



LEI

GLOBAL
LEGAL
ENTITY
IDENTIFIER
FOUNDATION

Connect the dots with high quality LEI data.

**26th Meeting of the Wiesbaden Group on Business Registers
Neuchâtel, 24 - 27 September 2018**

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Agenda



1. GLEIF and LEI
2. Global LEI System Structure
3. GLEIF Data Quality Management Program
4. Conclusion

GLEIF and LEI

Who is GLEIF



- **The GLEIF is a Swiss foundation inaugurated in June 2014 and founded by the Financial Stability Board (FSB).**
- **GLEIF is overseen by 71 regulators and 19 observers in the Regulatory Oversight Committee (ROC) from 50 countries.**
- **GLEIF Board has 18 independent directors.**



Who is GLEIF



GLEIF in Numbers

Budget 2018

9,5 M US\$

GLEIF in Numbers

Partners for LEI issuing (LOUs)

32, and growing

GLEIF in Numbers

Number of employees

36 from 19 countries

GLEIF in Numbers

Issued LEIs on 1st of July 2018

Over 1.200.000



GLEIF Vision

Ultimately, there should be one identity behind every business

Having an LEI will help to achieve this objective

GLEIF Mission

GLEIF manages a network of partners, the LEI issuing organizations, to provide trusted services and open, reliable data for unique legal entity identification worldwide

GLEIF Scope

Supra-national, non-for-profit organization
GLEIF is, by its statutes, agnostic to any particular commercial or political interests

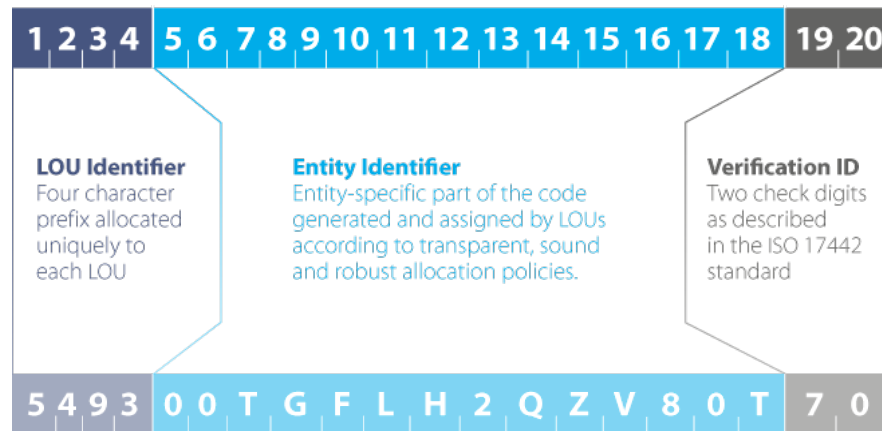


The Legal Entity Identifier (LEI)



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

- 20-digit, alpha-numeric code based on the ISO 17442 standard developed by the ISO




Example: ABB Sécheron S.A., Switzerland

- Connects to key reference information that enables clear and unique identification of legal entities participating in financial transactions

Information Available with the LEI: Data on 'Who is Who'



Global Legal Entity Identifier Foundation

 Basel, Switzerland

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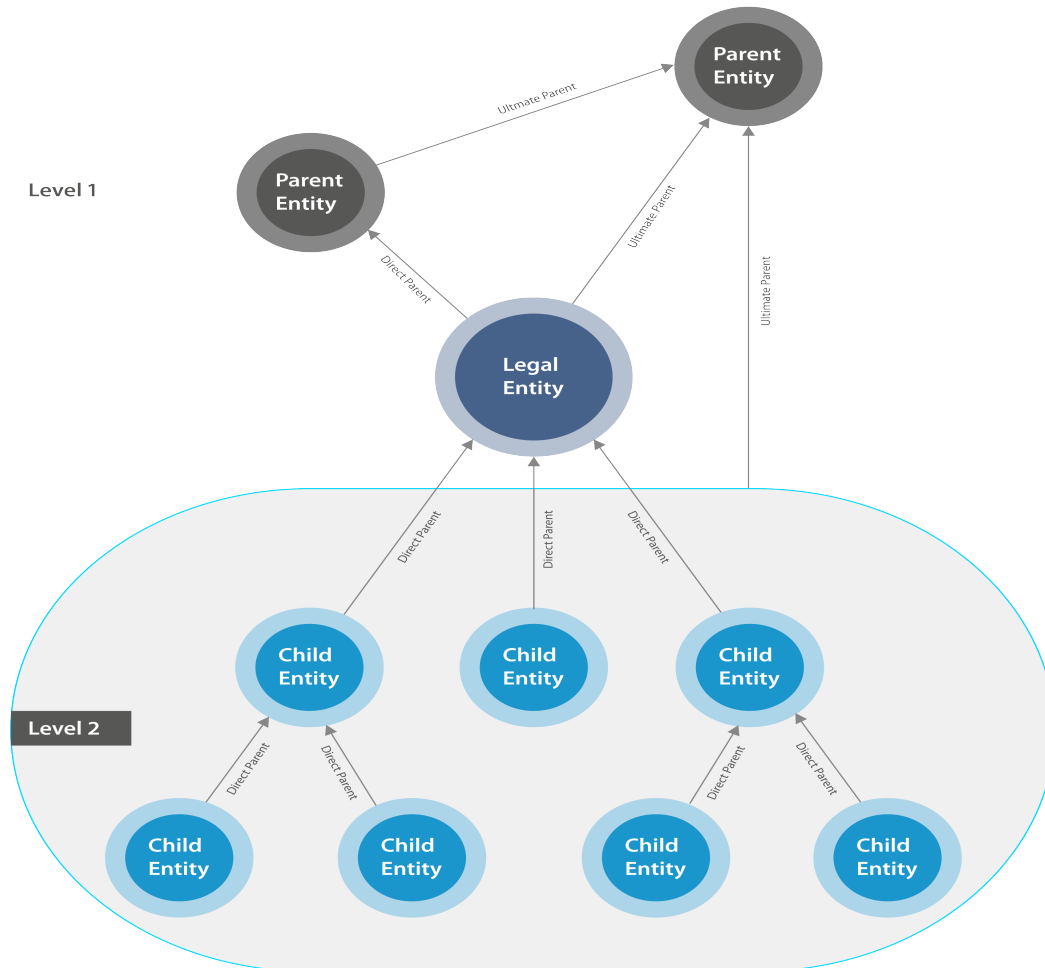
Entity details	
LEI	506700GE1G29325QX363
LEGAL NAME	Global Legal Entity Identifier Foundation
OTHER ENTITY NAMES	not available
TRANSLITERATED OTHER ENTITY NAMES	not available
REGISTRATION AUTHORITY ID	RA000548
OTHER REGISTRATION AUTHORITY ID	not available
REGISTRATION AUTHORITY ENTITY ID	CHE200595965
LEGAL JURISDICTION	CH-BS
ENTITY CATEGORY	not available
ENTITY LEGAL FORM CODE	2JZ4
ASSOCIATED ENTITY	not available
ENTITY STATUS	ACTIVE
EXPIRATION DATE	not available
EXPIRATION REASON	not available
SUCCESSOR ENTITY	not available

