

# Extending Open Badges With International Identity Standards

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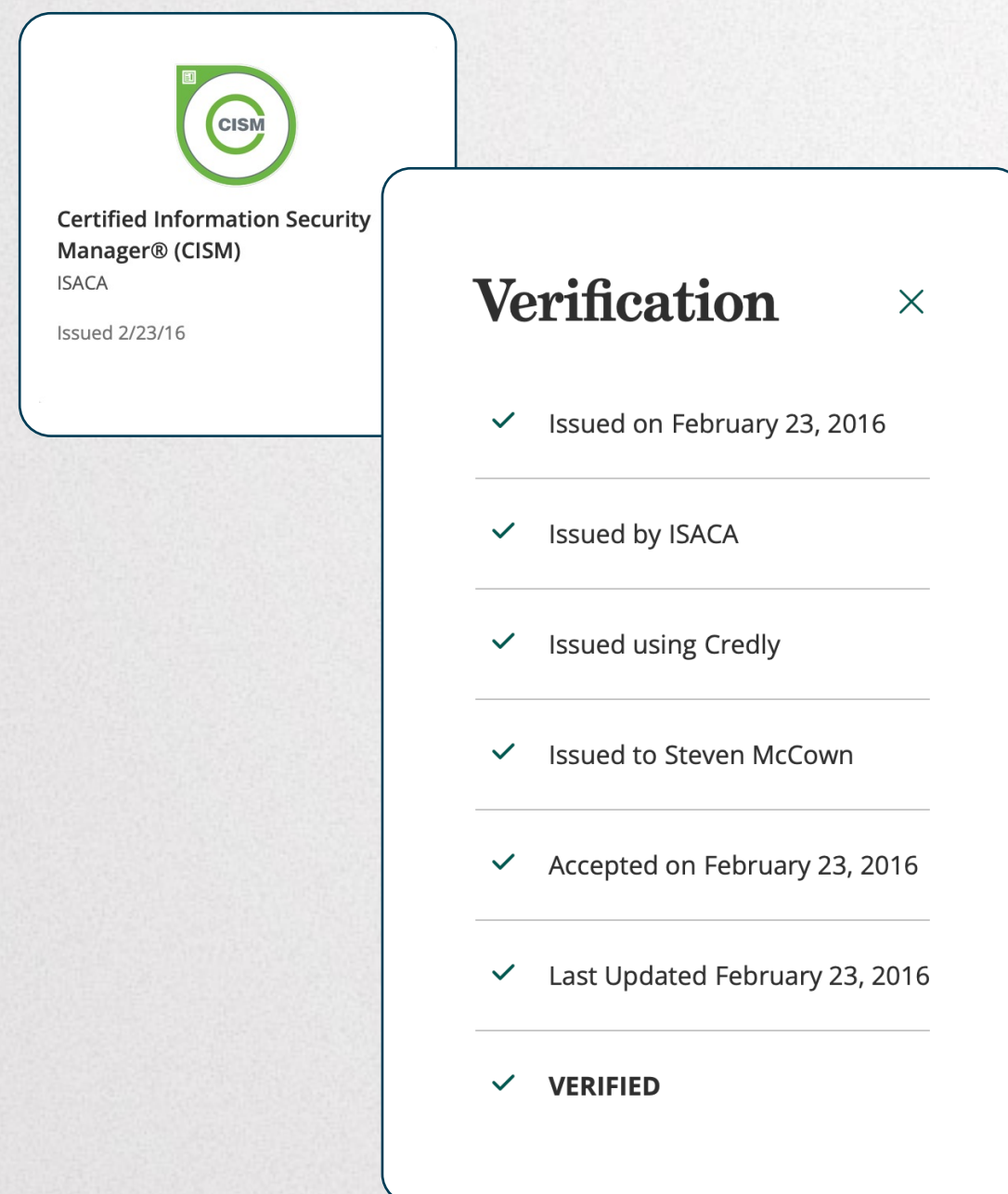
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# Open Badges 3.0: New Opportunities

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## Previous Versions

- Static references to certifications, degrees, etc.
- Resumes, LinkedIn, etc.
- Very useful functionality



## New Specification Format

- [W3C: Verifiable Credential Data Model](#)

