Blockchain
&
Identity Management

Government Blockchain Association

www.GBAglobal.org

Introduction - GBA

- Non-Profit Membership Organization
- Membership includes:
  - Civil servants in over 500 government offices globally
  - Private sector companies of all sizes
  - Professional members
  - Student members
- Over 50 working groups
  - Consisting of world-renowned experts
  - Creating opportunities for all members to
  - Connect, Communicate and Collaborate

Introduction – GBA (Continued)

- Dedicated Identity Management Working Group:
  - Works with the many identity management organizations, frameworks and standards
- Events
  - Weekly & Monthly Online Events
    - Meeting of the GBA ID Management Working Group
    - Blockchain & Crypto for State & Local
    - The State of Cryptocurrency
    - Government Blockchain Public Forum

Blockchain & Identity Management/Digital Identity: The Value Proposition

Blockchain & Identity Management

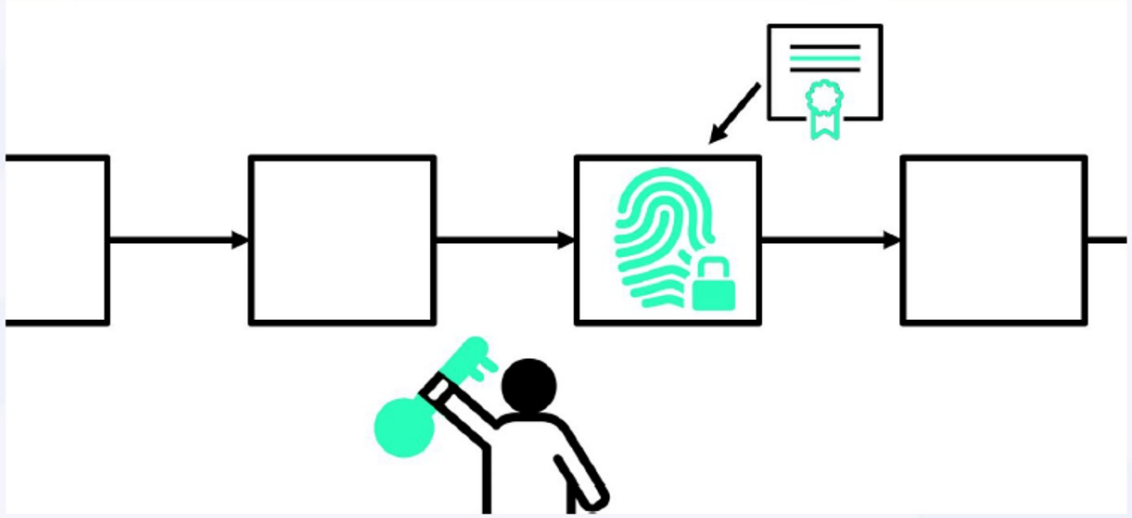
WEB 3.0 WAY OF DOING THINGS

Decentralized Identity

Blockchains and DLTs aren't perfect, but they're the **best**, stablest, and most production-ready system we have today for publishing user-managed cryptographic keys **at scale**.

Different systems optimize for different variables (performance, privacy, total cost of ownership, forward-stability) but there are always **trade-offs**.

Some **innovative** work (such as KERI, Sidetree, web KMS and DKMS) are pushing the key-management envelope on other ways.



From Transmute and Decentralized Identity Foundation –
Introduction to Decentralized Identity & Self-Sovereign Identity
Internet Identity Workshop #IIW33 | OCT 2021

Blockchain for Identity

https://consensys.net/blockchain-use-cases/digital-identity/

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Why do we need Blockchain for Identity?

Blockchain identity management systems could be used to eradicate current identity issues such as

- Inaccessibility
- Data insecurity
- Fraudulent identities

Inaccessibility

Approximately 1.1 billion people around the world have no proof of identity, and 45% of those without an identity are among the poorest 20% on the planet. Cumbersome identification paperwork processes, expenses, lack of access, and the simple lack of knowledge around personal identity are primary roadblocks that keep over a billion individuals outside of traditional identification systems. Without possessing physical identities, one cannot enroll in school, apply for jobs, get a passport, or access many governmental services. Having an identity is crucial to gaining access to the existing financial system. Conversely, 60% of the 2.7 billion unbanked people already own mobile phones, which paves the way for blockchain-based mobile identity solutions which better suit the needs of vulnerable citizens.

Data Insecurity

At present, we store our most valuable identification information on centralized government databases supported by legacy software operate with numerous single points of failure. Large, centralized systems containing the personally identifiable information (PII) of millions of user accounts are incredibly appealing to hackers. A recent study shows that personally identifiable information is the most targeted data for breaches, comprising 97% of all breaches in 2018. Despite regulatory legislation and enterprise efforts to increase cybersecurity, 2.8 billion consumer data records were exposed at an estimated cost of more than $654 billion in 2018.