Validation against 600 selected global registration authorities and standardized legal forms

Addresses	
LEGAL	HEADQUARTERS
St. Alban-Vorstadt 5 4052 Basel CH	St. Alban-Vorstadt 5 4052 Basel CH
Registration details	
INITIAL REGISTRATION DATE	2018-03-16 06:13:33+01:00
LAST UPDATE DATE	2018-03-16 06:13:33+01:00
REGISTRATION STATUS	ISSUED
NEXT RENEWAL DATE	2019-03-16 00:00:00+01:00
MANAGING LOU	506700LOLO7M6V0E4247 Office fédéral de la statistique (Federal Statistical Office)
VALIDATION SOURCES	FULLY_CORROBORATED
VALIDATION AUTHORITY ID	RA000548
OTHER VALIDATION AUTHORITY ID	not available
VALIDATION AUTHORITY ENTITY ID	CHE200595965

Common Data File format: <https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format/lei-cdf-format-version-1-0#>

Information Available with the LEI: Data on 'Who owns Whom'



- Starting 1 May 2017, the LEI data pool is enhanced to include information on **'who owns whom'**.
- This allows the identification of direct and ultimate parents of a legal entity and, vice versa, so that the entities owned by individual companies can be researched.

Common Data File formats:

- <https://www.gleif.org/en/about-lei/common-data-file-format/relationship-record-cdf-format>
- <https://www.gleif.org/en/about-lei/common-data-file-format/level-2-data-reporting-exceptions-format#>

Global LEI Index: Creating transparency in financial markets and for financial transactions



Only global free of charge online source that provides open, standardized and high quality legal entity reference data.

