Verifiable Credentials for Education Task Force Call
Monday, July 17

Nikos Voutsinas

eDiplomas: The Greek Universities journey in digital degrees

GU net

Greek Universities Network

No-Profit Company founded by all Greek Universities in 2000
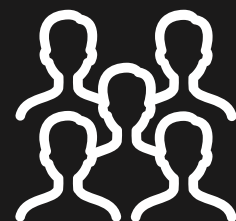
Goal : **Steering the digital transformation of Greek Universities**

- Software Provider
- Services Provider (SaaS & Managed Services)
- Design & Coordination of national initiatives
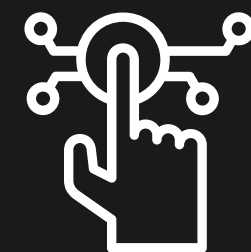- Knowledge sharing & Support

25 UNIVERSITIES

400K MEMBERS

30+ DIGITAL SERVICES

Services & Solutions Portfolio

Designed to enable the Digital Transformation Journey

- **Identity Management Solutions**

  Enable' digital identity in a connected, digital world

  GU IdM
  IDENTITY MANAGEMENT FOR UNIVERSITIES

  HARICA
  Qualified Trusted Service Provider

  eDiplomas

  UAuth
  MFA Authenticator

- **SIS & e-Learning Solutions**

  Enable student's enrollment and e-learing process

  open eclass
  e-learning platform

  universis
  Student Information System

  Opendelos.org
  e-learning Multimedia

- **e-government solutions**

  For government bodies beyond the Academia
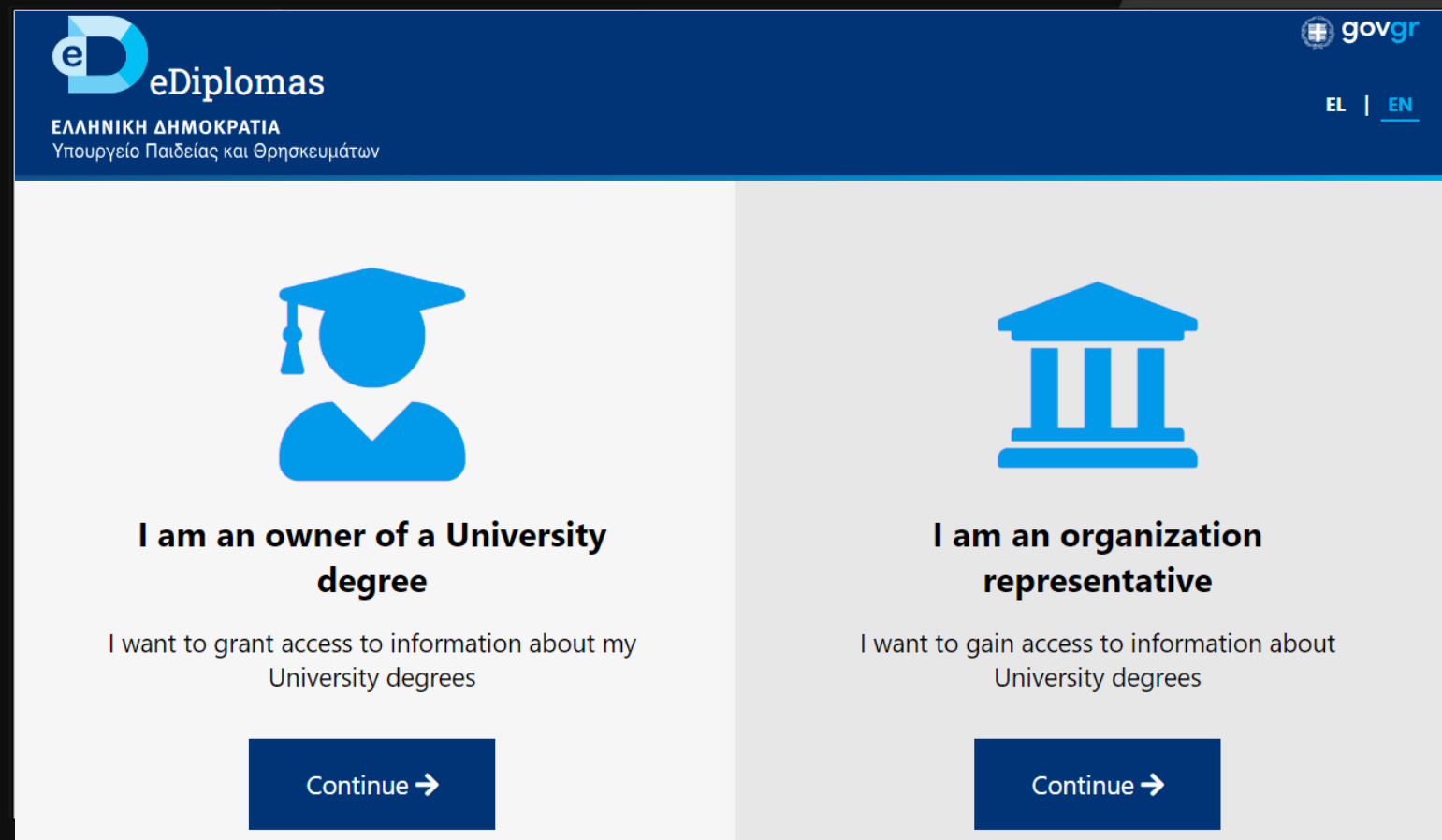
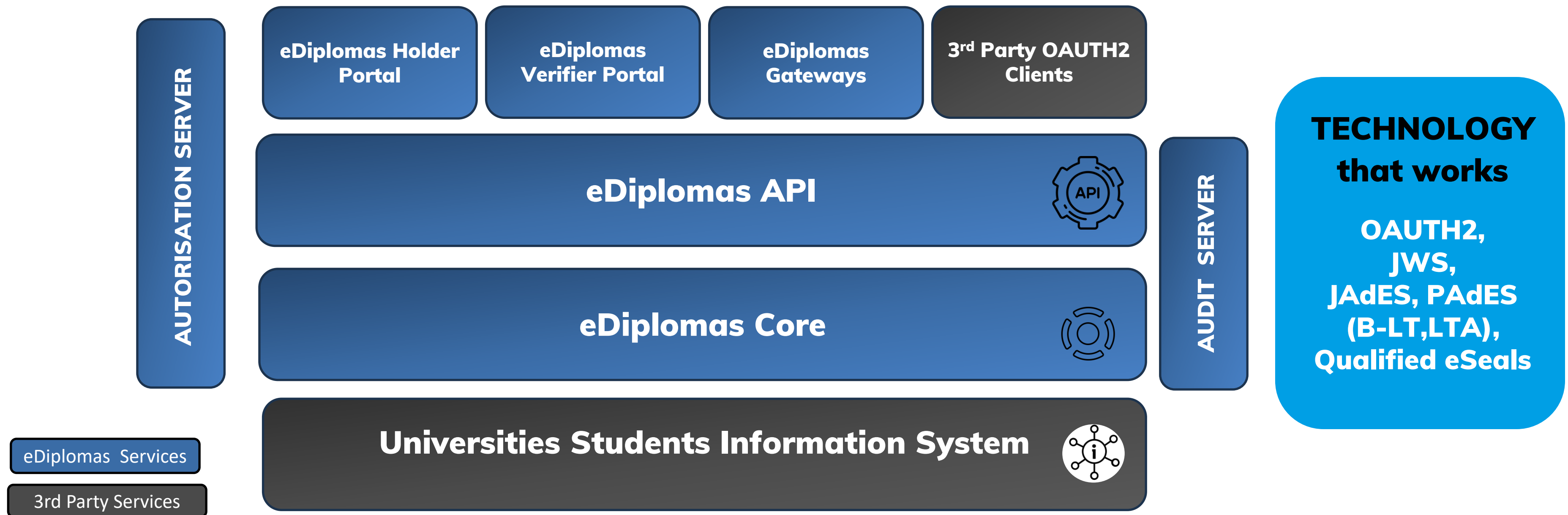 **egov KYC**

