U.S. Citizenship and Immigration Services

U.S. Digital Immigration Credentials

Encouraging Innovation, Ensuring Diversity, and Enabling a Global Ecosystem

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Why Digital Credentials?

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- USCIS issues high-value, authoritative credentials to immigrants and non-immigrants in the United States
- This is where the world is going, where the agency is going, and what our Customers expect when it comes to ease and convenience
- Ability to issue, renew, extend and revoke digital credentials in a standardized manner
- Complements our physical credentials; does not replace them

Why Now?

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- Existence and maturity of open, global standards that enable our Customers to have visibility into, and control of their interactions
  - As a benefit-granting agency with global reach, using open standards to ensure broad acceptability and usage of our credentials is critical for USCIS
  - We now have multi-year experience and expertise in contributing to, supporting and learning from the open, global standards development and implementations
- Global interoperability of solutions is an important consideration to prevent technology/vendor lock-in

USCIS Implementation Priorities

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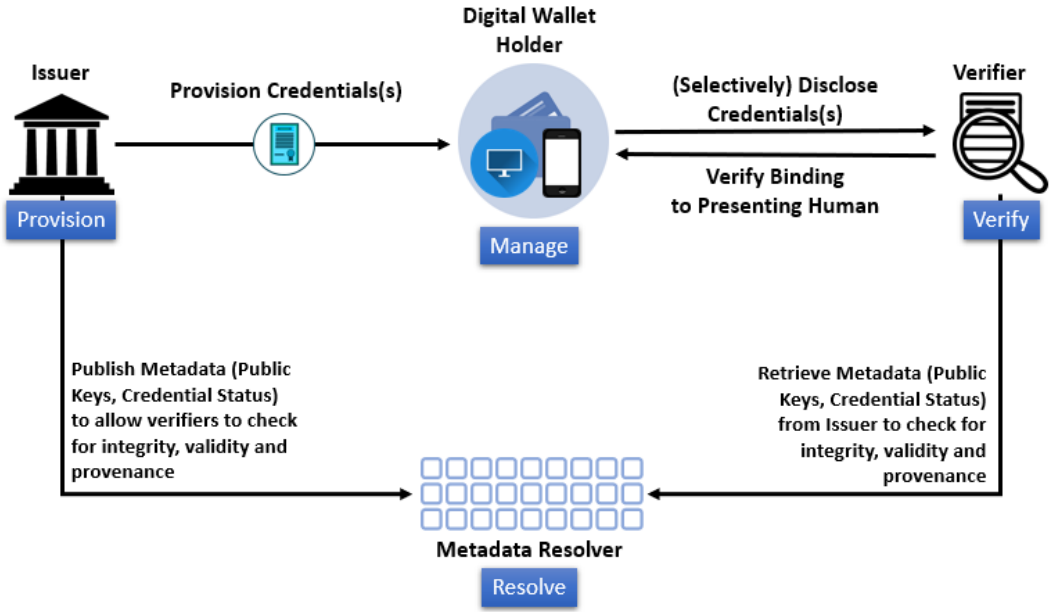
- Not a requirement; **a choice!**
  - Starting with the digital Permanent Resident Card (PRC), immigrants will be invited to request a digital version when they receive the physical credential
  - Immigrant can continue to conduct all Government transactions with their existing physical credential
- **Eliminate "phone home"** architecture/technology/implementations
- **Eliminate "back-channel" interactions** between verifiers of the credential and the issuer (USCIS) which are not visible to the credential holder
- **Support for selective disclosure** capabilities to provide the holder of the credential granular control over what information they can share and when
- Encourage and support a plurality of **independent, interoperable, standards-based implementations** to counter vendor/technology lock-in, and mitigate perverse incentives that accrue market power to entities that can result in a gatekeeper functionality between the Government and its customers