Fraudulent Identities

Additionally, the user's digital identity landscape experience is exceptionally fragmented. Users juggle various identities associated with their usernames across different websites. There is no standardized way to use the data generated by one platform on another platform. Furthermore, the weak link between digital and offline identities makes it relatively easy to create fake identities. Fake identities create fertile ground for the phenomena of counterfeit interaction, which can help in the perpetration of fraud and lead to inflated numbers and lost revenue. In society, this vulnerability facilitates the creation and dissemination of evils like "fake news," which poses a potential threat to democracy.

Due to the increasing sophistication of smartphones, advances in cryptography and the advent of blockchain technology, we have the tools to build new identity management systems; digital identity frameworks based upon the concept of decentralized identifiers (DIDs) – potentially including a new subset of decentralized identities known as self-sovereign identity (SSI).

United Nations | Department of Economic and Social Affairs
Sustainable Development

Home | SDG Knowledge | Intergovernmental Processes | HLPF | SIDS | Partnerships | Engage | News | About

Goals

16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Target

16.9

By 2030, provide legal identity for all, including birth registration

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16 PEACE, JUSTICE AND STRONG INSTITUTIONS

PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

PLEAS FOR
GLOBAL PEACE
GROW LOUDER
WORLD IS WITNESSING LARGEST NUMBER OF VIOLENT CONFLICTS SINCE 1946
AND
A QUARTER OF THE GLOBAL POPULATION
LIVES IN CONFLICT-AFFECTED COUNTRIES (END 2020)

1/3 OF THE WORLD'S POPULATION
MOSTLY WOMEN
FEAR WALKING ALONE IN THEIR NEIGHBOURHOODS **AT NIGHT**

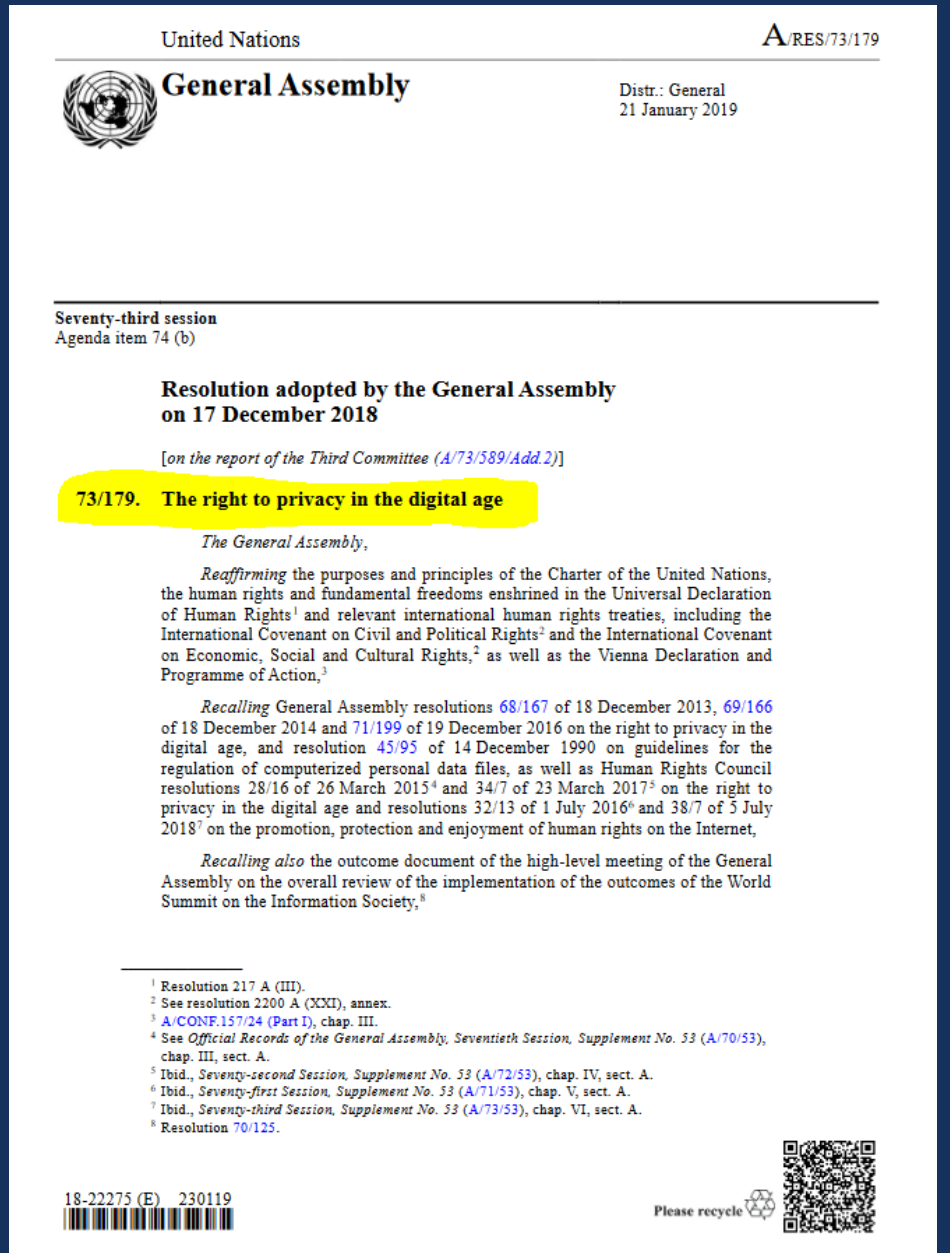
A RECORD
100 MILLION PEOPLE
HAD BEEN **FORCIBLY DISPLACED** WORLDWIDE (MAY 2022)