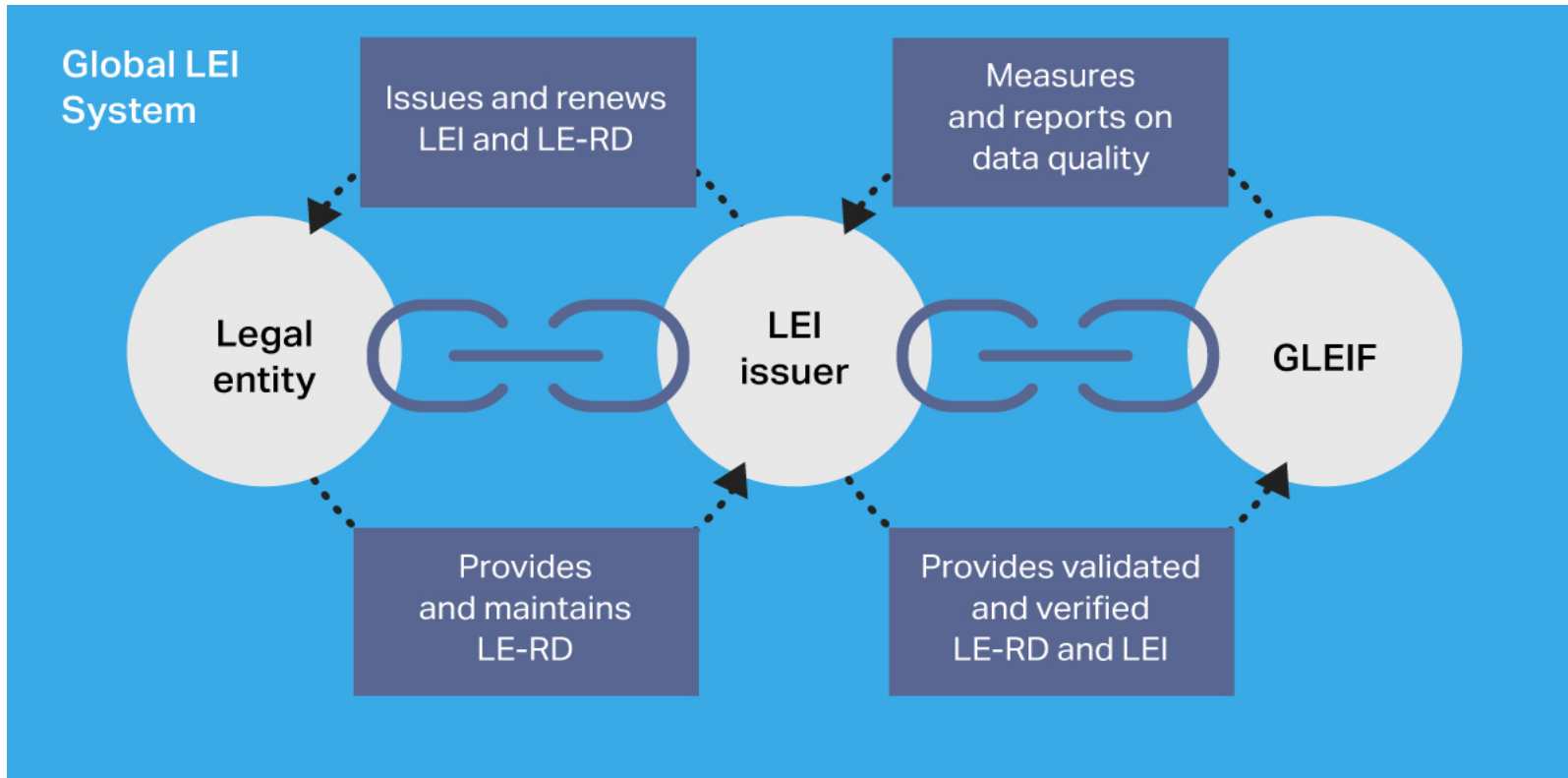
- Consists of a file of all past and current LEI records including related reference data in one repository.
- All LEI records can be easily found and accessed using the LEI search tool developed by GLEIF.
- Publicly available LEI data pool can be regarded as a global directory, which greatly enhances transparency in the global marketplace.

Global LEI Index available on the GLEIF website <https://www.gleif.org>



Global LEI System Structure

Data Quality Value Chain



Legal entity
▶ Responsible for LE-RD
(Legal entity reference data)

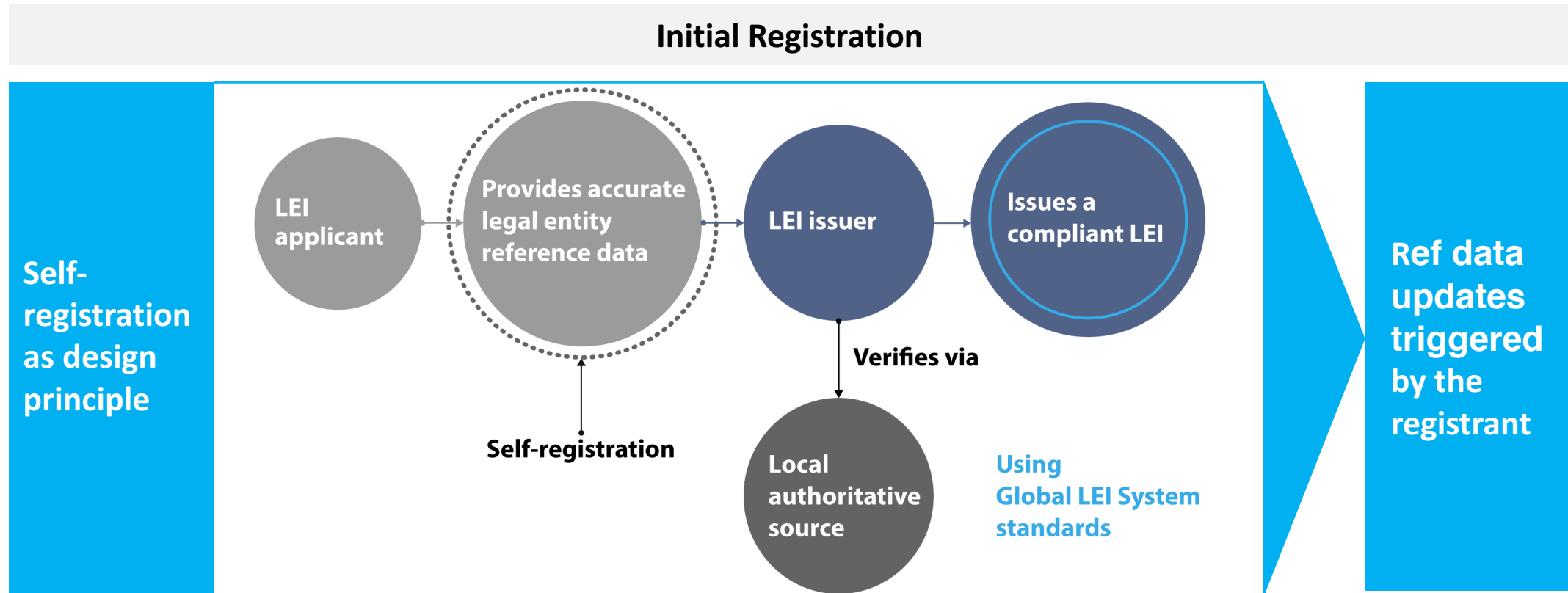
LEI issuer
▶ Responsible for validating
and verifying LE-RD

