# Scaling the use of digital identities in trade

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GLEIF
WORLD TRADE BOARD
Connecting Markets and People
ICC United Kingdom
Centre for Digital Trade and Innovation

# Foreword

**Despite legal entity identifiers (LEIs) being a foundational requirement for future digitalised trade and the increasing need to have greater visibility across global supply chains to meet sustainability goals, the LEI remains underutilised in cross-border trade. This report should act as a wake-up call that adoption rates in the business community are alarmingly low to non-existent and digital identity infrastructure for trade remains fragmented and unfit for purpose for modern, international trade. National and proprietary identity schemes will not provide a global solution for the simple reason that other governments or commercial providers will not adopt them. The solution must be an impartial, trusted global identity framework that helps connect national and proprietary systems, providing full inclusivity and interoperability.**

The financial crisis laid bare the critical need for a system to identify and trace the myriad of linkages that can exist at the legal entity level instead of the aggregate parent-company level. As a result, the LEI system was established in 2014 by the Group of Twenty (G20) under a harmonised global standard to provide relevant reference data, which allows for easy access and identification of legal entities and their status. The LEI has much broader potential applications than solely for financial transactions. The LEI is a foundational standard for future digital trade in the World Trade Organization and International Chamber of Commerce Standards Toolkit for Cross-Border, Paperless Trade. The LEI offers a low-cost, simple tool for corporates and small and medium-sized enterprises (SMEs) to quickly verify buyers and sellers, reduce risk, enable track and trace or atomic settlement technologies, and establish greater transparency through global supply chains.

This report is not intended to be a comprehensive review or critique of the LEI. It is intended to provide a snapshot of business adoption of LEIs across three different economies and geographies; Kenya, Vietnam and the United Kingdom. It is intended to assess how LEIs are currently being used and advocate again for increasing their adoption throughout the trading system. The report takes a deliberate focus on cross-border trade and companies wishing to enhance trust, lower risk and reduce the cost of trade. The momentum behind trade digitalisation worldwide has made the case for widespread adoption of LEIs an urgent priority. This report is intended to put a spotlight on this important building block of digital trade, encourage action and focus on solutions to address the current low adoption rates.

# Contents



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## Abbreviations

| | |
|---|---|
| **AEO** | Authorised Economic Operator |
| **AIoT** | Artificial Internet of Things |
| **AML** | Anti-Money Laundering |
| **ASEAN** | Association of Southeast Asian Nations |
| **ASYCUDA** | Automated System for Customs Data |
| **B2B** | Business-to-Business |
| **BIC** | Business Identifier Code |
| **C/O** | Certificate of Origin |
| **CFT** | Counter-Terrorist Financing |
| **CIPS** | Cross-border Interbank Payment System |
| **CPMI** | Committee on Payments and Market Infrastructure |
| **CS3D** | Corporate Sustainability Due Diligence Directive |
| **CSRD** | Corporate Sustainability Reporting Directive |
| **DUNS** | Data Universal Numbering System |
| **EDTA** | Electronic Trade Documents Act |
| **EORI** | Economic Operators Registration and Identification |
| **ePhyto** | Electronic Phytosanitary |
| **ESG** | Environmental, Social and Governance |
| **EU** | European Union |
| **EUDR** | EU Deforestation Regulation |
| **FSB** | Financial Stability Board |
| **FTE** | Full-time equivalent |
| **G20** | Group of Twenty |
| **GLEIF** | Global Legal Entity Identifier Foundation |
| **GVC** | Global value chain |
| **ICAO** | International Civil Aviation Organisation |
| **ICC** | International Chamber of Commerce |
| **IPCC** | International Plant Protection Convention |
| **ISIN** | International Securities Identification Number |
| **ISO** | International Organization for Standardization |
| **KYB** | Know Your Business |
| **KYC** | Know Your Client |
| **L/C** | Letter of Credit |
| **LEI** | Legal Entity Identifier |
| **LOU** | Local Operating Unit |
| **MAS** | Monetary Authority of Singapore |
| **MIC** | Market Identifier Code |
| **MiFID II** | Markets in Financial Instruments Directive II |
| **MiFIR** | Markets in Financial Instruments Regulation |
| **MRA** | Mutual Recognition Agreement |
| **MSMEs** | Micro, small and medium-sized enterprises |
| **NEFT** | National Electronic Funds Transfer |
| **OOR** | Official Organisational Role |
| **PKI** | Public Key Infrastructure |
| **QVI** | Qualified vLEI Issuer |
| **RTGS** | Real Time Gross Settlement |
| **SAFE** | Secure and Facilitate Trade |
| **SME** | Small and medium-sized enterprise |
| **SWIFT** | Society for Worldwide Interbank Financial Telecommunication |
| **TFA** | Trade Facilitation Agreement |
| **TIN** | Trader Identification Number |
| **UK** | United Kingdom |
| **UN/CEFAT** | United Nations Centre for Trade Facilitation and Electronic Business |
| **UNCTAD** | United Nations Conference on Trade and Development |
| **UNDP** | United Nations Development Programme |
| **US** | United States |
| **vLEI** | Verifiable Legal Entity Identifier |
| **VSS** | Voluntary Sustainability Standard |
| **WCO** | World Customs Organization |
| **WTO** | World Trade Organization |

# Executive summary

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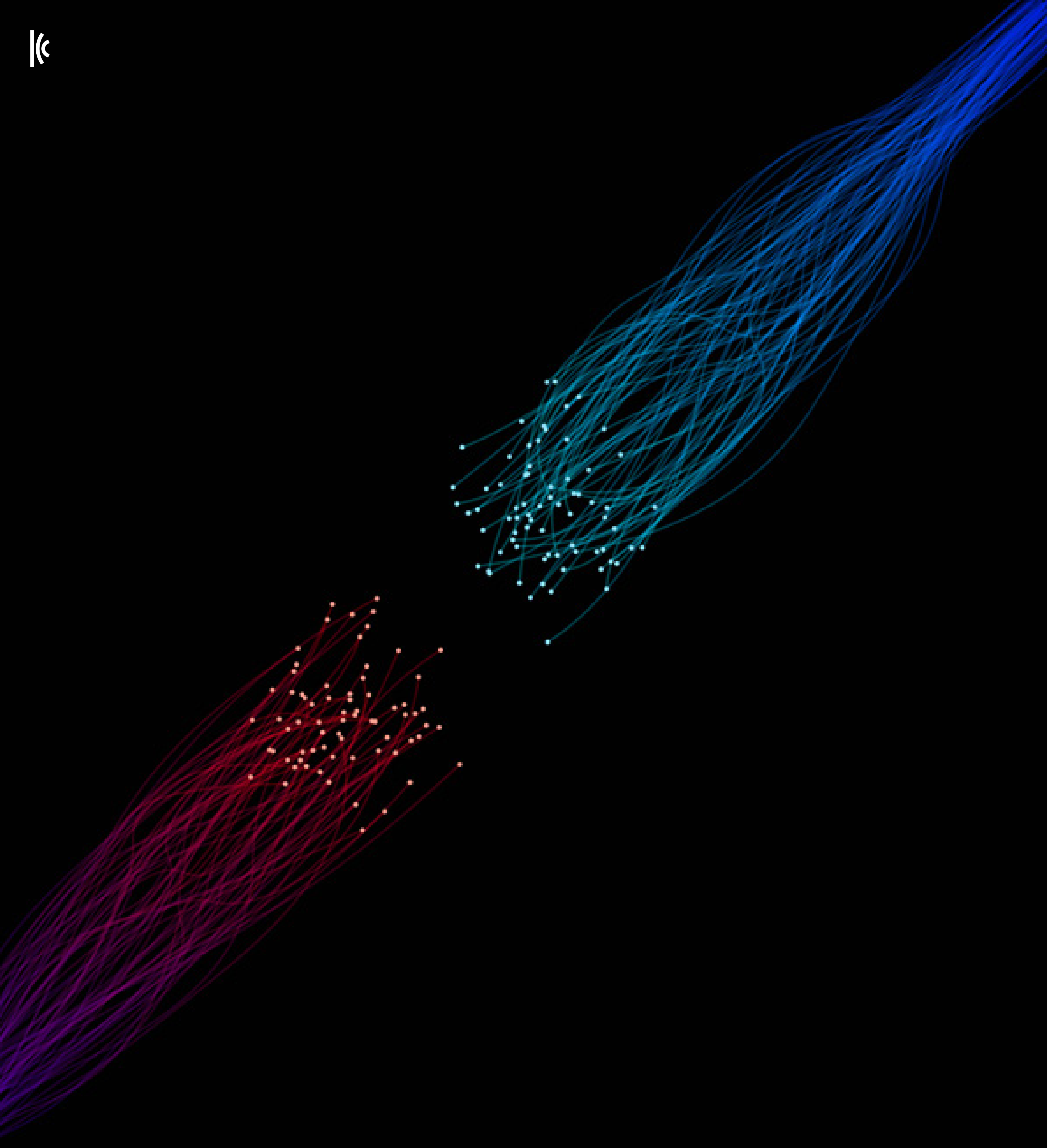


# Executive summary

**Legal Entity Identifiers (LEIs) are the global identity framework for cross-border trade and a foundation on which to deliver a cheaper, faster, simpler, more sustainable and secure trading system.**

LEIs provide the ability for companies and governments to have total transparency across the trade system: where the goods are, where they are coming from and going to, who owns them and who is paying for them. They connect all aspects of the trading system — shipping, customs and finance — making trade easier, cheaper and more trustworthy. **LEIs are closely linked to the concept of organisational identity.**

A company's LEI is the equivalent of a person's passport. A LEI contains the basic information to identify a legal entity, which can then be used to link to records held in public and private databases, such as credit bureaus, banks and financial institutions, or market intelligence service providers. All LEIs are issued based on the ISO 17442 standard developed by the International Organization for Standardization (ISO). It connects to key reference information that enables clear and unique identification of legal entities.

**LEIs provide a common, interoperable identity framework for international trade, acting as a "connector" to other specific-purpose and proprietary identity schemes.**

As several open and proprietary legal entity identification schemes currently co-exist and serve different business purposes, LEIs simplify legal entities' data management, compliance and reporting processes. In this sense, LEIs act as a Public Utility Structure and do not compete with proprietary identifiers such as the S&P or DUNS numbers. The LEI is distinct in that it is publicly accessible and interoperable, linking systems across borders and scaling the benefit of trade digitalisation.

**Despite being widely recognised by global regulators, LEIs are poorly understood by companies, especially SMEs.**

As at the end of 2023, the total LEI population was approximately 2.41 million globally. The LEI has been widely used in international reporting regimes, having been embraced in 233 regulations and 61 policy recommendations across the globe. The LEI is mandated in major markets via regulatory instruments by financial regulators in the European Union, the United Kingdom, the United States and India. Given their use in the financial sector, LEIs have the potential for greater uptake throughout the value chain and trade processes between parties.