GLOBAL HOMICIDE RATE DECLINED
5.2% BETWEEN 2015 AND 2020
FALLS SHORT OF THE **"SIGNIFICANT REDUCTION"** BY 2030 TARGETED IN THE SDGs

CORRUPTION IS FOUND IN EVERY REGION
ALMOST **1 IN 6** BUSINESSES HAVE RECEIVED BRIBE REQUESTS FROM **PUBLIC OFFICIALS**

THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2022: UNSTATS.UN.ORG/SDGS/REPORT/2022/

UN Resolution: The right to privacy in the digital age



United Nations A/RES/73/179

General Assembly

Distr.: General
21 January 2019

Seventy-third session
Agenda item 74 (b)

Resolution adopted by the General Assembly on 17 December 2018

[*on the report of the Third Committee (A/73/589/Add.2)*]

73/179. The right to privacy in the digital age

The General Assembly,

Reaffirming the purposes and principles of the Charter of the United Nations, the human rights and fundamental freedoms enshrined in the Universal Declaration of Human Rights[1] and relevant international human rights treaties, including the International Covenant on Civil and Political Rights[2] and the International Covenant on Economic, Social and Cultural Rights,[2] as well as the Vienna Declaration and Programme of Action,[3]

Recalling General Assembly resolutions 68/167 of 18 December 2013, 69/166 of 18 December 2014 and 71/199 of 19 December 2016 on the right to privacy in the digital age, and resolution 45/95 of 14 December 1990 on guidelines for the regulation of computerized personal data files, as well as Human Rights Council resolutions 28/16 of 26 March 2015[4] and 34/7 of 23 March 2017[5] on the right to privacy in the digital age and resolutions 32/13 of 1 July 2016[6] and 38/7 of 5 July 2018[7] on the promotion, protection and enjoyment of human rights on the Internet,

Recalling also the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society,[8]

[1] Resolution 217 A (III).
[2] See resolution 2200 A (XXI), annex.
[3] A/CONF.157/24 (Part I), chap. III.
[4] See *Official Records of the General Assembly, Seventieth Session, Supplement No. 53* (A/70/53), chap. III, sect. A.
[5] Ibid., *Seventy-second Session, Supplement No. 53* (A/72/53), chap. IV, sect. A.
[6] Ibid., *Seventy-first Session, Supplement No. 53* (A/71/53), chap. V, sect. A.
[7] Ibid., *Seventy-third Session, Supplement No. 53* (A/73/53), chap. VI, sect. A.
[8] Resolution 70/125.

18-22275 (E) 230119

Please recycle

Blockchain & Identity Management/Digital Identity: Benefits

Blockchain & Identity Mgmt/Digital Identity

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Decentralization:

Blockchains can increase the security and privacy of digital identity, as personal information is not stored in a centralized location that could be vulnerable to hacking or other forms of attacks.

Blockchain & Identity Mgmt/Digital Identity

Immutability:

Information stored on a blockchain is tamper-proof and cannot be modified once added. This feature can ensure authenticity and integrity of the data stored, making it suitable for supporting identity management control processes.

Blockchain & Identity Mgmt/Digital Identity

Transparency:

Blockchains allow for transparency in the way information is shared and validated, making it possible to track the history of a digital identity, who owns it and how it has been used.