## New Use Cases

- Activate the credentials
- Daily use
- On & Off Campus
- Expanded branding: during & after education

## Welcome to Decentralized Identity!



# Impactful Standards

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## **CLR**

Comprehensive Learner Record

Data model for learning and achievement assertions



## **OpenBadges 3.0**

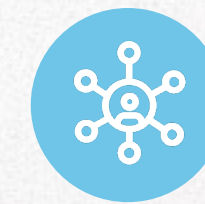
Leverages the Verifiable Credentials (VC) data model



## **W3C Verifiable Credentials Data Model**

Verifiable Credentials for Education Task Force Charter (VC-EDU)

Verifiable Credentials for Education, Employment, and Achievement Use Cases



## **IEEE P1484.2 – LER Ecosystem Standard**

Recommended Practices for Learning and Employment Record (LER) Ecosystems

IEEE Computer Society/Learning Technology Standards Committee (C/LTSC)

# Identity Industry – Quick Summary

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*"The Internet was built without an identity layer."*

~ Kim Cameron

Microsoft Chief Identity Architect

[The Laws of Identity](#), May 2005.

## Identity on the Early Internet...

- 'Identity' = login name + computer name / IP address
- Email address
- Insecure authentication

## Identity Community Today

- Creating a new interoperable identity layer
- Interoperable / open standards



- Uses: Issuer - Holder - Verifier model (like physical world)
- Strong, verifiable cryptography replaces physical 'watermarks'

# Identity Standards Organizations



# Decentralized Identifier Working Group

- Decentralized Identifiers (DIDs) v1.0
- DIDs are like a web addresses
  - Users make them ... and share them
- 2 Types
  - Public: on a Verifiable Data Registry
  - Peer DIDs (between 2 Holders)
- DIDs Point to DID Docs
  - Communication (address & protocols)
  - Security (public keys, auth / verification methods)
  - Data for Verifiable Credentials



```
{
  "rootext": "https://w3id.org/did-resolution/v1",
  "differentLookupMethods": {
    "contentType": "application/jsonld+json",
    "controller": "2024-05-27P21T14Z+02:00",
    "did": {
      "didUrling": "did:czechgml:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGN",
      "methodSpecificId": "PalyXpZ2A6cFxnHQ9KfNqMGN",
      "method": "cheqd"
    }
  },
  "didDocument": {
    "rootext": {
      "https://www.w3.org/ns/did/v1",
      "https://w3id.org/security/properties/ded5519-2020/v1"
    },
    "id": "did:czechgml:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGN",
    "verificationMethod": {
      {
        "id": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNKey",
        "type": "#E2D519FwfUicLookey#2020",
        "controller": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGN",
        "publicKeyJwkIbase": "t8Wk4rYjovkvObUvSd8pqrGOMbSLdoCkL1W3tr0eCa"
      }
    ],
    "authentication": [
      "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNKey"
    ],
    "service": [
      {
        "id": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNWebSite",
        "type": "Linkedomina",
        "serviceEndpoint": {
          "https://www.cheqd.io"
        }
      },
      {
        "id": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNnon-fungible-image",
        "type": "Linkedomina",
        "serviceEndpoint": {
          "https://gateway.ipfs.io/ipfs/bafybeihbetj2og34h7574atx9zsd876eqptvrls4dntet1baexraz25m"
        }
      },
      {
        "id": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNTwitter",
        "type": "Linkedomina",
        "serviceEndpoint": {
          "https://twitter.com/cheqd_io"
        }
      },
      {
        "id": "did:cheqd:mainnet:PalyXpZ2A6cFxnHQ9KfNqMGNLinkedIn",
        "type": "Linkedomina",
        "serviceEndpoint": {
          "https://www.linkedin.com/company/cheqd-identity/"
        }
      }
    ]
  },
  "didDocumentMetadata": {
    "created": "2022-04-07T14:49:15Z",
    "versionId": "efade3cf-cfe5-11ea-abab-371269d7401d"
  }
}
```