  Know You Customer
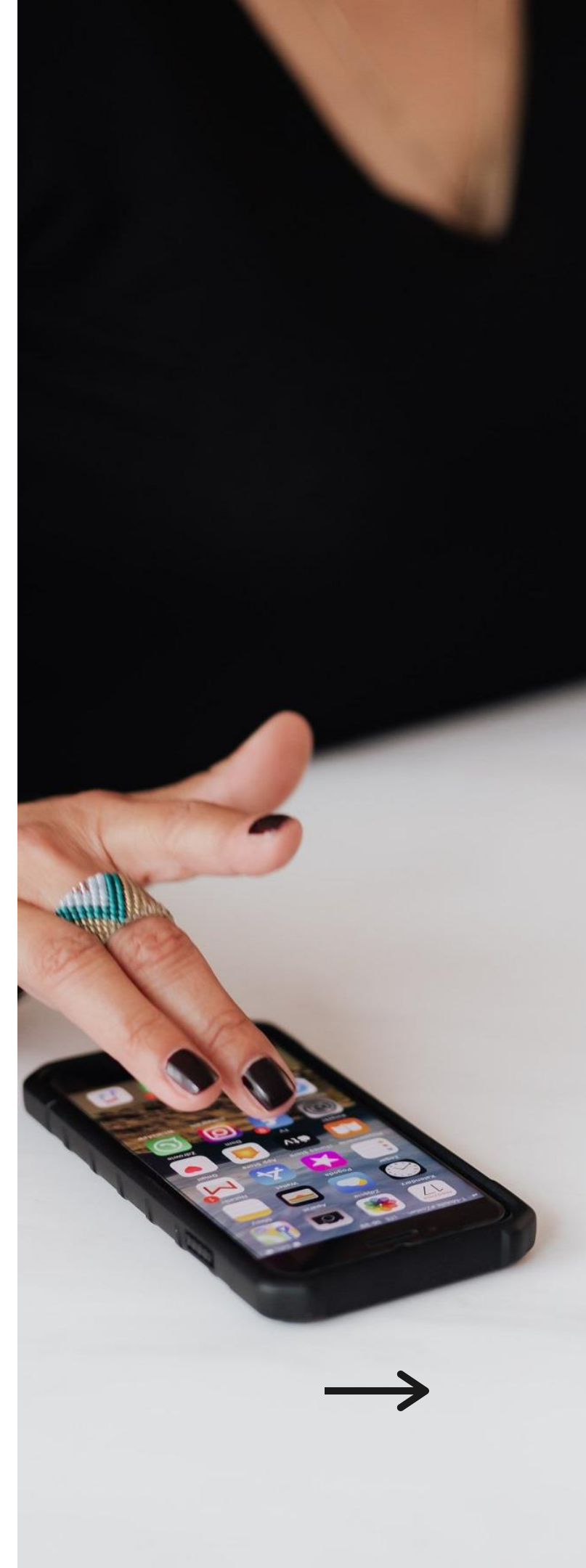
How we started (2018)

- **Re-establish the process of diplomas issuance and validation**, break free from document-based methods, without invalidating the legacy flows

- **Motivate all stakeholders**, make it easy, quick, secure and GDPR compliant

- **Leverage the benefits of the digital transformation,** establish common semantics and data structures, introduce new privacy enhancing technologies

- **Go production now,** be realistic with the enabling technologies, make room for innovation

eDiplomas 1st phase: Central Controller

AUTORISATION SERVER

eDiplomas Holder Portal	eDiplomas Verifier Portal	eDiplomas Gateways	3rd Party OAUTH2 Clients

eDiplomas API

eDiplomas Core

AUDIT SERVER

Universities Students Information System

eDiplomas Services

3rd Party Services

TECHNOLOGY that works

OAUTH2,
JWS,
JAdES, PAdES
(B-LT,LTA),
Qualified eSeals

Key Features

- Citizen's consent is required
- Selective disclosure via scopes
- Access history

- Login with National ID
- Diplomas matching with SSN
- University Remote eSeal Signing

- Real time issuance
- No diplomas are stored
- Ex-Officio checks / public sector

eDiplomas Blueprints

- Each diploma references a diploma blueprint via a persistent identifier

- Diploma blueprints should be available as (Linked) Open Data on a public registry

-

57
UNIVERSITIES*

774
DEPARTMENTS**

831
CURRICULUMS

1443
BLUEPRINTS

Currently 25   ** *Currently 450*

eDiplomas

Issuer Scope

Issuer Institution	University of Athens
Issuer Department	Department of Informatics
Level Level Scope	Bachelor or Equivalent
Fields of Education Fields Scope	Field1, Field 2
Title Title Scope	Diploma in Computer Science