Throughout the global supply chain, LEIs can be used to enhance transparency, streamline business processes, and incur savings in operational costs, especially in light of ongoing trade digitalisation efforts. Several examples are presented of the benefits of LEIs in the supply chain.

## Streamlining international trade and cost savings

**LEIs have many practical applications in global trade and supply chains, providing an 'anchor' to identify parties and verify data.**

International trade transactions are complicated, considering the various parties and documents involved. Among the reasons giving rise to errors in trade processes is the variations of a company's name: an entity has, on average, five names — with minor variations, which may complicate the process of verifying an entity's true identification. Furthermore, one single trade transaction may can take up to 2–3 months, and involve 30 parties, 40 documents, 240 copies, and 200 data elements.

**LEIs are a foundational building block for anchoring the parties involved in international B2B transactions.**

Along with other standards for identifying trade objects (e.g. products), trade document layout and semantic elements, and help to avoid discrepancies and errors across all documents and processes.

**The potential savings for international trade could range from $20 billion to $100 billion by reducing information and transaction costs.**

Considering this, LEIs can help businesses save time and resources in correctly identifying trade partners for several trade processes, from onboarding to payment and avoid errors in transactions. The estimated savings value assumes a saving of between 1% and 5%, as LEIs remove some elements of time consuming due diligence checks.

## Enhancing trust and sustainability credentials

**Economic operators along the international trade supply chains are subject to different due diligence and compliance requirements, with the strictest checks required from the finance and banking sector.**

This is even more important in the context of enhancing sanctions regimes rising from the recent political and economic conflicts that have introduced severe disruption to the global trade and supply chains. Counterparty checks have so far relied heavily on manual processing from several sources against the entity name, which creates significant risk since multiple entities may have similar names.

**LEIs have been linked with international databases on payment, sanctions, and corporate ownership, which can be expected to significantly strengthen the capability of LEIs in counterparty identification, ownership, and sanctions screening**.

LEIs contribute to risk mitigation by ensuring that accurate and current information is readily available for analysis and decision support. This is especially true for SMEs, which might not have the same risk tolerance as big firms. From the onboarding stage, LEIs are valuable in identifying the credentials of new clients, especially those abroad, by reducing the cost of middle- and back-office activities related to the manual processing of Client information.

**Linking LEIs to Voluntary Sustainability Standard (VSS) certifications and records ensures accurate attribution of sustainability practices to specific entities, enhancing regulatory compliance and reducing the risk of non-compliance penalties**.

Along the global value chain, Voluntary Sustainability Standards (VSSs) have been promoted for sustainable development and equitable value chain governance. Several new regulatory initiatives have been enacted around the world, imposing due diligence requirements on firms. Implementing these regulations will require a strong governance framework within and between firms, as the reported information will need to be transmitted among firms. In this context, LEIs provide specific identification of legal entities, enabling precise tracking of their involvement in various activities.

# Expediting trade processes through automation and trusted schemes

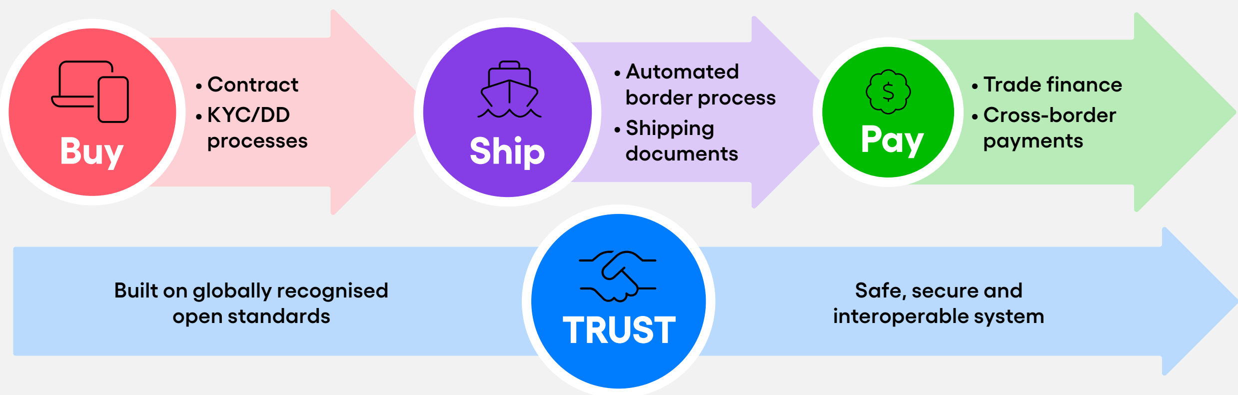
**Currently, international trade is still a paper-intensive and resource-consuming process, with some progress in automation**.

As part of the trade digitalisation process, the adoption of electronic systems and electronic trade documents has been gradually increasing, but the pace varies across countries and types of trade documents. While Certificates of Origin or Sanitary and Phytosanitary certifications have been exchanged electronically for many years, the course of digitalisation for transferable records such as bills of lading could be more challenging.

Considering the automating customs processes, incorporating LEIs into computerised certificates and documents can provide an additional layer of trust proof based on reliable data on organisational identity. LEIs can prove to be useful in the generation of digital certificates, in which the use of LEI is embedded in digital certificates. When LEIs are embedded in certificates, entity data no longer needs to be included, as LEIs are linked to entity reference data, which is verified and freely accessible on the GLEIF repository. This reduces the resource burden on the certificate issuer while ensuring consistency across certificates.

The use of **universal, verified, and regularly updated Legal Entity reference data** encoded in the LEIs will, therefore, enhance Public Key Infrastructure (PKI) Digital Certificates. Furthermore, the **vLEI allows for interoperability** as it supports the full range of blockchain or distributed ledger technology networks or cloud infrastructure without the need for custom implementation, cost and overhead of operation.

Furthermore, with the increasing uptake of trusted trader schemes (Authorised Economic Operators), linking a specific economic operator's AEO status with its LEI could work as a verifying mechanism where the economic operator's trade partners can ascertain traders' credibility following the internationally recognisable AEO criteria.



## Simplifying access to trade finance

**In payment and trade finance, LEI reference data can help make trade finance more accessible and affordable for SMEs by streamlining processes, reducing costs, accessing finance, and improving risk management and transparency**.

McKinsey (2020) estimates that LEI adoption could save the global banking sector $2–4 billion annually, or 5–10% of the industry's $40 billion annual overall spend on client onboarding costs, including KYC due diligence and AML compliance review. SWIFT (2021) suggests that additional savings can come from adopting LEI in corporate invoice reconciliation, fraud detection, fight against vendor scams, and account-to-account owner validation.

SMEs, the backbone of the global economy, often face more challenges in access to finance and conducting business. Typically, SMEs are less well-served by their banks because of the lack of collateralised assets. Furthermore, smaller entities often struggle to maintain full business records, which help them obtain access to finance.

**The LEI reduces the sometimes prohibitively high cost of onboarding clients for banks, speeding up access to finance through better identification, faster processing of letters of credit, and facilitate access to non-traditional trade finance instruments, such as asset-based finance.**

## A foundational block to digitalise trade supply chains

**LEIs confer security and trust, having been built on open interoperable standards, complementing other proprietary identifiers.**

LEIs are critical for the verification and vLEIs for authentication processes, with the highest level of accuracy. Business entities can use their LEIs for secure logins, access to digital trade platforms, and authentication in electronic transactions (in combination with secure authentication techniques). Smart contracts can use LEI references in the automatic enforcement of contractual obligations.

**Considering the ongoing trade digitalisation process, LEIs are crucial in enhancing transparency, traceability, and security across the entire trade ecosystem**.

In digital trade documents, such as commercial invoices and bills of lading, LEIs contribute to the accuracy of records and efficient data management, facilitating seamless data exchange and improved data quality and accuracy. The integration of LEIs in reporting allows authorities to streamline the monitoring of international trade activities. Businesses and financial institutions can use LEIs to identify trade partners on available portals to easily seek information to assess the financial stability and creditworthiness of their trade partners, enhancing decision-making processes.

**LEIs contribute to interoperability among various digital trade platforms and systems by allowing cross-references and pooling of standardised entity identification data**. They also enhance supply chain visibility by uniquely identifying entities at each stage of the supply chain. This visibility enables real-time tracking and monitoring, allowing stakeholders to make informed decisions based on accurate and up-to-date information.

**LEIs complement other public and private, open, and closed entity identification schemes, all contributing to visibility and transparency across global supply chains**.

The LEI simplifies the concept of organisational identity by providing accessible identity reference data and can act as a "connector" to other specific-purpose identifiers for the development of an interoperable trade ecosystem without any 'identity silos'. All supply chain actors would benefit from a consistent reference to established identifier standards, which provide systematic identification of legal entities and associated people. This interoperability will allow more efficient linking, sharing, reporting, and reusing of high-quality, reliable data transmitted across systems.

# Call to action

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# Call to action

**Without a wholesale change in approach by governments and other trade stakeholders, it is unlikely LEIs will be adopted at the pace and scale needed to match the momentum to digitalise trade. The following practical calls to action will help scale up adoption and utilisation.**

| | | |
|---|---|---|
| ACTION 1 | **Incorporate LEIs into existing national and proprietary company registration and identity systems** | Company Houses, chambers of commerce and equivalent national company identification and registration schemes could incorporate LEIs into existing infrastructure to reduce cost and complexity and make LEIs more widely available. The same could be done for proprietary systems to help break down digital islands between countries and generate more trust in international trade.<br>Ease: ●●●○○ Impact: ●●●●● Speed of impact: ●●●●● |
| ACTION 2 | **Improve awareness of the benefits of LEI adoption and utilisation** | Governments could do more to work with industry groups and educate business on the benefits of LEI adoption and utilisation, including disseminating use cases and best practice.<br>Ease: ●●●●○ Impact: ●●●●○ Speed of impact: ●●●○○ |
| ACTION 3 | **Build LEIs into existing systems, solutions and contractual processes** | System providers could build LEIs into technology solutions such as AML/KYC and compliance checks or fraud and tax avoidance solutions.<br>Governments could build LEIs into Economic Operator Registration and Identification numbers (EORI), Single Trade Windows and Economic Operator Registration (AEO) schemes.<br>Companies could incorporate LEIs into supply chain management systems and contractual processes. The LEI could become a global standard to identify international entities across international templates such as issuance of letters of credit, bills of lading, ESG reporting, certificates of origin, etc.<br>Ease: ●●●●● Impact: ●●●●○ Speed of impact: ●●○○○ |
| ACTION 4 | **Better promote the vLEI** | GLEIF could do more to promote and encourage wider use of the verifiable LEI, a digitised LEI service that offers many more additional benefits than the conventional LEI. This could be done through Proofs of Concept and/or use cases where GLEIF facilitates supply and demand actors coming together.<br>Ease: ●●●●● Impact: ●●●○○ Speed of impact: ●●●○○ |
| ACTION 5 | **Mandate the use of LEIs in public procurement** | Governments could mandate the use of LEIs in public procurement processes and systems. This plays an important role in raising uptake, especially by SMEs, and reducing unnecessary identity checks.<br>Ease: ●●○○○ Impact: ●●●○○ Speed of impact: ●●●○○ |