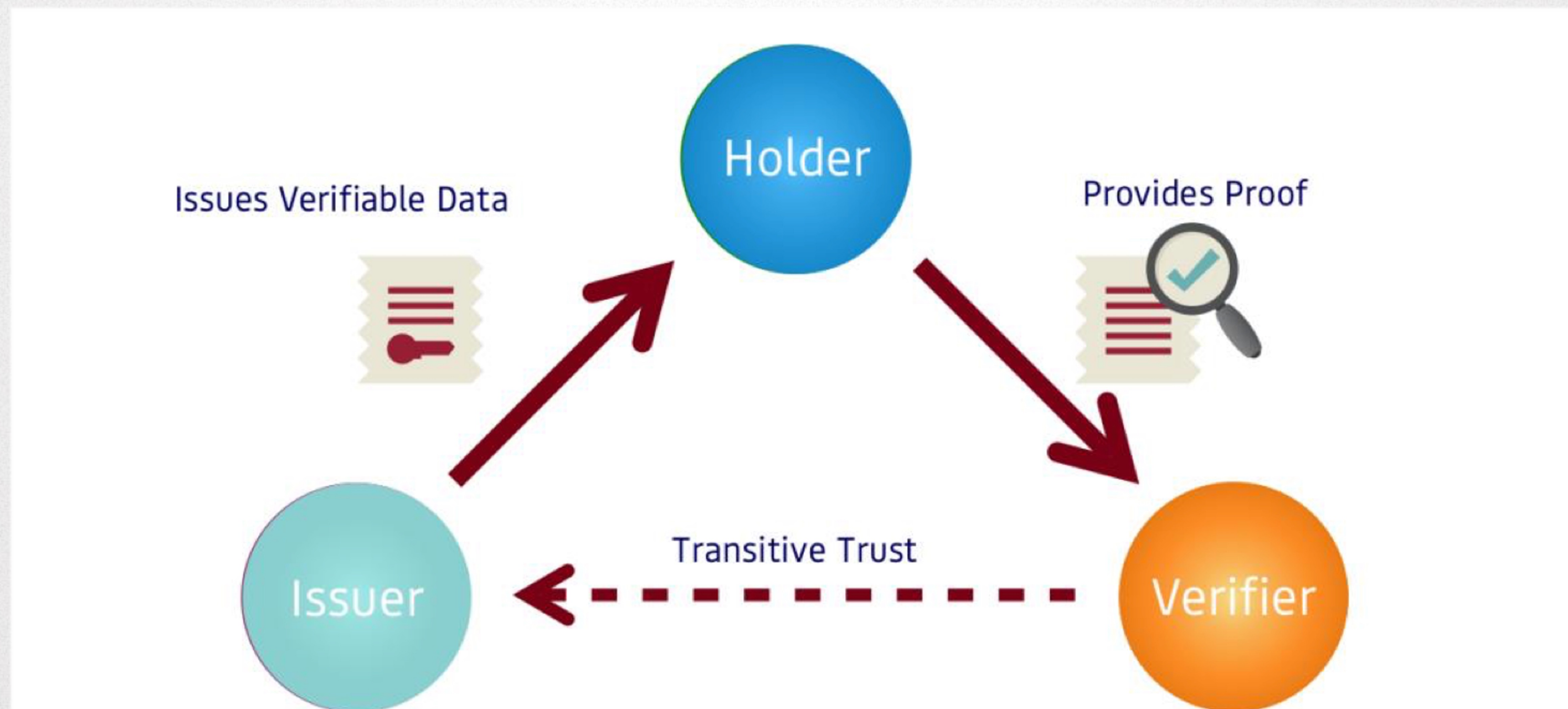
# Identity Standards Organizations

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## Verifiable Credentials Working Group

- [Verifiable Credentials Data Model v2.0](#)