GLEIF
▶ Responsible for
monitoring, assessing and
optimizing data quality

The Role of LEI Issuers



- LEI issuers – also referred to as Local Operating Units (LOUs) – supply registration, renewal and other services, and act as the primary interface for legal entities wishing to obtain an LEI.

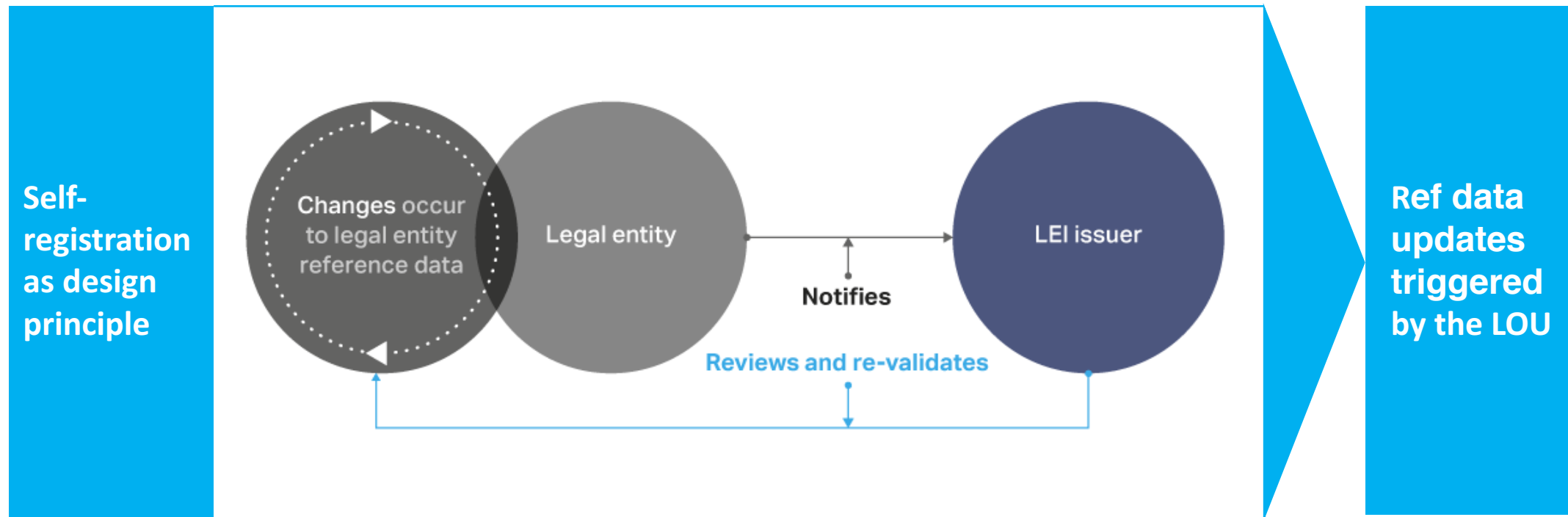


The Role of LEI Issuers



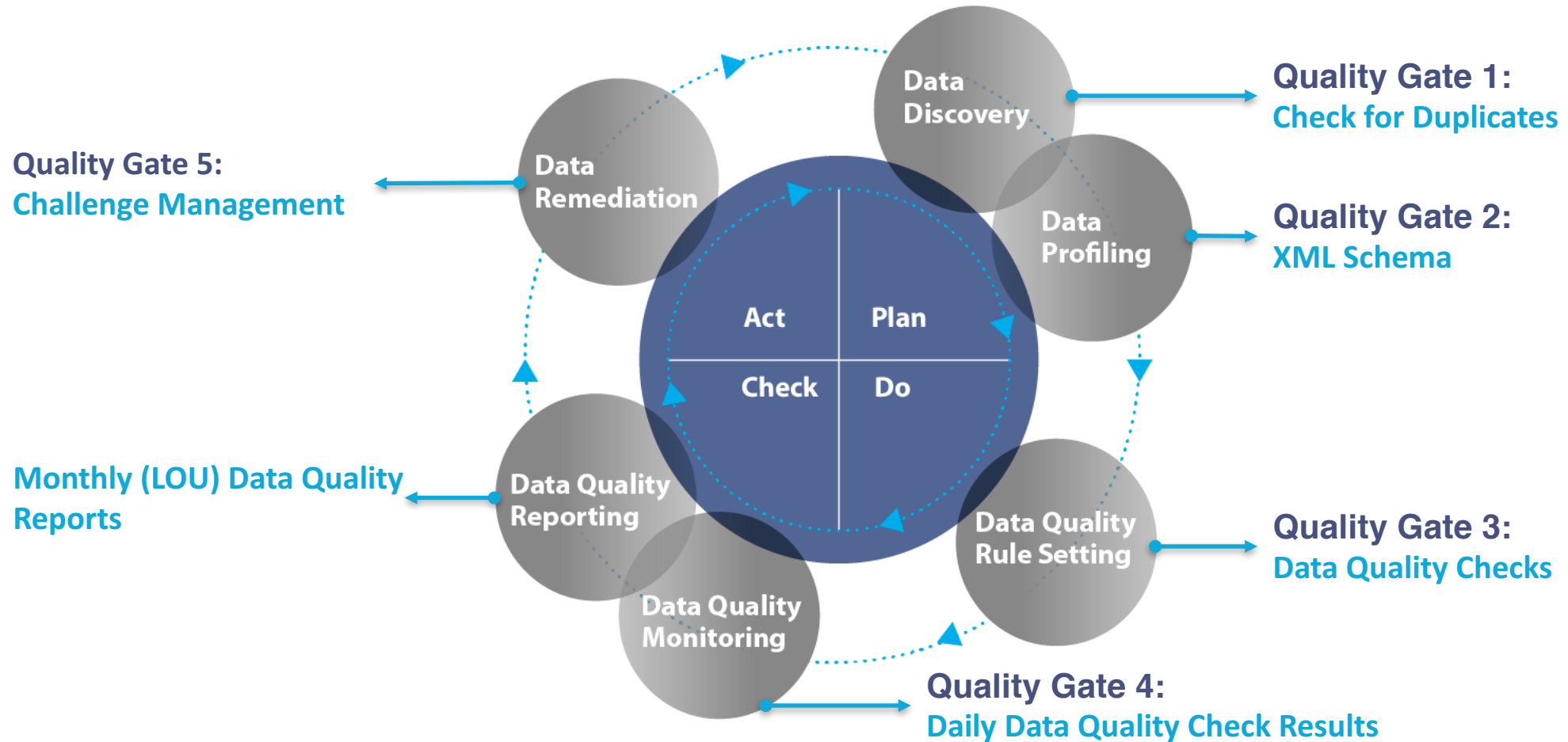
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Annual Renewal



GLEIF Data Quality Management program

Data Quality Cycle and Quality Gates



Quality Gate 1 – Check for Duplicates



Objectives

Prevent the issuance of new duplicates

Purpose

Support the LOUs by providing them a technical interface to check the LEI and LE-RD data for already existing entries with similar appearance before issuance

Description

- The facility uses three different state-of-the-art algorithms for text matching including fuzzy logic (Levenshtein, Monge-Elkan (Cosine) and Cosine) for higher confidence, that potential duplicates are not missed due to misspells or typos.
- Supported by enhanced post-processing workflow of the fuzzy matching results, GLEIF's check for duplicates facility ensures optimized result set with manageable number of false positives.
- There is an established communication protocol between GLEIF and LEI Issuer, which obliged an explicit confirmation by the LEI Issuer, whether the result was a real match or false positive.

Quality Gate 2 – XML Schema



Objectives

Define explicit structure for file formats (LEI-CDF, RR-CDF and Reporting Exceptions)

Purpose

Prevent non-compliance to defined formats and ensure minimum level of data quality

Description

Each reporting format is defined in a detailed specification document and XML schema definition (XSD) which enforces minimum data quality (i.e. no spaces before first or after last word, allowed values from pre-defined list).

A file which does not pass XSD validation cannot be included in the GLEIF Concatenated Files and the Global LEI Index.

The schema defines:

- The structure of each data element.
- The associated code lists.
- The associated data element attributes.