USCIS Implementation Standards

W3C Verifiable Credentials & W3C Decentralized Identifiers



- The W3C VC Data Model Standard identifies an abstract component called a "Verifiable Data Registry" which in our implementation we refer to as a "Metadata (or Public Key) Resolver"
- USCIS supports and require a Bring-Your-Own-W3C-DID-in-Digital-Wallet in our implementation

W3C VC/DID architecture is an evolution of existing models that:

- Enables an individual to have control over their data
- Addresses the "phone home" problem
- Provides selective disclosure capability with informed consent
- Solves the issue where an identifier serves as both entity identifier and an authenticator (i.e. Social Security Number)
- Supports global resolution of an Issuer's identifier to its public key(s) & their retrieval
- Encourages an open ecosystem with multiple implementations to foster competition

US Immigration Credential Ecosystem

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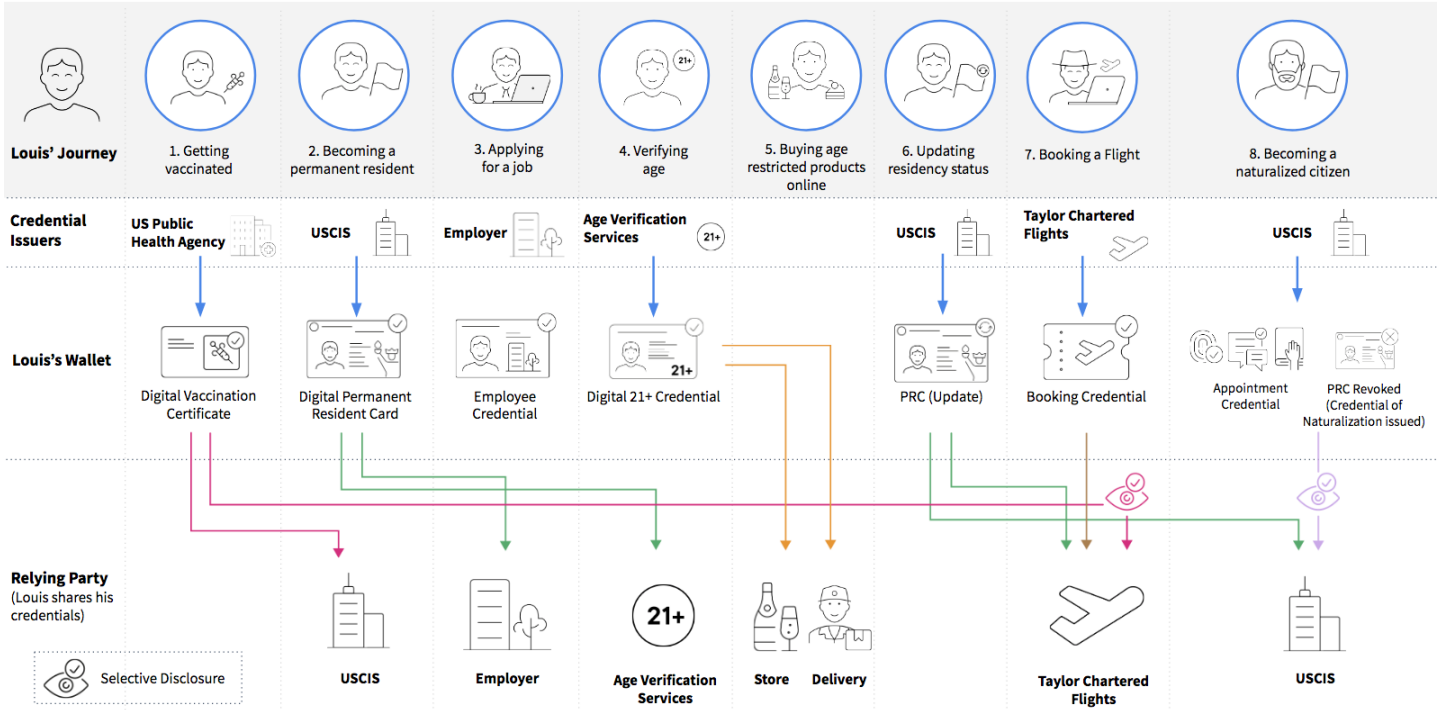