PID Scope

Lastname	Doe
Firstname	John

Grade Scope

Grade (text)	Very Good
Grade (value)	7.89

Date Scope

Date Issued	17/12/2023
Valid From	11/10/2023

Blueprints Registry

HEI Data Sources

It's not just eDiplomas

https://register.ediplomas.gr

Registration and management of verifiers and client applications

https://support.ediplomas.gr

Ticketing platform for citizens to submit requests about missing diplomas or digitization errors

https://blueprints.ediplomas.gr

Management platform of Diploma templates (learning opportunities)
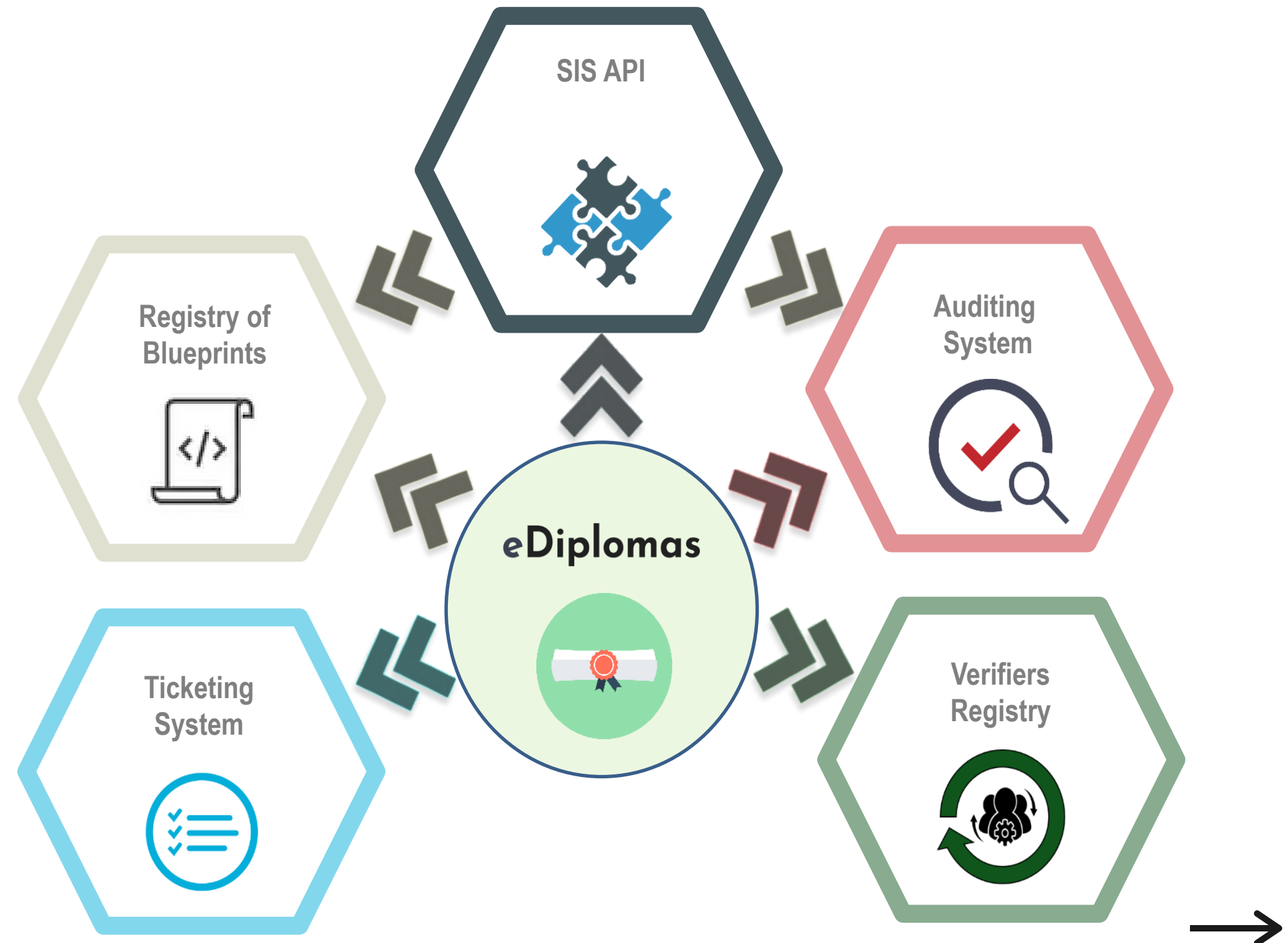
How it works

