

The image is a graphic design for a 30th anniversary event. It features a solid orange background with various white geometric patterns. A large, stylized number '30' is formed by multiple parallel lines. The text '30th ANNIVERSARY' is positioned to the right of the '30'. Below this, the word 'EUNIS' is written in a large, bold, sans-serif font, and 'VIGO 2023' is written below it in a smaller, all-caps sans-serif font. The background is decorated with several sets of concentric circles, some complete and some partial, and a complex grid of intersecting lines forming a star-like pattern in the bottom right corner. There are also some smaller, faint geometric shapes scattered throughout.

30th ANNIVERSARY

EUNIS
VIGO 2023

EU Cross-border and OOTS for HEI/Edu Workflows and Infrastructures with Interoperability, Standards, and Security

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regionale Entwicklung

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Agenda

- Challenges CrossBorder/eIDAS (Crob) & OOP (EU/DE), esp. Security
- Learned from EU- and DE-Projects (TOOP, NBP...) and Convergences
- Security and Privacy PreServing with/for Standards
- Outlook

eIDAS related Projects with HS Harz (since 2017):

- TREATS (EU CEF)
- StudIES+ (EU CEF)
- SHIELD (BMW, LSA)
- NBP Infra. KOLIBRI (BMBF)
- CyberSec-LSA/Booster (EFRE, LSA)



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Digitisations, Infrastructures and Security - Projects, Innovations, Transfer (DE)



CYBER | SEC
VERBUND LAND SACHSEN-ANHALT

Tagung CyberSecurity-Verbund Sachsen-Anhalt 22/11/22

– Innovationen, Schutz und Chancen im CyberSpace (HS Harz, MLU, OvGU)



eID Schaufenster 2020 BMWI/Mf LSA

<https://www.shield24.de/>

[Hühn et. al. 20]



SACHSEN-ANHALT

Ransomware-Workshop mit Kommunen 2021/22



Pioneers in IT security.

PKI-Workshop

eNotar

Zeugniskopie-Beglaubigung 2022, ABI LSA

Innovation Netzwerksicherheit



Nationale Bildungsplattform Infrastruktur (Sub):

BMBF: Bechtle, Dataport, Univention, HS-Harz;

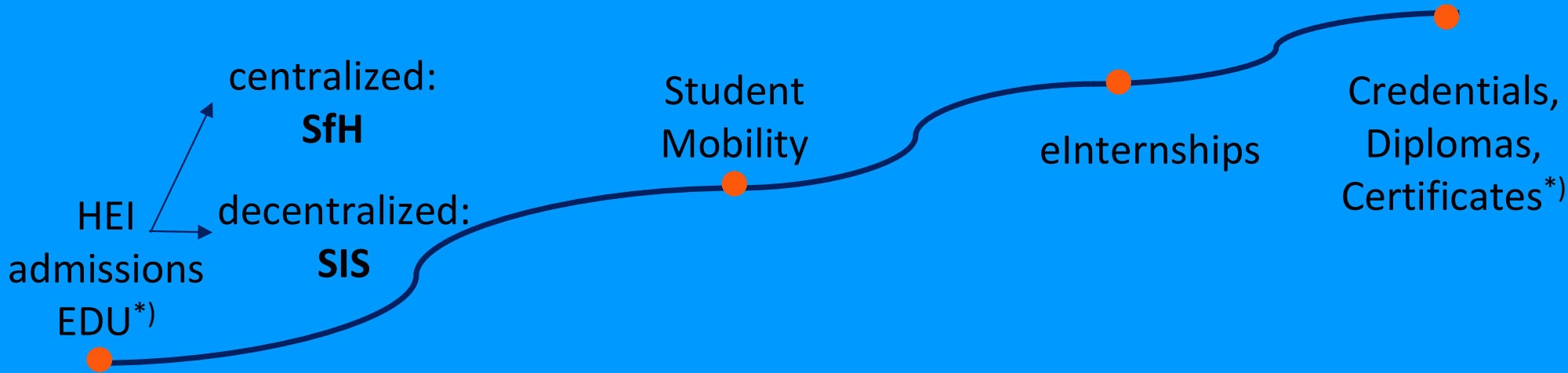
assoz.: MLU, OVGU, HIS



Wirtschaftsschutztag/Workshop



Student Journey



Infrastructure (selection)

eIDAS eID TS (sign, seal...)