# Introduction

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# Introduction

## What is a LEI?

**LEI has been increasingly adopted in reporting regimes globally, as demonstrated by the adoption of the LEI in 233 regulations and 61 policy recommendations across the globe.**[1] The LEI dates back to 2008, in response to the need for financial institutions to quickly and accurately identify the parties involved in financial transactions, the absence of which exacerbated the global financial crisis.[2] The LEI initiative was driven by the Financial Stability Board (FSB) on behalf of the finance ministers and governors of central banks represented in the Group of Twenty (G20). In 2011, the G20 called on the FSB to lead in developing recommendations for a global LEI and a supporting governance structure. The related FSB recommendations endorsed by the G20 in 2012 led to the development of the Global LEI System as a broad public good and the subsequent establishment of the GLEIF by the FSB in 2014. As outlined in the GLEIF's Statutes, the Global LEI System is designed and developed to be used by both public authorities and the private sector to support improved risk management, increased operational efficiency, more accurate calculation of exposures and other needs.[3]

The LEI is a 20-digit, alpha-numeric code based on the ISO 17442 standard developed by the International Organization for Standardization (ISO). The code connects to key reference information that enables transparency and unique identification of legal entities, including their ownership structure. It connects to key reference information, enabling clear and unique identification of legal entities participating in financial transactions. The LEIs provide a "live, freely accessible, and frequently updated entity reference data system"[4] to which parties engaging in international trade transactions can refer during various stages of their cross-border transactions.

As more countries are moving to adopt LEI as a mandatory requirement in their ISO 20022 messages,[5] market participants engaging in cross-border transactions will need to be prepared for LEI adoption even if their jurisdiction has yet mandated the LEI.

## What is the information associated with a LEI?

**LEI is closely linked to the concept of organisational identity.** Think of the LEI for a legal entity like a passport is to a person. A passport contains sufficient data to identify a person, including name, year of birth, gender, and nationality, which can then be used to linked to financial or travelling records. Over the world, there are no two persons with the same Passport No. All Passports are issued in accordance with International Civil Aviation Organisation (ICAO) Standard Travel Documents and thus can be recognised by all immigration offices. Similarly, a LEI contains the basic information to identify a legal entity, such as its name, country of incorporation, legal entity form, the parent-subsidiary linkages, which can then be used to link to record held in other public and private databases, such as credit bureaus, banks and financial institutions, or market intelligence service providers. There are no two legal entities with the same LEI. All LEIs are issued based on the ISO 17442 standard developed by the International Organization for Standardization (ISO). It connects to key reference information that enables clear and unique identification of legal entities.

**Simply put, the LEI answers the questions of 'who is who' and 'who owns whom.'** Each LEI contains information on the legal entity, including its name, address, and ownership structure. The records also provide reference data, such as the domestic business register number.[6] In that way, the publicly available LEI data pool can be regarded as a global directory, enhancing transparency in the global marketplace.[7] Considering this strong identification capacity, the LEI can be used in any process that requires entity identification, from finance to healthcare to verifying all counterparties of a business supply chain.[8]

# How does an LEI differ from other identifiers?

Several open and proprietary legal entity identification schemes currently co-exist and serve different business purposes. The LEI is designed to simplify the concept of organisation identity by providing both **accessible identity reference data and acting as a "connector" to other specific-purpose identifiers.**

Unlike national legal entity identification numbers, such as the Tax Identification Number or the Business Registration Number issued by national authorities for domestic tax and business governance purposes, the LEI is an **internationally recognisable corporate 'passport'**. Secondly, while most jurisdictions require that the national company registry keeps track of business owners, persons of significant interest, and ownership structure, this information is not required or publicly available from all countries.

Proprietary identifiers exist for market research and market intelligence companies, namely the S&P Global Company ID or the Data Universal Numbering System (DUNS) of Duns & Bradstreet. However, LEIs provide public access to all registered LEI records with reference data for legal entities. Details on when an LEI was latest updated is also reflected in the LEI Repository.

The LEI acts as a **Public Utility Structure** and does not compete with proprietary identifiers such as the S&P or DUNS numbers. The LEI is distinct in that it is publicly accessible, interoperable, linking systems across borders, and scaling the benefit of trade digitalisation. For example, the published BIC-to-LEI mapping or S&P Global Company ID-to-LEI mapping demonstrates the flexibility of the LEI to co-exist alongside other specific-purpose identifiers to simplify legal entities' data management, compliance, and reporting processes.[9]

BOX 1

## The ISO 17442 standard

The ISO 17442 standard specifies the minimum elements of an unambiguous Legal Entity Identifier (LEI) scheme to identify the legal entities relevant to any financial transaction. The LEI is designed for automated processing. It can also be conveniently used in other media interchange when appropriate (e.g., paper document exchange).

It is applicable to "legal entities", which include, but are not limited to, unique parties that are legally or financially responsible for the performance of financial transactions or have the legal right in their jurisdiction to enter independently into legal contracts, regardless of whether they are incorporated or constituted in some other way (e.g., trust, partnership, contractual). It includes governmental organisations, supranational organisations, and individuals when acting in a business capacity but excludes people.

## vLEI: Solutions for Automated Legal Entity Authentication and Verification

**A Verifiable Legal Entity Identifier (vLEI) is a new digitalised entity identity created to address the demand for automated legal entity authentication and verification.** The vLEI is a cryptographically verifiable credential that is integrable with blockchains and decentralised systems, self-sovereign identity (SSI) platforms, and other decentralised key management platforms. It, therefore, can be used as a signing tool for corporate digital identity and individuals with delegated signing authority rights.[10] Together, the LEI and vLEI represent and provide a trusted global identity to organisations and their organisational roles.

The registration, renewal, and revocation of vLEI are done by Qualified vLEI Issuers (QVIs) authorised by the GLEIF. To issue vLEI Credentials, the QVI conducts several verifications such as the status of the organisation's LEI, that the representative of the organisation applying for the vLEI is authorised to act on its behalf and that the credential wallet is controlled by this representative of the organisation. The organisation owning the LEI is required to supply the required information to the QVI. Once a vLEI Credential is issued, its issuance is publicly available on gleif.org.[11]

In addition to issuing Legal Entity vLEI Credentials, QVIs can issue Legal Entity Official Organizational Role (OOR) vLEI Credentials at the request of vLEI clients holding valid Legal Entity vLEI Credentials. These credentials have been created in accordance with ISO 5009 on Official Organizational Roles.[12]

## Myths about LEIs

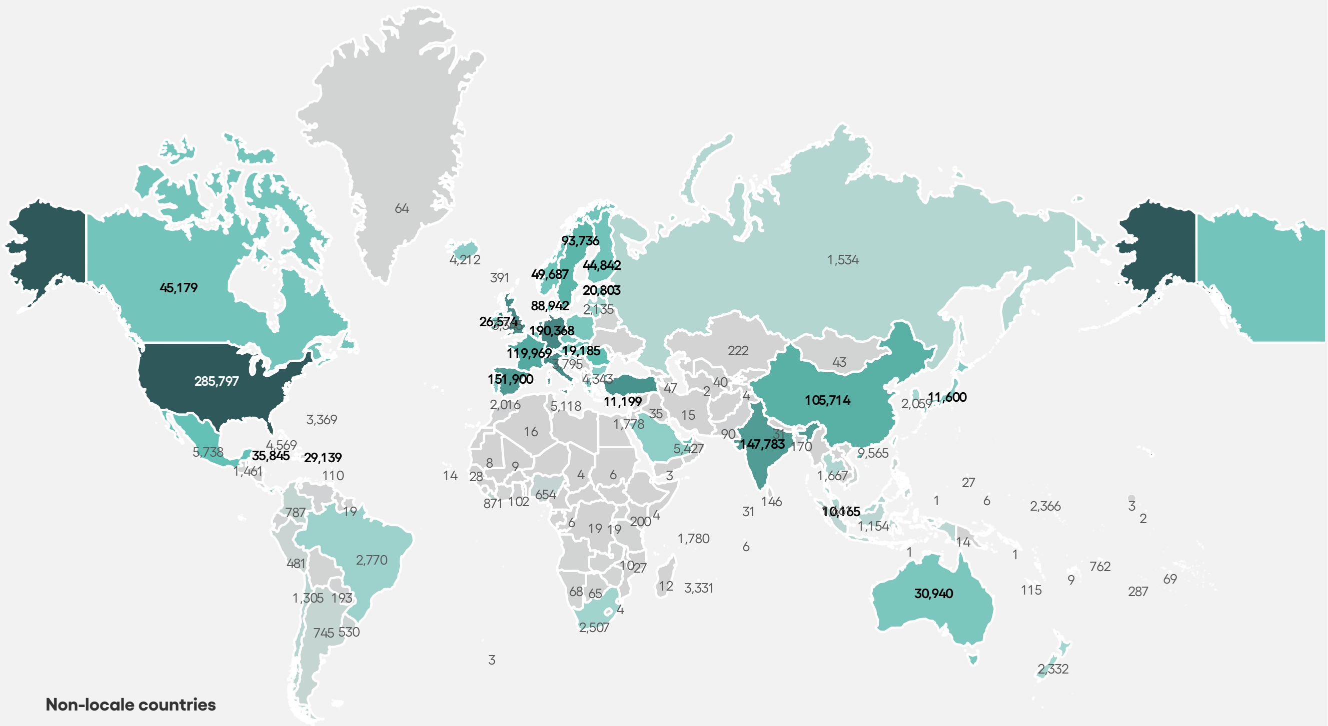
| | |
|---|---|
| **LEIs are only relevant for large corporations** | LEIs are beneficial for entities of all sizes, including small and medium-sized enterprises (SMEs), through enhancing transactional transparency, reducing risks, and improving data accuracy in financial transactions. |
| **LEIs are only necessary for financial institutions** | While financial institutions widely use LEIs for regulatory compliance, LEIs can be integrated into various business processes for counterparty identification and supply chain management, providing a standardised identification system for entities across industries. |
| **LEIs are only required for companies involved in international transactions** | While LEIs are crucial for entities engaged in global trade, they also offer advantages for domestic businesses. LEIs contribute to data accuracy, risk mitigation, and regulatory compliance, even in local transactions. |
| **LEIs are only relevant for regulatory compliance** | While regulatory compliance is a significant aspect, LEIs offer broader advantages. They improve counterparty risk assessment, enhance business transparency, and contribute to more accurate and efficient financial data management. |
| **Obtaining an LEI is a complex and time-consuming process** | Acquiring an LEI is a straightforward process. Many authorised providers offer quick and efficient registration services. The benefits, such as increased visibility and credibility, can be realised following the relatively simple application process. |
| **LEIs will replace other public and proprietary identifiers, such as the EORI, Company House Registration Number, SWIFT/BIC, DUNS, or S&P** | LEIs complement existing identification schemes. In fact, there have been efforts to map LEIs with existing identifiers, including the Business Identifier Code (BIC), the International Securities Identification Number (ISIN), the S&P Global Company ID, the Market Identifier Code (MIC) (the identification code used to identify securities trading exchanges, regulated and non-regulated trading markets), etc.[13] The local business registration number is an integral part of each LEI record. |