Blockchain & Identity Mgmt/Digital Identity

Self-Sovereign Identity:

Blockchains can support identity management systems where individuals have full control over their personal data. They can choose to share it or not, and with whom. This can enable the creation of self-sovereign identity, allowing individuals to use a single digital identity to access multiple services

Blockchain & Identity Mgmt/Digital Identity

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Interoperability:

Blockchains-based identities can be linked to other digital identities across difference platforms.

Decentralized Identifiers (DIDs) v1.0

Core architecture, data model, and representations

W3C Recommendation 19 July 2022

§ 1.2 Design Goals

This section is non-normative.

Decentralized Identifiers are a component of larger systems, such as the Verifiable Credentials ecosystem [VC-DATA-MODEL], which influenced the design goals for this specification. The design goals for Decentralized Identifiers are summarized here.

Goal	Description
Decentralization	Eliminate the requirement for centralized authorities or single point failure in identifier management, including the registration of globally unique identifiers, public verification keys, services, and other information.
Control	Give entities, both human and non-human, the power to directly control their digital identifiers without the need to rely on external authorities.
Privacy	Enable entities to control the privacy of their information, including minimal, selective, and progressive disclosure of attributes or other data.
Security	Enable sufficient security for requesting parties to depend on DID documents for their required level of assurance.
Proof-based	Enable DID controllers to provide cryptographic proof when interacting with other entities.
Discoverability	Make it possible for entities to discover DIDs for other entities, to learn more about or interact with those entities.
Interoperability	Use interoperable standards so DID infrastructure can make use of existing tools and software libraries designed for interoperability.
Portability	Be system- and network-independent and enable entities to use their digital identifiers with any system that supports DIDs and DID methods.
Simplicity	Favor a reduced set of simple features to make the technology easier to understand, implement, and deploy.
Extensibility	Where possible, enable extensibility provided it does not greatly hinder interoperability, portability, or simplicity.

Blockchain & Identity Mgmt/Digital Identity

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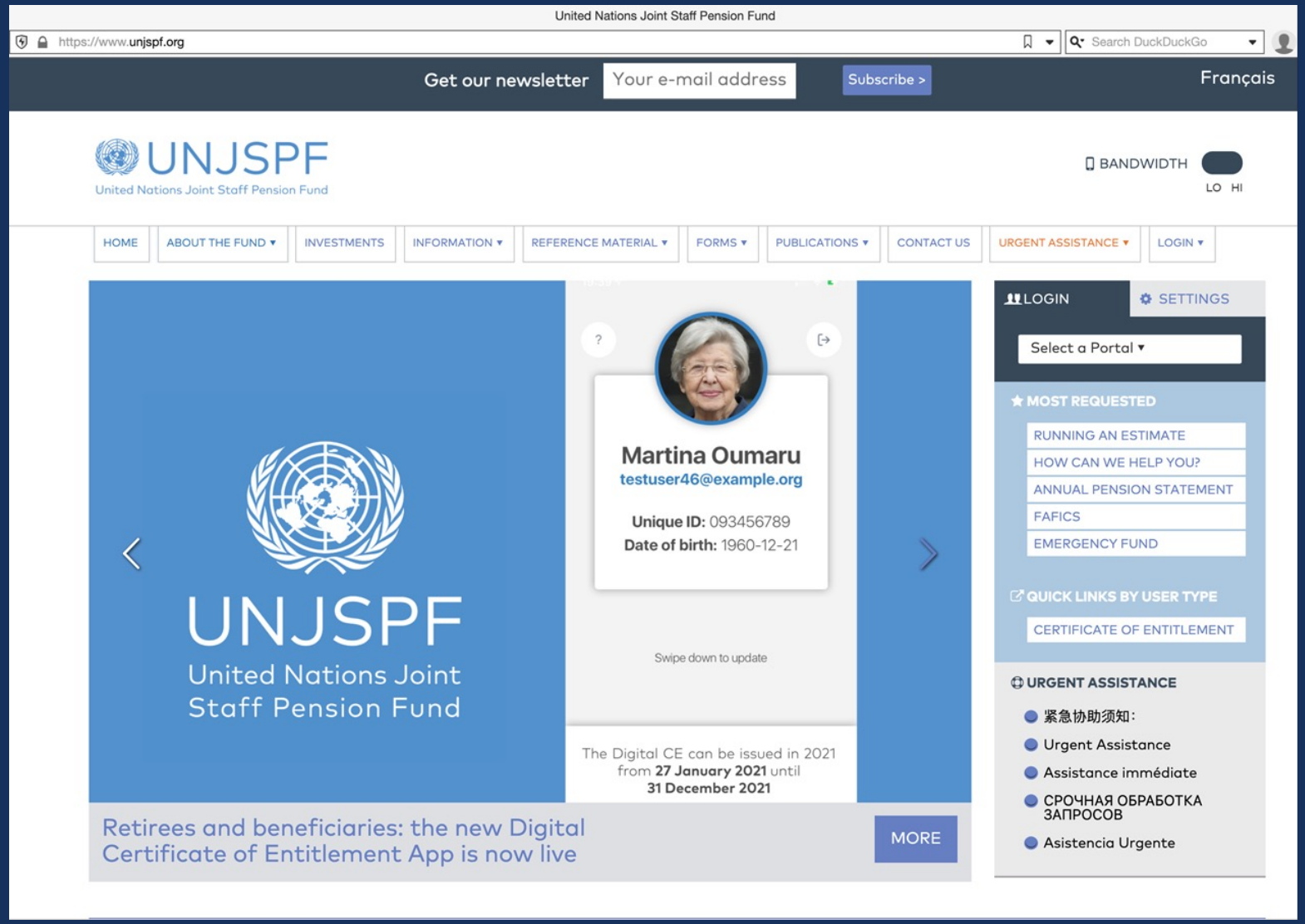
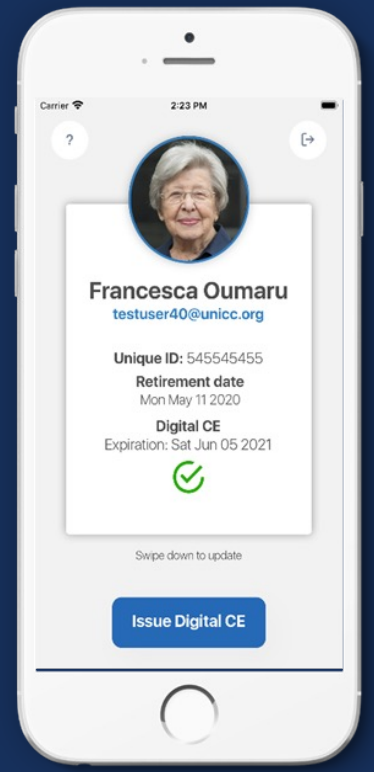
Access Control:

Blockchains can be used to controls access to resources based on user roles and permissions. This could be implemented by using smart contracts, where the access to a resource is granted or denied based on specific attributes and credentials of the user.

Real Case Examples: The Digital ID solution of the United Nations Joint Staff Pension Fund





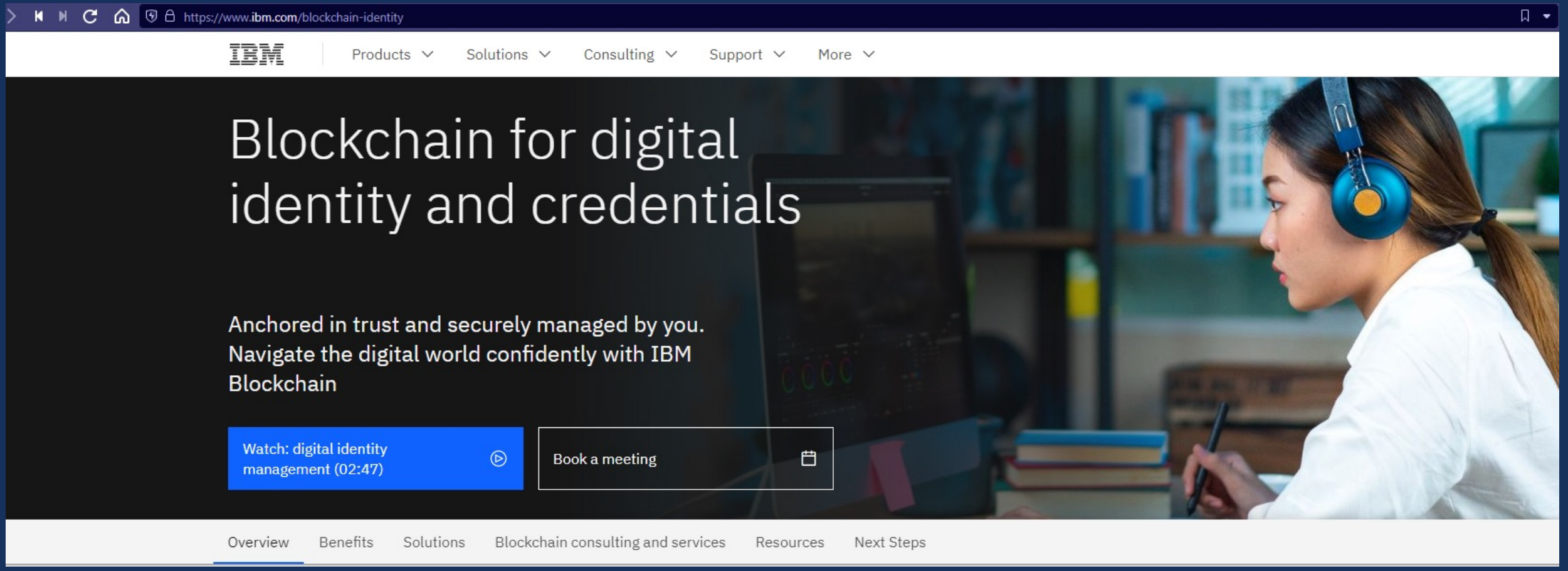
Real Case Examples: EarthID, India, UK, US Decentralized identity