OZG UAC

National Education Platform - NBP

XHEIE EDCI/ELM EMREX

Digital (Your) Credentials

Verifiable Credentials W3C

Legal Requirements & Standards



OZG Online Access Law



ETSI

eIDAS

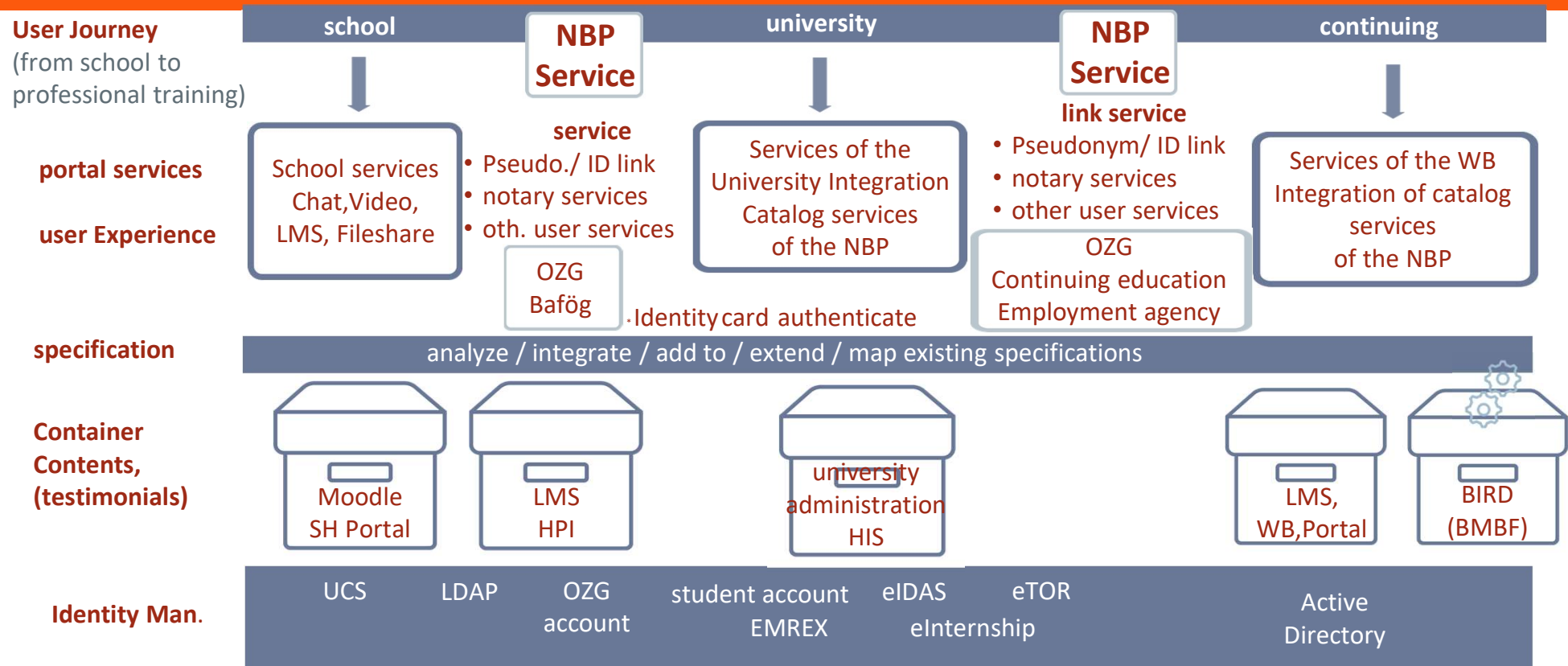


SDG Single Digital Gateway

Motivation: CROB/OOP – OOTS/SDG, eIDAS 2.0, NBP

- CROB: user solely @ Host EU MS Admin. Appl. Portals:
 - collecting doc./evidences from other admin. (by self service), authent. (eIDAS), up-/downloads (get admin trust on doc: via eIDAS eID and TS if)
- OOP/SDG: user @ OOTS hub - with connected EU MS admin services & exchanges
 - relieving the user: engages Gov. Admin. & Evidences – builtin service with MS2MS/A2A admin. connections by system default (user doesn't care),
 - relieving admins.: for trust, security/authent., up-to-dateness
- Security required - Preserving higher Security Levels/LoA with (EU) Standards (eIDAS)
- integrating eIDAS 2.0 für OOP (user wallet, sovereignty/privacy):
 - how to combine / prioritize in case of different data sources (wallet, OOTS) or security levels ?
 - similiar questions at National (federated) Educational Platform (NBP, DE)

