In 2011, the G-20 leaders supported "the creation of a global legal entity identifier (LEI) which uniquely identifies parties to financial transactions."
GLEIF is a not-for-profit Swiss foundation, founded by the Financial Stability Board (FSB).

GLEIF is overseen by 65 regulators and 19 observers in the Regulatory Oversight Committee (ROC) from more than 50 countries. Members: https://www.leiroc.org/about/membersandobservers/index.htm

GLEIF Board has 18 independent directors.

Partners for LEI issuing (LOUs) 39 and growing

Issued LEIs to date > 2 million
Legal Entity Identifier (LEI)
20-digit, alpha-numeric code based on the ISO 17442 standard

LEI is the linchpin that connects the dots across the universe of entity identification in the digital age

- **Level 1**: Connects to key reference information that enables clear and unique identification of legal entities participating in financial transactions
- **Level 2**: Allows the identification of direct and ultimate parents of a legal entity.

Example: ABB Séciron S.A., Switzerland
Distribution of the LEIs across jurisdictions
Data as of end of Q2 2022

- By the end of Q2 2022, there were over 2 million active LEIs globally.
Global Regulatory Framework for the LEI

**European Union**
- Markets in Financial Instruments Directive (MiFID II),
- Money Market Funds Regulation (MMF), Solvency II,
- Alternative Investment Fund Managers Directive (AIFMD),
- Market Abuse Regulation, Central Securities Depository Regulation (CSD), Prospectus Regulation, Securitization Regulation
- Securities Financing Transactions Regulation (SFTR)
- EBA Recommendation, Credit Rating Agencies Regulation

**Canada**
- Equity and debt securities reporting

**United States**
- Home Mortgage Disclosure reporting
- Repo Market participants
- Swap data reporting
- Funds and investment firms reporting

**Mexico**
- OTC Derivatives and repo market participants

**Singapore, Hong Kong**
- OTC Derivatives market participants

**China**
- China Customs requires LEI for imports from 29 countries
- Roadmap for LEI adoption published by PBOC

**India**
- OTC Derivatives market participants, corporate borrowers, non-derivative market and large-value payments participants

**Australia**
- OTC Derivatives market

Ways to access and use the LEI reference data

- **LEI Search:** [https://search.gleif.org/#/search/simpleSearch=](https://search.gleif.org/#/search/simpleSearch=)

  ![LEI Search 2.0](image)


  The GLEIF API gives developers access to the full LEI Data search engine functionality, including filters, full-text and single-field searches of legal entity and ownership data, and “fuzzy” matching of relevant data fields such as names and addresses.
<table>
<thead>
<tr>
<th>(Primary) Legal Name</th>
<th>Nestlé S.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transliterated Names</td>
<td>Nestle S.A.</td>
</tr>
<tr>
<td>Registered At</td>
<td>Commercial Register (Ministry of Justice)</td>
</tr>
<tr>
<td></td>
<td>Handelsregister (Eidg. Amt für das Handelsregister; Bundesamt für Justiz) Switzerland</td>
</tr>
<tr>
<td></td>
<td>RA000549</td>
</tr>
<tr>
<td>Registered As</td>
<td>CHE-105.909.036</td>
</tr>
<tr>
<td>Jurisdiction Of Formation</td>
<td>CH</td>
</tr>
<tr>
<td>General Category</td>
<td>GENERAL</td>
</tr>
<tr>
<td>Entity Legal Form</td>
<td>Company limited by shares (en)</td>
</tr>
<tr>
<td></td>
<td>Société anonyme (fr)</td>
</tr>
<tr>
<td></td>
<td>Aktiengesellschaft (de)</td>
</tr>
<tr>
<td></td>
<td>Società anonima (it)</td>
</tr>
<tr>
<td></td>
<td>MVII</td>
</tr>
<tr>
<td>Entity Status</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>BIC Code</td>
<td>NIESNCH122XXX</td>
</tr>
<tr>
<td>ISIN Code</td>
<td>CH1194355108</td>
</tr>
<tr>
<td></td>
<td>CH1194355126</td>
</tr>
<tr>
<td></td>
<td>FR00000861643</td>
</tr>
</tbody>
</table>
LEI and its reference data - 2