- **Interactions between the Immigrant and Government**
- **Interactions between the Immigrant and the private sector**

Online or In-Person Presentation Digital Permanent Resident Card

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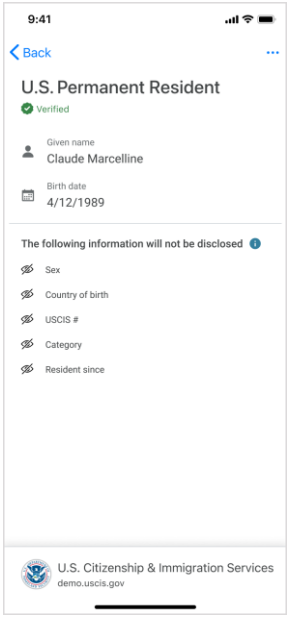

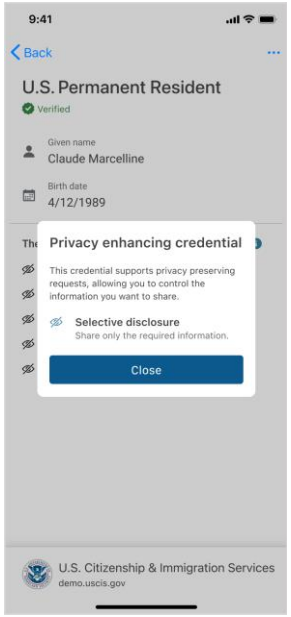

Citizenship Vocabulary v0.3

A Linked Data vocabulary for expressing attributes related to citizenship

```
{
  "@context": [
    "https://www.w3.org/2018/credentials/v1",
    "https://w3id.org/vc-revocation-list-2020/v1",
    "https://w3id.org/citizenship/v1",
    "https://www.uscis.gov/prc/digital/v1"
  ],
  // specify the identifier for the credential
  "id": "https://vc-issuer.uscis.gov/credential/prc/83627465",
  // the credential type which declares what data to expect in the credential
  "type": ["VerifiableCredential", "PermanentResidentCard"],
  // the entity that issued the credential
  "issuer": "did:web:www.uscis.gov:green-card",
  // alternate identifier used by the Issuer of the credential
  "identifier": "83627465",
  // when the credential was issued
  "issuanceDate": "2019-12-03T12:19:52Z",
  // when the credential expires
  "expirationDate": "2028-02-26T00:00:00Z",
  // discover current status of the credential
  "credentialStatus": {
    "id": "https://vc-issuer.uscis.gov/credential/prc/status/3#94567",
    "type": "RevocationList2020Status",
    "revocationListIndex": "94567",
    "revocationListCredential": "https://vc-issuer.uscis.gov/credential/prc/status/3"
  },
  // claims about the subject of the credential
  "credentialSubject": {
    // identifier for the only subject of the credential
    "id": "did:approved-did-method:b34ca6cd37bbf23",
    // assertions about the only subject of the credential
    "type": ["PermanentResident","Person"],
    "givenName": "TEST",
    "familyName": "SPECIMEN",
    "gender": "M",
    "image": "...kJggg==",
    "residentSince": "2015-01-01",
    "lprCategory": "C09",
    "lprNumber": "000-000-204",
    "commuterClassification": "C1",
    "birthCountry": "Bahamas",
    "birthDate": "1958-08-17"
  },
  // digital proof to make the credential tamper-evident
  "proof": {
    // the cryptographic signature suite used to generate signature
    "type": "RsaSignature2018",
    // the date the signature was created
    "created": "2020-01-30T03:32:15Z",
    // purpose of the proof
    "proofPurpose": "assertionMethod",
    // the identifier of the public key that can verify the signature
    "verificationMethod": "did:web:www.uscis.gov:green-card#public-key-1",
    // the digital signature value
    "jws": "eyJhbGciOiJFZERTQSIsI...wRG2fNmAx60Vi4Ag"
  }
}
```

https://www.w3.org/TR/did-core/
https://www.w3.org/TR/vc-data-model/
https://w3c-ccg.github.io/citizenship-vocab/