National Education (connective) Platform (NBP) KOLIBRI Infrastructure - Big Picture: User Journey



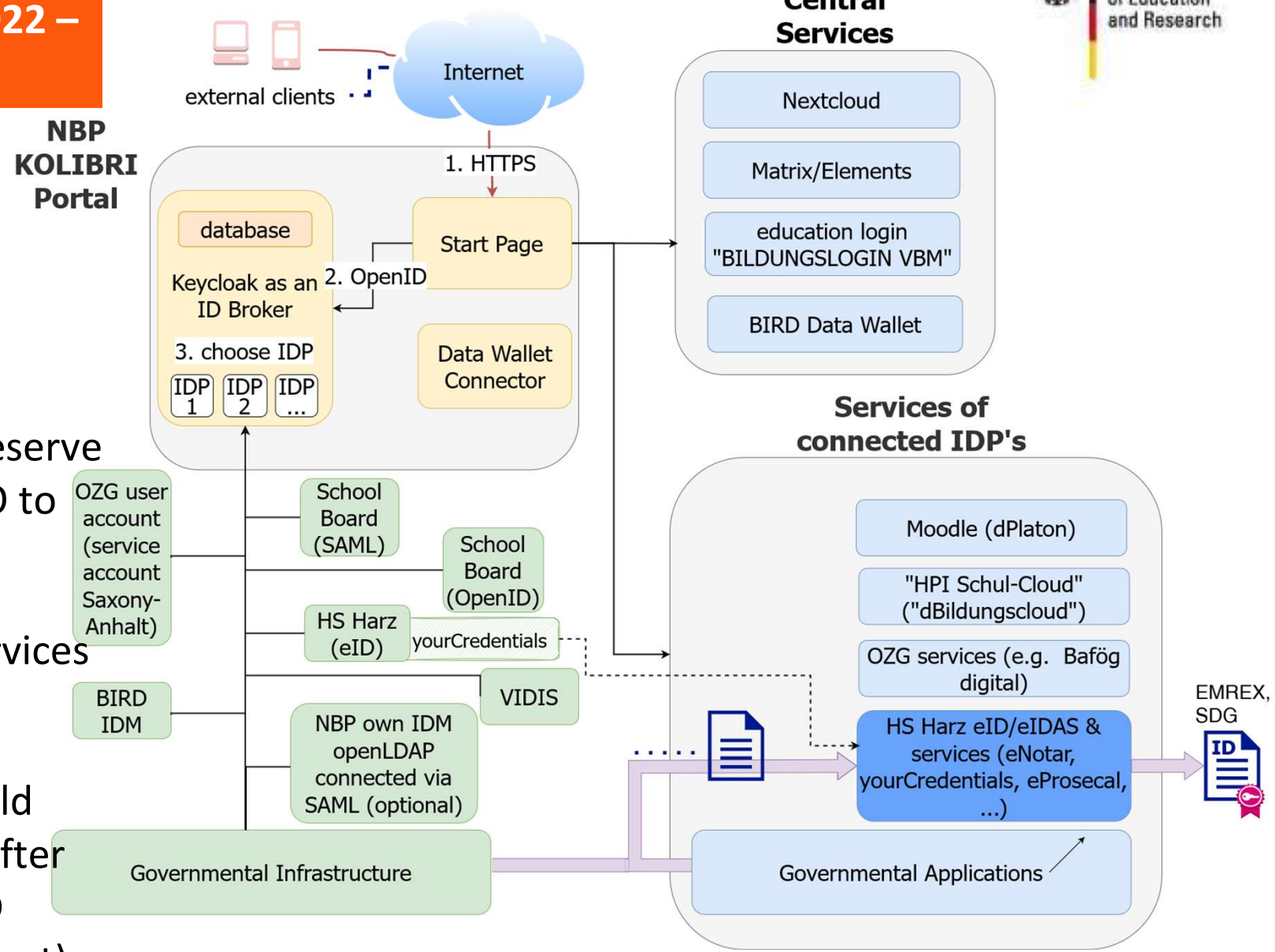
SPONSORED BY THE



- Crossover, Access, and Exchange for all EDU/HEI stakeholder
- Security, Privacy, and Standards (adaptable, interoperable)