An overview of
eDiplomas use cases:
Graduate Role

→

How it works

An overview of
eDiplomas use cases:
Verifier Role

→

eDiplomas in numbers

https://ediplomas.gr/institutions

9+3
UNIVERSITIES ONLINE

150+
VERIFIERS

1400+
eDiplomas BLUEPRINTS

470K+
DIPLOMAS AVAILABLE

What we have achieved so far

With the current in-production version of eDiplomas we have managed to solve the most difficult part of the equation.

We have established a solid and battle-tested infrastructure and we are ready to plugin new technologies in order to support our future goals.
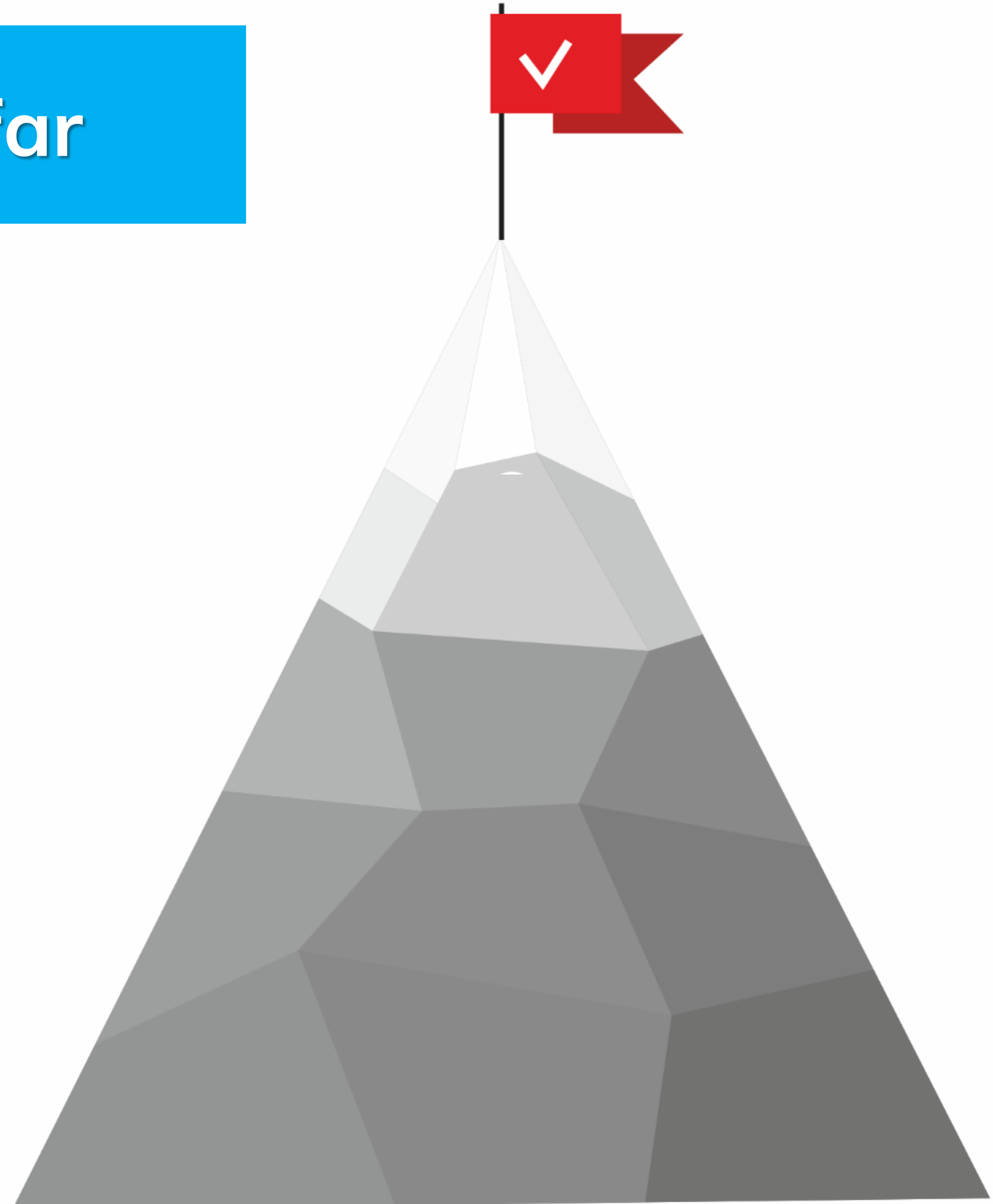
The Basic Building Block: European Learning Model
a single semantic vocabulary for learning in Europe
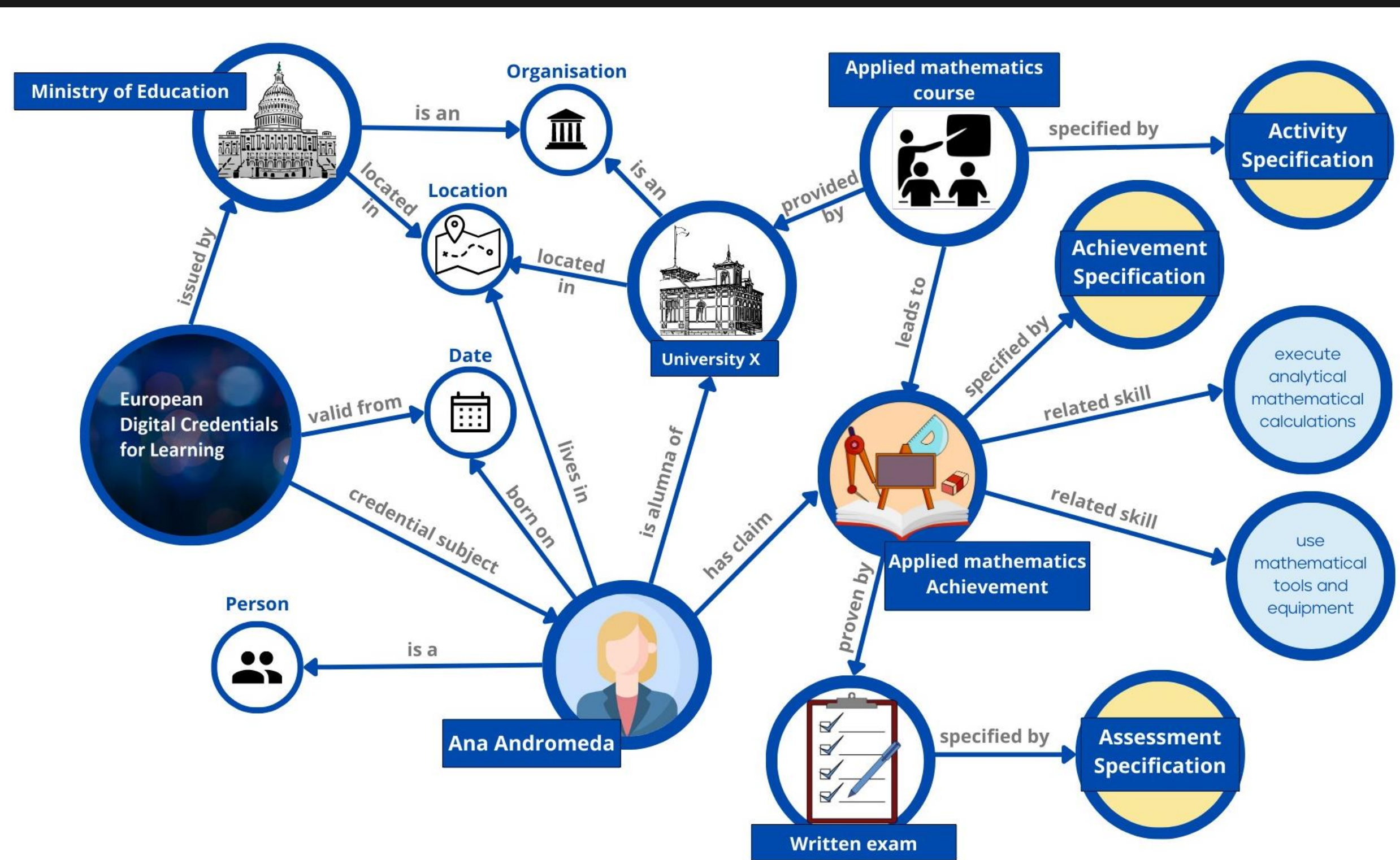
- ✓ Introduces an ontology
- ✓ Defines fixed terminology and a taxnomy
- ✓ Defines relations between concepts