EarthID is a multi-award-winning decentralized Identity platform that enables organizations to issue and verify digital identity and credentials securely and seamlessly.

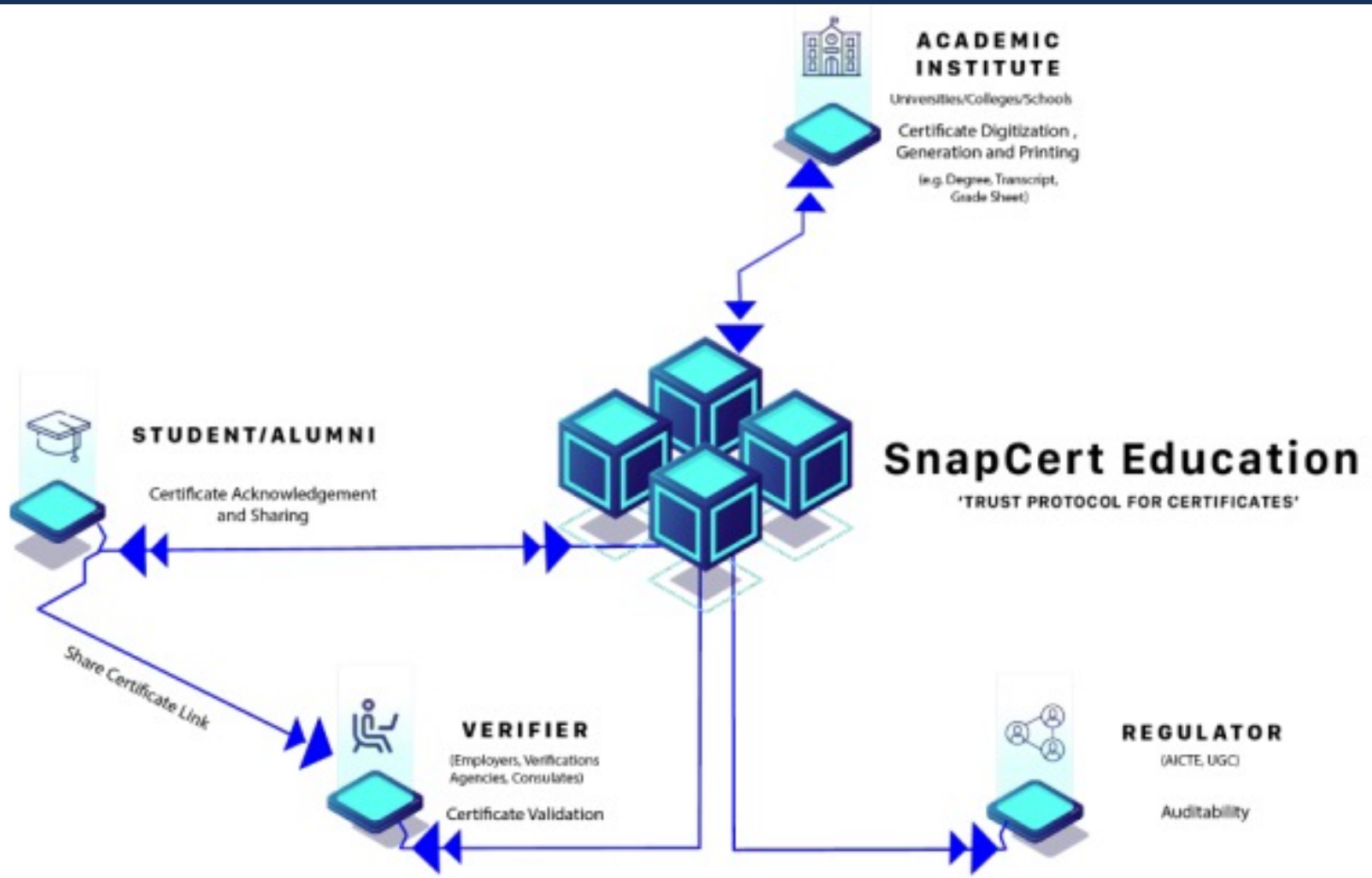
www.myearth.id priya@myearth.id

Earth iD
Decentralized Identity

Real Case Examples:
IBM Blockchain for Digital Identity



Real Case Examples: Snapper Futuretech, India, Education - eGovernment



Real Case Examples: Companies and Projects *[from: GBBC Standards Mapping Initiative (GSMI) 2.0]*