National Educational R&D Platform KOLIBRI NBP 2022 – Architecture Overview

- Privacy by Design
- ID-Broker inside, IDPs external
- LoA „High“ feature/preserve for eID/OZG-Login, SSO to external HEI/EDU
- QeS by eIDAS Trust Services TS (PKI, remote)
- Ongoing 2023 real world development started after R&D prototyping (BIRD Project: Scientific Support)



Proposals eID@diploma: NBP++/ for Emrex

National Education Plattform (NBP) KOLIBRI - View

NBP Portal

Login, SSO and Citizen account (OZG) for 3 eIDAS LoA/Security Level: Level preserving

Info: Ihre Autorisierungsstufe ist: hoch

Meine Dienste

- NBP Dienste
- HS Harz
- VBM

Dienste für Externe

- eProsecal Home (LOA HIGH)
- eTOR Home (LOA HIGH)
- YourCredentials Home (LOA HIGH)
- eInternship Home (LOA HIGH)
- eKolloquium Home (LOA HIGH)
- Nextcloud CSLSA (LOA Substantial)
- STUD.IP
- HiSinOne
- eNotar Home (LOA HIGH)

myUniHelps - eHiwi

- eHiwi Home (LOA HIGH)
- EMREX NCP Home (LOA HIGH)
- eProsecal Home (LOA HIGH OZG)