<table>
<thead>
<tr>
<th>Addresses</th>
<th>Hide map</th>
<th>Headquarters</th>
<th>Hide map</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legal</strong></td>
<td></td>
<td><strong>Headquarters</strong></td>
<td></td>
</tr>
<tr>
<td>Avenue Nestlé 55</td>
<td></td>
<td>Avenue Nestlé 55</td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td></td>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>Vevey</td>
<td></td>
<td>Vevey</td>
<td></td>
</tr>
<tr>
<td>CH-VD</td>
<td></td>
<td>CH-VD</td>
<td></td>
</tr>
<tr>
<td>CH</td>
<td>Switzerland</td>
<td>CH</td>
<td>Switzerland</td>
</tr>
</tbody>
</table>

![Map of Nestlé locations](image_url)
<table>
<thead>
<tr>
<th>Registration details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Registration Date</strong></td>
<td>2012-06-06 17:52:00+02:00</td>
</tr>
<tr>
<td><strong>Last Update</strong></td>
<td>2022-03-22 22:32:00+01:00</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>ISSUED</td>
</tr>
<tr>
<td><strong>Next Renewal</strong></td>
<td>2023-02-17 14:57:00+01:00</td>
</tr>
<tr>
<td><strong>LEI Issuer</strong></td>
<td>Business Entity Data B.V. (GMEI Utility a service of BED B.V.) EVK05KSXYDEI3R011</td>
</tr>
<tr>
<td><strong>Corroboration Level</strong></td>
<td>FULLY_CORROBORATED</td>
</tr>
<tr>
<td><strong>Data Validated At</strong></td>
<td>Commercial Register (Ministry of Justice) Handelsregister (Eidg. Amt für das Handelsregister; Bundesamt für Justiz) Switzerland RA000549</td>
</tr>
<tr>
<td><strong>Data Validated As</strong></td>
<td>CHE-105.909.036</td>
</tr>
</tbody>
</table>
## LEI and its reference data - 4

<table>
<thead>
<tr>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct children (64)</td>
</tr>
<tr>
<td>Nestlé S.A.</td>
</tr>
<tr>
<td>Wyeth Philippines Inc. (Direct)</td>
</tr>
<tr>
<td>SMA NUTRITION INDIA PRIVATE LIMITED (Direct)</td>
</tr>
<tr>
<td>NESTLE R&amp;D CENTRE INDIA PRIVATE LIMITED (Direct)</td>
</tr>
<tr>
<td>PT NESTLE INDONESIA (Direct)</td>
</tr>
<tr>
<td>Nestle Australia Ltd (Direct)</td>
</tr>
<tr>
<td>Nestle Philippines, Inc. (Direct)</td>
</tr>
<tr>
<td>Maggi-Unternehmungen AG (Direct)</td>
</tr>
<tr>
<td>Ultimate children (106)</td>
</tr>
<tr>
<td>NIFS SA (Ultimate)</td>
</tr>
<tr>
<td>Wyeth Philippines Inc. (Ultimate)</td>
</tr>
<tr>
<td>Nestle Hong Kong Limited (Ultimate)</td>
</tr>
<tr>
<td>NESTLE R&amp;D CENTER (PTE) LTD (Ultimate)</td>
</tr>
<tr>
<td>NESTLE SINGAPORE (PTE) LTD (Ultimate)</td>
</tr>
<tr>
<td>WYETH NUTRITIONALS (SINGAPORE) PTE. LTD. (Ultimate)</td>
</tr>
<tr>
<td>NESTLE CAPITAL CANADA LIMITED (Ultimate)</td>
</tr>
<tr>
<td>SMA NUTRITION INDIA PRIVATE LIMITED (Ultimate)</td>
</tr>
<tr>
<td>NESTLE R&amp;D CENTRE INDIA PRIVATE LIMITED (Ultimate)</td>
</tr>
</tbody>
</table>
Mapping: the perfect business language

- The LEI reference data already contains the local identifier (see slide 8).