## Current LEI users

**The number of companies with active LEIs has been consistently increasing. As at the end of 2023, the total LEI population was approximately 2.41 million globally.** This represented a quarterly growth of 2.5%. The top five jurisdictions by LEI population were the United States, the United Kingdom, Germany, Italy, and Spain. The high uptake of LEI in the United States, the United Kingdom, and European Union Member States can be attributed to the mandatory regulatory requirements, including the EU's Markets in Financial Instruments Directive II (MiFID II) and Markets in Financial Instruments Regulation (MiFIR), the UK MiFID,[14] the US's Dodd-Frank Act and the Commodity Exchange Act 2012,[15] the Reserve Bank of India (RBI)'s requirements for using LEIs in Real Time Gross Settlement (RTGS) and National Electronic Funds Transfer (NEFT) payment messages among others.[16]

FIGURE 1

### Total number of active LEIs by jurisdiction




Non-locale countries

| Country | |
|---|---|
| European Union | 4 |
| Other jurisdictions* | 20 |
| United Nations | 14 |

*Other jurisdictions refers to international organisations that do not have a legal jurisdiction.



**Source:** Global LEI System Business Report | Q4 2023

# Benefits of LEIs: Use cases

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# Benefits of LEIs: Use cases

## Streamlining international trade and cost-savings

**A single cross-border trade transaction involves a complex network of stakeholders and documentation.**

International trade transactions are complicated, considering the various parties and documents involved. The Buy-Ship-Pay Reference Model developed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT depicts an international trade transaction into three stages (Buy, Ship, Pay) and four procedures (Commercial, Logistical, Regulatory and Payment) (Figure 2).

**An entity has on average five names—with minor variations, which may complicate the process of verifying an entity's true identification.**

Several public and private sectors are involved across the whole trade supply chain. These include exporters, importers, customs, brokers, banks, insurers, freight forwarders, carriers, etc. Information exchanged among actors floats across several activities, the entering and re-entering of which may result in discrepancies and errors. Among the reasons giving rise to errors is the variations of a company's name: an entity has, on average, five names—with minor variations, which may complicate the process of verifying an entity's true identification.[17]

The variation in used names creates difficulties in identifying and verifying a party engaging in international business-to-business (B2B) transactions. While most companies would find the full name, business registration number, or tax identification number sufficient for signing commercial contracts, more detailed information may be required at the payment stage. Without a globally recognised unique identification number, this would require additional resources for checking the counterparty's information to ensure correct transaction processing.

While several entities can have similar names, the unique legal identity numbers help parties locate reliable identification reference data linked with parties. Among many, an illustration is made for issuing a certificate of origin, where the COO can be identified against the LEI (Figure 3).

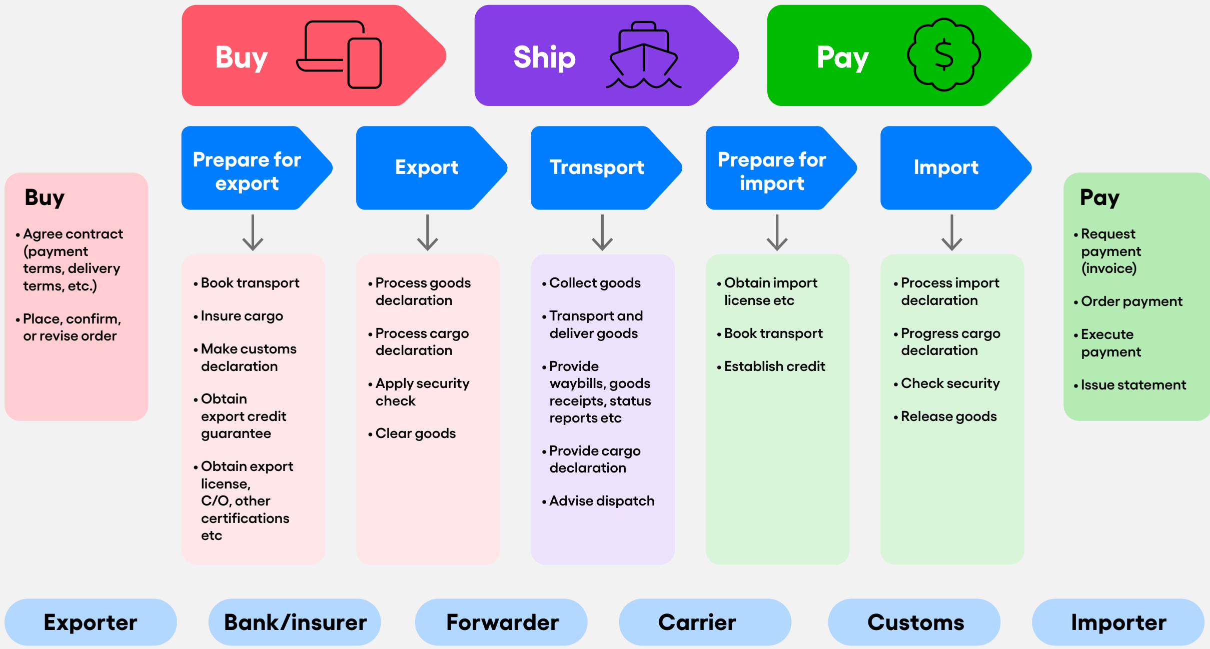
**Across international trade stages and procedures, one single trade transaction may involve 30 parties, 40 documents, 240 copies, and 200 data elements, of which 60%–70% are duplicated at least once across all trade documents.**

Across international trade stages and procedures, one single trade transaction may involve 30 parties, 40 documents, 240 copies,[18] and 200 data elements, of which 60%–70% are duplicated at least once across all trade documents.[19,20] In these documents, one party engaging in international Business to Business (B2B) transactions can be referred to with different appellations under different trade documents (Table 1). Furthermore, the lack of visibility of partners in the next steps of the supply chain leads to verification costs. Therefore, improving transparency and efficiency of operation and communication among operators will enhance visibility and transparency and reduce costs in the international trade supply chain. Along with other standards for identifying trade objects (e.g., products), trade document layout and semantic elements,[21] LEI can be the 'constant factor' identifying, or anchoring, the parties involved in one specific international B2B transaction, especially the Supplier and Customers as the key operators, to avoid discrepancies and errors across all documents and processes.

**The potential savings for international trade could range from $20 billion to $100 billion by reducing information and transaction costs.**

FIGURE 2

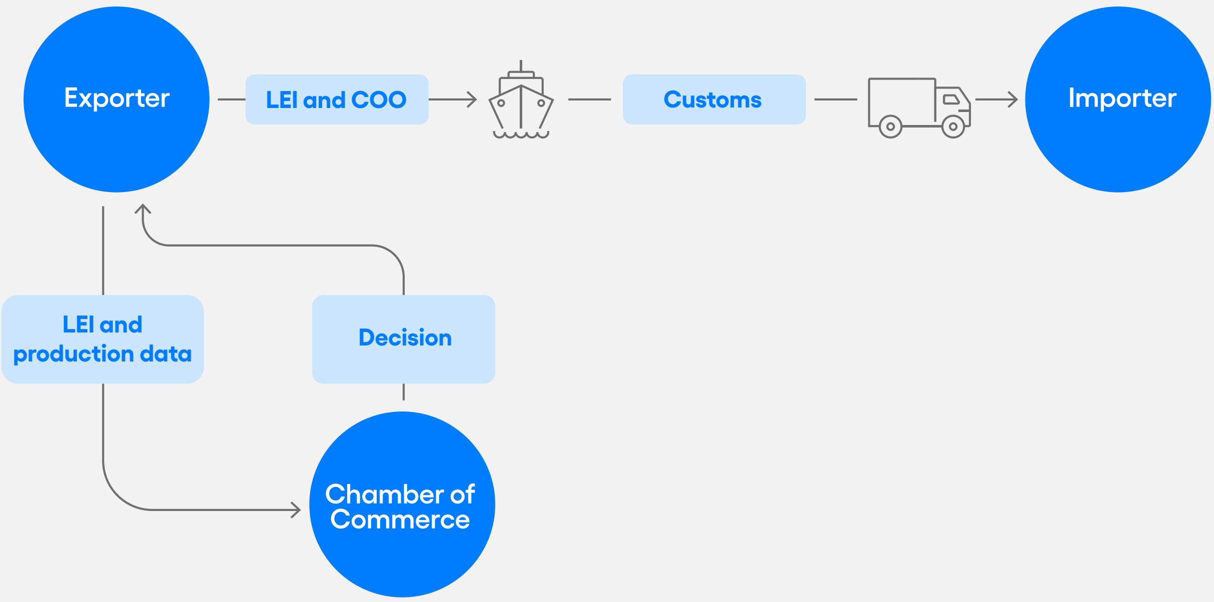
## International trade flow and actors involved




**Source:** Author's compilation; UNECE Buy-Ship-Pay Reference Models

FIGURE 3

## Illustration of use of LEI in issuing a certificate of origin




**Source:** Author's compilation

According to the World Bank (2021), average trade costs may roughly be equivalent to a 100% tariff. Trade costs in emerging markets and developing economies (EMDEs) are almost 50% higher than those in advanced economies.[22] Governance quality, trade policy and regulatory differences, ICT connectedness, Information and transaction costs, and Transport and travel costs are the key factors contributing to trade costs. While transportation remains the largest cost, information and transaction costs also account for a significant proportion, estimated at 16%. Considering this, LEIs can help businesses save time and resources in correctly identifying trade partners for several trade processes, from onboarding to payment and avoid errors in transactions.

According to McKinsey (2017), savings of at least 10% of total operations costs for client onboarding and trading processing for banks adopting the LEI are possible.[23] While other sectors may not adopt the same rigorous AML/KYC check as the banking and financial industry, the complexity of international trade is increasingly required. Assuming a saving of 1% (conservative scenario) to 5% (complex due diligence checks scenario) of information and transaction costs, the potential savings for international trade could range from $20 billion to $100 billion by reducing information and transaction costs.