EMREX

- EMREX

eProsecal OZG

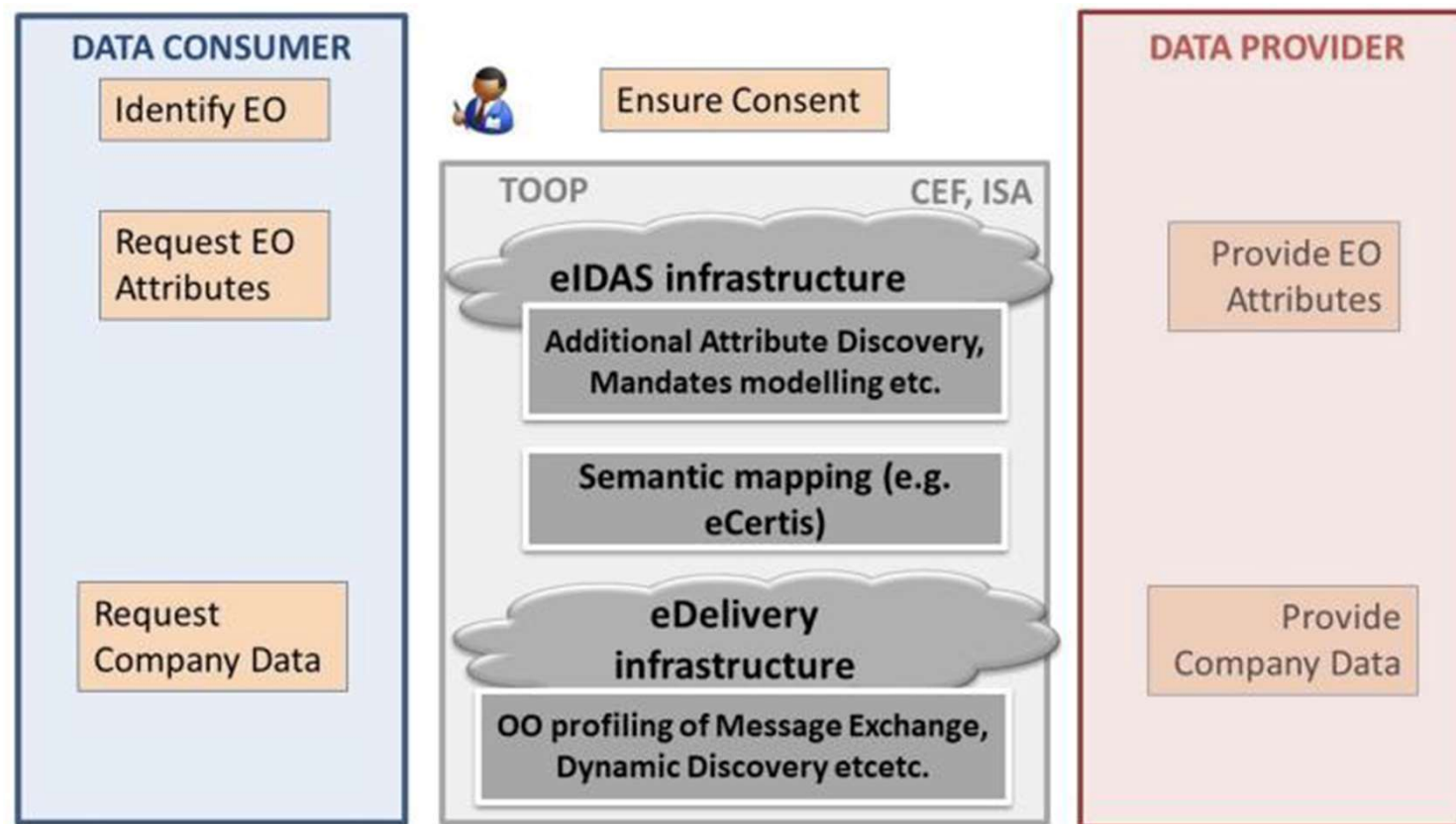
- eProsecal OZG

LOA HIGH
eID Level of Assurance HIGH

Digitaler Kolloquimantrag HS Harz

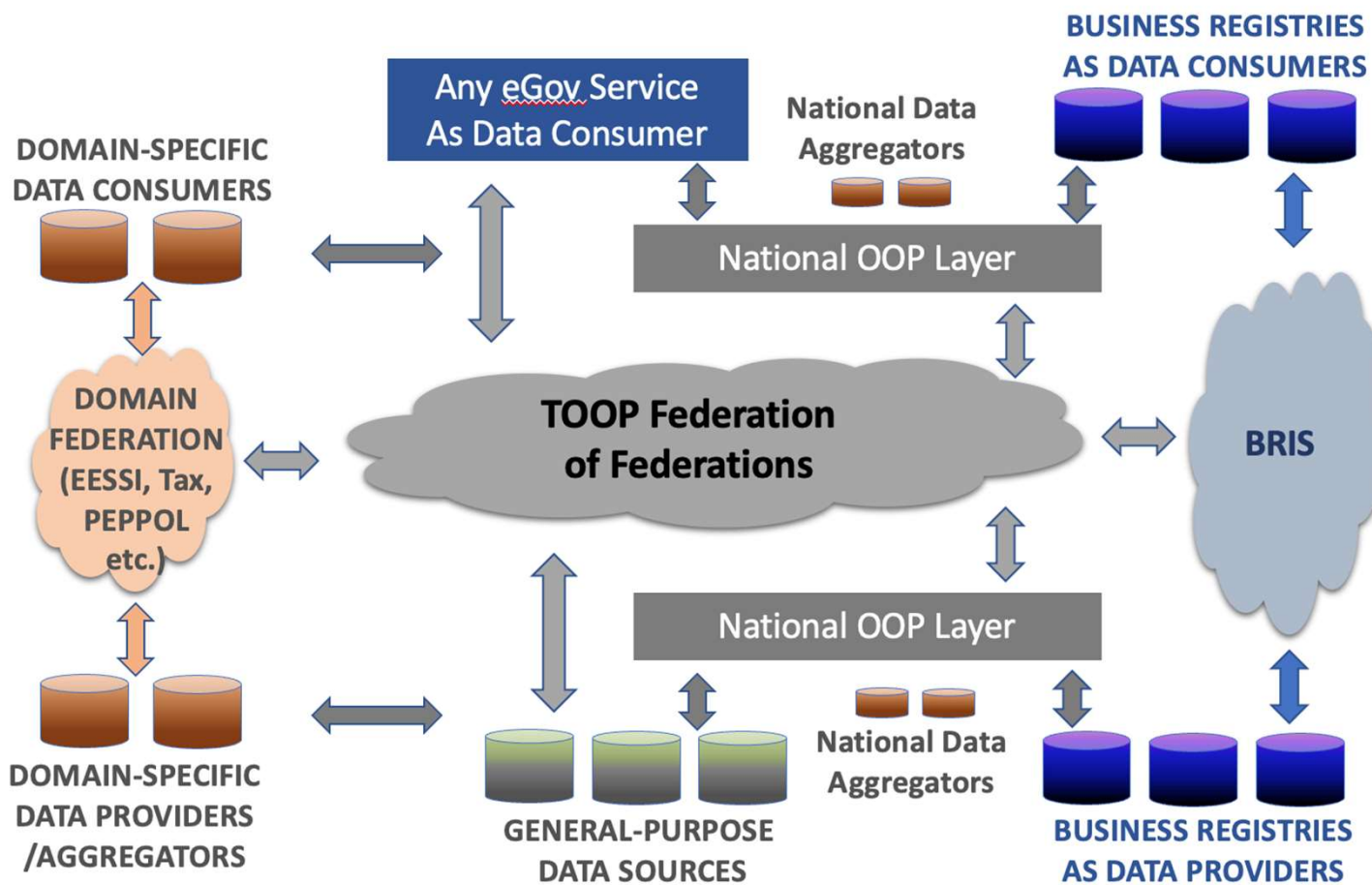
TOOP Infrastructure for SDG

- TOOP infrastructure blueprint for OOTS
- Uptake by EC
- Extensibility and reusability
- Content agnostic
- Engages connected host admin/registers



EO = Economic Operator

TOOP Architecture (federated)



BRIS = Business Register Interconnection System

Security for OOTS Services

- OOTS Common Services is using
 - Network layer security and (NLS)
 - Transport layer security (TLS)
- NLS uses Domain Name System Security Extensions (DNSSEC)
- TLS versions and cipher suites following international and national minimum standard requirements and best practices such as [ECRYPT CSA], [NIST 800-52r2] and [BSI TR-02102-2]
- eIDAS eID & TS

*<https://ec.europa.eu/digital-building-blocks/wikis/x/aAQrJQ>

2018 – 2023 Single Digital Gateway



The regulation entered into force 11 Dec 2018



21 Procedures are listed in the Annex of the SDGR



Phased implementation:



Starting end of 2020 (online information and assistance)



For municipal authorities – end of 2022 (online information)



OOP will be applicable from Dec 2023 Procedures fully online + the 'once-only' system