- The LEI is mapped to other identifiers via the Certification of Mapping service.

- This Service enhances functionality to data users, ensures interoperability across parallel ID platforms, streamlines entity verification processes and reduces data management costs for data users.

- Current partners:
  - SWIFT: BIC
  - ANNA: ISIN
GLEIF Code lists

- Registration Authorities list – RA list

- Entity Legal Form code list – ELF code list (ISO 20275)

- Official Organizational Roles code list – OOR code list (ISO 5009)
  - No webpage yet
Registration Authorities list – RA list

- Overview of business registers and other relevant registration and validation authority sources;
- First such list ever; created by GLEIF;
- Unique code assigned by GLEIF; e.g. RA000463 – Netherlands – business register Chamber of Commerce;
- Used to verify/validate LEI reference data by LOUs;
- Enlargement in 2022 with many financial supervisory authorities because of the ROC policies on Funds;
- More than 1,000 RAs.
## Registration Authorities list – RA list

- **Available data:**
  - RA code
  - Country + ISO code
  - Jurisdiction + ISO code
  - International name of the register
  - Local name of the register
  - International name of the organization responsible for the register
  - Local name of the organization responsible for the register
  - Website address
  - Comments, such as
    - “to be used for banks and some other licensed financial institutions”
    - “to be used as a Validation Authority for funds”
    - “to be used to verify information on sole proprietors”

<table>
<thead>
<tr>
<th>RA Code</th>
<th>Country</th>
<th>ISO Code</th>
<th>Register</th>
<th>Office of Company Register</th>
<th>Website Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00001</td>
<td>Nepal</td>
<td>NP</td>
<td>Nepal</td>
<td>Nepalese Office of Revenue</td>
<td><a href="https://www.incon.gov.np">Website</a></td>
</tr>
<tr>
<td>A00002</td>
<td>Nepal</td>
<td>NP</td>
<td>Nepal</td>
<td>Nepal Revenue Authority</td>
<td><a href="https://www.incon.gov.np">Website</a></td>
</tr>
<tr>
<td>A00003</td>
<td>Netherlands</td>
<td>NL</td>
<td>Netherlands</td>
<td>The Netherlands Chamber of Commerce</td>
<td><a href="https://www.rijksoverheid.nl">Website</a></td>
</tr>
<tr>
<td>A00004</td>
<td>Netherlands</td>
<td>NL</td>
<td>Netherlands</td>
<td>The Netherlands Chamber of Commerce</td>
<td><a href="https://www.rijksoverheid.nl">Website</a></td>
</tr>
<tr>
<td>A00005</td>
<td>Netherlands</td>
<td>NL</td>
<td>Netherlands</td>
<td>The Netherlands Chamber of Commerce</td>
<td><a href="https://www.rijksoverheid.nl">Website</a></td>
</tr>
<tr>
<td>A00006</td>
<td>Netherlands</td>
<td>NL</td>
<td>Netherlands</td>
<td>The Netherlands Chamber of Commerce</td>
<td><a href="https://www.rijksoverheid.nl">Website</a></td>
</tr>
<tr>
<td>A00007</td>
<td>New Zealand</td>
<td>NZ</td>
<td>New Zealand</td>
<td>New Zealand Business Number Register</td>
<td>[Website](<a href="https://www">https://www</a> registrado.co.nz)</td>
</tr>
<tr>
<td>A00008</td>
<td>New Zealand</td>
<td>NZ</td>
<td>New Zealand</td>
<td>New Zealand Business Number Register</td>
<td>[Website](<a href="https://www">https://www</a> registrado.co.nz)</td>
</tr>
<tr>
<td>A00009</td>
<td>Nicaragua</td>
<td>NI</td>
<td>Nicaragua</td>
<td>Registro Público del Informe lnformal Mercantil</td>
<td>[Website](<a href="https://www">https://www</a> registro.com.ni)</td>
</tr>
</tbody>
</table>
Entity Legal Form code list – ELF code list

- Entity Legal Form – ISO standard 20275;