TABLE 1

## References to parties under different trade documents

| Document type | Trade documents | Customer | Supplier | Other parties |
|---|---|---|---|---|
| Contract | Commercial contract | Buyer | Seller | Seller bank |
| Finance and payment | Commercial invoice | Buyer<br>Receiver<br>Importer<br>Invoice | Seller<br>Shipper | |
| Duties and exercise documentations | Certificate of origin (C/O) | Consignee | Exporter | Chamber of commerce |
| Transport and logistics | Packing list | Consignee<br>Buyer | Exporter | Pre-carrier |
| Documents of title | Bill of lading (B/L) | Ship to<br>Consignee<br>Freight payer | Ship from/shipper<br>Consignor<br>Freight payer | Carrier |
| Movement of products | Customs declaration | To/addressee<br>Importer | From/sender<br>Exporter | Customs authority |
| Finance and payment | Letter of credit (L/C) | Applicant | Beneficiary | Advising bank |
| LEI | | 987600A12B3C4DEFGH01 | 123400XYZ567OPQR8S99 | |

**Source:** Author's compilation

# A Buy: Enhancing trust and sustainability credentials

USE CASE 1: COUNTERPARTY IDENTIFICATION

## Navigating the increasingly complex business world

**Each economic operator along the international trade supply chains is subject to different sets of due diligence and compliance requirements, with the strictest checks required from the finance and banking sector.**

To mitigate risk and ensure compliance, each economic operator may conduct several counterparty checks, including gathering information on the counterparty's business, ensuring the counterparty's country of operation not under economic sanction/embargo, and ensuring that the counterparty itself does not appear on any blacklists. If these checks have not been done earlier in the international B2B transactions, i.e., onboarding for commercial contract formation, any findings in the later payment stage will result in the delay of the transactions and incurring costs for businesses.

The Know Your Client (KYC) or Know Your Business (KYB) process is as a standard procedure in the banking and finance industry to verify a client's identity and financial profile. However, nowadays, it is not only financial institutions that need to know their clients; non-financial economic actors also need to understand their clients to mitigate risks and ensure compliance with regulations. This is even more important in the context of enhancing sanctions regimes rising from the recent political and economic conflicts that have introduced severe disruption to the global trade and supply chains (Box 2). Indeed, SWIFT's 'Guiding principles for screening ISO 20022 payments' also highlighted how the LEI can support an effective, targeted approach to sanctions screening.[24]

**Counterparty checks have so far relied heavily on manual processing from several sources against the entity name, which creates significant risk since multiple entities may have similar names.**

Several initiatives have emerged in these areas of counterparty checking, such as Opening Sanction and Open Ownership, both of which can be searched using LEIs, which return definite results and reduce false positives compared to search by entity name.

In this context, the LEI can be used in sanction screening to enhance the efficiency and effectiveness of the process. In essence, the use of LEI in sanction screening can transform the traditionally name-based system into an identity-based system, "*making it faster, more effective, and less expensive to administer for all stakeholders*".[25] LEIs have been linked with international databases on payment, sanctions and corporate ownership, which can be expected to significantly strengthen the capability of LEIs in counterparty identification, ownership and sanctions screening.

**Counterparty Identification is not only important in private transactions but also in public procurement.**

During public procurement, vendors are subject to a systematic due diligence process involving several steps to ensure that potential suppliers meet the necessary criteria for providing goods and services. Typically, during this process, vendors would need to identify who they are, their management structure, financial status, past experience, and relevant certificates. Legal documents should be submitted to prove the aforementioned statements. In this process, LEI and vLEI can be used to standardise the identification of entities engaging in the process securely.[26]

BOX 2

## New sanctions regimes introduced in the last three years

In the past few years, several significant sanctions measures have been adopted globally. In 2021, the **United States (US)** Treasury issued a total of 765 new designations, with the majority (51%) pursuant to country-specific sanctions programs, mainly Belarus, Burma, China, and Russia.[67] During the last year, the US government has unveiled significant new sanctions directed at China, Russia, and Belarus and maintained sanctions imposed by the Trump administration on Iran. The United States currently has 32 active measures directed at terrorism, narcotics trafficking, weapons proliferation, or human rights abuses.[68] Just recently, in October 2023, the US unveiled new rules on the chip export controls, first introduced in October 2022, to expand export curbs beyond mainland China and Macao to 21 other countries with which the United States maintains an arms embargo, including Iran and Russia.[69]

Likewise, the **European Union (EU)** has imposed wide ranging and unprecedented sanctions against Russia in response to the war of aggression against Ukraine, which started on 24 February 2022.[70] Since Russia's unprovoked and unjustified invasion of Ukraine in February 2022, the European Council has adopted ten packages of sanctions against Russia and Belarus.[71] On 9 June 2023, the European Council agreed to harmonise at the member state level the criminal offences and penalties for the violation of EU sanctions, including activities helping people bypass an EU travel ban, trading sanctioned goods or running transactions with those hit by EU restrictive measures.[72]

The **United Kingdom (UK)** implements a range of sanctions regimes through regulations made under the Sanctions and Anti-Money Laundering Act 2018 (the Sanctions Act). On 3 November 2022, the UK introduced The Russia (Sanctions) (EU Exit) (Amendment) (No. 16) Regulations 2022, which imposed further trade sanctions, including a prohibition on the supply or delivery by ship of certain Russian oil and oil products, along with a prohibition on the provision of related ancillary services, such as brokering services, financial services and funds.[73] In response to Russia's invasion of Ukraine, the UK has sanctioned major banks, including Sberbank and Credit Bank of Moscow, and removed selected banks from the SWIFT international payments system. The UK also sanctioned defence sector organisations and banned the export of critical technologies.[74]

USE CASE 2: RISK MANAGEMENT

# Enhancing risk management for SMEs

**LEIs can also play an important role in risk management, especially for SMEs.**

The role of LEIs extends beyond mere identification: they are integral to risk management. In an environment where informed decision-making relies on up-to-date and precise information about the entities involved, LEIs contribute to risk mitigation by ensuring that accurate and current information is readily available for analysis and decision support.

This is especially true for SMEs, which might not have the same risk tolerance as big firms: the lost payment of one order can affect the viability of the firms. Lacking the resources and capacity to do due diligence checks of partners, they face even higher risks of exposure to fraud or non-payments when engaging in cross-border trade (see example in Box 4). Therefore, they have the incentives to reduce risks related to non-payments and fraud in cross-border transactions.

These frauds and scams highlight the risks involved in international trade. It's a reminder for exporters to be vigilant and take necessary precautions when dealing with international transactions. In this context, LEIs could be used to help SMEs check the identity and reliability of their partners to ensure secure and reliable transaction processes. However, outside of the financial and banking sector, the LEIs remain unknown by most firms. Some SMEs that were interviewed recognised the potential benefits of LEIs but stated the lack of awareness and understanding of the benefits of LEIs as the reason for not registering one. This highlights the need to promote awareness among business communities, especially those involved in international transactions.

**LEIs are valuable in identifying the credentials of new clients, especially those abroad, by reducing the cost of middle- and back-office activities related to the manual processing of client information.**

Before engaging in transactions with sellers, buyers perform identification checks to ensure that sellers are reliable counterparties. From the onboarding stage, LEIs are valuable in identifying the credentials of new clients, especially those abroad, by reducing the cost of middle- and back-office activities related to the manual processing of Client information. By acting as a reliable "proof of existence" to business partners in their value chain, the LEI can support companies in engaging in trading activities for cross-border commerce.[27]

Globally, there are an estimated 333 million SMEs[28] worldwide in 2021.[29] For SMEs, cross-border transactions can be extremely cumbersome, with several steps and activities to handle concluding contracts, obtaining finance, securing raw materials, processing, manufacturing, packing, shipping, and distributing goods, and receiving, making, and reconciling payments. It will require a very organised record-keeping system by the company. The LEI will help streamline this time-consuming workstream because the company can collate information around a single entity—either a customer or supplier. This will build a portfolio of previously unavailable performance and historical data by a counterpart that will improve the reliability of its records over time.[30]

**Uptake of LEIs would result in an annual saving amounting to $61.9 billion for SMEs involved in international trade.**

According to the World Bank Enterprise Survey, around 16.5% of all SMEs involved in trade (identified as firms exporting directly or indirectly at least 10% of sales).[31] According to stakeholder interviews, a typical SME would estimate a saving of around 5% of one full-time equivalent (FTE) annually on current time and resource allocation to deal with managing the global supply chain, onboarding process, and monitoring of suppliers. This translated into an annual saving amounting to $61.9 billion annually for SMEs involved in international trade.

USE CASE 3: ESG REPORTING

## Strengthening sustainability credentials

**With the increasing mandatory adoption of VSSs and the global characteristics of VSS certifications, the use of LEIs can be incorporated to ensure easy retrieval and monitoring of VSS adoption.**

The uptake of Voluntary Sustainability Standards (VSSs) provides competitive advantage to complying producers, affirm high product quality, and signal sustainable production practices that facilitate their market access to foreign markets.[32] Furthermore, countries are increasingly engaging with VSSs to promote sustainable development and equitable value chain governance through public procurement and public policy measures. VSSs have also been included as a market access requirement by Europe and some Asian countries for commodities such as timber or biofuels.[33]

Currently, there are plethora of VSS schemes that businesses can choose from. For example, the International Trade Center's Standard Map records 339 global standards covering 1,650+ criteria for environmental protection, worker and labour rights, economic development, quality, and food safety, as well as business ethics. In the coffee sector alone, 82 standards can be identified to cover from organic farming to product quality, fair trade, halal compliance, etc.[34]

Moreover, several new regulatory initiatives have been enacted by countries around the world, imposing due diligence requirements on firms. Example includes the EU's Corporate Sustainability Reporting Directive (CSRD), the EU's Corporate Sustainability Due Diligence Directive (CS3D), and the EU Deforestation Regulation. While non-EU firms might not be directly subject to these regulatory requirements on due diligence, they might be impacted as they increasingly trade and participate in the global value chains.

Implementing these regulations will require a strong governance framework within and between firms, as the reported information will need to be transmitted among firms. Businesses can demonstrate compliance with the due diligence requirements by showcasing the certificates in the relevant social and environmental protection areas.[35]

**LEIs provide specific identification of legal entities, enabling precise tracking of their involvement in various activities. Linking LEIs to VSS certifications and records ensures accurate attribution of sustainability practices to specific entities, enhancing regulatory compliance and reducing the risk of non-compliance penalties.**

BOX 3

### LEI mapping with Open Sanctions and Open Ownership

Open Sanctions, Open Ownership, and the Global Legal Entity Identifier Foundation (GLEIF) have collaborated to enhance sanctions and anti-money laundering screening. The collaboration aims to combat money laundering, terrorist financing, and sanctions evasion by mapping GLEIF's LEI to both Open Ownership and Open Sanctions datasets.

This joint initiative allows critical datasets to be efficiently matched, particularly in the context of cross-border and instant payments. It provides a comprehensive network of entities and relationships, streamlining the process for analysts to explore leads and evaluate potential risks to a company.