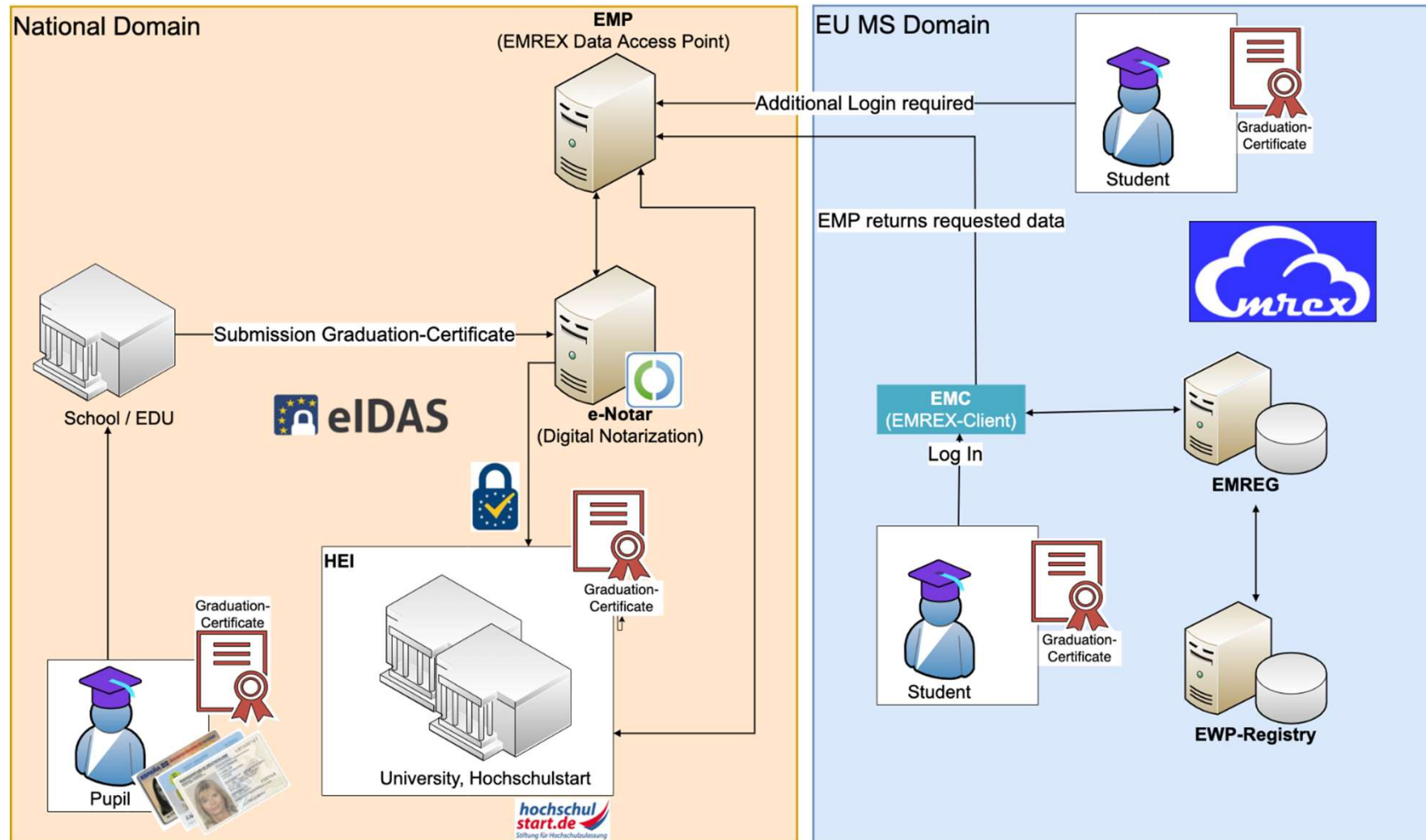
Challenges SDG vs. eIDAS 2.0

- Challenges – privacy and eIDAS 2.0 wallet sovereignty vs. SDG portals and connected administrations from different EU MS A2A
- If user gives consent, the administrations are allowed to share users data e.g. from different EU MS registers
- This could improve services, trust, authenticities, up-to-dateness
- But:
 - how to solve / prioritize double data spendings (user/host admin.) ?
 - how to integrate existing/proven services like EMREX @ HEI/EDU ?
 - preserving security level on process & infrastructure layers ?

Proposals

- eID service integrations on doc level (eID markups, sign by YourCredentials: Projects NBP / CyberSec-LSA)
- Prioritize double spendings (OOTS/wallets): prio OOTS, trusted linkings / signed hybrid data containers – re-uploadings by user
- Emrex Sec.Proposals: pure XML signature field, multiple attachments, qualified signatures, integrations of eID, time-dependent validities
- Security level preserving: checking/preserving Security/LOA levels at access/transactions/infrastructures (s. BLP) – stopps at level mismatches
- EMREX integrations: NDN AG, DiBiHO