Quality Gate 3 – Data Quality Checks



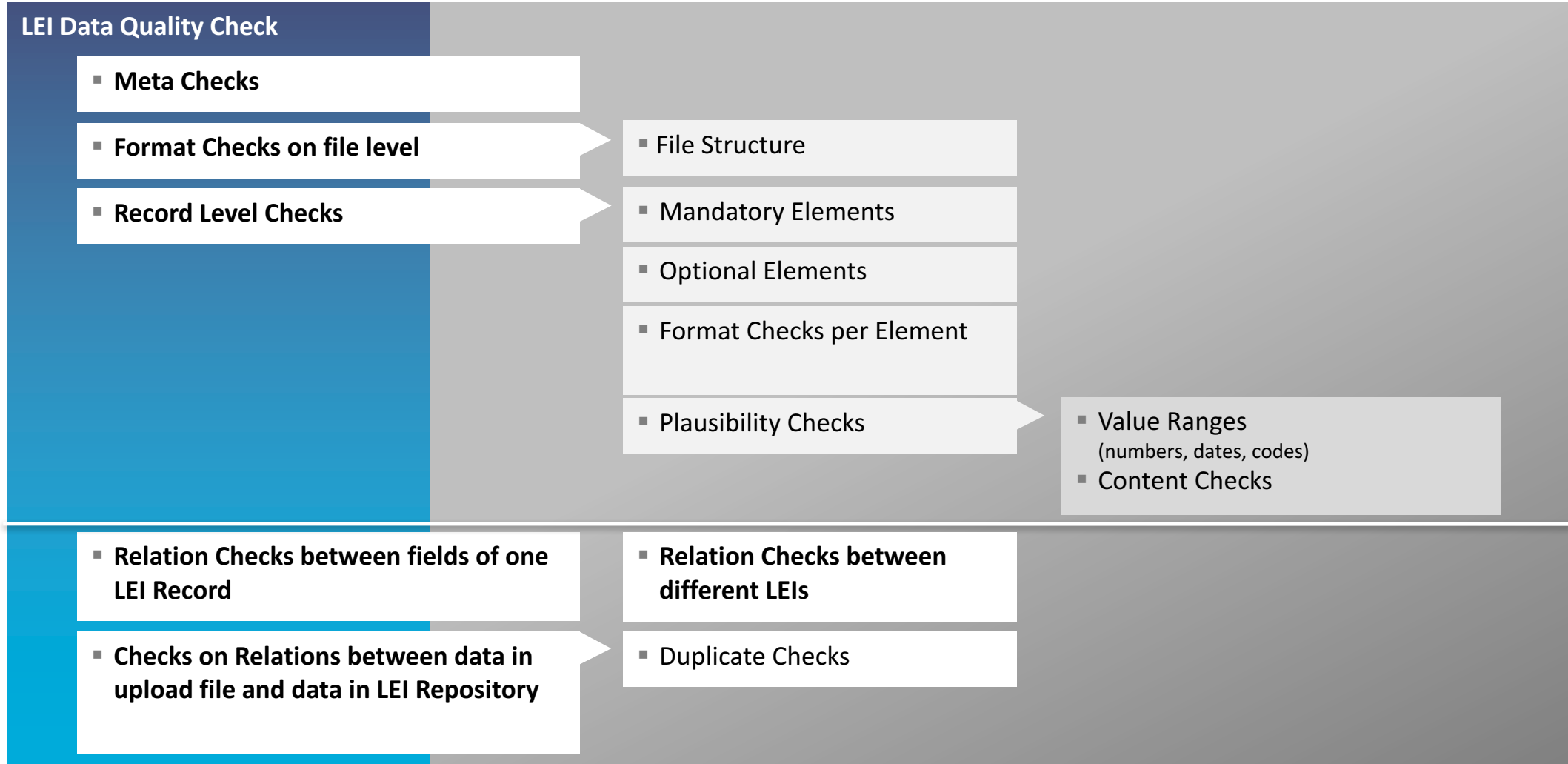
Objectives	Ensure achievement of defined quality criteria
Purpose	Continuous verification, that the defined quality criteria are achieved
Description	<p>The Data Quality Rule Settings identifies the checks performed against the quality criteria. At the moment, there are 75 checks active in the Rule Setting.</p> <p>Each check is of the type 'If X then Y', where 'X' is described as a 'check precondition' and 'Y' is the 'check description'.</p> <p>Each check is assigned to exactly one criterion and exactly one maturity level. The mapping to the corresponding maturity level is done following the description below:</p> <ul style="list-style-type: none">1 - Required: This level reflects repeatable success2 - Expected: This level shows the managed success3 - Excellent: The third level describes the optimized success

Quality Gate 3 – Data Quality Checks



Quality Criteria	Definition
Accuracy	The extent to which the data is free of identifiable errors / the degree of conformity of a data element or a data set to an authoritative source that is deemed to be correct or the degree the data correctly represents the truth about a real-world object
Accessibility	The extent to which data items that are easily obtainable and legal to access with strong protections and controls built into the process
Completeness	The degree to which all required occurrences of data are populated
Comprehensiveness	All required data items are included—ensures that the entire scope of the data is collected with intentional limitations documented
Consistency	The degree to which a unique piece of data holds the same value across multiple data sets
Currency	The extent to which data is up-to-date; a datum value is up-to-date if it is current for a specific point in time, and it is outdated if it was current at a preceding time but incorrect at a later time
Integrity	The degree of conformity to defined data relationship rules (e.g., primary/foreign key referential integrity)
Provenance	History or pedigree of a property value
Representation	The characteristic of Data Quality that addresses the format, pattern, legibility, and usefulness of data for its intended use
Timeliness	The degree to which data is available when it is required / concept of data quality that involves whether the data is up-to-date and available within a useful time frame; timeliness is determined by manner and context in which the data is being used
Uniqueness	The extent to which all distinct values of a data element appear only once
Validity	The measure of how a data value conforms to its domain value set (i.e., a set of allowable values or range of values)

Quality Gate 3 – Data Quality Checks



Quality Gate 4 – Daily Data Quality Check Results and Monthly Data Quality Reports



Objectives	Ensure achievement of defined quality criteria and report on overall quality in the LEI data pool
Purpose	Feedback to LOUs about their performance to trigger timely remediation Summarize the results of GLEIF’s assessment of the level of data quality in the Global LEI System
Description	<p>The Global LEI Data Quality Report provides the following information:</p> <ul style="list-style-type: none">▪ The LEI Total Data Quality Score for the reporting period. (1)▪ Progress achieved with regard to the continuous optimization of the data quality within the GLEIS. (2)▪ The Total Data Quality Score per country achieved in the reporting period. (3)▪ Results of GLEIF checks of the LEI data records against implemented quality criteria. (4)▪ The section ‘Top 5 Failing Checks’ identifies those data quality checks performed by GLEIF which trigger the highest number of LEI records that fail these checks. (5)▪ The percentage of LEI data records, which meet the requirements of distinct quality maturity levels. (6)

Quality Gate 4 – Monthly Data Quality Reports



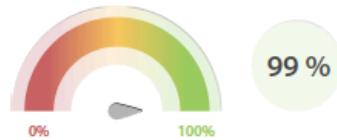
Global LEI Data Quality Report | July 2018



Data Quality Scores

LEI Total Data Quality Score

The LEI Total Data Quality Score is calculated as the equal weighted average of the 8 'Data Quality Criteria' listed below.