ELM layers of concepts

1. Specifications
Specify what can be learned, what can be done, and how it can be assessed

2. Opportunities
Describe an offer by an organization to direct an activity which leads to a learning outcome (proven by an assessment)

3. Credentials
Describe a claim about an individual which includes the activities and the achievements proven by assessments

Learning Achievement	Learning Activity	Learning Assessment	Learning Entitlement
For example **completion of a course**	For example **completion of a Curriculum**	For example **course exam**	For example **the right to practice a profession**

Moving Forward

Verifiable Credentials Data Model v1.1

Decentralized Identifiers v1

Presentation Exchange v2

OpenID Connect for Verifiable Credentials Issuance

OpenID Connect for Verifiable Presentations

OpenID Connect Self Issued OpenID Provider v2

Jason Format for AdES Signatures (JAdES)

eID authentication and identification

Selective Disclosure JWT (SD-JWT)

IETF RFC 7515-7520

Education Ecosystem Overview

Early Adopters Program Wave 2
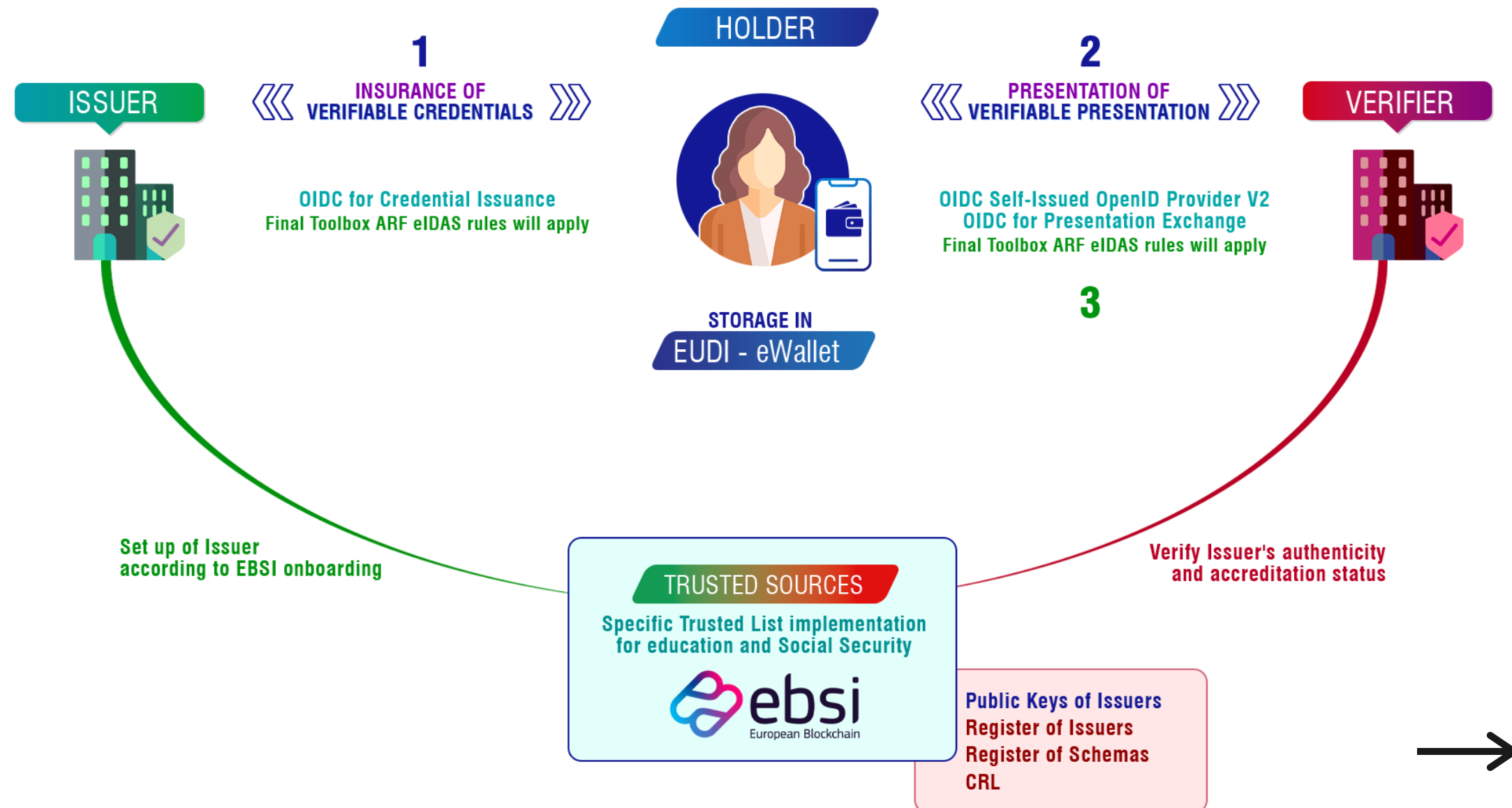
A student applies for a PhD with a bachelor/master degree from a foreign country