- Overview of all legal forms in all countries in the local language; such as GmbH (Germany), BV (Netherlands), Société Anonyme (France), Ltd. (UK), LLC (USA states);

- Legal forms depend on national legislation; entities with the name ‘limited liability company’ exist e.g. in the UK, New Zealand, Ireland, Singapore and all US states, but these are all different;

- Unique code (4 digit alphanumeric), as described in the standard, assigned by GLEIF (2HBR – GmbH in Germany);

- Used in LEI reference data;

- More than 3.200 ELFs in 175 jurisdictions;
- The (jurisdiction of the) ELF code determines the ‘jurisdiction of formation’ in the LEI reference data.
### Entity Legal Form code list – ELF code list

- **Available data:**
  - ELF code
  - Country + ISO code
  - Jurisdiction + ISO code
  - Entity legal form local name
  - Language + ISO code
  - Transliterated name
  - Abbreviations

<table>
<thead>
<tr>
<th>ELF code</th>
<th>Country</th>
<th>Legal Form</th>
<th>Language</th>
<th>Transliteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>HK60</td>
<td>Hong Kong, China</td>
<td>Public limited company with a share capital</td>
<td>English</td>
<td>Limited Liability Company</td>
</tr>
<tr>
<td>HK13</td>
<td>Hong Kong, China</td>
<td>Company limited by guarantee</td>
<td>English</td>
<td>Limited Liability Company</td>
</tr>
<tr>
<td>HK60</td>
<td>Hong Kong, China</td>
<td>Private limited company with a share capital</td>
<td>English</td>
<td>Limited Liability Company</td>
</tr>
<tr>
<td>HK13</td>
<td>Hong Kong, China</td>
<td>Limited partnership</td>
<td>English</td>
<td>Limited Partnership</td>
</tr>
</tbody>
</table>

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Official Organizational Roles code list – OOR list

- New ISO standard 5009, published in 2022;
- Overview of all official roles in organizations per legal form per country;
- Roles as described in legislation; only in the local language; such as Managing Director, Vorsitzender, Bestuurder, Fondateur, Socio, Accionista, etc;
- Unique code (6 digit alphanumeric), as described in the standard, assigned by GLEIF;
- First version of the list will probably be published in 2022 Q4;
- Almost 2,000 OORs in 84 jurisdictions.
Official Organizational Roles code list – OOR list

- Available data:
  - OOR code
  - Country + ISO code
  - Jurisdiction + ISO code
  - Entity legal form local name
  - ELF code
  - Official organizational role local name
  - Language + ISO code
  - Transliterated name
  - Abbreviations

<table>
<thead>
<tr>
<th>United States of America</th>
<th>US</th>
<th>New Jersey</th>
<th>US-NJ</th>
<th>Nonprofit Corporation</th>
<th>T4M6</th>
<th>President Board of Trustees</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>US</td>
<td>New Jersey</td>
<td>US-NJ</td>
<td>Nonprofit Corporation</td>
<td>T4M6</td>
<td>Secretary Board of Trustees</td>
</tr>
<tr>
<td>United States of America</td>
<td>US</td>
<td>New Jersey</td>
<td>US-NJ</td>
<td>Nonprofit Corporation</td>
<td>T4M6</td>
<td>Treasurer Board of Trustees</td>
</tr>
<tr>
<td>United States of America</td>
<td>US</td>
<td>New Jersey</td>
<td>US-NJ</td>
<td>Nonprofit Corporation</td>
<td>T4M6</td>
<td>Registered Agent</td>
</tr>
</tbody>
</table>
LEI Digital Strategy
Digital Certificates as well as Self-Sovereign-Identity Networks

- The LEI has a critical role to play in today’s digital world through its ability to provide organizations with unique, permanent identification globally. This especially is important in the context of identifying legal entities involved in digital transactions.

