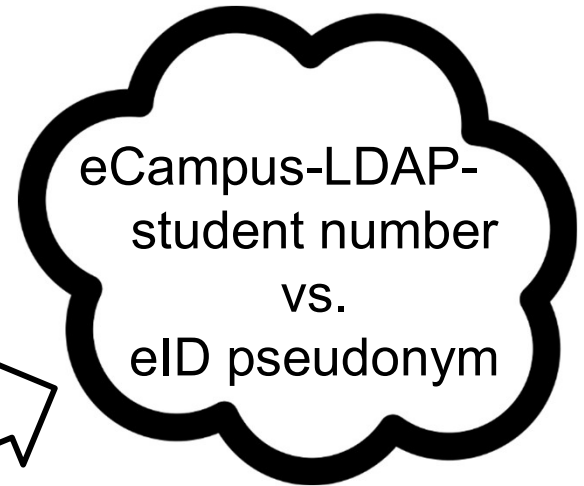
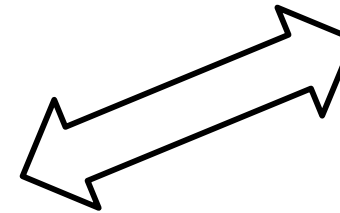
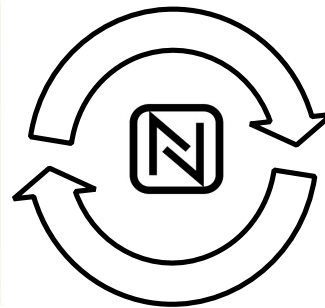
student account



Students



Professors/Lecturers



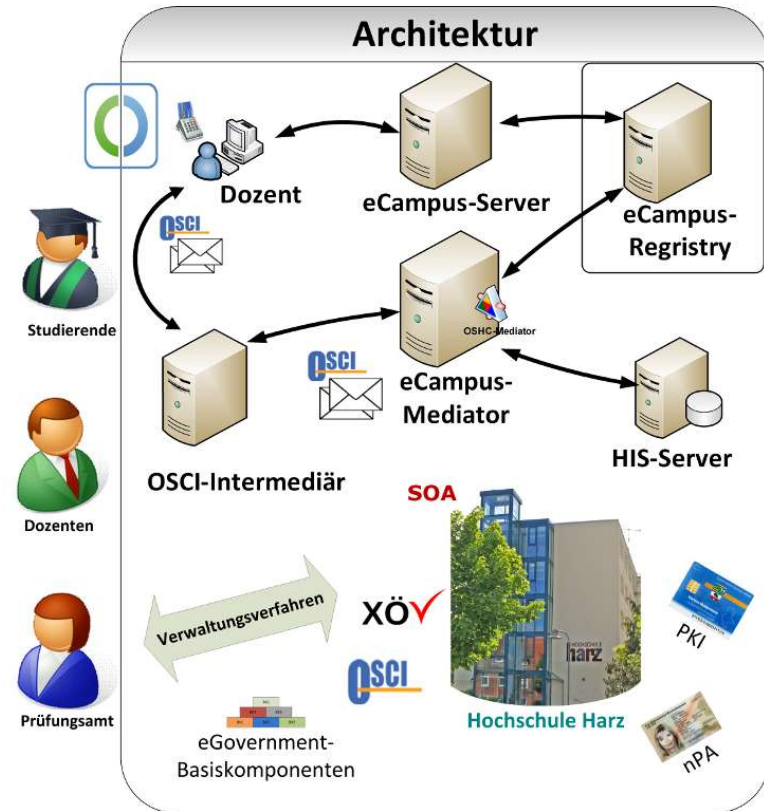
Service device (NFC-Ext.):  
electr. control & logging via eID

- put nPa (ID card)
- enter Pin
- finished

# eCampus Integration Architecture (hybrid: GeID,...)

- Integration of eGovernment-Standards @ Legacy University Campus Management & electronic Processes by Security Shell Architecture
- GeID for Authentication (hybrid Ids), OSCI for secure Delivery, QES Signature
- Projects Funding: EU & Federal/Local State (DE)

Förderungen: MW, Land Sachsen-Anhalt, EFRE-Massn.11.03/41.03, FKZ: 11.03-08-03



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Hochschule für angewandte Wissenschaften

# Questions, contact, R&D coop.

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<http://netlab.hs-harz.de/research/secinfpro-geo/>

<http://netlab.hs-harz.de/research/>

<http://netlab.hs-harz.de/TREATSWS/>