Summary

The assessment performed on 31 July 2018 shows that the Total Data Quality Score remains stable above 99%. The number of failures for data quality checks related to direct and ultimate parent data information further decreased. The count of LEIs exhibiting complete parent information decreased due to erroneous reporting by one LEI issuer in June, which was corrected in July.

Data Quality Heat Map in Covered Countries

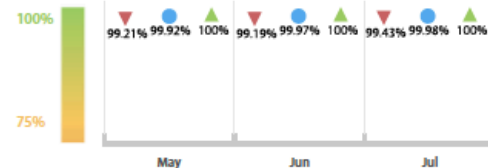


Top 5 Failing Checks

	# Failed Records	# LEI Issuers	LEI Issuer with highest amount in %
C000245	13,399	13	Central Securities Clearing System PLC
C000241	854	26	Istanbul Takas ve Saklama Bankası ...
C000146	180	6	Strato (Pty) Ltd
C000249	128	3	Strato (Pty) Ltd
C000250	127	2	Strato (Pty) Ltd

LEI Total Data Quality Score Trend

Progress achieved with regard to the continuous optimization of the data quality based on the LEI Total Data Quality Score.



● Total Data Quality Score ▲ Highest LEI Issuer Score ▼ Lowest LEI Issuer Score

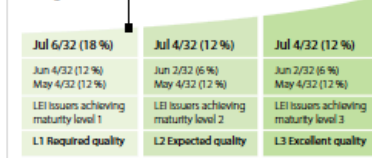
Data Quality Criteria

	Jul	Jun	# Checks	# Failed Records
Accuracy	99.99%	99.99%	7	3 (< 0.01 %)
Completeness	99.93%	99.91%	1	854 (0.06 %)
Comprehensiveness	100.00%	100.00%	2	0 (0 %)
Consistency	99.93%	99.89%	16	13,551 (1.09 %)
Currency	99.99%	99.99%	1	68 (< 0.01 %)
Integrity	99.99%	99.99%	15	7 (< 0.01 %)
Uniqueness	99.99%	99.99%	1	109 (< 0.01 %)
Validity	99.99%	99.99%	15	229 (0.01 %)

The Data Quality criteria is expected to contain 12 dimensions. Currently a subset of 8 criteria is implemented, to the detriment of the score, as they are averaged on all of them. This is expected to change, on a nonfixed timeline, to include all 12 dimensions.

Quality Maturity Level

Average maturity level: 0.99



Statistics

Totals	Values
Total LEI records	1,242,095 (+1.70 %)
New Issued LEIs	19,951 (-16.17 %)
Renewed LEIs	29,016 (+10.58 %)
New lapsed LEIs *	7,278 (+1.56 %)
Countries	223 (+/- 0 %)
LEI Issuers	32 (+/- 0 %)
Level 2 Info	Values
LEIs with LEI parent relationships	82,487 (+2.19 %)
LEIs with complete parent information	1,043,119 (-6.51 %)
Duplicates	Values
Total LEIs marked as duplicate **	3,057 (+1.76 %)
Duplicate percentage of total LEI records	< 1% (+0.06 %)
LEIs marked as duplicate this month	63 (-1.56 %)
Challenges	Values
Challenges this month	225 (-32.83 %)
Duplicates found this month	31 (+34.78 %)
Updates to entity information this month	104 (-39.18 %)

* Please see our Business Report www.gleif.org/business-reports for detailed information around lapsed LEIs.