- LEI delivers value to both the more mature product - Digital Certificates - and the more recent innovation of Verifiable Credentials
LEIs in a digital world
Making LEIs verifiable

- When presenting an LEI, it is not clear if ...
  - the LEI is valid
  - the presenter is the LEI owner or an affiliate
  - the presenter has the right to use it

- As a result ...
  - the recipient of the LEI must still check and verify
  - background checks are often done manually at a high cost

Use case for the vLEI:
Decentralized identification and verification for organizations as well as the persons who represent their organizations either in official or functional roles

Solving the common problem of lack of trust and the costs involved for creating trust
Embedding the LEI in digital tools
Representing Organizations, Persons and Roles

Real World

Digital Representation

vLEIs

Legal Entity Identifier (LEI Standard)

Person’s Name (String)

Official Role (String)

Cryptographically bound to the owner of the keys
Broader application of the vLEI Role Credential

- vLEI Role Credentials issued by Legal Entities to Persons whose **Official Organizational Roles** (ISO 5009 standard) that can be verified both by the Legal Entity as well as against one or more public sources.
- **Examples:**
  - Legal Entity – Director
  - Legal Entity – Board Chair

- vLEI Role Credential issued by Legal Entities to Persons **in the context of the engagement** of those Persons with the Legal Entities which can be verified by the Legal Entity.
- **Examples:**
  - Legal Entity – Employees in Functional Roles
  - Legal Entity – Authorized Suppliers
  - Financial Institutions – Clients
The LEI as a Verifiable Credential – the vLEI Trust Chain

- GLEIF is the Root of Trust
  - Root AID (Autonomic Identifier) to establish the Root of Trust
  - Delegated AIDs to issue Credentials
- GLEIF will establish a trusted network of Qualified vLEI Issuers (QVIs)
- QVIs are qualified to issue Entity and Role Credentials:
  - to Legal Entities
  - to Persons who represent Legal Entities either in official or functional roles
The vLEI Ecosystem Chain of Trust and vLEI Credentials

**GLEIF**
- Issues Qualified vLEI Issuer vLEI

**Qualified vLEI Issuer**
- Issues Legal Entity vLEI
- Issues Legal Entity Official Organizational Role vLEI

**Legal Entity**
- Issues Legal Entity Engagement Context Role vLEI

**Entity Credentials**
- Legal Entity LEI (GLEIF will have one too!)

**Role Credentials**
- Legal Entity LEI, Person’s name, Official Organizational Role
- Legal Entity LEI, Person’s name, Engagement Context Role
The vLEI General Value Proposition

**vLEI** is a verifiable credential. That means that it is a piece of software that owns and encrypts a person’s digital identity and its role within the legal entity, linked with the Legal Entity via LEI code also embedded in it.

**vLEI** can be used to authenticate yourself within/and your legal entity when accessing Distributed Ledger Networks (e.g. blockchain, Ethereum,..) in a secure way. It can be used in other systems not being based on DLT (based on verified credentials)

**vLEI** stand alone cannot sign anything and is just like an ID card issued by an accredited vLEI issuer (accredited by GLEIF’s accreditation process).

**vLEI** CAN be used to sign documents. The process for signing using vLEI:

- It is needed a software that understands and accepts this credential (KERI underlaying software provides wide compatibility) and uses it to sign a document via its encryption.

- this signing software can be provided by different vendors – currently we are using a company based in US.
- by using this signing tool + vLEI you can sign a document or even parts of a given document e.g. GLEIF Annual Report as an example in the next page: balance sheet figures are signed by the Controller-CFO, and overall document signed by CEO.
### Statement of Comprehensive Income
for the Period from January 1 to December 31, 2021