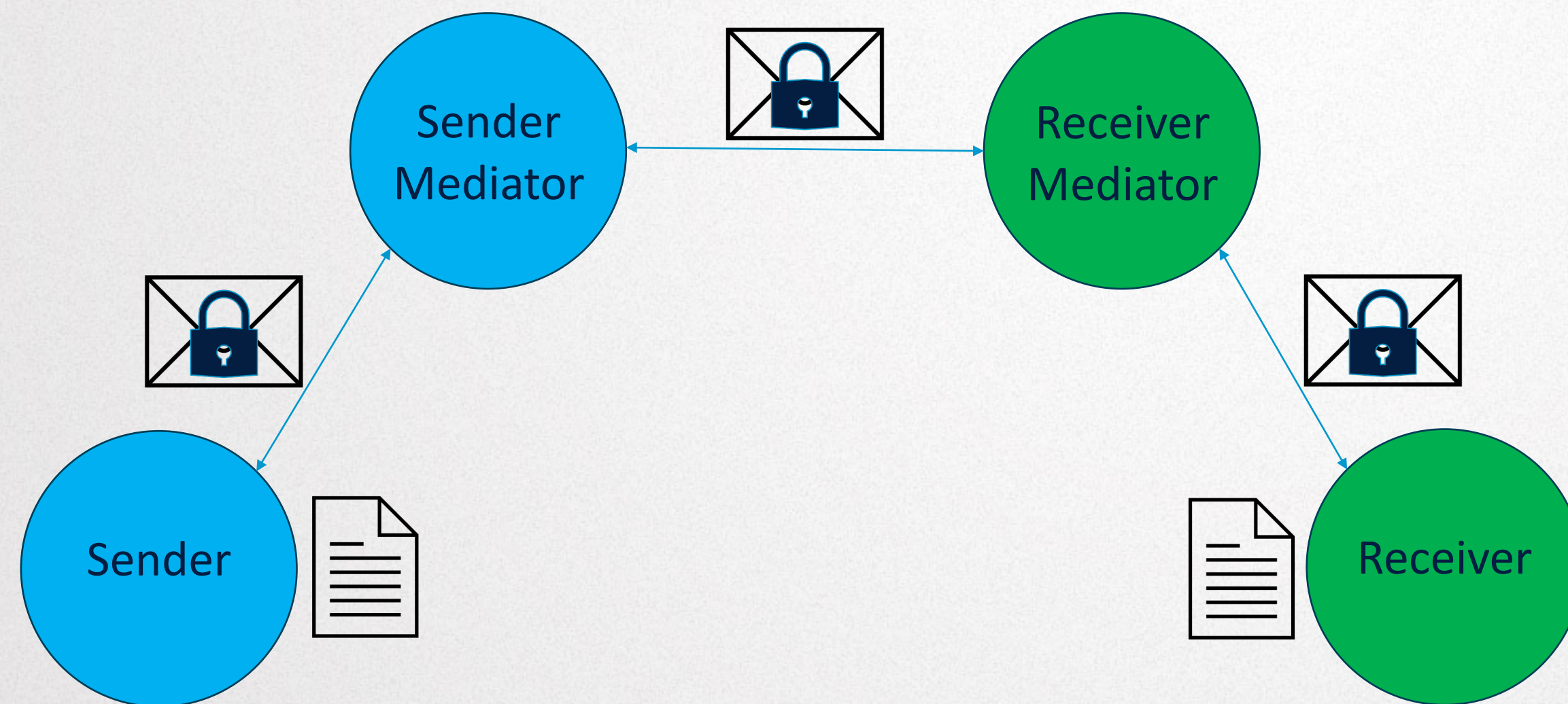
# Identity Standards Organizations



**DIF**

## DID Communications Working Group

- [DIDComm Messaging v2.x](#)
- DID-based cryptographic communication protocol



### Bonus:

- [OpenIDIDComm](#): OpenID verification can spawn DIDComm connection!

Plaintext Message

```
{
  "id": "1234567890",
  "type": "<message-type-uri>",
  "from": "did:example:alice",
  "to": ["did:example:bob"],
  "created_time": 1516269022,
  "expires_time": 1516385931,
  "body": {
    "message_type_specific_attribute": "and its value",
    "another_attribute": "and its value"
  }
}
```

Encrypted Message

```
{
  "ciphertext": "WCufCs2lMZfkxQ0JCK92lPtLFgwWk_FtRWOMj52bQI...",
  "protected": "eyJlcGsiOnsia3R5IjoIRUMiLCJjcniYiOiJQLTI1NiI...",
  "recipients": [
    {
      "encrypted_key": "ZIL6LeIigq1Xps_229nlo1xB_tGx0EVoe...",
      "header": {
        "kid": "did:example:bob#key-p256-1"
      }
    }
  ],
  "tag": "nIpa3EQ29hgCkA2cBPde2HpKXK4_bvmL2x7h39rtVEc",
  "iv": "mLqi1bZLz7VwqtVVFSDiLg"
}
```