The integration of LEI into Open Sanctions helps identify what are called secondary sanctions. These apply specifically to companies in which 50% or more of the company is owned by sanctioned individuals or entities. This enhances support for anti-money laundering (AML), counter-terrorist financing (CTF), customer due diligence, and sanctions enforcement efforts globally. The linkage of Open Sanctions with LEI through this collaboration provides a robust tool in combating financial crime by enabling efficient matching of critical data sets.[75]

BOX 4

## Frauds in international trade: The Vietnamese cashew nut case

In early 2022, Vietnamese exporters faced significant losses due to a scam involving cashew nut exports. The scam unfolded when several cashew nut exporters signed contracts to export 100 containers, each priced at VND 10 billion (approximately $437,000), to Italy. However, the original documents required by shippers to release the containers went missing, and the Vietnamese exporters did not receive payment for their goods. Changes were also made to the SWIFT code sent from Vietnamese banks to those allegedly representing the importer in Turkey.[76] The Turkish banks declared the buyer was not their client and said they had sent back the documents. However, the collection documents were lost. Anyone with the original documents can present them to the transporters for the release of the goods.[77]

As a result of these suspicious activities, Vietnam Cashew Association (Vinacas) sent an urgent notice to the Embassy and the Trade Office of Vietnam in Italy to request help. They urged the Vietnamese missions to coordinate with Italian authorities and shipping companies to prevent the release of the containers. By April 3, 2022, Vietnamese companies had recovered 12 out of 35 containers of cashew nuts exported to Italy with lost original documents.[78]

As of June 22, 2022, all 100 cashew nut containers related to the suspected scam had returned to Vietnamese businesses.[79]

BOX 5

## Current use of LEIs by SMEs

Among all legal entity identifiers, SMEs are more familiar with Companies House Registration Numbers (or Business Registration Numbers, depending on the jurisdiction), Economic Operators Registration and Identification (EORI) numbers (for those trading with/from the EU and UK), and bank details, including SWIFT/BIC. The primary uses of the identifiers are mostly to make and receive payments, credit checking on customers/suppliers (using third-party service providers), and KYC processes with banks. SMEs may also do some currency trading to complement the various currency bank accounts they hold — this is where LEIs are used by and become known to SMEs. Outside of trading in financial instruments, SMEs may find that LEI is more beneficial when building new relationships with international suppliers, as getting foreign counterparty's information can be difficult. Where the relationships have been established, SMEs currently see limited benefits of LEIs unless LEIs can provide SMEs with access to suppliers' credibility assessments that are currently obtained via third-party suppliers. SMEs also point to the lack of awareness and understanding of the benefits of LEIs.

**Source:** Interviews with UK-based Retailer

BOX 6

## Regulatory due diligence requirements

The **EU Corporate Sustainability Reporting Directive (CSRD)** entered into force on 5 January 2023 and will apply to the financial year 2024 for reports published in 2025. The CSRD covers around 50,000 companies, including large companies, listed companies, banks, insurance companies, and some SMEs. It is estimated that the CSRD may directly impact about 10,000 non-EU companies.[80] The key characteristic of the CSRD is the wide breadth of the disclosure requirements and the resulting need for information across the in-scope company's value chain, according to European Sustainability Reporting Standards (ESRS), which are being developed by the European Financial Reporting Advisory Group and will be adopted by the European Commission.[81,82]

The **proposed Corporate Sustainability Due Diligence Directive,** currently under trilogue negotiation at the EU, establishes a corporate due diligence duty for covered businesses in identifying, preventing, mitigating and accounting for negative human rights and environmental impacts in the company's own operations, subsidiaries and value chains. The Directive provides a prescriptive list of violations or adverse impacts on human rights and environmental conventions that should be considered during the corporates' due diligence process. The Directive also introduces duties for the directors of the EU-covered companies in fulfilling their 'duty of care' and acting in the best interest of the company to take into account the human rights, climate change and environmental consequences of their decisions.[83]

The **EU Deforestation Regulation (EUDR)**,[84] entered into force on 29 June 2023, applies to companies trading in cattle, cocoa, coffee, palm oil, rubber, soya and wood, as well as products derived from these commodities.[85] The EUDR will effectively ban all trade of goods linked to deforestation, forest degradation or breaches of local environmental and social laws. To ensure compliance, companies trading in listed commodities and their derived products are required to conduct extensive diligence on the value chain. Following the entry into force of the EUDR, EU operators and traders will have 18 months ('transitional period') to implement the new rules, i.e., until 30 December 2024 (or 30 June 2025 for micro and small enterprises). After this transitional period, all EUDR commodities and products shall not be placed or made available on the market or exported unless they are (i) deforestation-free, (ii) produced in accordance with the relevant legislation of the country of production, and (iii) covered by a due diligence statement. Furthermore, one of the key characteristics of the EUDR is the **traceability requirements,** which require non-SME operators and traders to collect, among other information, the **geographic coordinates of the plots of land** where the commodities were produced. The geolocation coordinates need to be provided in the due diligence statements that operators are required to submit to the Information System ahead of the placing on the Union market or the export of the products.[86]

BOX 7

## Joint initiative to support MSMEs' ESG reporting

On 22 June 2023, the United Nations Development Programme (UNDP), Global Legal Entity Identifier Foundation (GLEIF) and Monetary Authority of Singapore (MAS) signed a Statement of Intent to embark on a collaborative initiative to develop digital Environmental, Social and Governance (ESG) credentials for Micro, Small and Medium-Sized Enterprises (MSMEs) worldwide. Known as Project Savannah, this initiative aims to help simplify the ESG reporting process for MSMEs by leveraging digital tools powered by the Artificial Internet of Things (IoT) to generate ESG data credentials that can be housed in MSMEs' LEI records. MSMEs will then be able to transmit verified entity information and key ESG data to their business partners, strengthening their ability to gain access to global financing and supply chain opportunities.[87]

# B Ship: Expediting trade processes through automation and trusted schemes

USE CASE 4: CUSTOMS PROCESSES

## Automated customs and trade facilitation processes

**Digitising trade process, an integral part of which is digital authentication, could potentially increase exports by $5 billion annually and GDP by $6 billion annually for ASEAN.**

Digitalising the trade supply chain is expected to bring immense benefits for traders and the economy as a whole. For example, in the Association of Southeast Asian Nations (ASEAN) Digital Trade Connectivity Research Study (2020), it has been estimated that the digitalisation of the trade process could potentially increase exports by $5 billion/year and economic output (GDP) by $6 billion/year for ASEAN as a whole, through offering lower trade costs which stimulate more trade and economic activity. However, in order to deliver these benefits, trade processes need to be made easier, more transparent, and efficient through automation and simplification.

Currently, international trade is still a paper-intensive and resource-consuming process. Among all trade documents, McKinsey indicates that the bill of lading accounts for between 10 and 30% of total trade documentation costs. As such, the adoption of electronic bill of lading could save the industry $6.5 billion in direct costs and enable between $30 billion and $40 billion in new global trade volume.[36]

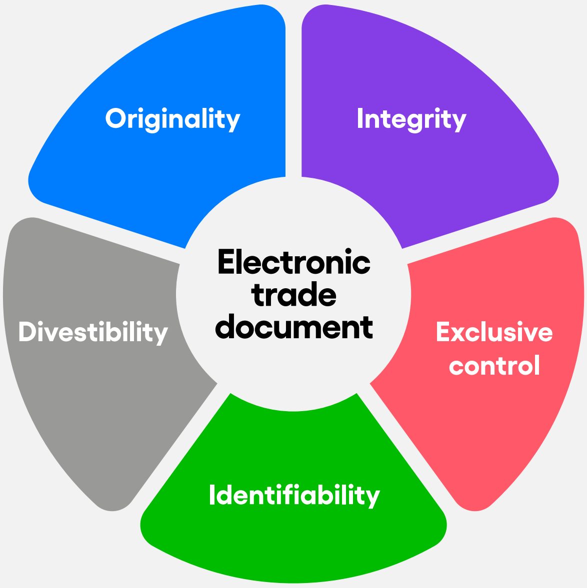
Automated customs processes are a critical part of modern international trade. They replace the manual processing of customs documents with computer-assisted treatment of electronically transmitted information.[37] Automated customs systems, such as the Automated System for Customs Data (ASYCUDA), facilitate trade through the normalisation of forms and documents, data standardisation, simplification, and computerisation of customs clearance procedures.

This accelerates the clearance of goods and strengthens customs operational efficiency for control by implementing sound procedures and providing full audit trails and mechanisms.

The Automated System for Customs Data (ASYCUDA), a computerised system designed by the United Nations Conference on Trade and Development (UNCTAD), plays a significant role in automating customs processes and digitalising trade. ASYCUDA is operational in 102 countries and territories, including 38 least-developed countries, 23 landlocked developing countries and 41 small island developing states.[38] The applicant accounts on the system are linked to the national Tax Identification Numbers to identify companies, carriers, and declarants.[39]

**As trade digitisation processes grow, the benefits will only accrue from verifiable interoperable and secure digital authentication processes.**

As part of the trade digitalisation process, the adoption of electronic systems and electronic trade documents has been gradually increasing, but the pace varies across countries and regions. In the EU, the EU-wide electronic exchange of customs declarations was established with the New Computerised Transit System, which started in 1997 and was completed with the adoption and application of the Union Customs Code in May 2016.[40] The International Plant Protection Convention (IPPC) ePhyto Solution, now four years underway, allows a growing number of countries to electronically exchange ePhytos with each other.[41] Starting with four pilot countries in 2017, there are now 127 countries including four out of the 11 CAREC member countries, have adopted




For example, the UK's Electronic Trade Documents Act (EDTA) 2023 identify the five criteria for electronic trade documents as follows:

- Originality (the ability to distinguish original versus copy)
- Integrity (protection against unauthorised changes)
- Exclusive control (not more than one person to exercise control of the document at any one time)
- Identifiability (ability to identify the persons who are able to exercise control)
- Divestibility (the ability to transfer both the document and control).[88]

the IPPC ePhyto Solution.[42] ASEAN and East Asia countries, for example, have started exchanging electronic Certificate of Origin (e-C/O), electronic Phytosanitary (e-Phyto) Certificate and electronic Animal Health (e-AH) Certificate.[43]

**Considering the automating customs processes, incorporating LEIs into computerised certificates and documents can provide an additional layer of trust proof based on reliable data on organisational identity. Furthermore, the ISO 17422 standard, as revised in August 2020, allows the integration of LEIs within digital certificates to link entities' multiple certificates from different certificate schemes and issuers.[44]**

For other trade documents, which are transferable records, the course of digitalisation could be more challenging. In traditional trade, transferable records, such as a bill of lading, could move physically between the carrier, buyer, supplier and their banks. However, electronic trade documents must meet not only the content requirements but also the technical requirements.