<table>
<thead>
<tr>
<th>Notes</th>
<th>Jan. to Dec. 2021</th>
<th>Jan. to Dec. 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee revenue</td>
<td>3.1</td>
<td>13,201,695</td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>3.1</td>
<td>-7,059,042</td>
</tr>
<tr>
<td>Social contributions and expenses for pensions and care</td>
<td>3.1</td>
<td>-925,652</td>
</tr>
<tr>
<td>Personnel expenses</td>
<td>3.2</td>
<td>-2,584,694</td>
</tr>
<tr>
<td>Other operating expenses</td>
<td>3.3</td>
<td>-6,773,507</td>
</tr>
<tr>
<td>Other operating income</td>
<td>3.4</td>
<td>106,764</td>
</tr>
<tr>
<td>Amortization and depreciation expense</td>
<td>4.5/4.6/4.7</td>
<td>-1,683,704</td>
</tr>
<tr>
<td>Operating surplus / (loss)</td>
<td></td>
<td>-1,077,446</td>
</tr>
<tr>
<td>Subsidies and donations</td>
<td>3.5</td>
<td>111,690</td>
</tr>
<tr>
<td>Financial income / expense</td>
<td>3.6</td>
<td>-239,631</td>
</tr>
<tr>
<td>Net surplus / (loss)</td>
<td></td>
<td>-1,206,387</td>
</tr>
</tbody>
</table>

| Changes of components of net equity from actuarial gains and losses in pension and similar obligations | 3.2 | 13,996 | -6,984 |
| Items that will not be reclassified to net surplus | 3.2 | 13,996 | -6,984 |

| Other comprehensive income | 3.2 | 13,996 | -6,984 |
| Total comprehensive income |  | -1,191,391 | 83,620 |
International support for the use of the LEI

- **Payments area**

- **(Digital) Identity**
Bulk issuing

- Based on the ESRB recommendations (amongst others), bulk issuing of LEIs seems a logical way forward
- Bulk issuing of LEIs could be done by governments / registration authorities
- Issuing to all (relevant) registered entities
- Discussions with ROC for specific conditions (issuing and updating, financials)
- Start of first pilot project expected soon (both LEI and vLEI)
- Small country; public announcement will follow
- GLEIF open for discussion with any business register
Joint project with UN Statistics Division

- Cooperation with UNCEBTS

- UN Statistical Commission March 2022: support for a joint UNCEBTS/GLEIF global initiative on unique identifiers; more concrete proposal expected for the UNSC in March 2023

- Main objectives:
  - Strengthen the transparency on businesses in countries by improving their registration;
  - Improve the availability of unique business identifiers in administrative data sources in countries;
  - Promote access to and sharing of administrative data for statistical business registers.

- Initial focus:
  - Outreach to relevant international/regional organizations;
  - Coordination of technical cooperation activities aimed at strengthening the administrative registration of businesses in countries and the relevant legislation;
  - Development of guidelines and case studies on the importance of a well-functioning registration system in countries for SBRs;
  - Demonstrate the importance and benefit of linking national identifiers with global identifiers (such as the LEI).
Annex

Details on
- Data quality
- vLEI technicals
Global LEI System – Data Quality Value Chain

Global LEI System

Issues and renews LEI and LE-RD

Legal entity

LEI issuer

Provides and maintains LE-RD

Provides validated and verified LE-RD and LEI

GLEIF

Measures and reports on data quality

Legal entity

Responsible for LE-RD
(LEI entity reference data)

LEI issuer

Responsible for validating and verifying LE-RD

GLEIF

Responsible for monitoring, assessing and optimizing data quality
Data Quality Gates

Quality Gate 6: Challenge Management
Accuracy Initiatives

Quality Gate 5: Data Quality Reports

Quality Gate 4: Data Quality Dashboard

Data Quality Reports
Data Quality Monitoring
Data Discovery
Data Profiling
Data Remediation

Act

Plan

Check

Do

Quality Gate 1: Check for Duplicates
Data Governance Pre-Check

Quality Gate 2: XML Schema

Quality Gate 3: Data Quality Checks

See Annex for data quality rule setting
Extract data quality rule setting 3.2

Types of data quality checks

- **ELF Corroboration**: Shows the current list of ELF Codes with an expected minimum level of corroboration.
- **ELF Funds**: Shows the current list of ELF Codes that are applicable for fund entities.
- **RA Formats**: Shows the current list of regular expressions for chosen Registration Authorities.
- **RA Funds**: Shows the current list of Registration Authorities that are applicable for fund entities.
- **Sole Proprietor**: Shows the current list of ELF Codes that and their applicability to EntityCategory SOLE_PROPRIETOR.