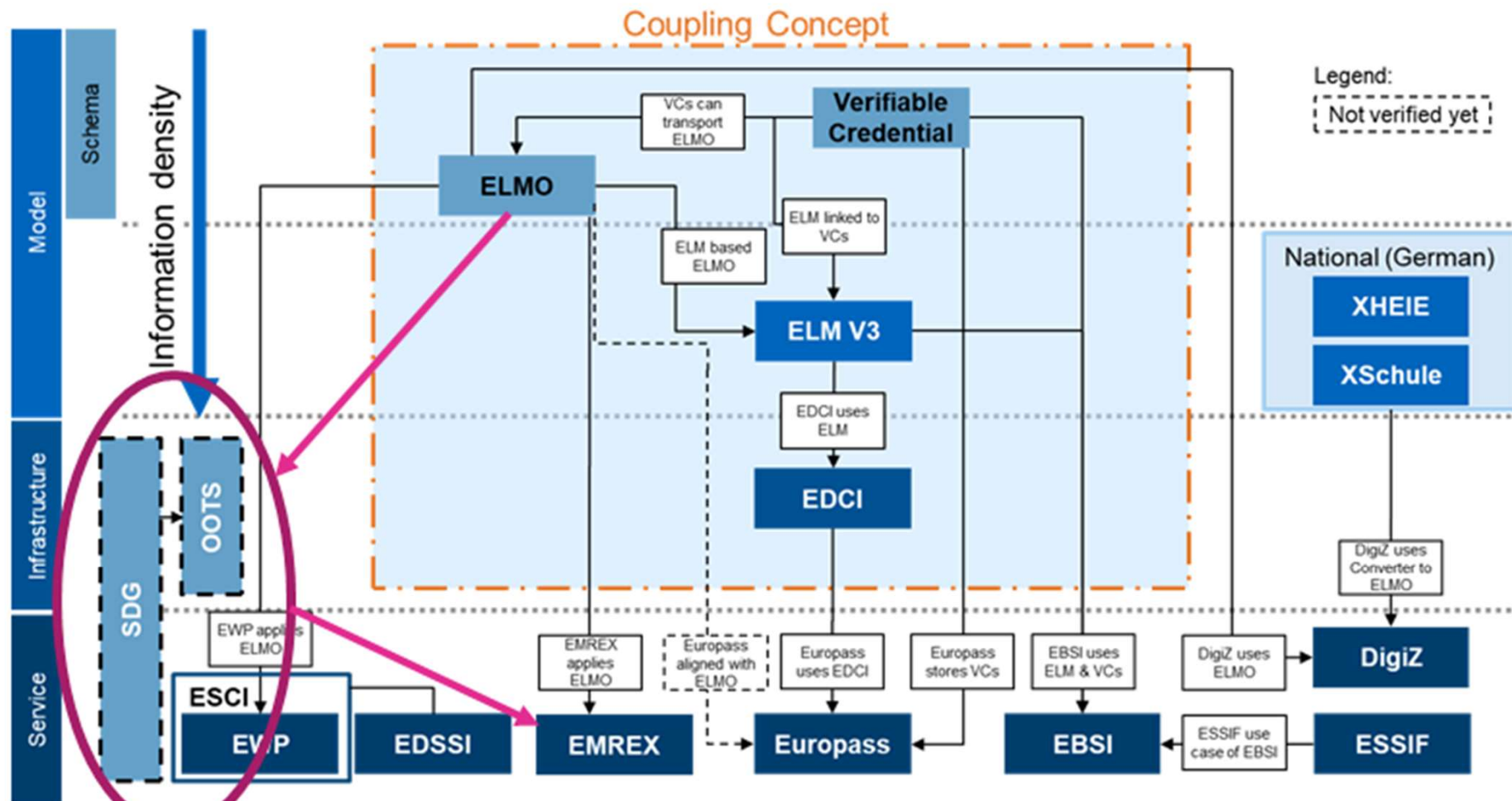
EMREX, eIDAS & eNotar – Security for Student Mobility



Interoperable Ecosystems in EU – with OOTS/EMREX bridge (ongoing)

- Results of the DiBiHo project (BMBF) and German Network of Digital Records (NDN):
 - First steps towards a European, technically interoperable ecosystem in the education sector have been taken
 - Most important data standards ELMO and ELM are semantically 100% equivalent
 - This means that education data can be transmitted across the most important transport systems (EMREX, Europass, EWP, ...)
 - Exceptions so far: SDG/OOTS and some national standards (such as German XBildung)
- The next evolutionary step is just around the corner:
 - Bridge between EMREX and SDG/OOTS systems (with semantic bridge between SDG Evidences and ELMO standard) is under development (DG DIGIT and EMREX, e.g DC4EU)
 - Converter between ELM and German data standard XBildung is planned

Interoperable Ecosystem in EU – with OOTS/EMREX bridge



Conclusion and Outlook

- Aiming for convergences in HEI/EDU cross border workflows from EU/DE projects - based on standards espec. in Security & Privacy
- eID/authentication (wallet): eIDAS 2.0 mandatory EU-wide
- Relieving users/admins: SDG/OOTS – with A2A admin services
- Collaborations/double spendings by wallets & SDG/OOTS: prio., trusted linking and signed hybrid containers
- Preserving eIDAS LoA / Security Levels: s. classification/flow models
- Integrating existing/proved services/infrastr. like EMREX:
 - connectors/converters, add. security features e.g. by eIDAS (EUNIS-workshop)

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