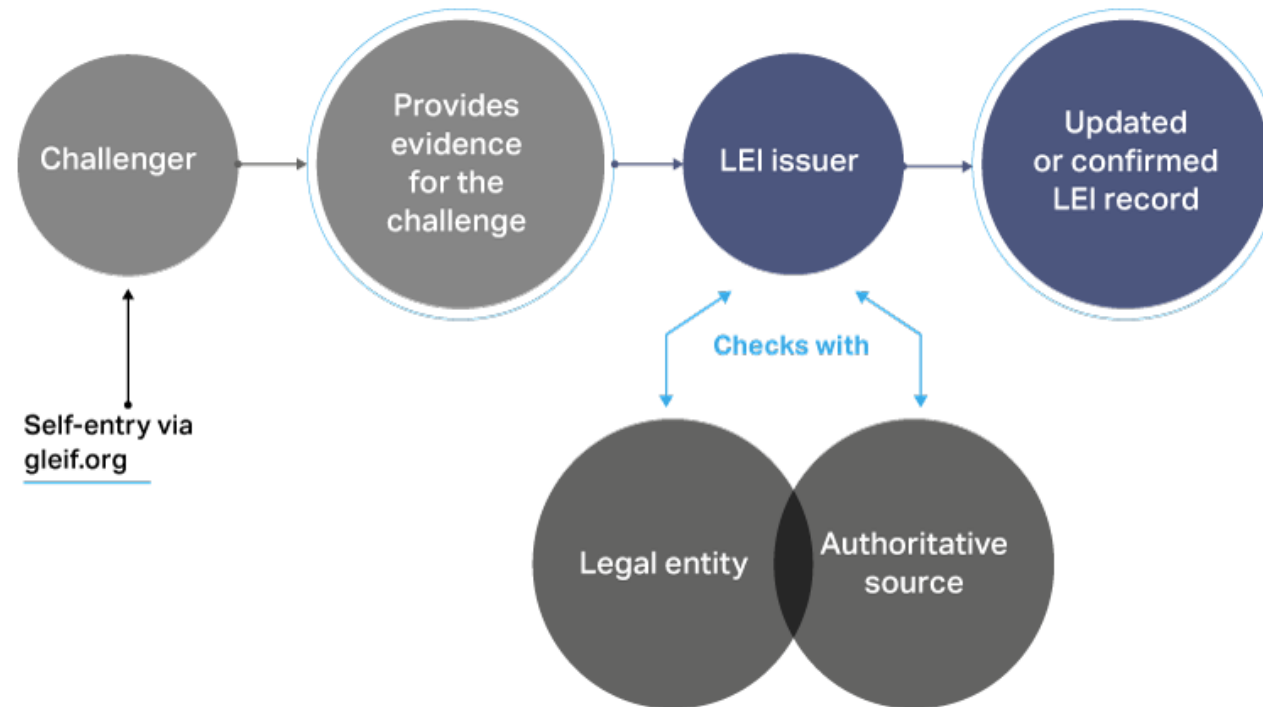
** RegistrationStatus = DUPLICATE

DISCLAIMER: All figures of this Global LEI Data Quality Report are derived from these sources: 1) Global Legal Entity Identifier Foundation (GLEIF) Concatenated end-of-month files for all months mentioned in this report and 2) the Data Quality Reports for the reported month based on the LEI-Data-Quality-Check Specification v2.0.3. While every care has been taken in the compilation of this information, GLEIF will not be held responsible for any loss, damage or inconvenience caused as a result of inaccuracy or error within the Global LEI Data Quality Report. The text and graphic content of the Global LEI Data Quality Report may be used, printed and distributed ONLY with the copyright information displayed (© Copyright Global Legal Entity Identifier Foundation (GLEIF)).

Data Quality Gate 5 – Challenge Management



Objectives	Continuously improve data quality by using crowd sourcing
Purpose	Ensures continuous improvement by using crowd sourcing and centralized challenge facility made by GLEIF

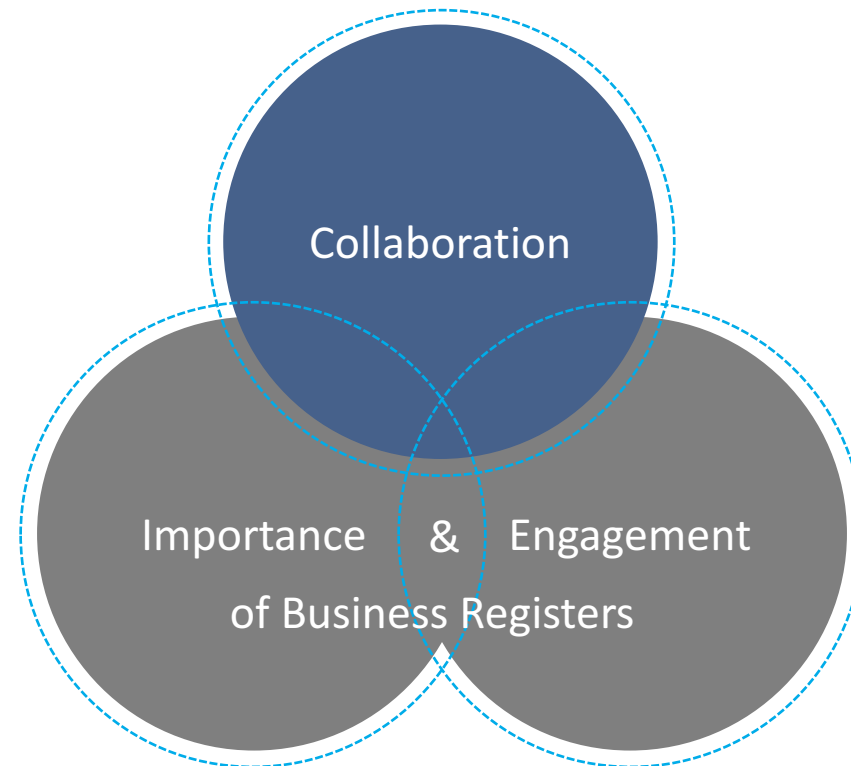


Conclusion – Importance and engagement of the business registry community

Thank you!



Quality cannot be adjusted overnight, neither can 100% quality be ensured. To achieve a high level of data quality, continuous and sustainable engagement is needed between all involved parties, alongside continuous communication with the data users.



Limitations



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