Global Support for W3C VCs & DIDs

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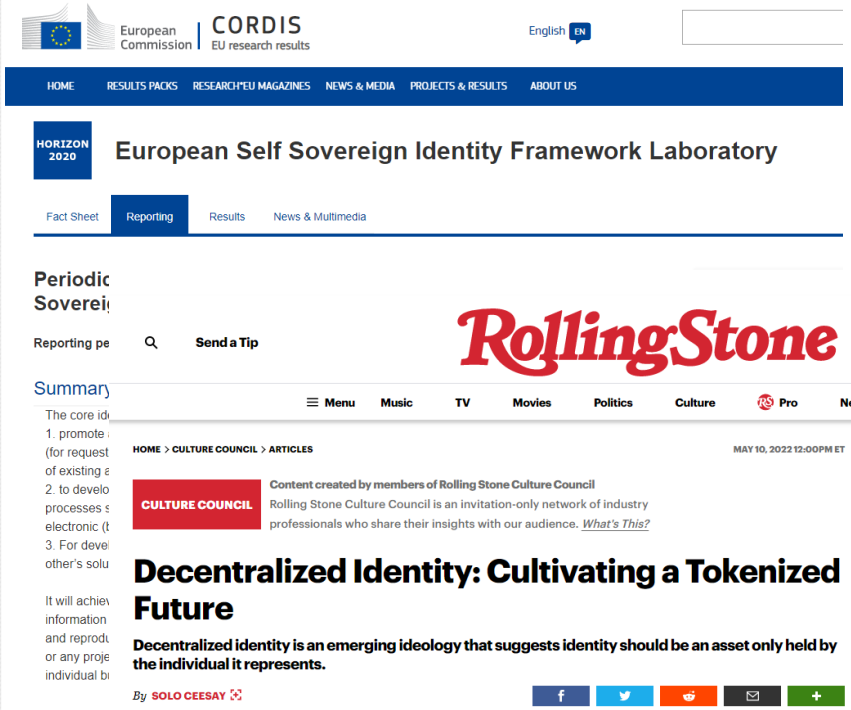

Global acceptance and usage of W3C VC and DID Standards …

- by Governments (Canada, EU, Germany, New Zealand etc.) and
- the Private Sector (Microsoft, NACS, Square/Block etc.) of …

… interoperability standards, technologies and approaches funded, refined, used and championed by DHS over the last 7+ years

US-Canada Collaboration
USCIS & CBP <> TBS & ISED

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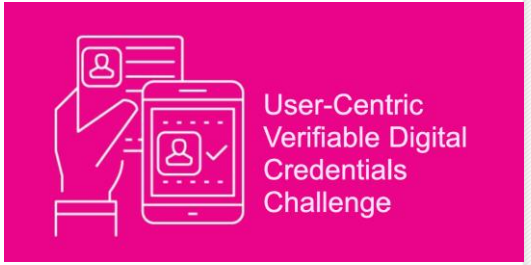
Homeland Security

DHS S&T Silicon Valley Innovation Program (SVIP)

PREVENTING FORGERY & COUNTERFEITING OF CERTIFICATES AND LICENSES

Other Transaction Solicitation Call
70RSAT19R00000002



https://canada-ca.github.io/ucvdcc/

Opportunity to work together on:

- Approaches to accept digital credentials issued by other Countries for benefits adjudicated by USCIS
- Open and common security, privacy and interoperability baselines for digital wallets
- Enabling wallet choice and selection capabilities for individuals
- Enabling cryptographic agility in verifiable credential solutions