Figure 1. Positive Blockchain Updated Catalogue of DLT Based Projects - Identity Related Projects In Action (https://www.g2.com/categories/decentralized-identity)

Blockchain & Identity Management/Digital Identity: Challenges

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Scalability:

Blockchains could be limited in their ability to support systems with fast increasing numbers of digital identities and associated transactions.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

Privacy:

Although, blockchain can increase the privacy of digital identities, since data stored on the blockchain are visible to everyone on the network.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Complexity:

The use of blockchain requires a certain level of technical expertise. This requirement could prevent some individuals from using it.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Regulations:

Countries and jurisdictions may have different regulations regarding the use of digital identities, and blockchain-based digital identities may not comply with all the relevant requirements.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Adoptions:

Blockchain technologies are still relatively new and their adoption in support of digital identities may be limited.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Centralization:

Although, blockchains are based on decentralization, their implementation can lead to a centralization of controls over digital identities, depending on the configuration of the solution, the number of validators nodes, and the rules that govern the network.

What are the challenges of Blockchains in support of Identity Management/Digital Identity?

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Interoperability:

Blockchain-based digital identities may not be compatible with other systems/solutions, making it difficult to share and digital identities across different platform.

Where do we go from here?

ID Management – The Way Forward

Work with the many identity management organizations, frameworks and standards and try to bring the blockchain solution providers together around common protocols to identify people, places, and organizations while protecting the privacy of individuals.

Conduct studies and develop proposals on how to make the needed information while protecting the sovereignty of the identity data.

Associations/Entities in the Digital ID space

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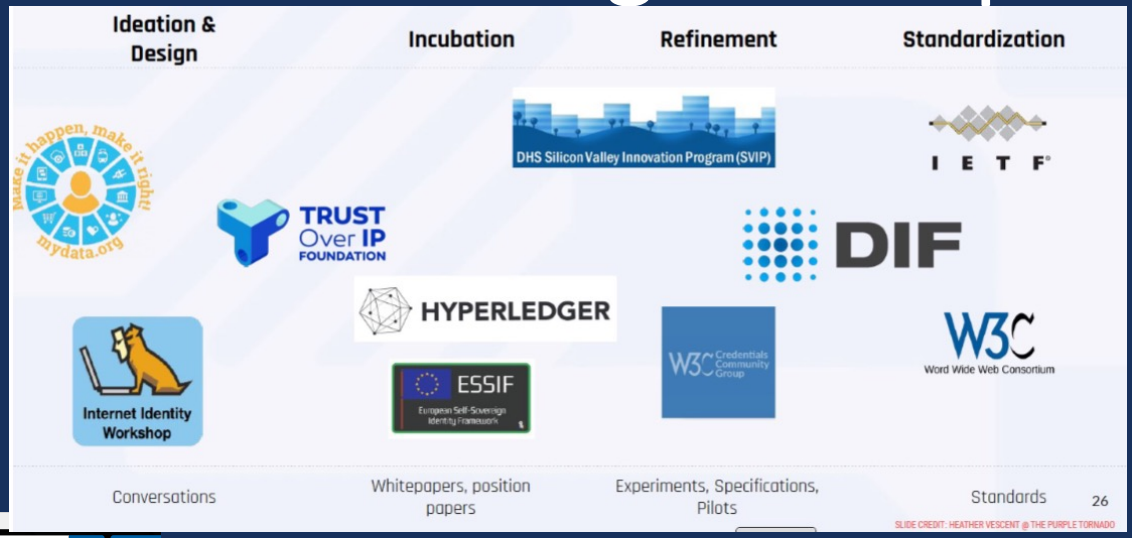