Examples

<table>
<thead>
<tr>
<th>entity_legal_form_code</th>
<th>corroboration_compliance</th>
<th>effective_date</th>
</tr>
</thead>
<tbody>
<tr>
<td>11GD</td>
<td>FULLY_CORROBORATED</td>
<td>31.07.2021</td>
</tr>
<tr>
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The model-fostering LEI adoption
Digital Transformation of entire industries

- Digital transformation, e.g., Platform Economy, Artificial Intelligence, Distributed and federated Networks etc., is changing the way we interact with each other.

- Digital Identity and Strong Authentication become vital for distributed systems spanning many actors.

- vLEIs are going to address many business needs in all industries:
  - Supply chain/trade/trade finance
  - Telecom
  - National identity solutions
  - Financial sector services (payments, AML, CFT, sanctions screening, cryptocurrencies)
  - Private sector reporting to the public sector

Each vLEI requires an underlying LEI!
vLEI signing features

Advantages

- very flexible: it can be used in different platforms: all kinds of DLT platforms are compatible thanks to the underlaying Keri middleware.
- It can be used also in non-DLT environments, like the ones based on verifiable credentials.
- allows to include the signer role – so ISO 5009 that defines corporate roles can be directly applied
- the documents can be signed partially per sections: splits accountability of sections among different people within the legal entity

Disadvantages

- It needs to be used with a third party signing software tool and for reading the signatures of the signed document you need a dedicated software/plug-in:
  - these software tools are build up ad-hoc, not standardized
  - today there is no legislation, standardization or directives behind them.
- the generated signature is an “electronic signature”, and is NOT a “digital signature” this means that are added technical proofs to the signed document to provide signer identity whereas, a digital signature uses a recognized and audited two key for asymmetric encryption and brings the charge of the proof on the contra party (which is critical on addressing who should demonstrate its authenticity).
The vLEI ecosystem is in full accordance with ToIP standards

- Launched May 2020
- Grew from 27 to 125 member companies in less than six months
- Founding Members include Mastercard, IBM, Accenture, Government of British Columbia, LG, GS1, Mitre, SICPA, R3, Kiva, and 4 universities
- GLEIF joined ToIP as Contributor Member
- Hosted by the non-profit Linux Foundation
  - Home to over 250 of the world’s leading open source/open standard projects including Cloud Native Computing, Hyperledger, Automotive Grade Linux, Hyperledger, and the Decentralized Identity Foundation
vLEI Governance Frameworks

- vLEIs will be issued by vLEI Issuers of two types:
  - Existing LEI issuers who elect to issue vLEIs
  - New issuers who will issue vLEIs by calling APIs provided by GLEIF and current LEI issuers

- All vLEI Issuers will be qualified under the GLEIF vLEI Ecosystem Governance Framework
  - A ToIP-compliant Layer 4 governance framework

- The vLEI family of Verifiable Credentials will be defined by the GLEIF vLEI Credential Governance Framework
  - A ToIP-compliant Layer 3 governance framework
Network-of-networks
True interoperability and portability

- Development of the capabilities needed for issuance, verification and revocation of vLEIs do not need to operate on blockchain or distributed ledger technology.
- This would allow GLEIF to connect to any blockchain or distributed ledger technology SSI network or cloud infrastructure without the need for custom implementation, cost and overhead of operation.
GLEIF’s vLEI approach

Agnostic to any network

- Development of the capabilities needed for GLEIF to issue and verify vLEIs does not need to operate on blockchain or distributed ledger technology.
- GLEIF has implemented KERI (Key Event Receipt Infrastructure) and related technical capabilities to support fully decentralized portable secure key management operations on self-certifying identifiers.
- Currently engaged in piloting, GLEIF plans to announce the launch of the vLEI Issuer Qualification Program shortly and to plan for implementation of the vLEI ecosystem and infrastructure later in 2022.

Interoperability

- This would allow GLEIF to connect to any blockchain or distributed ledger technology SSI network without the need for custom implementation, cost and overhead of operation.
- KERI is Quantum Safe. It is resistant to attacks by both classical and quantum computers.

http://github.com/WebOfTrust/keri
Limitations

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