**LEIs can prove to be useful in the generation of digital certificates, in which the use of LEI is embedded in digital certificates. Entity reference data, such as name, legal form and address, is often embedded in text strings in certificates. Certificate issuers are required to conduct manual checks to verify data accuracy. When LEIs are embedded in certificates, entity data no longer needs to be included, as LEIs are linked to entity reference data, which is verified and freely accessible on the GLEIF repository. This reduces the resource burden on the certificate issuer while ensuring consistency across certificates.[45] The use of universal, verified, and regularly updated Legal Entity reference data encoded in the LEIs will, therefore, enhance Public Key Infrastructure (PKI) Digital Certificates. Furthermore, the vLEI allows for interoperability as it supports the full range of blockchain or distributed ledger technology networks or cloud infrastructure without the need for custom implementation, cost and overhead of operation.[46]**

USE CASE 5: AEO SCHEMES

# Linkage to authorised economic operators

**AEOs enjoy various benefits, such as simplified customs procedures, reduced inspections, and mutual recognition with other countries or regions. They will require rigorous background checks of the economic operators involved, which is where the LEI comes in.**

Authorised Economic Operators (AEOs) are traders who have been approved by the customs authorities of a country or a region to comply with certain standards of security and safety in the international supply chain. AEOs enjoy various benefits, such as simplified customs procedures, reduced inspections, and mutual recognition with other countries or regions. The AEO concept is based on the Customs-to-Business partnership introduced by the World Customs Organization (WCO) as part of its Secure and Facilitate Trade (SAFE) Framework of Standards to enhance global trade facilitation and security.[47] According to the WCO (2022), there are currently 97 operational AEO programmes and 20 AEO programmes under development.[48]

To achieve the AEO status, economic operators must meet all the criteria and undergo a thorough application and authorisation process. For example, the World Trade Organization (WTO) Trade Facilitation Agreement (TFA) recommends that AEO should meet a series of financial and compliance criteria, including (i) an appropriate record of compliance with customs and other related laws and regulations; (ii) a system of managing records to allow for necessary internal controls; (iii) financial solvency, including, where appropriate, provision of sufficient security or guarantee; and (iv) supply chain security.[49]

For operators who meet specified AEO criteria, the TFA suggests easing trade facilitation measures such as low documentary and data requirements, low rate of physical inspections, and clearance at the premises of the authorised operator.[50] The TFA also encourages Members to develop AEO programmes based on international standards and to allow other Members to negotiate mutual recognition of AEO schemes. The specific benefits are contained in each individual Mutual Recognition Agreement (MRA) between countries, but in general, the benefits include some core elements, including fewer security and safety-related controls; recognition of business partners during the application process; priority treatment at customs clearance (such as expedited processing, simplified formalities and expedited release of the shipments; and business continuity mechanism in case of trade disruption due to security or emergency issues.[51]

As shown above, the AEO status requires a robust 'background' check of the economic operators involved in trade. Among other criteria, compliance records and financial solvency are important to create credibility with trade partners. However, that information pertaining to the verified AEO might not be accessible to trading partners. Additionally, there is no common identification scheme applied to identify the AEO. The WCO introduces a concept of a Trader Identifier Number (TIN) which is based on some local identifier plus a country code. This means the TIN is not standardised (e.g. no standard length, character set, etc), there is no quality program, there are no maintenance cycles. Additionally, the TIN is a siloed identifier that has no relevance outside the individual TFA meaning it serves no business purposes other than the individual data exchange between two distinct customs authorities.

In this context, linking a specific economic operator's AEO status with its LEI could work as a verifying mechanism where the economic operator's trade partners can ascertain traders' credibility following the common AEO criteria. However, this mechanism will require a regular update of the AEO list maintained by Customs Authorities. Where the AEO number is not available, customs identification numbers, such as the Economic Operators Registration and Identification (EORI) Number adopted by the EU, can be used, albeit with relatively lower credibility compared to the AEO.

# C Pay: Simplifying payment and trade finance

USE CASE 6: PAYMENTS

## Widespread use of LEI in payment

**LEI adoption could save $2–4 billion annually in client onboarding and due diligence costs for banks.**

Efficiency in payment is gained from saved efforts in client onboarding, including in conducting KYC and mandatory AML processes. Several publications have discussed the potential cost savings of using LEI in the banking and financial sector. For example, McKinsey (2020) estimates that LEI adoption could save the global banking sector $2–4 billion annually, or 5–10% of the industry's $40 billion annual overall spend on client onboarding costs, including KYC due diligence and AML compliance review.[52] SWIFT (2021) suggests that additional savings can come from adopting LEI in corporate invoice reconciliation, fraud detection, fight against vendor scams, and account-to-account owner validation.[53]

The benefits of LEI adoption for the financial and banking sectors are likely to multiply globally as many countries are mandating the use of LEI for financial transactions. As noted in the previous section, the Bank of England will consider extending the use of LEI from payment between financial institutions to all CHAPS payments. In India, from 1 April 2021, all non-individual customers initiating or receiving transactions of ₹50 crore (~$6 million) and above through the Real Time Gross Settlement (RTGS) or National Electronic Funds Transfer (NEFT) must provide an LEI within the payment message. Chinese Cross-border Interbank Payment System (CIPS) has developed the "CIPS Connector" to further the use of the LEI in cross-border transactions and facilitate cross-border trade and investment. Every CIPS Connector user is assigned an LEI, which is used for activating the tool as well as a mandatory business element in their business transaction.[54]

**Several jurisdictions have already made LEIs a requirement for lending.**

For the EU, under the proposed AML Directive, a unique identification number is required to identify a legal entity. The European Systemic Risk Board recommended the relevant authorities require or, where applicable, continue to require all legal entities involved in financial transactions under their supervisory remit to have an LEI.[55] The Committee on Payments and Market Infrastructure (CPMI) included in Building Block 16 of the Global Roadmap for Enhancing Cross-Border Payments the recommendation on a globally standardised approach supporting the global Legal Entity Identifier for legal entities and a similarly standardised identifier for individuals.[56]

Besides the requirements already implemented in the United Kingdom and India, the discussion is ongoing for the inclusion of LEI as a requirement in the ISO 20022 messaging standard. Currently, BICs are included in payment messages as a means of identification for financial institutions on the SWIFT network. The inclusion of LEI will further promote transparency and efficiency in cross-border payment.[57] ISO 20022 has already been adopted in 70 countries,[58] and SWIFT has published a roadmap to migrate the existing message, with an aim to end the coexistence between the legacy SWIFT MT standard and ISO 20022 in November 2025.[59] As a result, market participants will need to be prepared for this even if there are countries that don't mandate the LEI.

USE CASE 7: TRADE FINANCE

# Improving financial inclusion for SMEs

**LEIs speed up access to finance through better identification, faster processing of letters of credit, and facilitate access to non-traditional trade finance instruments, such as asset-based finance.**

SMEs are often heralded as the backbone of the global economy. In 2021, there were estimated to be approximately 333 million SMEs worldwide, [60] which created close to 70% of jobs and GDP worldwide.[61] However, SMEs often face more challenges in access to finance and conducting business. In this context, LEIs have the potential to make trade finance more accessible and affordable for SMEs by streamlining processes, reducing costs, accessing finance, and improving risk management and transparency.

Typically, SMEs are less well-served by their banks because of the lack of collateralised assets. Furthermore, smaller entities often struggle to maintain full business records, which help them obtain access to finance.[62] In this context, as discussed above, the LEI reduces the cost of onboarding clients for banks, which is sometimes prohibitively high for bringing in new MSME clients. For trade finance, LEIs speed up access to finance through better identification and can enable faster processing of letters of credit. Additionally, credible records, as supported by LEI, will facilitate access to non-traditional trade finance instruments, such as asset-based finance. Asset-based finance provides SMEs with an alternative for working capital and term loans by using accounts receivable or inventory as collateral.[63] This instrument can be used to bridge the company's financial gap in the cash collection cycle between buying raw materials and receiving cash for goods or services (which can range from 30 to 90 days or longer in some cases).

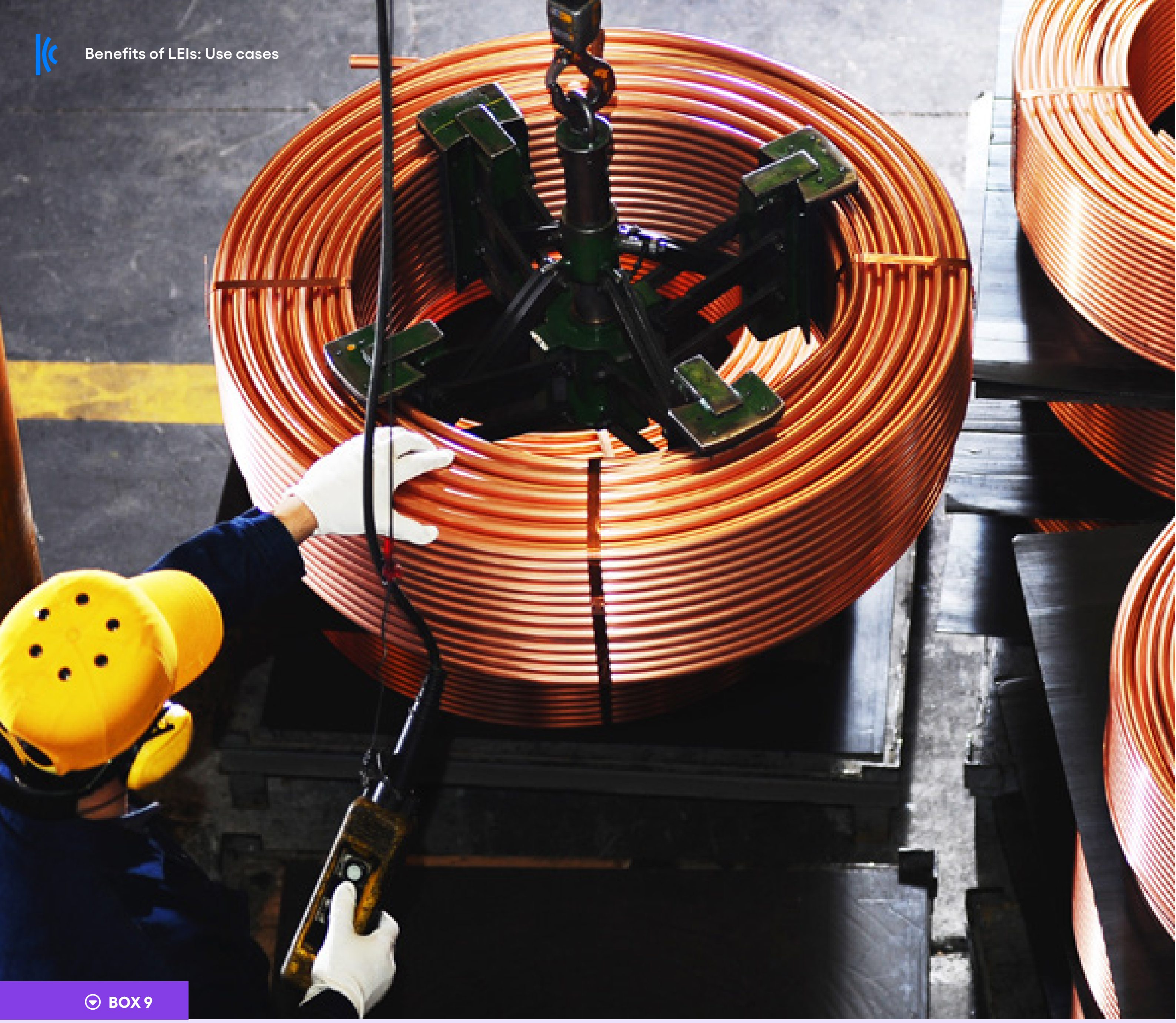
Banks cite the high cost of client onboarding and maintenance as a key challenge in obtaining more SME clients. Between 2015 and 2019, 16% of African banks cited regulatory compliance as the primary reason for rejecting trade finance applications, thus depriving SMEs of access to trade finance, or increasing the costs thereof.[64] Reducing bank costs through streamlining client onboarding and maintenance should, therefore, support SMEs' access to financial services.