Delivering an Operational Capability

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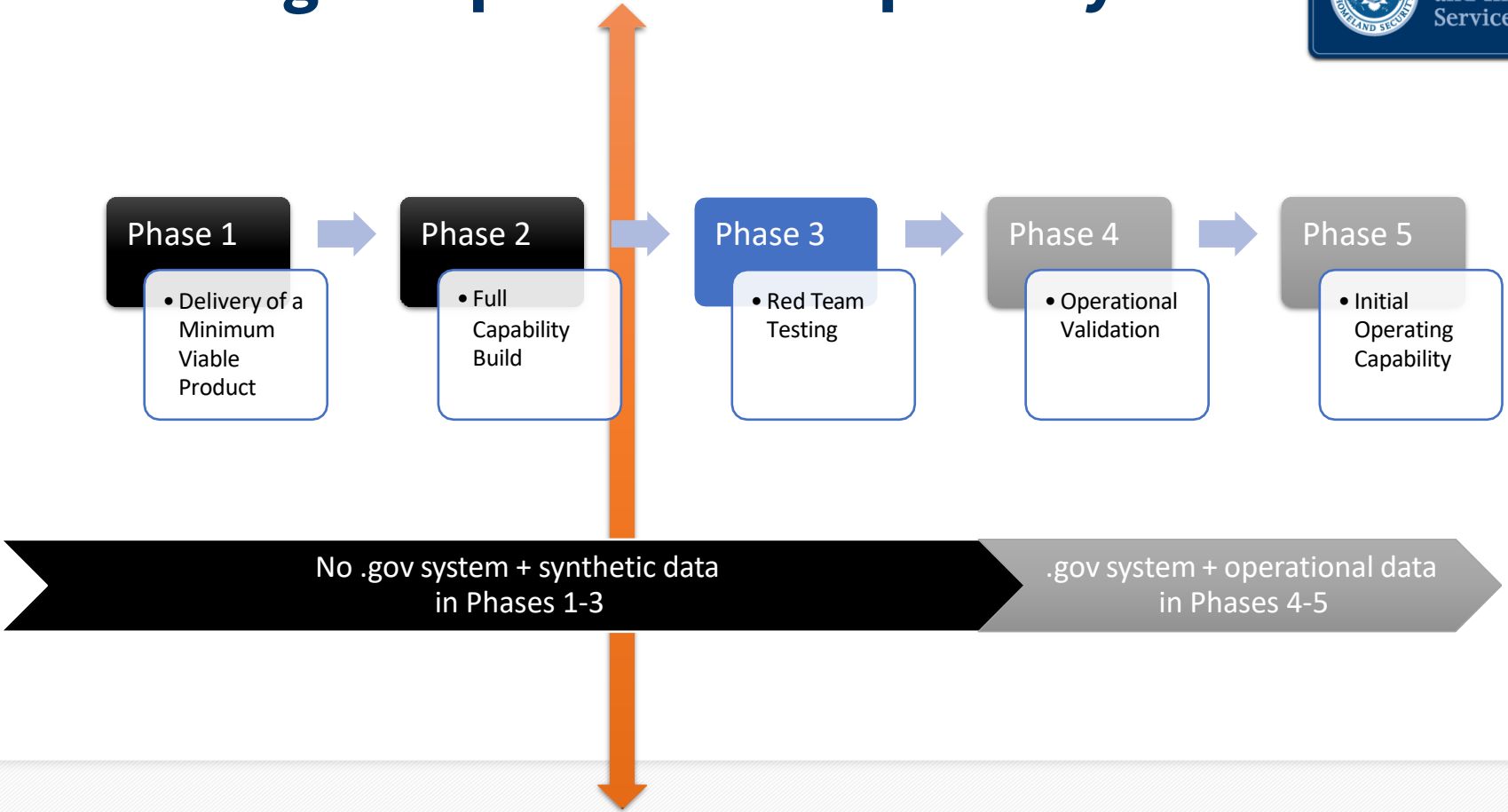

Thank You