# Interoperability & Privacy Choices

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## Interoperability & Privacy Choices of Open Badges 3

- W3C Verifiable Credentials Data Model (VCDM)
  - Selective Disclosure
  - Zero Knowledge Proofs?
- DID Method Resolution
  - Verifiable Data Registry (VDR) types
  - Interoperability with various VDRs
- Issuance Methods
  - Cloud Wallet – good online interactions
  - Holder Wallet – expanded in-person capabilities



Websites



Centralized  
Ledger



Blockchain

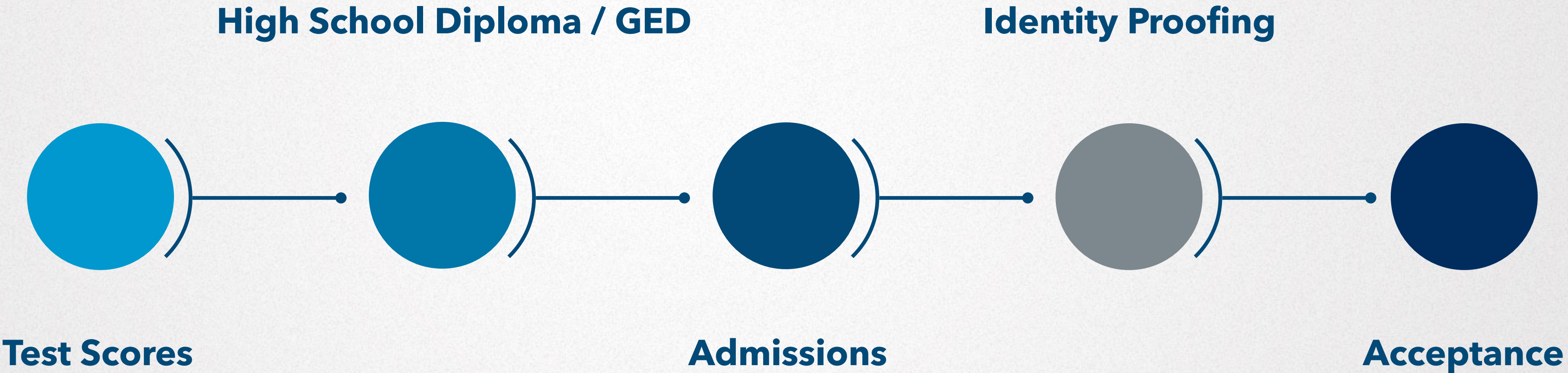


Secure  
Cloud Storage

***Significant interoperability potential beyond the education space***

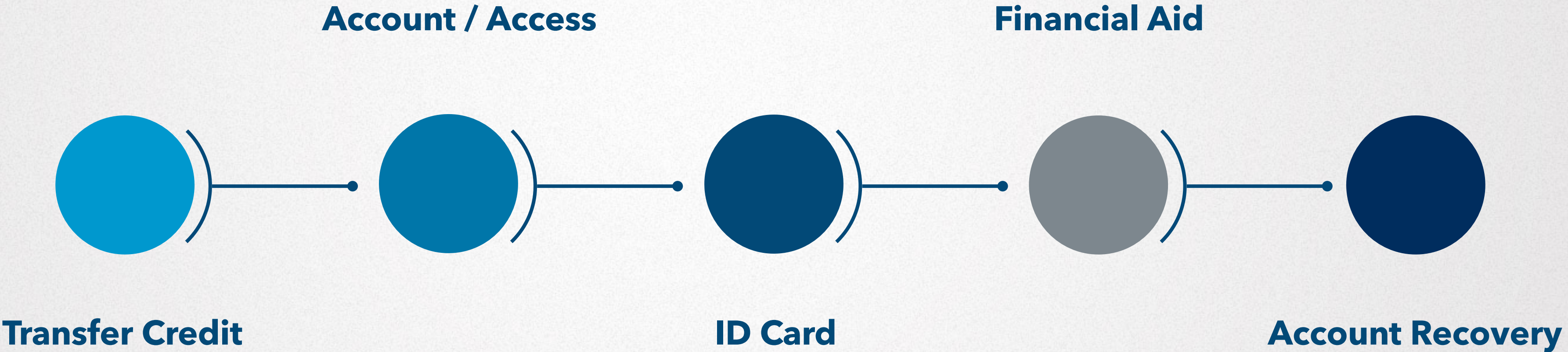
# Learner Journey

A Verifiable Credential Context



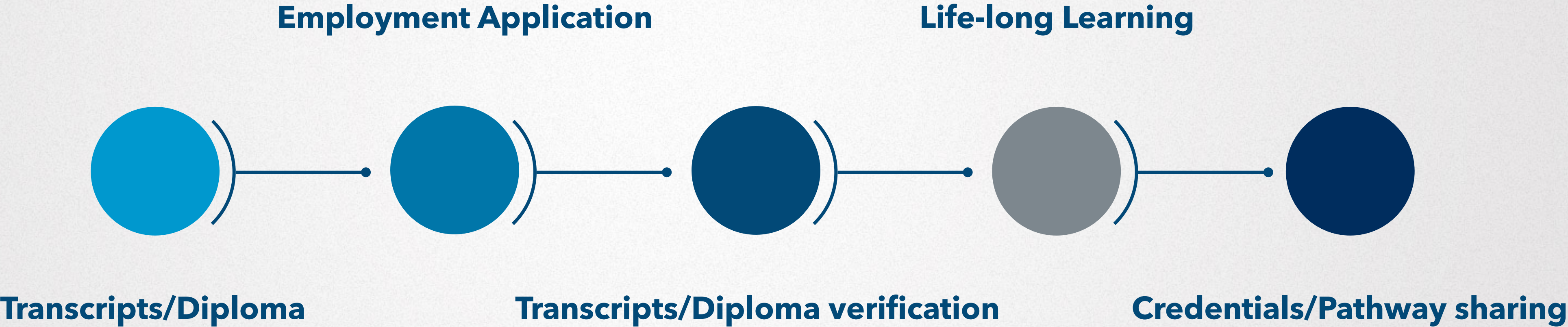
# Learner Journey

A Verifiable Credential Context



# Learner Journey

A Verifiable Credential Context



# Diploma/Transcripts

## Assertion

Diplomas, certificates, transcripts, and other achievements are issued and certified by the institution.

## Reputation

Institutions have a reputation for certificates, diplomas, and academic data they assert about individuals.

## Privacy

Reliable data directly from the individual. Privacy enhancing because the individual knows what data is released to the verifier.

## KYC

Academic verifiable credentials could be used by organizations for “Know Your Customer” processes.

## Diploma Verification

Digital verifiable credentials streamline processes for verifiers and provides higher confidence and trust in the data.