A graduate citizen applies for a job with a degree from another foreign country

Diploma use case

Participating countries:
🇧🇪 🇬🇷 🇫🇷 / 🇪🇺

National projects:
EBSI4RO ELEDGER fr.ebsi

National authority (Issuers of VID):
uefiscdi grnet MINISTÈRE DE L'ÉDUCATION NATIONALE ET DE LA JEUNESSE

Universities (Issuers of educational credentials):
UP1 National and Kapodistrian University of Athens Université de Lille

Wallet provider:
walt.id

Infrastructure:
ebsi

Diploma use case

Participating countries:
🇨🇾 🇬🇷 / 🇪🇺

National authority (VID):
Republic of Cyprus

National authority (License to Practice):
ETEK

Universities (Issuers of educational credentials):
National and Kapodistrian University of Athens eDiplomas

Wallet provider:
GOLDMAN

Infrastructure:
ebsi GOLDMAN GUnet

Early Adopters Program Wave 3

Introduces a new Trust Chain Model, Selective Disclosures via SD-JWTs as well as a mechanism for Revocations

Employment

A professional claims his educational credentials and certificate of employment and presents them anonymously to a recruiter platform. Following that claims a Certificate of Good Conduct from NL, and presents all his credentials to the HR department of his new job.
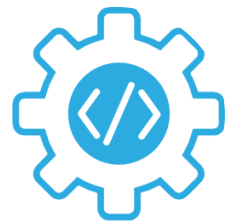
Formal Accreditation and Recognition

A graduate from the University of Athens Authenticates to the eDiplomas via his VID, claims his Bachelor's Diploma and Transcript of Records and applies for a Master Degree at the University of Lausanne

→

eDiplomas Wallet ecosystem

Easy to use

The Enterprise Verifier Core service was designed to work as an abstraction layer for the devolopers embracing the EBSI ecosystem.

Focus on What Matters

It lets you focus directly on the business logic of your application, reducing the time to production.

EBSI Conformant Wallet

Request and Present Credentials

Tested Device

☐ ‹› ☐ Cross Device   ☐ | ☐ Same Device

Application Type

☐ Mobile   ⊕ Web

→

OID4VCI Multiple Credentials of same type

Problem Statement

Verifiable Credential Issuance specification, currently can not handle the issuance of multiple credentials with the same type and format in a single flow

Suggested Solution

Extend the authorization_details array with the concept of additional identifiers for each credential type

.

```
[
    {
        "format": "jwt_vc_json",
        "types": ["VerifiableCredential", "AerospaceEngineering"]
        "identifiers": [
            { "id": "AERO-123-FluidMechanics-II-2023", "display": [ { "name": "Fluid Mechanics II" } ] },
            { "id": "AERO-631-SolidMechanics-IV-2023", "display": [ { "name": "Solid Mechanics IV" } ] }
        ]
    }
]
```

For more info visit: https://bitbucket.org/openid/connect/issues/1923/oid4vci-enable-issuance-of-the-same

Thank You

Phone Number

📞 +306932933048

Email Address

✉️ nvoutsin@gunet.gr

Website

🌐 www.gunet.com