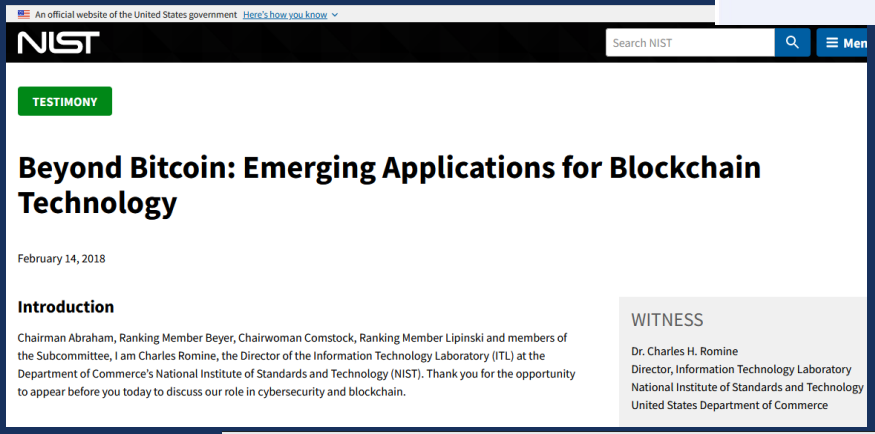

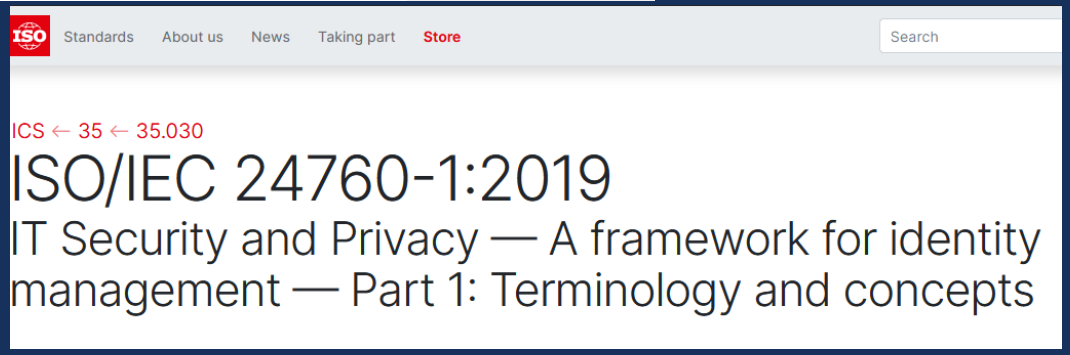

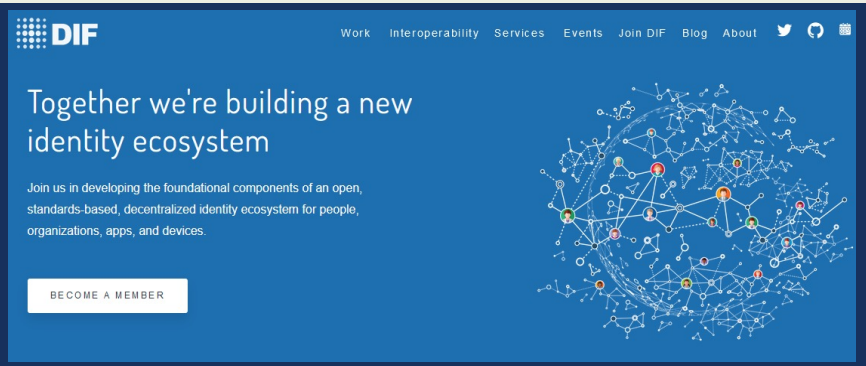

Blockchain Maturity Model

Blockchain Maturity Model Elements

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- Distribution
- Governance
- Identity Management
- Infrastructure Sustainability
- Interoperability
- Performance
- Privacy
- Reliability
- Resilience
- Security
- Synchronization

BMM Supplements

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- Banking & Finance
- Healthcare
- Voting
- Gaming

- **Next Project:**
  - **Identity Management Supplement**

Join Us & Work With Us

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- **Identity Management Working Group**
  - Work with industry leaders
  - Participate in projects & gain valuable experience

2023 Chapter Meeting Schedule

- **January** -Blockchain & Energy Infrastructure
- **February**
  - Identity Management
  - Voting & Elections
- **March**
  - Vital Records
  - Health Data Management
- **April -** Revenue Collection (Taxes/Bonds/Fees/Lotteries)
- **May**
  - Public Fund Distribution
  - Grants, Disbursements, Entitlements
  - Financial Regulation & Oversight
- **June -** Community Health
- **July**
  - Social Services (education, family, financial, health, housing)
- **August**
  - Resource Management (parks, land, water, environmental, buildings)
- **September -** Transportation
- **October**
  - Land Titling
  - Licensing and permitting
- **November**
  - Law Enforcement
  - Judicial
- **December -** Budget, Accountability, Transparency & Auditing

Next Conference

The Future of Money, Governance, & The Law

@ National Press Club in Washington D.C.

May 23-24, 2023

Overview **Tickets** **Schedule** **Speakers** **Awards** **Reception** **Sponsor** **Press**

For More Information

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