BOX 8

## Citibank: LEIs as the consistent factor among millions of data points

With more than 2.7 million points of data covering all lines of businesses, including banking, lending, commercial card, etc., unique identifiers for Clients are absolutely crucial for Citi. The timeliness of the topic is confirmed by the increasing legal requirements (e.g., such as in the UK, the EU, and India), which other jurisdictions can be expected to follow suit. In this context, LEIs are relevant as they cover a broader geography and types of clients. For example, we use LEIs to match the definitive list maintained by the ECB to ensure reporting requirements. Furthermore, company registration numbers are not universal, and some jurisdictions, like New York State, did not issue company registration until four years ago. In this sense, LEI is the one point to locate among tons of data, irrespective of the geographical location of the clients.

For asset management funds that manage large portfolios of client accounts/legal vehicles, by having LEIs, they can see a huge reduction in misbooked trade/payments to the wrong account due to the truncated names of clients. This would help to save time and money massively, regardless of clients' name changes over the years. As such, LEIs can be seen as the consistent factor or the searchable registry for client identification. Large financial institutions like Citi always work toward compliance by staying one step ahead, and we ensure this by having LEIs to meet reporting requirements, especially when the existing clients move from one sector to derivatives (regulated market).



BOX 9

## Copperwares: LEIs boosted trade finance and growth for SMEs

Copperwares is a Zimbabwean manufacturer of copper and silver goods, operating for 61 years. Despite its long history and potential market, the company faced challenges in accessing overseas credit and trade finance, as foreign lenders and trade partners did not know the company well enough.

To overcome this problem, Copperwares obtained a Legal Entity Identifier (LEI), a unique 20-character code that provides verified information about a company's identity, ownership, and structure. The LEI was issued for free by the GLEIF, with the help of a local bank that conducted the necessary due diligence checks.

By having an LEI, Copperwares was able to reduce the risk for overseas counterparties and access cheaper, more flexible funding. This enabled the company to produce more, employ more people, offer better prices, and boost its market share. The company estimated that the market for its products in southern Africa was at least $15 million and had the potential to double in size.

Copperwares is one of the first mid-sized African companies to get an LEI, and its success story shows how LEIs can help close the trade finance gap in Africa and support greater financial inclusion and growth.

**Source:** Reuters (2021) Who are you? African firms eye trade boost from global business card

# D A foundational block to digitalise trade supply chains

Key identifiers of the entities behind trade documents are required when envisioning a fully digitised future trade process characterised by a transformative shift from traditional, paper-intensive procedures to a streamlined, efficient, and technologically advanced system.

All trade-related documents, such as invoices, bills of lading, and certificates of origin, are digitised and accepted by all parties across borders, thus eliminating the need for physical paperwork. Secure technology ensures the authenticity and integrity of digital documents, reducing the risk of fraud.

Smart contracts are used to streamline contract management and reduce manual interventions by automatically executing predefined actions when specific conditions are met. Internet of Things (IoT) devices are integrated into shipping containers, providing real-time tracking of goods throughout the supply chain. Stakeholders have access to a platform offering complete visibility into the status and location of shipments.

Digital trade platforms bring together all stakeholders, fostering collaboration and communication among exporters, importers, logistics providers, financial service providers, and regulatory authorities. The integration of trade platforms with financial platforms facilitates seamless and secure digital payments. Secure digital identities for businesses and individuals streamline the authentication process, ensuring a high level of security in online transactions. Furthermore, authentication and advanced encryption techniques safeguard sensitive trade information.

Customs clearance decisions are optimised using machine learning, improving efficiency and reducing delays. Automation tools handle routine tasks, such as customs declarations and compliance checks, improving accuracy and efficiency. AR and VR technologies enable remote inspections, reducing the need for physical presence during quality checks and inspections.

Standardised data formats and protocols facilitate smooth data exchange between systems. Sustainability criteria are embedded into the trade process, with global standards adopted widely on monitoring and reporting the environmental impact of trade activities, thus encouraging eco-friendly practices and supporting green initiatives. AI algorithms analyse vast amounts of trade data, offering predictive insights into market trends, demand forecasting, and potential risks.

**In a fully digitised future trade process, LEIs play a crucial role in enhancing transparency, traceability and security across the entire trade ecosystem.**

Organisational identity is the foundational layer that needs to be solved to enable these information flows. Since LEIs serve as unique, standardised identifiers for legal entities engaged in trade, LEIs are critical for the verification and authentication process, ensuring that each participant's identity is verified with a high level of accuracy. Business entities can use their LEIs for secure logins, access to digital trade platforms, and authentication in electronic transactions (in combination with secure authentication techniques). Smart contracts can use LEI references in the automatic enforcement of contractual obligations.

In digital trade documents, such as commercial invoices and bills of lading, LEIs can complement traditional identifiers, providing a standardised and globally recognised format.

Digital documents with embedded LEIs contribute to the accuracy of records and facilitate seamless data exchange between stakeholders. LEIs contribute to efficient data management by reducing redundancy and ensuring a consistent format for entity identification. They enable businesses to manage their trade-related data more effectively by trade partners, leading to improved data quality and accuracy.

LEIs are used to support proof of compliance with regulatory requirements, risk management and due diligence in digital trade. The integration of LEIs in reporting allows authorities to streamline the monitoring of international trade activities. Businesses and financial institutions can use LEIs to identify trade partners on available portals to easily seek information to assess the financial stability and creditworthiness of their trade partners, enhancing decision-making processes.

LEIs contribute to interoperability among various digital trade platforms and systems by allowing cross-references and pooling of standardised data pertaining to parties. They also enhance supply chain visibility by uniquely identifying entities at each stage of the supply chain. This visibility enables real-time tracking and monitoring, allowing stakeholders to make informed decisions based on accurate and up-to-date information.

The below provides an assessment of the LEI applicability, the level of impact, and the time to realise the impact under a digitised trade scenario. The time to impact will be different considering the changes to the legacy institutional and technical set-up of the different stakeholders involved, whereby changes to the financial/payment-related steps might be quicker considering the current relatively higher level of LEI adoption in this sector. On the other hand, changes to the current procedures led by government agencies, such as issuing certifications, will take a longer time to implement, but once done, they can have a notable impact on easing trade.

TABLE 2

## The level of impact and time to impact of LEIs for trade digitalisation

| Steps | Level of effort (time) | Level of impact of LEI | Time to impact | Overall effectiveness |
|---|---|---|---|---|
| Vendor on-boarding | High | High | Short | Medium |
| Sale contract | Medium | Low | Short | Medium |
| Apply for export/ import permit | Medium | High | Long | Medium |
| Apply for C/O & certifications | High | High | Long | Medium |
| Apply for cargo insurance | Low | High | Medium | High |
| Customs declaration for export | Low | High | Long | Medium |
| Obtain L/C | High | High | Short | High |
| Prepare L/C payment documents | High | High | Medium | Medium |
| Arrange payment | Low | High | Short | High |

**Legend** Low Medium High Long Short

**Source:** Author's; Note: the overall effectiveness is assessed based on the level of impact and time to impact.

# Conclusion

5

# Conclusion

**LEIs represent a viable solution for global trade digitalisation thanks to their uniqueness and open access model built on globally recognised standards.**

Serving as universally distinctive identifiers for businesses, LEIs ensure accurate and standardised identification in digital transactions. Their adoption facilitates secure authentication and streamlines documentation, enhances transparency, and supports the ongoing evolution toward a fully digitised global trade ecosystem.

Like all standards, the LEI would need to be adopted by all entities involved in cross-border transactions to yield its full benefits via network effect. These will require uptake from public entities, including business registrations, customs and tax offices, bank and financial institutions, and AML/KYC directories to all economic operators along the supply chains. Only then can truly comprehensive and meaningful portfolios of information be successfully constructed.

The banking and financial sector is a logical start for LEI adoption, as most rigorous due diligence is conducted at the payment stage. In supply chain finance, LEI can be utilised to identify and the vLEI can be used to authenticate the myriad legal entities involved in the supply chain. However, businesses, especially SMEs, stand to benefit from a more transparent trading environment, reduced risks associated with cybersecurity and identify crimes, and promote greater confidence in their own identity for third parties when dealing with cross-border transactions. LEI can play a crucial role in modern supply chains by promoting transparency, reducing risks, and improving the efficiency of processes. Its adoption can be expected to grow as regulators and market participants recognise its benefits in various operations.

SMEs are generally disadvantaged in terms of access and resources to benefit from trade and trade finance. More awareness of simple solutions, such as the LEI to speed up on-boarding and lower identity risks, could encourage uptake by SMEs. Linking existing schemes and service layers to access information via the LEI on sanctioning, ownership, trade, and financial performance will enhance the added value of LEIs, therefore expanding usership. These added-value service layers will also help to reduce the currently high cost of SME client onboarding and maintenance for banks and financial institutions, thus enhancing SMEs participation in trade and trade finance.

LEIs complement other public and private, open, and closed entity identification schemes, all contributing to visibility and transparency across global supply chains. The LEI simplifies the concept of organisational identity by providing accessible identity reference data and can act as a "connector" to other specific-purpose identifiers.[65] As discussed in above, the mapping of BIC-to-LEI or S&P Company ID-to-LEI demonstrates the ability of different identification schemes to co-exist to pool the power of these schemes in supporting entity's data management and reporting processes.

There is a need to promote the trade ecosystem and interoperability among the existing and any future systems. Without this, there is a risk of 'identity silos',[66] increasing costs and reducing efficiency of these schemes. All supply chain actors would benefit from a consistent reference to established identifier standards, which provide systematic identification of legal entities and associated people. This interoperability will allow more efficient linking, sharing, reporting and reusing of high-quality, reliable data transmitted across systems.

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