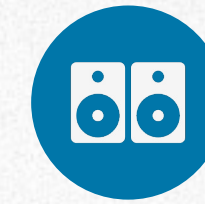
# Southeastern Regional Talent Ecosystem Pilot

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## States of Tennessee and Alabama

Partnership that offers the ability for individuals to seamlessly share their learning and employment records across states



## Advanced Manufacturing

Pilot will focus on students and jobseekers in the Advanced Manufacturing sector



## CLR

Tennessee Board of Regents (TBR) Comprehensive Learner Record (CLR) ecosystem  
Alabama's Talent Triad



## Credential Portability

AACRAO facilitated  
TBR (LER) Cred Wallet (Tennessee)  
MyEBSCOed wallet (Alabama)  
Interoperable digital credential system

# New Use Cases ... and Branding Opportunities

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## Artifacts or Credentials?

- Not just for graduates – *incoming Freshmen need them too!*

## Use On Campus

- Class sign-ups
- Online homework submission
- Bookstore
- Testing Center
- Gym
- University Rentals
- E2EE Communication
  - Teacher - Student
  - Student - Student
  - Study Groups

## Use Off Campus

- Student discounts
- Restaurants
- Book Rentals
- Rental property / payments
- Job Boards
- LinkedIn

## Don't forget the Alumni

- Alumni discounts
- Bookstore purchases
- University Contributions
- Directory

# **Want to Collaborate?**

COME JOIN THE STANDARDS WORKGROUPS

# QUESTIONS AND ANSWERS



# Thank You!

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